

TencentDB for MySQL

FAQs

Product Documentation



Copyright Notice

©2013-2019 Tencent Cloud. All rights reserved.

Copyright in this document is exclusively owned by Tencent Cloud. You must not reproduce, modify, copy or distribute in any way, in whole or in part, the contents of this document without Tencent Cloud's the prior written consent.

Trademark Notice



All trademarks associated with Tencent Cloud and its services are owned by Tencent Cloud Computing (Beijing) Company Limited and its affiliated companies. Trademarks of third parties referred to in this document are owned by their respective proprietors.

Service Statement

This document is intended to provide users with general information about Tencent Cloud's products and services only and does not form part of Tencent Cloud's terms and conditions. Tencent Cloud's products or services are subject to change. Specific products and services and the standards applicable to them are exclusively provided for in Tencent Cloud's applicable terms and conditions.

Contents

FAQs

- Billing

- Backup

 - Common Issues

 - Failure Reasons

- Rollback

- Connection and Login

 - One-Click Connectivity Checker

 - Connection and Login

 - Instance Disconnection

 - Prohibition of Ping Command

 - Connection

- Parameter Modifications

- Account Permissions

- Instance Upgrade

 - Instance Upgrade

 - Kernel Upgrade

- Memory Performance

 - Performance

 - Memory Allocation

 - High CPU/Memory Utilization

- OPS

 - Sync Delay

 - OPS

- Data Migration

- Feature

- Console Operation

<https://main.qcloudimg.com/raw/f0618995c7b9f4821c0d4f18ce4a6f45.png>

FAQs

Billing

Last updated : 2020-09-14 11:35:47

How do I request a refund for a purchased instance if I don't need it anymore?

You can request a refund based on your instance type:

- Pay-as-you-go instance: TencentDB for MySQL will return resources directly. Refunds cannot be requested.

For more information, please see [Refunds](#).

Will Tencent Cloud charge for pay-as-you-go instances if they are idle?

Yes. If you stop using pay-as-you-go resources, please terminate them as soon as possible to avoid further fees.

How is the backup capacity billed?

TencentDB for MySQL offers a certain amount of backup capacity for free based on the region. The capacity is equivalent to the sum of the storage capacity of all high-availability edition and finance edition instances (including source and disaster recovery instances) in the region.

Excessive backup capacity will be charged at 0.000127 USD/GB/hour in the Chinese mainland. For prices for regions outside of the Chinese mainland, please see the [TencentDB for MySQL Price Calculator](#).

To reduce backup costs, please see **Suggestions for Reducing Backup Costs** in [Backup Space Billing](#).

Backup

Common Issues

Last updated : 2020-06-19 16:14:30

How is backup capacity billed?

TencentDB for MySQL offers a certain amount of backup capacity free of charge based on the region, which is equivalent to the sum of storage capacity of all high-availability edition and finance edition instances (including master and disaster recovery instances) in the region.

For pricing details about backup capacity exceeding the free tier, see [TencentDB for MySQL Price Calculator](#).

How can I reduce the backup capacity cost?

- Delete manual backups that are no longer used (you can do so via "Instance Management" > "Backup and Restore" page in [TencentDB for MySQL Console](#)).
- Reduce the frequency of automatic data backup for non-core businesses (you can adjust the backup cycle and retention period in the console, and the frequency should be at least twice a week).

The [rollback feature](#) relies on the backup cycle and retention days of data backup and log backup (binlog). The rollback time for instance data will be affected if you reduce the automatic backup frequency and retention period. Please configure them properly as needed.

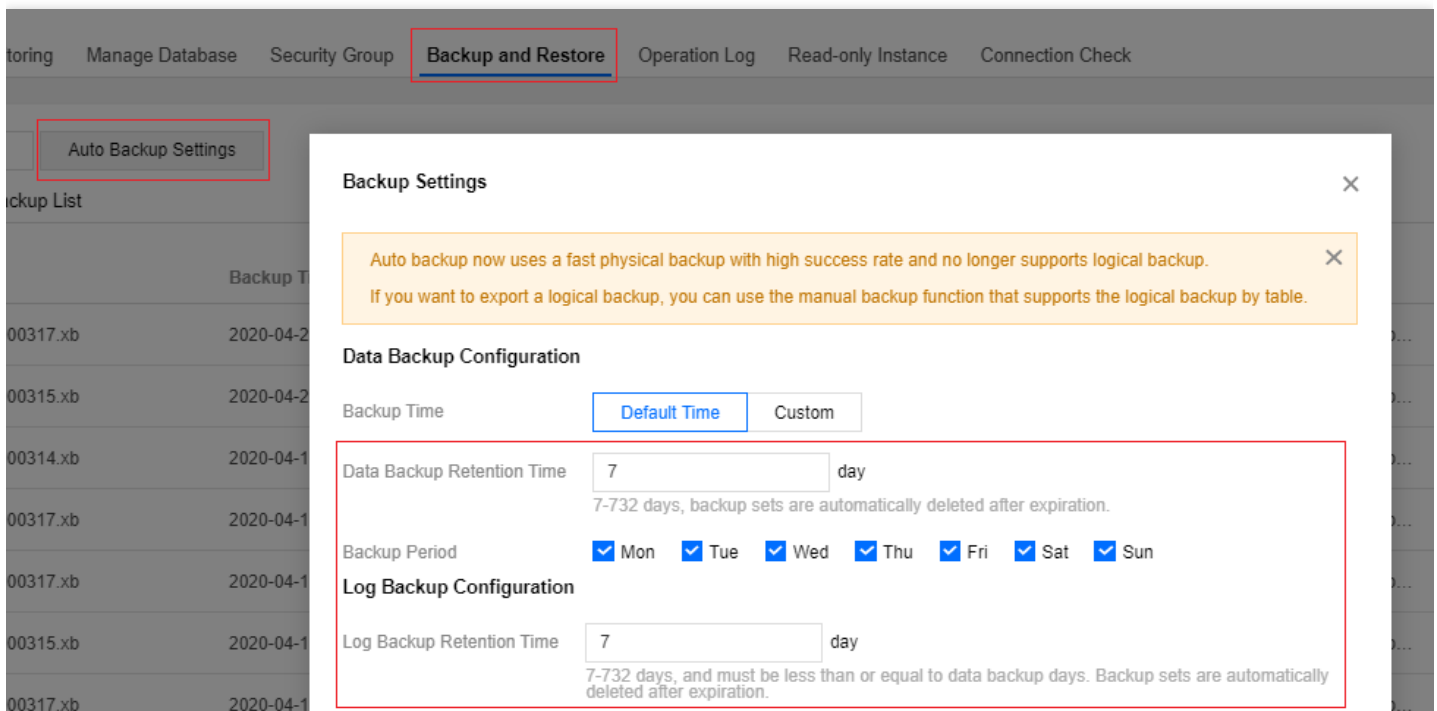
- Reduce the retention period of data and log backups for non-core businesses (7-day retention period can meet the requirements in most scenarios).

Business Scenario	Recommended Backup Retention Period
Core businesses	7-732 days
Non-core and non-data businesses	7 days
Archive businesses	7 days. We recommend that you manually back up data based on business needs and delete it promptly after use.

Business Scenario	Recommended Backup Retention Period
Testing businesses	7 days. We recommend that you manually back up data based on business needs and delete it promptly after use.

How do I configure automatic backup?

You can configure it on the instance backup and restore page in [TencentDB for MySQL Console](#).



The screenshot shows the 'Backup and Restore' configuration page in the TencentDB for MySQL console. The 'Auto Backup Settings' sub-tab is selected. A modal window titled 'Backup Settings' is open, displaying the following configuration options:

- Backup Time:** Default Time (selected) or Custom.
- Data Backup Configuration:**
 - Data Backup Retention Time:** 7 day. (7-732 days, backup sets are automatically deleted after expiration.)
 - Backup Period:** Mon, Tue, Wed, Thu, Fri, Sat, Sun (all days are selected).
- Log Backup Configuration:**
 - Log Backup Retention Time:** 7 day. (7-732 days, and must be less than or equal to data backup days. Backup sets are automatically deleted after expiration.)

How do I back up data on my own?

TencentDB for MySQL instances are fully backed up on a daily basis. For more information, see [Backup Mode](#). You can also back up data by the following methods:

- Use mysqldump.
- Use a third-party tool, such as Navicat Premium.
- [Log in to phpMyAdmin](#) and click **Export** on the navigation bar at the top.

How do I restore or migrate a basic edition instance backup?

- Basic edition instance only supports snapshot backup. For more information, please see [Data Migration with Command Line Tool](#).

Why does an error occur when I download data backup files?

You can use the `wget -c 'backup file download address' -O custom filename.xb` command for download. Note that the download address should be placed inside a pair of single quotation marks (') for the program to identify.

Can I restore the downloaded backups to another TencentDB for MySQL instance?

No. We recommend that you [use DTS to migrate a MySQL instance](#).

How do I delete backup data?

- Automatic backup data cannot be deleted manually.
- Manual backup data can be deleted manually in the MySQL console.
 - i. Log in to the [TencentDB for MySQL Console](#), click an instance name to enter the management page, and select the **Backup and Restore** tab.
 - ii. Click **Delete** in the "Operation" column in the backup list.

How do I cancel a backup task?

A running backup task cannot be canceled.

What should I do if the backup download is slow?

We recommend that you copy the download address on the instance backup and restore page in [TencentDB for MySQL Console](#), log in to a (Linux) CVM instance in the same VPC as the TencentDB instance, and run the `wget` command for high-speed download over the private network.

```
wget command format: wget -c 'backup file download address' -O custom filename.xb
```

Can I download or restore backup files that exceed the retention period?

Expired backup sets will be deleted automatically and cannot be downloaded or restored.

- We recommend that you configure a backup retention period based on business needs or download the backup files locally via [TencentDB for MySQL Console](#).
- You can also manually back up instance data in the console. Manual backup will be retained permanently.

Manual backup will also take up the backup capacity. Please use the backup capacity properly to avoid extra fees.

Can I disable data and log backups?

No. However, you can reduce the backup frequency and delete manual backup no longer used via [TencentDB for MySQL Console](#) to lower the capacity usage.

Why cannot I initiate a manual backup task?

Please check the automatic backup time you configured. If the instance is performing the daily automatic backup, you cannot initiate a manual backup task.

Why cannot I logically back up and download by tables?

After the [backup](#) feature was upgraded, both logical and physical backup adopt the new compression algorithm, and some download features may be currently unavailable. To perform logical backups by tables, you can select **Logical backup** > **Specify table** in manual backup and download the completed backup file.

Why cannot a downloaded backup file be unpacked/decompressed with tar?

Because backup files in the latest version adopt a new compression algorithm, they cannot be unpacked/decompressed using the original tar tool. Instead, xstream and qpress are required.

For details about how to unpack/decompress with xstream and qpress, please see [Restoring Database from Physical Backup](#) and [Restoring Database from Logical Backup](#).

```
qpress -d test_import_57_backup_20181114115236.sql.qp
```

The complete backup file can be obtained, such as `test_import_57_backup_20181114115236.sql`.

How do I download xstream and qpress?

- xstream is a subprogram of Percona XtraBackup. To use it, you need to install Percona XtraBackup from binaries or `yum` repositories.
- Download qpress [[here](http://www.quicklz.com/)](http://www.quicklz.com/) and extract the qpress binary files by running the tar command:

For more information on XtraBackup and qpress installation, see [[Restoring Database from Physical Backup](https://intl.cloud.tencent.com/document/product/236/31910)](https://intl.cloud.tencent.com/document/product/236/31910)

How do I view binlogs in MySQL?

- Download binlogs from the console locally to, for example, the CVM instance.
- View them using the mysqlbinlog command. For the local server to view binlogs, MySQL v5.6 requires mysqlbinlog v3.4 or higher.

How do I sync real-time data in two instances with an intra-city active-active architecture configured?

You can purchase [disaster recovery instances](<https://intl.cloud.tencent.com/document/product/236/7272>) in the TencentDB for MySQL Console.

Failure Reasons

Last updated : 2020-02-20 12:31:37

The number of tables in a single instance exceeds 1 million

When the number of tables in a single instance exceeds 1 million, it may cause backup failure and affect database monitoring. Please regulate the number of tables reasonably and control the number of tables in a single instance to no more than 1 million.

Large transactions caused by non-primary key tables

Cause analysis

When there is no primary key table in the instance and the binlog is in row format, when a sql updates / deletes a large amount of data, playback on the slave machine will cause a large transaction, resulting in the backup thread unable to acquire the lock, resulting in backup failure.

Treatment scheme

1. Check all the non-primary key tables that exist in the instance through sql.

```
select TABLE_SCHEMA, TABLE_NAME, TABLE_TYPE, ENGINE, TABLE_ROWS from information_schema.tables where (table_schema, table_name) not in (select table_schema, table_name from information_schema.columns where COLUMN_KEY='PRI') and table_schema not in ('sys', 'mysql', 'information_schema', 'performance_schema');
```

2. Add a primary key to a table without a primary key.

```
alter table table_name add primary key(`column_name`);
```

Rollback

Last updated : 2020-06-09 11:19:15

How do I recover accidentally deleted data in TencentDB for MySQL?

- Data can be recovered through rollback. TencentDB for MySQL allows you to roll back databases or tables to any time point within the backup period. For more information, please see [Data Rollback](#).
- XtraBackup can be used to restore MySQL physical backup files to CVM-based self-created databases. For more information, please see [Restoring Database from Physical Backup](#).
- XtraBackup can be used to restore MySQL logical backup files to CVM-based self-created databases. For more information, please see [Restoring Database from Logical Backup](#).

How do I recover accidentally dropped databases or tables in TencentDB for MySQL?

Data can be recovered through rollback. TencentDB for MySQL allows you to roll back databases or tables to any time point within the backup period. For more information, please see [Data Rollback](#).

If the database or table to be rolled back has been dropped, you need to log in to the TencentDB instance and create a database or table with the same name as before first before performing rollback in the console.

If I accidentally delete some data that hasn't been backed up when performing a stored procedure in TencentDB for MySQL, can I restore the data?

With the rollback feature in the console, you can restore the data to any point in time within the backup period.

Will the current table data be overwritten during a rollback in TencentDB for MySQL?

A rollback operation will generate a new database or table in the original instance. Upon the completion of rollback, you can see both the new and original databases or tables. The new database or table after rollback are named "original database or table name_bak".

How do I query the real-time rollback progress and log when a TencentDB for MySQL rollback operation is underway?

You can query rollback progress and log during rollback in real time. For more information, please see [Data Rollback](#).

Connection and Login

One-Click Connectivity Checker

Last updated : 2020-10-22 16:34:33

If you are unable to access a TencentDB for MySQL instance over the private or public network, you can use the connectivity checker to easily troubleshoot connectivity issues.

Private Network Connectivity Check

If you encounter a connectivity issue when accessing a TencentDB for MySQL instance from a CVM instance over the private network, you can use the connectivity check tool provided in the TencentDB for MySQL Console to easily troubleshoot the issue.

1. Log in to the [MySQL Console](#), locate the desired instance and click its name to enter the instance management page.
2. Select the **Connection Check** tab.
3. When troubleshooting a private network connectivity issue, click **Add a CVM instance that accesses this instance** to add a CVM instance accessing this TencentDB for MySQL instance.

Note :

Only CVM instances in the same region as the TencentDB for MySQL instance are listed by default. If you need cross-region access, enable network interconnection through a [peering connection](#).

Private Network Check Public Network Check

Instance ID: cdb-qak9w3yf Instance Name: kaylal_cdb238160 Private IP: [redacted] Network: Default-VPC - Default-Subnet

No problem found

Normal

Connection check helps you detect possible connection and access problems in the database, and provides suggested solutions to ensure your database can be accessed.

[Start check](#) Last check time: 2019-11-13 16:25:57

[Add CVMs that can access this instance](#)

CVM Name	Private IP	Network	Status	Operation
----------	------------	---------	--------	-----------

4. After the addition, click **Start Check** and a check report will be generated after the check is completed.

Private Network Check Public Network Check

Instance ID: cdb-qak9w3yf Instance Name: kaylal_cdb238160 Private IP: 172.16.0.10 Network: Default-VPC - Default-Subnet

No problem found

Connection check helps you detect possible connection and access problems in the database, and provides suggested solutions to ensure your database can be accessed.

Normal Start check Last check time: 2019-11-13 16:25:57

Add CVMs that can access this instance

CVM Name	Private IP	Network	Status	Operation
ins-qcmod8w Unnamed	172.16.0.8	Default-VPC - Default-Subnet	Normal	Delete View Report

5. In the "Status" column of the check report, click **View Report** to view the check result.
 - If the check status is **Normal**, it means that the CVM instance is allowed to access this TencentDB for MySQL instance over the private network.
 - If the check status is **Exceptional**, it means that the CVM instance cannot access the TencentDB for MySQL instance over the private network. In this case, see the **Suggestion** in the exceptional check item for solution. For more information, see [FAQs About Instance Connectivity Issues](#).

Report Details ✕

CVM Name Unnamed

Check item	Status	Impact	Handling suggestions
MySQL Instance Status	Normal	--	--
CVM instance status	Normal	--	--
CVM and MySQL are under the same VPC	Normal	--	--
CVM security group policy	Normal	--	--
MySQL security group policy	Normal	--	--

5 in total

OK

Public Network Connectivity Check

If you encounter a connectivity issue when accessing a TencentDB for MySQL instance from a server over the public network, you can use the connectivity checker provided in the TencentDB for MySQL Console to easily troubleshoot the issue.

1. Log in to the [MySQL Console](#), locate the desired instance and click its name to enter the instance management page.
2. Select **Connection Check > Public Network Check**.
3. When troubleshooting a public network connectivity issue, click **Add a public network server that accesses this instance** to add a server accessing this TencentDB for MySQL instance.
4. After the addition, click **Start Check** and a check report will be generated after the check is completed.

The screenshot shows the 'Public Network Check' interface in the TencentDB for MySQL console. At the top, there are tabs for 'Private Network Check' and 'Public Network Check'. Below the tabs, there is a header section with instance details: Instance ID (cdb-qak9w3yf), Instance Name (kaylal_cdb238160), Public Network Address (Enable), and Network (Default-VPC - Default-Subnet). The main content area shows a red circular icon with the word 'Abnormal' inside, followed by the text '1 issue(s) found'. Below this, there is a blue button labeled 'Start check' and a note that the last check time was 2019-11-13 16:28:29. A blue button labeled 'Add an external server to access this instance' is also visible. At the bottom, there is a table with the following data:

Public Network Server Address	Status	Operation
127.0.0.1	Abnormal	Delete View Report

5. In the "Status" column of the check report, click **View Report** to view the check result.
 - If the check status is **Normal**, it means that the server is allowed to access this TencentDB for MySQL instance over the public network.
 - If the check status is **Exceptional**, it means that the server cannot access the TencentDB for MySQL instance over the public network. In this case, see the **Suggestion** in the exceptional

check item for solution. For more information, see [FAQs About Instance Connectivity Issues](#).

Report Details ✕

Public Network Server Address 127.0.0.1

Check item	Status	Impact	Handling suggestions
MySQL Instance Status	Normal	--	--
Internet Access Status	Abnormal	The MySQL instance cannot be accessed via public network server	Your MySQL instance does not enable public network Please refer to here for processing.

2 in total

[OK](#)

Connection and Login

Last updated : 2020-07-22 10:49:17

How do I access a TencentDB for MySQL instance?

TencentDB for MySQL can be accessed in the following methods:

Method	Description
Private network access	<p>A CVM instance can be used to access the private network address of a TencentDB instance. This access method relies on the high-speed private network of Tencent Cloud and features low delay.</p> <ul style="list-style-type: none">The two instances must be under the same account and in the same VPC in the same region or both must be in the classic network.
Public network access	<p>If you cannot connect to the private network, you can access your TencentDB for MySQL instance at its public network address.</p> <ul style="list-style-type: none">The public network address needs to be manually enabled. It can be viewed on the instance details page in the TencentDB for MySQL Console and can be disabled if no longer needed.

For more information, please see [Accessing MySQL Database](#).

How do I query the private/public network address?

Log in to the [TencentDB for MySQL Console](#), click an instance name in the instance list to enter the instance details page, and view the private/public network address.

Can I use a CVM instance to access the private network address of a TencentDB for MySQL instance?

Yes. To do this, the two instances must be under the same account and in the same [VPC](#) in the same region or both must be in the classic network. For more information, please see [Accessing MySQL Database](#).

- You can log in to the [CVM Console](#), and view the network information of a CVM instance in the instance list or on the instance details page.
- You can log in to the [TencentDB for MySQL Console](#), and view the network information of a MySQL instance in the instance list or on the instance details page.

Note :

CVM and TencentDB instances in different VPCs (under the same or different accounts in the same or different regions) can be interconnected over private network through [Peering Connection](#).

Can I use a CVM instance to access the private network address of a TencentDB for MySQL instance when they are in different availability zones in the same region?

Yes. To do this, the two instances must be under the same account and in the same [VPC](#) in the same region or both must be in the classic network. For more information, please see [Accessing MySQL Database](#).

- You can log in to the [CVM Console](#), and view the network information of a CVM instance in the instance list or on the instance details page.
- You can log in to the [TencentDB for MySQL Console](#), and view the network information of a MySQL instance in the instance list or on the instance details page.

Note :

CVM and TencentDB instances in different VPCs (under the same or different accounts in the same or different regions) can be interconnected over private network through [Peering Connection](#).

Can I use a CVM instance to access the private network address of a TencentDB for MySQL instance when they are under the same account but in different regions?

No. However, CVM and TencentDB instances in different VPCs (under the same or different accounts in the same or different regions) can be interconnected over private network through [Peering Connection](#).

You can also access your TencentDB for MySQL instance at its public network address. For more information, please see [Accessing MySQL Database](#).

Can I use a CVM instance to access the private network address of a TencentDB for MySQL instance when they are in the same region but under different accounts?

No. However, CVM and TencentDB instances in different VPCs (under the same or different accounts in the same or different regions) can be interconnected over private network through [Peering Connection](#).

You can also access your TencentDB for MySQL instance at its public network address. For more information, please see [Accessing MySQL Database](#).

What should I do if I have slow access over the public network?

We recommend that you use a CVM instance to access the private network address of a TencentDB instance. This access method relies on the high-speed private network of Tencent Cloud and features low delay. The two instances must be under the same account and in the same [VPC](#) in the same region or both must be in the classic network. For more information, please see [Accessing MySQL Database](#).

Note :

CVM and TencentDB instances in different VPCs (under the same or different accounts in the same or different regions) can be interconnected over private network through [Peering Connection](#).

How do I access a TencentDB for MySQL instance when my CVM and TencentDB for MySQL instances are deployed in the same region?

If the CVM and TencentDB instances are under the same account and in the same [VPC](#) in the same region or both are in the classic network, we recommend that you use a CVM instance to access the private network address of a TencentDB instance. This access method relies on the high-speed private network of Tencent Cloud and features low delay. For more information, please see [Accessing MySQL Database](#).

Note :

CVM and TencentDB instances in different VPCs (under the same or different accounts in the same or different regions) can be interconnected over private network through [Peering Connection](#).

How do I access a TencentDB for MySQL instance when my CVM and TencentDB for MySQL instances are deployed in different regions?

In this case, use the public network for access. For more information on the connection method, please see **Appendix 1. Enabling Public Network Access** in [Accessing MySQL Database](#).

How do I troubleshoot connection issues in TencentDB?

If a connection or login issue occurs on your TencentDB instance, use `telnet` first to verify the network and port connectivity of the instance and then log in to it via the command line in CVM:

Note :

The instance account is "root" by default, and the password is the account password configured during instance initialization.

```
mysql -h [TencentDB instance IP] -P[TencentDB instance port] -uroot -p[TencentDB instance password]
```

The following are common errors and solutions:

- If "ERROR 1045(28000):Access denied for user..." is displayed, check whether the instance account and password entered are correct. If you forgot the password, you can [reset it](#). If the error persists after you enter the correct information again, log in to the [TencentDB for MySQL Console](#), click an instance name to enter the instance details page, select **Database Management** > **Manage Account** to check whether restrictions are imposed on the IP accessing your instance.
- 2. The message "ERROR 1040(00000):Too many connections" indicates that the number of current connections to the TencentDB instance exceeds the limit. The common reasons and solutions are as follows:
 - i. There are too many sleeping threads. We recommend lowering the values of `wait_timeout` and `interactive_timeout` in the console.
 - ii. Slow query log has heaped up. The `long_query_time` parameter is 10s by default. We recommend changing it to 1-2s and then observe slow query logs.
 - iii. If there are few sleeping threads and no slow logs heaped up, we recommend increasing the value of the `max_connections` parameter in the console.
- 3. If "ERROR 2003 (HY000): Can't connect to MySQL server..." is displayed, check whether the instance IP and port entered are correct. If the error persists after you enter the correct information again, check the security group policies of the instance in the console to verify whether CVM has the permission to access TencentDB. For more information, see [TencentDB Security Group](#).
- 4. If the connectivity test fails during data migration, check whether the security policy allows the prompted migration proxy IP.
- 5. Check the `init_connect` parameter (if set), such as `mysql>set global init_connect='insert into db_monitor.accesslog(thread_id,log_time,localname,matchname) values(connection_id(),now(),user(),current_user());'` .
This means that each connection to the database by each non-super-privileged user will insert an entry into the `db_monitor.accesslog` table. Once there are uncommitted transactions or relevant lock waits in the table, then "insert into `db_monitor.accesslog`" operations will be jammed, causing

all connections by non-super-privileged users to be stuck and affecting the normal use of TencentDB. Therefore, please configure the `init_connect` parameter with caution.

Instance Disconnection

Last updated : 2019-12-30 15:45:40

Different Network Types

If the networks of a CVM instance and a TencentDB for MySQL instance are of different types, the former cannot access the latter directly over the private network.

The CVM instance uses a VPC, while the TencentDB for MySQL instance uses the basic network

- Solution 1 (**recommended**): Switch the TencentDB for MySQL instance from basic network to VPC.

- After the switch, both instances must reside in the same VPC before they can interconnect over the private network.
- The switch from basic network to VPC is irreversible.
- After the switch, VPC access will take effect immediately. The original basic network access will be retained for 24 hours; therefore, other instances associated to the TencentDB for MySQL instance should be migrated to VPC within 24 hours so as to guarantee uninterrupted access.

- Solution 2: Purchase a new CVM instance that resides in the basic network (the existing CVM instance cannot be migrated from VPC to basic network). However, VPC is more secure than basic network and thus highly recommended.
- Solution 3: Connect the CVM instance to the public network address of the TencentDB for MySQL instance. This solution has poor performance, security, and stability, so you are recommended to use VPC.

The CVM instance uses the basic network, while the TencentDB for MySQL instance uses a VPC

- Solution 1 (**recommended**): Migrate the CVM instance from basic network to VPC. For more information on directions, see [CVM Migration Sample](#).

- After the switch, both instances must reside in the same VPC before they can interconnect over the private network.
- You need to unbind private/public network CLB instances and ENIs and release auxiliary IPs of the primary ENI before migration and bind them again after migration.

- The CVM instance will be restarted during migration. Do not perform other operations on it.
- Check the instance status after migration and verify whether private network access and remote login work properly.

- The switch from basic network to VPC is irreversible. After the switch to a VPC, the CVM instance cannot communicate with Tencent Cloud services in basic network.
- Solution 2: Use Classiclink.
- Solution 3: Connect the CVM instance to the public network address of the TencentDB for MySQL instance. This solution has poor performance, security, and stability, and you are recommended to use VPC.

Different VPCs

By default, the CVM and TencentDB for MySQL instances can interconnect over the private network only if they are in the same VPC. If they are in different VPCs, interconnection over the private network can be achieved in the following ways:

- Solution 1 (**recommended**): Migrate the TencentDB for MySQL instance to the VPC where the CVM instance resides.
For more information on directions, see [Network Switch](#) for TencentDB for MySQL.
- Solution 2: Create a peering connection between the two VPCs.
Otherwise, the instances can only interconnect over the public network, which has poor performance, security, and stability.

Incorrect Security Group Configuration

If the security group of the CVM instance and the TencentDB for MySQL instance are incorrectly configured, the former cannot access the latter directly over the private or private network.

The security group of the CVM instance is incorrectly configured

To enable the CVM instance to access the TencentDB for MySQL instance over the private network, you need to configure an outbound rule in the security group of the CVM instance. **If the destination of the outbound rule isn't 0.0.0.0/0 and the protocol port isn't ALL**, the private IP and port of the TencentDB for MySQL instance should be added to the rule.

1. Go to the [security group](#) page in the CVM Console and click the name of the CVM-bound security group to enter its details page.
2. On the **Outbound Rules** tab, click **Add Rule**.
Enter your IP address (or range) and port to be opened (private network address of the TencentDB for MySQL instance) and select "Allow".

The security group of the TencentDB for MySQL instance is incorrectly configured

To enable the CVM instance to access the TencentDB for MySQL instance over the private or public network, you need to configure an inbound rule in the security group of the TencentDB for MySQL instance. **If the source of the inbound rule isn't 0.0.0.0/0 and the protocol port isn't ALL**, the private or public client IP and port of the CVM instance should be added to the rule.

1. Go to the [security group](#) page in the CVM Console and click the name of the TencentDB for MySQL-bound security group to enter its details page.

2. On the **Inbound Rules** tab, click **Add Rule**.

Enter the allowed IP address (or range) and port to be opened (private network port of the TencentDB for MySQL instance) and select "Allow".

- TencentDB for MySQL uses private network port 3306 by default and supports customizing the port. If the default port is changed, the new port should be opened in the security group.
- For public network access to the TencentDB for MySQL instance, port 3306 of the instance should be opened in the inbound rule of the security group.
- In addition, the public client IP address should be added to the inbound rule of the security group.

Prohibition of Ping Command

Last updated : 2020-06-29 17:10:04

Problem Description

To protect TencentDB from DDoS attacks, TencentDB for MySQL prohibits the ping command from being used to check the network connectivity of a private network address by default.

Note :

You can use the ping command to check the network connectivity of a public network address.

Solution

We recommend troubleshooting and locating network connectivity problems quickly with the telnet command.

- **The command format is as follows:**

```
telnet private/public IP address private/public port
```

- **After the command is executed, network access status is as follows:**

- Normal network access

```
[root@VM_78_9_centos ~]# telnet cd-cdb-1234567890.tencentcdb.com 63126
Trying 123.123.123.123...
Connected to cd-cdb-1234567890.tencentcdb.com.
Escape character is '^]'.
v
```

- Exceptional network access

```
[root@VM_78_9_centos ~]# telnet 123.123.123.123 63306
Trying 123.123.123.123...
telnet: connect to address 123.123.123.123: Connection timed out
[root@VM_78_9_centos ~]# █
```

Note :

If there is still no network access after running the telnet command, you can easily troubleshoot private and public network connection problems with the [connectivity check tool](#).

Connection

Last updated : 2020-08-10 11:55:06

How do I connect to a TencentDB for MySQL instance?

You can connect to a TencentDB for MySQL instance in the following ways:

- **Private network connection:** a CVM instance can be used to connect to the private network address of a TencentDB instance. This method relies on the high-speed private network of Tencent Cloud and features low delay.
The two instances must be under the same account and in the same [VPC](#) in the same region, or both in the classic network.
- **Public network connection:** if you cannot access the private network, you can connect to your TencentDB for MySQL instance at its public network address. The public network address needs to be manually enabled. It can be viewed on the instance details page in the [TencentDB for MySQL Console](#) and can be disabled if no longer needed.

For more information, please see [Connecting to MySQL Instance](#).

How do I view the private/public network address?

Log in to the [TencentDB for MySQL Console](#), click an instance name in the instance list to enter the instance details page, and view the private/public network address.

How do I enable the public network address?

Log in to the [TencentDB for MySQL Console](#), click an instance name in the instance list to enter the instance details page, and enable the public network address in "Public Network Address".

What should I do if I have slow access over the public network?

We recommend you use the private network. This connection method uses the high-speed private network with a low delay. For more information, please see [Connecting to MySQL Instance](#).

Can I use a CVM instance to connect to the private network address of a TencentDB for MySQL instance?

1. The following conditions must be met to use the private network connection:
The two instances must be under the same account and in the same [VPC](#) in the same region, or both in the classic network.
2. You can check whether they are in the same VPC or both in the classic network in the following ways:

- You can log in to the [CVM Console](#) and view the network information of a CVM instance in the instance list or on the instance details page.
- You can log in to the [TencentDB for MySQL Console](#) and view the network information of an instance in the instance list or on the instance details page.

What should I do if I can't use a CVM instance to connect to the private network address of a TencentDB for MySQL instance?

We recommend you use [One-Click Connectivity Checker](#) to troubleshoot the problem first and then find the corresponding solution in [Common Problems] according to the check report.

My CVM and TencentDB for MySQL instances are in different regions (such as Guangzhou and Shanghai, respectively). Can I use the private network for connection?

No.

My CVM and TencentDB for MySQL instances are in different AZs (such as Shanghai Zone 2 and Shanghai Zone 1, respectively) in the same region. Can I use the private network for connection?

Even if the CVM and TencentDB for MySQL instances are in the same region, they may be in different VPCs.

- If they are in different AZs in the same VPC, they can interconnect over the private network.
- If they are in different VPCs (such as VPC1 and VPC2, respectively), they cannot interconnect over the private network.

Can I use a CVM instance to connect to the private network address of a TencentDB for MySQL instance when they are under different accounts?

No, as one of the prerequisites is that the CVM and MySQL instances must be under the same account.

My CVM and TencentDB for MySQL instances meet the conditions of interconnection over the private network (under the same account and in the same VPC), but they still cannot connect. What should I do?

You can troubleshoot the problem in the following ways:

- Check whether the configurations of the security groups are correct.
- Check whether the host configuration of the database account is correct.

The verification with telnet found that the network and port connectivity of the TencentDB instance was good, but an error was reported when I tried to log in to it on the command line in the CVM instance. What should I do?

- If "ERROR 1045(28000):Access denied for user..." is displayed, check whether the instance account and password entered are correct. If you forgot the password, you can [reset it](#). If the error persists after you enter the correct information again, log in to the [TencentDB for MySQL Console](#), click an instance name to enter the instance management page, select **Database Management** > **Manage Account** to check whether restrictions are imposed on the IP connecting to your instance.
- The message "ERROR 1040(00000):Too many connections" indicates that the number of current connections to the TencentDB instance exceeds the limit. The common reasons and solutions are as follows:
 - i. There are too many sleeping threads. We recommend you lower the values of `wait_timeout` and `interactive_timeout` in the console.
 - ii. Slow queries heaped up. The `long_query_time` parameter is 10s by default. We recommend you change it to 1-2s and then observe slow query logs.
 - iii. If there are few sleeping threads and no slow queries heaped up, we recommend you increase the value of the `max_connections` parameter in the console.
- If "ERROR 2003 (HY000): Can't connect to MySQL server..." is displayed, check whether the instance IP and port entered are correct. If the error persists after you enter the correct information, check the security group policies of the instance in the console to verify whether the CVM instance has the permission to connect to the database.
- If the connectivity test fails during data migration, check whether the security policy allows the prompted migration proxy IP.
- Check the `init_connect` parameter (if set), such as `mysql>set global init_connect='insert into db_monitor.accesslog(thread_id,log_time,localname,matchname) values(connection_id(),now(),user(),current_user());'` .
This means that each connection to the database by each non-super-privileged user will insert an entry into the `db_monitor.accesslog` table. Once there are uncommitted transactions or relevant lock waits in the table, then `insert into db_monitor.accesslog` operations will be jammed, causing all connections by non-super-privileged users to be stuck and affecting the normal use of TencentDB. Therefore, please configure the `init_connect` parameter with caution.

Parameter Modifications

Last updated : 2020-09-04 11:34:04

How do I modify the configuration parameters of a TencentDB for MySQL instance?

- **In the TencentDB for MySQL Console**

In the [TencentDB for MySQL Console](#), click the instance name and enter the management page.

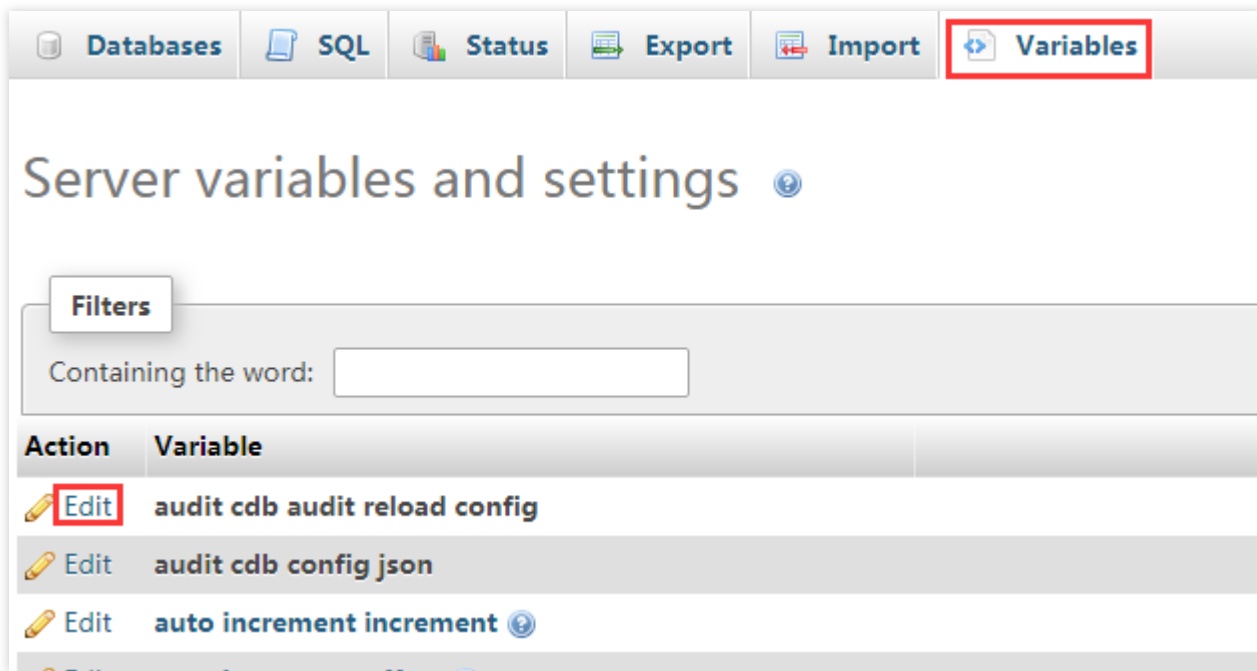
Select **Database Management > Parameter Settings**. Common `var*_name` includes:

Variable	Description
<code>character_set_server</code>	Default character set of the server
<code>connect_timeout</code>	Connection timeout period
<code>long_query_time</code>	A query that takes longer than this time is a slow query
<code>max_allowed_packet</code>	Maximum packet length
<code>max_connections</code>	Maximum number of connections
<code>sql_mode</code>	Current SQL mode of the server
<code>table_open_cache</code>	Number of tables opened by all threads. Increasing this value will increase the number of file descriptors that mysqld is requested to open
<code>wait_timeout</code>	Non-interactive connection timeout period

- **In the phpMyAdmin Console**

Log in to the TencentDB for MySQL instance through phpMyAdmin and click **Variables** on the top

menu. Click **Edit** next to the variable to be modified. Modify and click **Save**.



To view more configuration parameters, click the instance name and go to **Database Management** > **Parameter Settings** in the TencentDB for MySQL Console.

How do I set Chinese queries in TencentDB for MySQL?

Chinese characters are currently not supported in TencentDB for MySQL.

How do I enable the scheduler feature in TencentDB for MySQL?

In the [TencentDB for MySQL Console](#), click the instance name and enter the management page. Select **Database Management** > **Parameter Settings** and set the `event_scheduler` parameter to "ON".

How do I increase the connection timeout period in TencentDB for MySQL?

In the [TencentDB for MySQL Console](#), click the instance name and enter the management page. Select **Database Management** > **Parameter Settings** and modify the `wait_timeout` parameter.

How do I modify the `group_concat_max_len` parameter in TencentDB for MySQL?

In the [TencentDB for MySQL Console](#), click the instance name and enter the management page. Select **Database Management** > **Parameter Settings** and modify the `group_concat_max_len` parameter.

How do I locate the SQL statements for full-table scan in TencentDB for MySQL?

Full-table scan statements are not recorded by default. To locate them, set the

`log_queries_not_using_indexes` parameter to "ON" in **Parameter Settings** in the TencentDB for MySQL Console. We recommend that you only enable this parameter for a short period of time.

How do I change the default character set in TencentDB?

TencentDB for MySQL supports LATIN1, GBK, UTF8 (default), and UTF8MB4 character sets.

Although TencentDB supports changing the default character set, we recommend that you explicitly specify the table encoding when creating a table and specify the connection encoding when establishing a connection for more portable application experience. For more information on MySQL default character set and how to modify it, please see [Use Limits](#). You can also modify the character set in the [MySQL Console](#).

Account Permissions

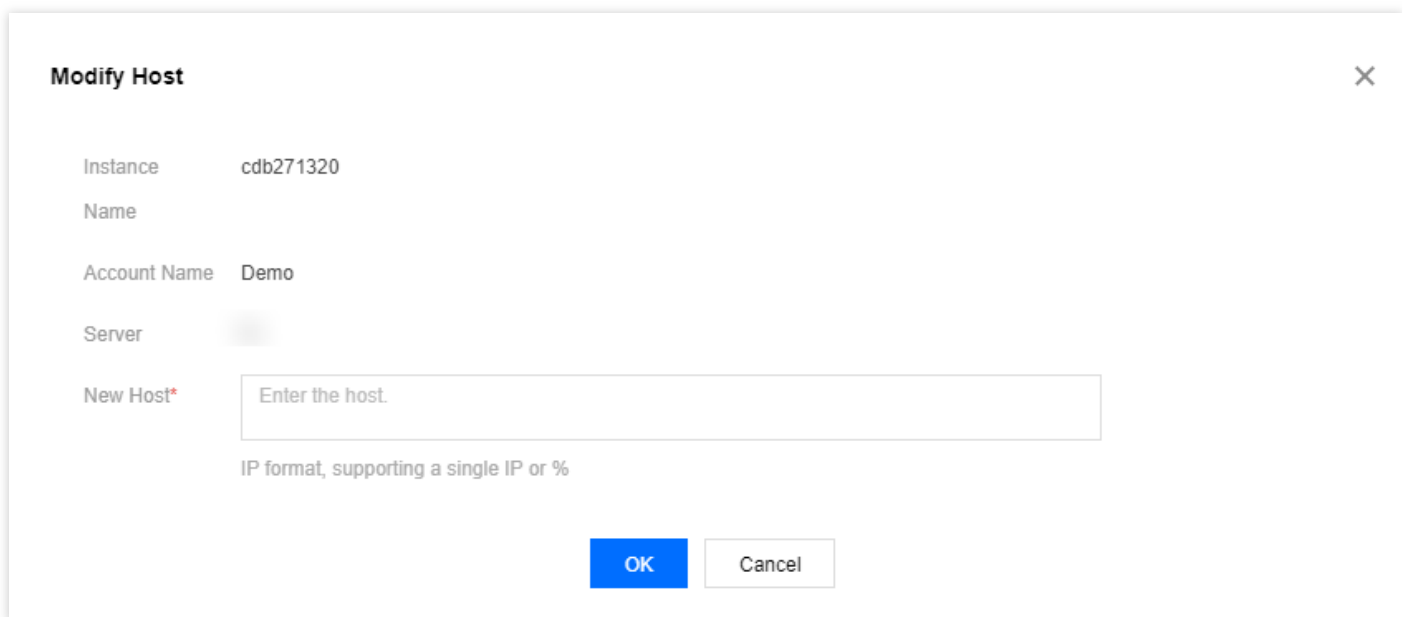
Last updated : 2020-09-04 11:34:03

How do I authorize a MySQL client installed on a server to access TencentDB for MySQL instances?

You can go to [MySQL Console](#) to modify the address of the server where your MySQL client is installed to control its access.

What should I do if I cannot log in to the data management console (DMC)?

1. You might be using the wrong database account. Please log in to [MySQL Console](#), click the instance name and go to **Database Management > Manage Account**, locate the account, and click **More > Modify Host** in the "Operation" column. Set **New Host** to "%" or the address of the server where your MySQL client is installed to grant the account access permissions.



Modify Host ×

Instance cdb271320

Name

Account Name Demo

Server

New Host*

IP format, supporting a single IP or %

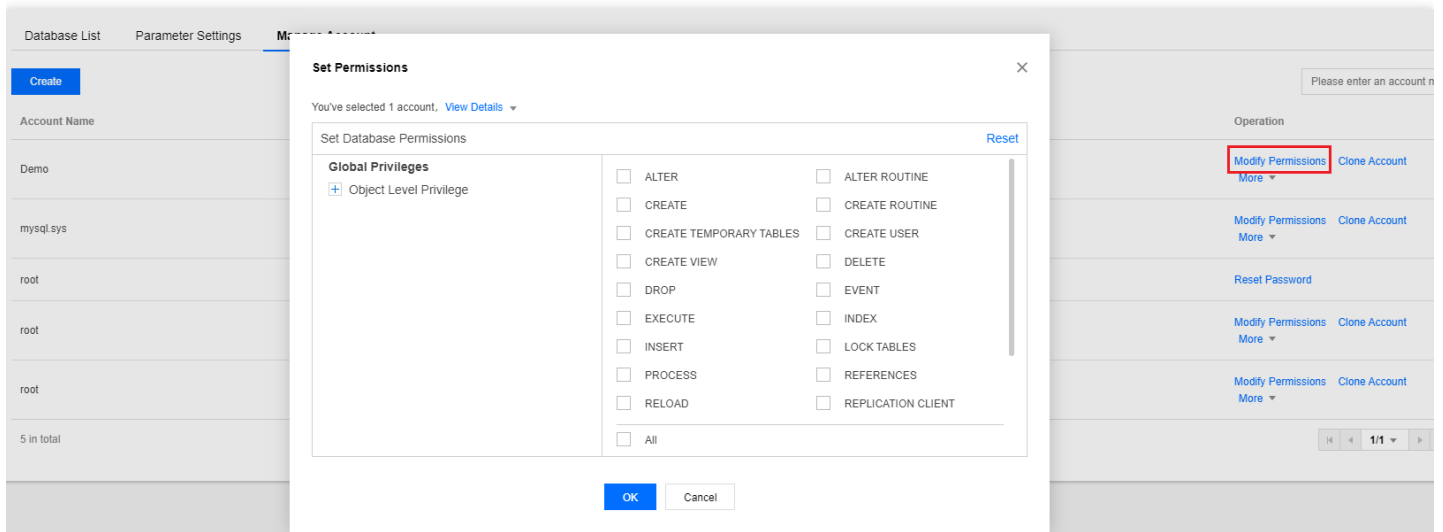
You can also use root account to log in to DMC.

2. If you are using the right account, your password may be incorrect. Please enter a correct password or [reset your password](#).

What should I do if I cannot create any database or table?

You might be using a database account that is not authorized to create databases or tables. Please log in to [MySQL Console](#), click the instance name and go to **Database Management > Manage Account**, locate the account, and click **Modify Permissions** in the "Operation" column to grant

permissions as shown below.



What should I do if I have no permissions to modify database parameters such as `sql_mode` ?

You might be using a sub-account without parameter modification permissions. You can use the root account or grant the sub-account permissions as instructed in [Access Management](#).

How do I grant a sub-account permissions to modify TencentDB for MySQL instances?

To grant a user permissions to create and manage TencentDB instances, you can implement the `QcloudCDBFullAccess` policy for the user as instructed in [Full read/write permission policy for TencentDB](#).

Instance Upgrade

Instance Upgrade

Last updated : 2020-10-22 15:29:53

What is the difference between read-only instances and replica instances?

- Read-only instance: it only allows the read operation and is deployed in the same region as the master instance. A master instance can have up to 5 read-only instances.
- Slave instance: it is used to back up the database and deployed in the same region as the master instance. A master instance can have 1 or 2 slave instances.

Can a TencentDB for MySQL read-only instance connect to the public network?

Read-only instances can connect to both public and private networks.

Can a temporary instance be added to TencentDB for MySQL?

Currently not supported.

Why does instance upgrade fail?

If the number of tables in a single instance exceeds one million, upgrade may fail and database monitoring may be affected. Please make sure the number of tables in a single instance is no more than one million.

Kernel Upgrade

Last updated : 2020-09-10 15:15:49

How do I upgrade the kernel minor version?

TencentDB for MySQL supports automatic or manual kernel minor version upgrade. Upgrading adds new features, improves performance, and fixes issues.

Note :

Currently, the kernel minor version of a Basic Edition instance cannot be upgraded.

• Automatic upgrade:

- Scenario 1: when a severe bug or security vulnerability occurs in TencentDB for MySQL, the system will perform database kernel minor version upgrade during the maintenance window and send upgrade notifications through the console Message Center and SMS.
- Scenario 2: when a TencentDB for MySQL instance is migrated due to instance configuration upgrade/downgrade, storage capacity expansion/reduction, or database version upgrade, etc., the system will automatically upgrade the instance's kernel to the latest minor version.

• Manual upgrade:

You can also manually upgrade kernel minor version in the console. For more information, please see [Upgrading Kernel Minor Version](#).

Note :

- The instance cannot be downgraded once upgraded to the latest kernel minor version.
- Operations such as database version upgrade and configuration adjustment are accompanied by a momentary disconnection from the TencentDB for MySQL instance. Please make sure that your business has a reconnection mechanism.

How do I check the kernel minor version?

1. Log in to the [CVM instance](#) and run the following command to log in to the TencentDB for MySQL instance. For more information, please see [Accessing MySQL Database](#).

Private network access:

```
mysql -h hostname -u username -p
```

Public network access:

```
mysql -h [database IP] -P[database port] -uroot -p
```

2. Run the following command to check the version number of the TencentDB for MySQL instance.

```
show variables like 'version_comment';
```

```
MySQL [(none)]> show variables like 'version_comment';
+-----+-----+
| Variable_name | Value      |
+-----+-----+
| version_comment | 20190830  |
+-----+-----+
1 row in set (0.00 sec)
```

Memory Performance

Performance

Last updated : 2019-11-22 15:46:33

Why does TencentDB for MySQL crash during task execution?

This is normal because it goes into a status of Lock Wait as the result of concurrent operations.

Why is Chinese data garbled in TencentDB for MySQL?

When storing data to TencentDB for MySQL, please log in to the [console](#) and enter the details page of the instance to view the default character set. When writing the program, set

`character_set_client` , `character_set_results` , and `character_set_connection` to the same character sets in the instance; otherwise, garbled text will appear if the data to be stored contains Chinese characters.

For example, the default character set of the TencentDB instance is UTF8. When writing a program to connect to the instance, you need to execute the following statements before storing Chinese data:

```
SET NAMES 'utf8';
```

What are the common reasons and solutions for issues where the maximum number of connections to TencentDB for MySQL is reached?

- There are too many sleep threads. It is recommended to lower the values of `wait_timeout` and `interactive_timeout` in the console.
- Slow logs heaped up. The `long_query_time` parameter is 10s by default. It is recommended to change it to 1-2s and then observe slow logs.
- If there are few sleep threads and no slow logs heaped up, it is recommended to increase the value of the `max_connections` parameter in the console.

What are the common reasons and solutions for a high utilization of CPU by TencentDB for MySQL?

- Slow logs heaped up. Please check for slow logs and full table scans in the instance monitor, then conduct analysis and optimization by referring to slow logs (which can be downloaded in the console). If no slow logs are found and there are only full table scans in the monitor, change the value of `long_query_time` to 1-2s and then analyze slow logs after using TencentDB for MySQL for a while.

- If no slow logs heaped up, please check the memory utilization in the instance monitor. If it is much higher than the instance specification and the disk read/write count increases significantly, there is a bottleneck in the memory, and it is recommended to upgrade the memory.

Memory Allocation

Last updated : 2019-11-22 15:47:17

Memory is an important performance parameter for TencentDB for MySQL. It is common to see the memory utilization increase due to the presence of exceptional SQL statements and lack of database optimization. In severe cases, OOM can even occur and cause master/slave switchover, which compromises business stability and availability.

In MySQL, memory can be roughly divided into two parts: globally shared memory and session-level private memory. Shared memory is allocated upon the creation of an instance and shared by all connections. Private memory is used to allocate cache upon connection to the MySQL server. In some special SQL statements or field types, cache may be allocated to a single thread repeatedly. Therefore, all OOM exceptions are caused by the private memory of each connection. The composition of each part is as detailed below:

Shared Memory

Run the following command to query how the shared memory in the sample is allocated:

```
show variables where variable_name in ('innodb_buffer_pool_size', 'innodb_log_buffer_size', 'innodb_additional_mem_pool_size', 'key_buffer_size', 'query_cache_size');
```

```
innodb_additional_mem_pool_size is not supported in v5.7.
```

The following parameters are the query results of how the shared memory is allocated in an instance with 1,000 MB memory (below is the configuration of the test instance):

```
1. +-----+-----+
2. | Variable_name | Value |
3. +-----+-----+
4. | innodb_additional_mem_pool_size | 8388608 |
5. | innodb_buffer_pool_size | 524288000 |
6. | innodb_log_buffer_size | 67108864 |
7. | key_buffer_size | 16777216 |
9. | query_cache_size | 0 |
```


10. +-----+-----+
11. 5 rows in set (0.01 sec)

Parameter description:

- **innodb_buffer_pool_size**

It is the most important buffer area in InnoDB and also a major means to compensate physical data files through memory. For TencentDB for MySQL, it usually takes up 50-80% memory of an instance (1,000 MB*0.5=500 MB as shown in the above sample). This area mainly includes information such as data pages, index pages, undo pages, insert buffers, adaptive hash indexes, lock information, and data dictionaries. In SQL read/write operations, you should first manipulate `buffer_pool` rather than physical data files and then write back to data files through checkpoint or other mechanisms. This space can help improve database performance and accelerate SQL operations, but it may slow down failover.

- **innodb_log_buffer_size**

It is mainly used to store redo logs and takes up 64 MB in TencentDB for MySQL. InnoDB will first write redo logs here and refresh them back to redo log files at a certain frequency. This space doesn't need to be large, because the buffer there is usually refreshed to redo logs at a relatively high frequency. Specifically, it will be refreshed for master thread (once every second), upon transactions committing, and when its available space is less than 1/2.

- **innodb_additional_mem_pool_size**

It is mainly used to store some data structures within InnoDB and is uniformly set to 8 MB in TencentDB for MySQL. Generally, when applying for memory in `buffer_pool`, you also need to apply for space to store the object's structural information in additional memory. The size of this part is primarily dependent on the number of tables. The more tables, the larger the space should be.

- **key_buffer_size**

It is an important buffer area of MyISAM tables and mainly used to store MyISAM table keys. It is uniformly set to 16 MB for all instances. Unlike InnoDB tables, MyISAM tables store index cache in `key_buffer` and data cache in the operating system memory. As TencentDB for MySQL uses MyISAM, this part should be allocated with a certain amount of space.

- **query_cache_size**

It is used to cache query results to reduce the overhead of SQL parsing and execution. The caching feature of this part is disabled in TencentDB for MySQL. It is mainly suitable for application scenarios where there are more reads than writes, because it caches results based on the hash values of SQL statements and becomes invalid once table data changes.

Private Memory

Run the following command to query how the session private memory in the sample is allocated:

```
show variables where variable_name in ('read_buffer_size', 'read_rnd_buffer_size', 'sort_buffer_size', 'join_buffer_size', 'binlog_cache_size', 'tmp_table_size');
```

The query result is displayed as follows (below is the configuration of the test instance):

```
1. +-----+-----+
2. | Variable_name | Value |
3. +-----+-----+
4. | binlog_cache_size | 32768 |
5. | join_buffer_size | 262144 |
6. | read_buffer_size | 262144 |
7. | read_rnd_buffer_size | 524288 |
8. | sort_buffer_size | 524288 |
9. | tmp_table_size | 209715200 |
10. +-----+-----+
11. 6 rows in set (0.00 sec)
```

Parameter description:

- **read_buffer_size**

It stores the cache of sequential scans separately. When a thread scans data sequentially, it will first scan the buffer space to avoid causing more physical reads.

- **read_rnd_buffer_size**

It stores the cache of random scans separately. When a thread scans data randomly, it will first scan the buffer space to avoid causing more physical reads.

- **sort_buffer_size**

All the SQL statements that need to execute ORDER BY and GROUP BY will be allocated with sort_buffer to store the immediate results of the sorting operations. During sorting, if the storage size exceeds sort_buffer_size, a temporary table will be generated on the disk to complete the operation.

- **join_buffer_size**

MySQL only supports the nested-loop join (NLJ) algorithm. The processing logic is to jointly search

in one row of the driving table and the non-driving table, where the latter can be placed in `join_buffer` without having to access `buffer_pool` that has a concurrence protection mechanism.

- **binlog_cache_size**

It is used to cache the thread's binlogs. Before a transaction is committed, its log will be stored in `binlog_cache`. After the transaction is committed, its binlog will be refreshed back to the binlog file on the disk for persistent storage.

- **tmp_table_size**

Different from the above session-level buffer, this parameter can be modified in the console. It refers to the size of a temporary in-memory table. If the temporary table created by the thread exceeds the specified size, it will be converted to a MyISAM temporary table on the disk.

High CPU/Memory Utilization

Last updated : 2019-11-22 15:48:12

High CPU Utilization

Cause

During the use of MySQL, the CPU utilization reaches or even exceeds 100%. This issue is mainly caused by a high number of inefficient SQL statements (most likely) or row locking conflicts (unlikely) in the database.

Risk

If MySQL's CPU utilization remains at 100% for a prolonged time, the overall performance of the database will be severely compromised. Under extreme circumstances, instances may be hung. When the HA monitor detects such an issue, it will trigger the master/slave switchover to help maintain the high availability of your business. During the switch, your business will be unavailable for a very short period of time (generally less than 60 seconds). If the switch occurs during peak hours, business stability and continuity may be seriously affected.

To protect your business from being affected by CPU resource shortage, you are recommended to perform business optimization on the instances with high CPU utilization or upgrade the CPU resources. The master/slave switchover in an instance is accompanied by an interruption lasting for just seconds; therefore, for persistent connections, your application should have a reconnection mechanism.

Solution

High CPU utilization in MySQL is generally related to the presence of inefficient SQL statements. Therefore, targeted optimization of such statements can work out in most cases.

In MySQL, slow query time (`long_query_time`) is set to 10s by default. After a performance issue occurs, if no slow query is found, it is recommended to adjust the parameter value to 1s and then observe whether there are slow queries in a business cycle, and if yes, optimize the slow queries accordingly. After the parameter is adjusted, if still no slow queries are found but the CPU utilization remains high, you are recommended to upgrade the CPU configuration so as to improve the overall performance of the database.

High Memory Utilization

Cause

Memory is an important performance parameter for TencentDB for MySQL. It is not uncommon to see the memory utilization reach or even exceed 100% due to the presence of inefficient SQL statements

and lack of database optimization.

Risk

If your high availability edition MySQL database encounters the above problem, it may even trigger an OOM event which will trigger the master/slave switchover. During the switch, your business will be unavailable for a very short period of time (generally less than 60 seconds). If the switch occurs during peak hours, business stability and continuity may be seriously affected.

To protect your business from being affected by high memory utilization, you are recommended to perform business optimization on the instances with high memory utilization or increase the memory size. The master/slave switch in an instance is accompanied by an interruption lasting for just seconds; therefore, for persistent connections, your application should have a reconnection mechanism.

Solution

In MySQL, memory can be roughly divided into two parts: globally shared memory and session-level private memory.

- Shared memory is allocated upon the creation of an instance and shared by all connections.
- Private memory is allocated by the system upon connection to the MySQL server.

In some special SQL statements or field types, cache may be allocated to a single thread repeatedly. Therefore, all OOM exceptions are caused by the private memory of each connection.

The risk of high memory utilization can be mitigated by limiting database connections and optimizing inefficient SQL statements. If this doesn't work, you can upgrade the memory configuration so as to improve the overall concurrence and stability of the database. For more information on memory parameters, see [Memory Allocation Issues](#).

- During the upgrade, your business can operate normally. After the upgrade, there will be a switchover accompanied by an interruption lasting for just seconds. Please make sure that your business has a reconnection mechanism.
- Currently, you cannot modify the memory parameter in the TencentDB for MySQL Console. If the `innodb_buffer_pool_size` is set too small, the disk write load may be high which will compromise the overall performance of your database.
- To protect your business from being affected by insufficient MySQL memory or CPU resources, please configure an appropriate resource alarm policy for your instance. By doing so, you can identify potential resource shortage in advance. For more information, see [Alarming Service](#).

OPS

Sync Delay

Last updated : 2020-10-21 17:52:40

Impact of Sync Delay

The default slave databases, disaster recovery instances, and read-only instances of TencentDB for MySQL use MySQL's native binlog replication technology and may experience delays during async or semi-sync data replication.

- If a [slave database](#) has a delay, master/slave instance switch cannot be completed promptly. In this case, the business may not be restored to normal quickly.
- If a disaster recovery instance has a delay, it cannot be promoted to a master instance before the heaped binlogs run out. During this period, business continuity will be affected.
- If a read business has relatively high requirements for data consistency, a delay-triggered removal policy can be configured for the read-only group, so that when the master-slave delay exceeds the configured threshold, the corresponding read-only instance will be removed automatically and hence cannot be accessed by the read business.

Solution for Sync Delay

You can view the **master-slave delay** using the monitoring function. If the delay time is greater than 0, the instances are experiencing a data delay. Common reasons include:

No Primary Key or Secondary Index

Cause

When DML operations (e.g., delete, update, and insert) are performed on big tables, the rows to be modified will be retrieved based on the primary key or secondary index when the binlog application is executed in the slave databases. If binlogs are in the row format and the corresponding table has no primary key or secondary index, a large number of full-table scans will be caused, slowing down the binlog application and leading to data delays.

Solution

- Create primary keys for all tables; if a primary key cannot be created for a table, it is recommended to create a secondary index for columns with high cardinality.

- It is recommended to use the `truncate` command to delete all records of the table.

Large Transactions

Cause

When the master instance executes DML operations involving massive volumes of data, a large number of binlogs will be transferred to the slave database, which needs the same time consumed by the master instance to complete corresponding transactions, leading to data delays in slave database.

Solution

It is recommended to divide large transactions into smaller ones and use the `where` condition to limit the volume of data to be processed at a time. This can help the slave database complete transactions quickly, thereby avoiding data delays in slave database.

DDL Operations

Cause

Similar to large transactions, in case of prolonged execution duration of DDL operations in the master instance, the slave database will take the same or even more time to perform the operations, which may jam up DDL operations.

Solution

It is recommended to perform DDL operations during off-hours. If DDL operations are jammed due to the queries of disaster recovery and read-only instances, you can kill the relevant sessions directly to restore master-slave data sync.

Lower Instance Specification

Cause

For read-only and disaster recovery instances, lower specifications than that of the master instance and higher loads will result in data delays.

Solution

It is recommended to make sure that the specifications of read-only and disaster recovery instances are higher than that of the master instance. If their loads are too high due to a large amount of analytical businesses, you need to upgrade the instances to appropriate configurations or optimize low-performance SQL statements.

OPS

Last updated : 2020-08-14 11:42:38

What if a problem with pt-online-schema-change occurs in TencentDB for MySQL?

TencentDB for MySQL v5.6 and higher supports Online DDL. To protect your business from being affected by table locking, you are recommended to change the table structure in v5.5 by using open-source tools such as pt-online-schema-change. However, you may encounter problems when using pt-online-schema-change to change the TencentDB for MySQL table structure through CVM.

- Common error message:

```
Use of uninitialized value $host in string eq at /usr/local/percona-toolkit-3.0.3/bin/pt-online-schema-change line 4284.
```

- View the corresponding source code:

```
sub _find_slaves_by_processlist {  
  my ( $self, $dsn_parser, $dbh, $dsn ) = @_;  
  
  my @slaves = map {  
    my $slave = $dsn_parser->parse("h=$_", $dsn);  
    $slave->{source} = 'processlist';  
    $slave;  
  }  
  grep { $_ }  
  map {  
    my ( $host ) = $_->{host} =~ m/^([^:]+):/;  
    if ( $host eq 'localhost' ) {  
      $host = '127.0.0.1'; # Replication never uses sockets.  
    }  
    $host;  
  } $self->get_connected_slaves($dbh);  
  
  return @slaves;  
}
```

As the code suggests, processlist cannot get the slave information it is looking for, because TencentDB has processed the information related to account replication.

- Solution:

Add the following parameter so that pt-osc can be used without checking the slave status.

```
--recursion-method=none
```

What if "Specified key was too long" is displayed during data import to TencentDB?

Cause:

TencentDB for MySQL returns the error message "Specified key was too long" when you import XXXX.sql file to the TencentDB for MySQL instance on the CVM command line.

The error message "ERROR 1071 (42000): The error information that Specified key was too long and max key length is 767 bytes" indicates that the index field exceeds 767 bytes and is too long.

- For the InnoDB storage engine, the maximum length of multi-column index is as follows:
The maximum length of a single index column is 767 bytes and the total length of all columns should not be greater than 3,072 bytes.
- For the MyISAM storage engine, the maximum length of multi-column index is as follows:
The maximum length of a single index column is 1,000 bytes and the total length of all columns should not be greater than 1,000 bytes.

In fields such as $768/2=384$ double-bytes or $767/3=255$ three-bytes, GBK is double-byte, UTF8 is three-byte, and UTF8MB4 is four-byte.

In MySQL v5.6 and higher, all MyISAM tables are automatically converted to InnoDB table. Therefore, with the MyISAM storage engine, a self-built database may contain combined index column of more than 767 bytes in length; however, due to the use of the MyISAM storage engine, the same table creation statement that can run in the self-built database won't work in MySQL v5.6 or higher.

Solution:

1. Modify the length of index columns in the erroneous rows in the backup file.

Common error rows:

```
create table test(test varcahr(255) primary key)charset=utf8;
```

-- Success

```
create table test(test varcahr(256) primary key)charset=utf8;
```

-- Failure

```
ERROR 1071 (42000) :Specified key was too long; max key length is 767 bytes
```

2. You can use TencentDB v5.5 where MyISAM won't be automatically converted into InnoDB.

What if an error occurs with "select * from XX into outfile xxxx"?

For the sake of platform security, file permission is unavailable, and data cannot be exported through "select into outfile". You are recommended to export the data in another way.

What if emojis inserted into a TencentDB for MySQL become garbled?

Check whether the TencentDB for MySQL instance, client, and connection to the instance all use or support the utf8mb4 character set.

To store an emoji in an instance, you need to follow the steps below.

1. Set the character set of the instance to utf8mb4 by logging in to the TencentDB for MySQL Console and modifying the `character_set_server` parameter.

Modifying this parameter will restart the database; therefore, you are recommended to back up your data in advance to prevent any loss.

2. The client of your application should use the utf8mb4 character set for the outputted string.
3. When creating a connection to your application, you should specify the executed character set.

Take the common JDBC connection for example:

MySQL Connector/J v5.1.13 or higher should be used. Below is the sample code:

```
String query = "set names utf8mb4" ;  
stat.execute(query);
```

Data Migration

Last updated : 2020-07-20 17:38:49

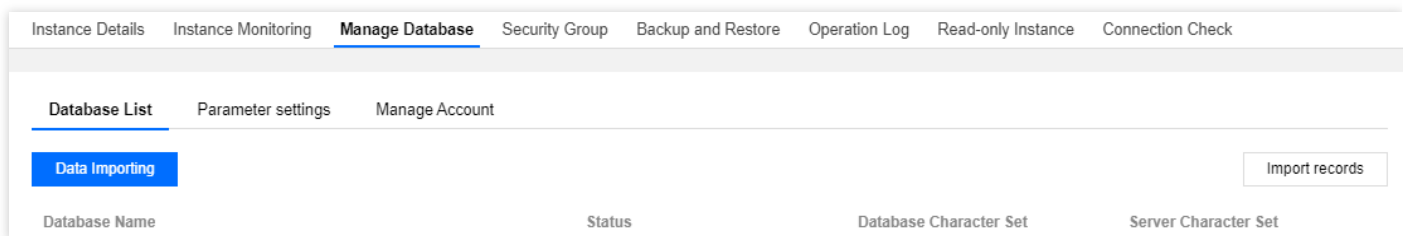
How do I import a local SQL file into a TencentDB for MySQL instance?

Note :

High-availability edition and finance edition of TencentDB for MySQL instances support importing SQL files.

1. Log in to the [TencentDB for MySQL Console](#) and click an instance name to enter the management page.
2. Select **Database Management > Database List > Data Import**. Select the file to be imported and the target database and click **OK** to import the data.

A single SQL file to be imported should be no more than 2 GB in size. The filename can only contain letters, digits, and underscores.



For more information, please see [Importing SQL File](#).

How do I export data from a database?

- To export backup data, click an instance name in the [console](#) to enter the management page and select the **Backup and Restore** tab for download.
- To export real-time data, you can purchase a [read-only instance](#), connect to it, and then use mysqldump to get real-time data.

What is the fastest way to migrate a 7 GB database to a TencentDB for MySQL instance?

You are recommended to directly connect your source database by using the [data migration](#) feature for data sync.

How do I achieve sync of real-time data in two instances in a local dual-backup architecture?

For this purpose, you can purchase [disaster recovery instances](#) in the console.

Feature

Last updated : 2019-11-22 15:44:05

What preparations do I need to make before using TencentDB for MySQL?

Before using TencentDB for MySQL, you need to consider the following two questions:

- Is a database suitable for your application? For example, for scenarios with small data volume, high access traffic, and key-value storage, a memory-level persistent storage service is recommended.
- Is your database appropriately designed? For example, you should consider splitting a table with obvious query hotspots or high data volume into multiple tables.

How does TencentDB for MySQL manage MySQL?

You don't need to care about the daily maintenance and adjustment of MySQL, which is taken care of by the OPS system of TencentDB.

In case of an exception with MySQL, the OPS system can identify it and notify the OPS personnel immediately, and you don't need to make any changes.

Is there a physical machine behind TencentDB for MySQL?

Yes.

Can TencentDB for MySQL help me split databases and tables?

No, because the standards for splitting databases and tables are subject to your specific business logic.

What is the difference between occupied capacity and used capacity in TencentDB for MySQL?

The capacity actually used by your data and the capacity occupied by log data such as binlogs are calculated separately. The occupied capacity displayed in the TencentDB for MySQL Console equals the used capacity.

Does TencentDB for MySQL have any buffer during task execution?

Q:

If multiple SQL statements are sent to TencentDB for execution within a very short period of time, will TencentDB for MySQL run them one by one or crash? What is the maximum number of allowed concurrent connections?

A:

A TencentDB for MySQL instance works in the same way as a self-built MySQL instance. Whether concurrently executed statements will cause a crash depends on system resources and SQL statements themselves.

When the number of connections reaches the upper limit (`max_connections`), the instance will basically not be able to provide services properly. This is generally caused by the following reasons:

- There are too many null sessions caused by bugs in the business application;
- Frontend access goes far beyond the instance's processing capability;
- A connection which is executed for too long takes up MySQL resources exclusively, resulting in a large number of blocked access requests.

What are the precautions for using TencentDB for MySQL?

For specific precautions, see [Use Limits](#).

How to apply for enabling or disabling the read-only permission to the default standby database of TencentDB for MySQL?

Instead of providing external access, the default standby database is primarily used for high-availability switchover.

Does TencentDB for MySQL support slave database access?

For the sake of database security (for example, when the master instance fails, you can quickly switch to the slave database), TencentDB for MySQL doesn't allow you to read from or write to the slave database.

If greater read/write capability is desired, you can consider upgrading the instance configuration or purchasing a [read-only instance](#).

How to change the TencentDB for MySQL region?

Region change is not supported for the time being. You can use [DTS](#) to migrate data between instances in different regions. DTS supports real-time data sync. After data migration is completed, the source instance can be returned in a self-service manner.

What if a TencentDB for MySQL instance is terminated?

After termination, a monthly subscribed instance will be retained in the recycle bin for 7 days, and a pay-as-you-go instance for 1 day. During the retention period, terminated instances can be recovered from the recycle bin.

What if I accidentally delete an account or forgot the password?

- If an account is deleted accidentally, click **Database Management > Account Management > Create Account** on the instance management page or create an account using an SQL

statement.

- If the password is forgotten, find the corresponding account in **Database Management** > **Account Management** and reset the password in **Reset Password**.

The above operations can also be performed through [TencentCloud API](#).

What if I need to use the MyISAM database engine?

You can use MySQL v5.5 which supports MyISAM. Even so, you are recommended to choose a higher version like MySQL v5.7, as the InnoDB engine can provide finer-grained row-level locking, deliver a higher write performance, guarantee data integrity, and avoid data loss in case of database failure.

Does TencentDB for MySQL support cross-region access?

Cross-region access is unavailable in VPC by default, as VPCs in different regions are isolated from each other. You are recommended to purchase TencentDB for MySQL instance in the same region as your CVM instances, so that local access can be enabled for data, which guarantees high service speed and stability.

Console Operation

Last updated : 2020-08-05 12:03:12

How long does it take to create a TencentDB for MySQL instance?

It generally takes less than 10 minutes to create a TencentDB instance. The time it takes to create read-only instances is subject to the data volume of the master instance. The larger the data volume, the longer the time.

If it takes longer to create an instance, there may be something wrong. Please [contact us](#) promptly.

How do I return a database?

You can log in to the [TencentDB for MySQL Console](#) and select **More > Terminate/Return** or **Terminate/Return & Refund** in the "Operation" column in the instance list to return an instance. For more information, please see [Terminating Instance](#).

What if a TencentDB for MySQL instance is terminated?

When an instance is returned, it will be retained in the recycle bin for a period of time. A monthly subscription instance will be retained for 7 days and a pay-as-you-go instance for 1 day. During this period, you can go to the recycle bin and restore the instance.

What if I accidentally delete an account or forgot the password?

- If you delete an account accidentally, you can log in to the [TencentDB for MySQL Console](#), click an instance name to enter the instance management page, and create an account by clicking **Database Management > Manage Account > Create Account** or by using an SQL statement. For more information, please see [Creating Account](#).
- If you forgot the root password, find the corresponding account in **Database Management > Manage Account** and **reset password**. For more information, please see [Resetting Password](#). The above operations can also be performed through [TencentCloud API](#).

What is the maximum number of connections to TencentDB for MySQL? How do I modify it?

You can view the maximum number of connections to TencentDB for MySQL in the console. If the number of connections gets too high, you are recommended to locate the cause and solve the problem first instead of directly increasing the maximum value.

Log in to the [TencentDB for MySQL Console](#), click an instance name to enter the instance management page, select **Database Management > Parameter Settings**, and modify the `max_connections` parameter.

Why is the value of `max_connections` always displayed as 1,000 rather than the actual number of current maximum connections in MySQL instance monitoring?

`max_connections` represents the allowed maximum connections in instance monitoring. You can customize the maximum value up to 10,240. **Number of open connections** means the number of connections available at the current moment, a value that changes in real time.

How can I get to know that the disk capacity is insufficient?

The monitoring center oversees the disk space of a TencentDB instance. When the disk utilization is over 90%, SMS and email alarms will be triggered. To receive such alarms, you only need to configure alarm recipients in Cloud Monitor. (For more information on how to configure, please see [Alarming Feature](#)).

How do I modify the case sensitivity of table name after a TencentDB for MySQL instance is initialized?

You need to adjust the `lower_case_table_names` parameter of the database.

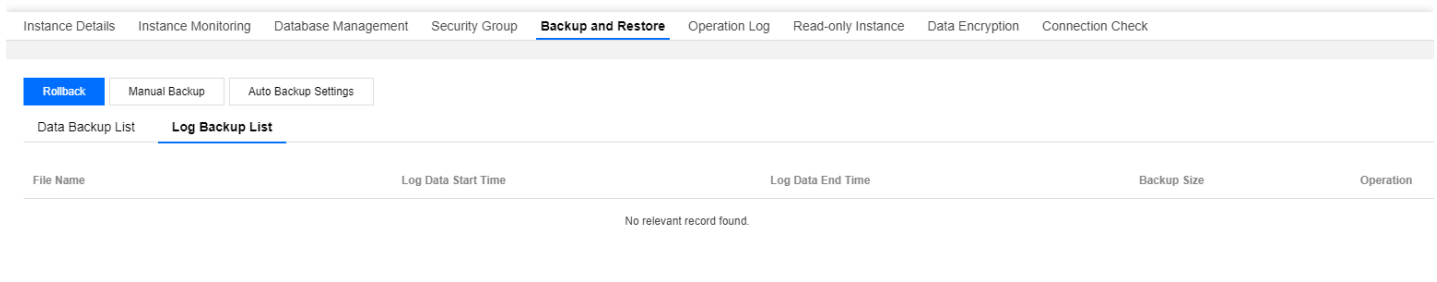
Log in to the [TencentDB for MySQL Console](#), click the instance name to enter the instance management page, select **Database Management** > **Parameter Settings**, and modify the `lower_case_table_names` parameter (0: case-sensitive, 1: case-insensitive).

<https://main.qcloudimg.com/raw/f0618995c7b9f4821c0d4f18ce4a6f45.png>

Last updated : 2020-10-21 17:44:47

How do I view binlogs?

Log in to the [TencentDB for MySQL Console](#), click an instance ID/name and enter the management page. On the **Backup and Restore > Log Backup List** tab, locate the desired binlog and click **Download** to view it.



Why does my instance have no binlog?

Probably because data is written slowly into the binlog which, accordingly, has not been split yet. A non-split binlog will not be displayed in the TencentDB for MySQL Console.

The procedure of displaying binlogs in the MySQL Console is as follows:

1. When the binlog grows to 256 MB, it is split.
2. The split binlog is uploaded to COS.
3. The uploaded binlog is displayed in the MySQL Console.

The whole procedure takes about three minutes.

You can log in to the database and run the `flush logs` command, and then check the binlog in the MySQL Console three minutes later.

How do I view the latest binlog?

Log in to the database and run the `flush logs` command, and then check the binlog in the TencentDB for MySQL Console three minutes later.

How do I back up binlogs?

The binlog is automatically backed up every day. To set the log backup retention period, you can log in to the TencentDB for MySQL Console, click an instance ID/name and enter the management page.

On the **Backup and Restore > Log Backup List** tab, click **Auto Backup Settings**, and set the log backup retention period in the pop-up dialog box.