

Data Transmission Service

Tutorial

Product Introduction



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Contents

Tutorial

Data Migration

Tutorial

Data Migration

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Data Transfer Service (DTS) provides data migration and continuous data replication from self-built MySQL databases to CDB, allowing users to migrate hot data without interrupting their services. Data migration is supported for local IDCs with public IP/Port or access to Tencent Cloud via direct connect, or MySQL databases in Tencent Cloud CVMs. **MySQL 5.7 does not support DTS, and you can import your data by downloading cold backup files.**

1. Preparation

1.1 Note

- A DTS data migration task involves two steps: cold backup data export and incremental data synchronization. **Cold backup data export and migrated data comparison have certain effect on the load of the source database**, so it is recommended to perform database migration during off-peak hours or in the standby database.
- **Only certain database table migration tasks restart target CDB instance at the beginning of incremental synchronization and after migration task is completed. The source database is not affected.**
- **Super permission for the source instance is required**

1.2 Super permission for source instance

For accounts to be used for migration, it is recommended to acquire the Super permission for the source instance. The Super permission is required in the following scenarios:

- Before data migration is completed, DTS will check data consistency, which requires the Super permission to change the "session" parameter and "binlog_format".
- **If, during binlog synchronization, a user creates an Event in the source instance and an account that is not used for DTS data migration is specified as DEFINER for this event, an error will occur if the Super permission is unavailable.**

1.3 Databases supported for migration

- Data migration from self-built CVM MySQL databases in basic and VPC networks to CDB instances.
- Data migration from MySQL databases with public network IP/Port to CDB instances.
- Data migration from MySQL databases with access to Tencent Cloud via VPN or direct connect to CDB instances.

1.4 Check the following in advance

1. Check if any database table with the same name as the target CDB instance exists, to avoid conflict.
2. Check database version. Cloud migration is supported for MySQL 5.1/5.5/5.6. As MySQL 5.1 is no longer supported by Tencent Cloud CDB, it is recommended that you update MySQL 5.1 to MySQL 5.5 first, then migrate data to CDB for MySQL 5.5. You can also use the DTS data migration tool to directly migrate data from local MySQL 5.1 to Tencent Cloud CDB for MySQL 5.5.
3. Check the capacity of the destination CDB instance, which must be larger than that of the source instance;
4. Create a migration account in the source MySQL database (this is not required if you already have an authorized account for data migration).

```
GRANT ALL PRIVILEGES ON *.* TO "migration account" @ "%" IDENTIFIED BY "migration password";
```

```
FLUSH PRIVILEGES;
```

5. Confirm source database MySQL variables

Use `SHOW GLOBAL VARIABLES LIKE 'XXX' ;`

to check MySQL global variables, so as to confirm whether migration can be performed under the current status:

```
server_id > 1  
  
log_bin = ON;  
  
binlog_format = ROW/MIXED  
  
binlog_row_image = FULL
```

```
innodb_stats_on_metadata = 0
```

It **is** recommended that wait_timeout **is** higher than **or** equal to 3,600 seconds, **and** it must be lower than 7,200 seconds.

The same time length **is** configured **for** interactive_timeout **and** wait_timeout.

If the source instance **is** slave, confirm the following parameters **in** the source instance:

```
log_slave_updates = 1
```

6. Change variable value:

- Change the source database MySQL configuration file `my.cnf` , and restart:

```
log-bin=[custom binlog file name]
```

- Modify configuration dynamically:

```
set global server_id = 99;
```

```
set global binlog_format=ROW;
```

```
set global binlog_row_image=FULL;
```

```
set global innodb_stats_on_metadata = 0;
```

2. Steps

2.1 Create DTS data migration service

Log in to the console, go to the Data Migration page and click **New Task**.



2.2 Enter configuration

On the page you are redirected to, complete task configuration, source database configuration, and destination database configuration. Details:

1 设置源和目标数据库

2 选择类型及库列表

3 校验任务

任务设置

任务名称 *

定时执行 *

☐

源库设置

源库类型 *

MySQL

Redis

MongoDB

MariaDB

PostgreSQL

服务提供商 *

其他

阿里云RDS

接入类型 *

公网

云主机自建

专线接入

VPN接入

云数据库

所属地域 *

请选择地域

主机地址 *

端口 *

账号 *

密码 *

测试连通性



目标库设置

目标库类型 *

MySQL

所属地域 *

请选择地域

实例ID *

请选择数据

取消

保存

Task configuration

- Task name: Specify a name for the task.

- Execution schedule: Specify a start time for your migration task.

任务设置

任务名称 *

定时执行 *

☐

Source database information

- Source database type: MySQL with public IP, Self-built MySQL on CVM, MySQL with access to Tencent Cloud via direct connect and MySQL with access via VPN are supported.

MySQL with public IP: MySQL databases that can be accessed via public IP.

Required information:

- CVM address of MySQL
- Port of MySQL
- Account of MySQL
- Password of MySQL

源库设置

源库类型 *	<div>MySQL</div> <div>Redis</div> <div>MongoDB</div> <div>MariaDB</div> <div>PostgreSQL</div>
服务提供商 *	<div>其他</div> <div>阿里云RDS</div>
接入类型 *	<div>公网</div> <div>云主机自建</div> <div>专线接入</div> <div>VPN接入</div> <div>云数据库</div>
所属地域 *	<div>请选择地域</div>
主机地址 *	<div></div>
端口 *	<div></div>
账号 *	<div></div>
密码 *	<div></div>
<div>测试连通性</div> 	

Self-built MySQL on CVM: CVM-based self-built MySQL databases in both basic networks and VPCs. You need to specify the ID of the CVM instance and the network environment where it is located.

Required information:

- Region: Data migration is only supported when the CVM-based self-built MySQL and the destination CDB are in the same region. If the CVM and CDB are located in different regions, you need to choose **MySQL with Public IP** and perform migration using CVM public network.
- CVM network: Both basic networks and VPCs are supported.
- VPC: If you select a VPC, you need to select the VPC and subnet to which the instance belongs.
- CVM instance ID
- Port of MySQL
- Account of MySQL
- Password of MySQL

源库设置

源库类型 *	<div>MySQL</div> <div>Redis</div> <div>MongoDB</div> <div>MariaDB</div> <div>PostgreSQL</div>
服务提供商 *	<div>其他</div> <div>阿里云RDS</div>
接入类型 *	<div>公网</div> <div>云主机自建</div> <div>专线接入</div> <div>VPN接入</div> <div>云数据库</div>
所属地域 *	<div>请选择地域</div>
云主机实例ID *	<div>请选择数据</div>
端口 *	<div></div>
账号 *	<div></div>
密码 *	<div></div>
<div>测试连通性</div> 	

MySQL connected via Direct Connect: You can migrate data to Tencent Cloud using DTS for local IDC self-built MySQL databases connected to Tencent Cloud through the [Direct Connect \(DC\)](#) service. Required information:

- Direct Connect Gateway: The direct connect gateway used by the database server to connect to Tencent Cloud. [About Direct Connect Gateway](#)
- VPC: The VPC where the direct connect gateway belongs to.
- CVM address of MySQL: The CVM address of MySQL in the IDC. DTS accesses the CVM by mapping with the IP through the direct connect gateway.
- Port of MySQL
- Account of MySQL
- Password of MySQL

源库设置

源库类型 *

MySQL

Redis

MongoDB

MariaDB

PostgreSQL

服务提供商 *

其他

阿里云RDS

接入类型 *

公网

云主机自建

专线接入

VPN接入

云数据库

所属地域 *

请选择地域

专线网关 *

请选择数据

私有网络 *

请选择 VPC 网络

请选择子网

主机地址 *

端口 *

账号 *

密码 *

测试连通性



MySQL with access via VPN: You can migrate data to Tencent Cloud using DTS for local IDC self-built MySQL databases connected to Tencent Cloud through [VPN Connection](#) or a self-built VPN service in CVM.

Required information:

- Region: VPN services are only supported if they are in the same region.
- VPN type: [Cloud VPN Service](#) or self-built VPN on CVM.
- VPN gateway: This information is only required for [Cloud VPN Service](#). [About VPN](#)
- VPC: The VPC where the VPN service belongs.
- CVM address of MySQL: The CVM address of MySQL in the IDC. DTS accesses the CVM by mapping with the IP through the direct connect gateway.
- Port of MySQL
- Account of MySQL
- Password of MySQL

源库设置

源库类型 *

MySQL

Redis

MongoDB

MariaDB

PostgreSQL

服务提供商 *

其他

阿里云RDS

接入类型 *

公网

云主机自建

专线接入

VPN接入

云数据库

所属地域 *

请选择地域

VPN类型 *

云VPN服务

云主机自建VPN

VPN网关 *

请选择VPN网关

私有网络 *

请选择 VPC 网络

请选择子网

主机地址 *

端口 *

账号 *

密码 *

测试连通性

2.3 Select the database to migrate

Select the database to migrate (you can choose to migrate the entire database or only certain tables), create migration task and check task information.

Note:

1. The character_set_server and lower_case_table_names configuration items are migrated only when the whole instance is migrated.
2. If the character set configuration of migrated tables for the source instance is different from that of the destination instance, the character set configuration of the source instance is retained.

1 设置源和目标数据库 > 2 选择类型及库列表 > 3 校验任务

选择类型 *

结构迁移

全量迁移

全量+增量迁移

选择对象 *

整个实例

指定库表

是否用源库Root账户覆盖目标库 *



数据一致性检测 *

全量检测

抽样检测

不检测

注意：

通过增量迁移的时间最长不超过15天，请确保主从追上后点击迁移完成按钮，否则可能会被资源回收。

取消

上一步

下一步：校验任务

Data migration: Export data from the selected database and import it to CDB for MySQL.

Incremental synchronization: After performing data export and import, configure CDB for MySQL as the slave database for source database to achieve incremental synchronization between master and slave.

Overwrite root account: Since the root account is used for security verification for cloud databases, subsequent CDB operations will be affected if no root account exists in the source database. Therefore, if the entire instance is migrated, you should specify whether to overwrite the destination database root account with the source database root account. Choose **Yes** if you want to use the root account of the source database or if no root account is configured for the destination database. Choose **No** if you want to retain the root account for the destination database.

2.4 Data consistency test

Select a data test type. (Choose from whole test, partial test, or no test.)

1 设置源和目标数据库

2 选择类型及库列表

3 校验任务

选择类型 *

结构迁移全量迁移全量+增量迁移

选择对象 *

整个实例指定库表

是否用源库Root账户覆盖目标库 *

☐

数据一致性检测 *

全量检测抽样检测不检测

每张表抽样比例 *

%
请输入 1-100 的整数

执行 Select * 比例 *

%
请输入 1-100 的整数

执行 Select count(*) 比例 *

%
请输入 1-100 的整数

注意：

通过增量迁移的时间最长不超过15天，请确保主从追上后点击迁移完成按钮，否则可能会被资源回收。

取消

上一步

下一步：校验任务

Note:

The test ratio fields are required for certain test items.

2.5 Verify migration task information

After a migration task is created, verify the task information. Click **Next Step: Verification Task** to verify it. You cannot start the task until all the verification items pass. Click **Start** to complete the process.

✔检查目标实例日志过滤

通过

✔检查外键引擎等

通过

✔释放网络访问权限

通过

取消

重新校验

上一步

启动

There are 3 statuses for task verification:

- Pass: This means verification is fully passed.
- Warning: This means that the verification fails. Database operation may be affected during or after data migration, but the migration task can still be executed.
- Failed: This means that the verification fails, and the migration task cannot be executed. If the verification fails, check and modify the migration task information according to the error entries and then retry the verification. To view the cause of failure, please see "Verification Failure Description".

2.6 Start migration

Once the verification passes, you can click **Start Migration** to start the migration right away. Note that if you have set a specified time for a migration task, the task will be queued and executed at the specified time. Otherwise, it will be executed immediately.

When the migration is started, you can see the corresponding migration progress information under the migration task. Required migration steps and the current stage will be displayed if you move your cursor over the exclamation mark following the steps.

Note:

Due to system design limitations, multiple migration tasks submitted or queued at the same time will be performed serially based on the queuing time.

2.7 Incremental Synchronization

When creating a migration task, the incremental synchronization option is selected by default. When data migration is completed, the target CDB for MySQL will be set as the slave database for the source database, and new data of the source database during migration will be synced to the destination CDB for MySQL via master/slave synchronization. In this case, any changes made to the source database will be synced to the destination CDB for MySQL.

After migration, click the **Stop** button to terminate the synchronization relationship between source and destination databases, then switch the service to the destination the CDB for MySQL instance to complete migration.

Note:

Before terminating synchronization, do not write data into the destination database instance as this may cause data inconsistency between the source and destination databases, which will cause data comparison to fail, resulting in a failed migration.

2.8 Stop migration

To cancel an in-progress migration task, click the **Cancel** button.

数据迁移 广州 广州Open 上海 北京 上海金融 深圳金融 成都 香港 新加坡 加拿大 美西 法兰克福 首尔

新建任务 筛选 排序: 创建时间 降序 任务名称 请输入搜索值

名称/ID	状态	类型	地址	创建时间	操作
dts-ol0gew8t test001	任务运行	源 : mysql 目标 : mysql	源 : 111.230.187.246:63241 目标 : cdb-b8hq45mc	2018-01-30 11:45:32	查看 修改 校验 删除 立即启动 撤销 完成

2018-01-30 11:48:35开始

导出冷备 87.50% (第3步/共7步) 总进度: 42%

未结束

Note:

1. Restarting the task may cause the verification or task to fail. You may need to manually clear all conflicting databases or tables in the destination database to start the migration task again.
2. When migrating a single table, make sure that tables relied on by foreign keys of all tables are migrated.

2.9 Complete migration

When the migration is 100% complete, click the **Finish** button on the right to complete the migration.

数据迁移 广州 广州Open 上海 北京 上海金融 深圳金融 成都 香港 新加坡 加拿大 美西 法兰克福 首尔

新建任务 筛选 排序: 创建时间 降序 任务名称 请输入搜索值

名称ID	状态	类型	地址	创建时间	操作
dts-ol0gew8t test001	准备完成	源 : mysql 目标 : mysql	源 : 111.230.187.246:63241 目标 : cdb-b8hq45mc	2018-01-30 11:45:32	查看 修改 校验 删除 立即启动 撤销 完成 未结束

2018-01-30 11:48:35开始

停止同步 99.00% (第7步/共7步) 总进度 : 100%

Note:

While the migration is in a status of **Unfinished**, the migration task will continue, so will the database data synchronization.