Migrate Azure Database for MySQL to MySQL of ApsaraDB for RDS

Alibaba Cloud Professional Service Team
July 2017

Alibaba Cloud

Contents

Introduction

This article introduces the solution of MySQL database migration from Windows Azure to Alibaba Cloud ApsaraDB for RDS, including the migration of data, views, stored procedures, user-defined functions and other objects.

This solution implements full migration through mysqldump, which is applicable when the amount of data is not large, or when a longer downtime is allowed. From this article, you can learn the implementation of import/export migration method through mysqldump.

Prerequisites

- Create a MySQL 5.6 instance on ApsaraDB for RDS.
- Create and configure the database and account used for migration in the MySQL 5.6 instance of ApsaraDB for RDS.
- ***Note:*** *The size of the available database space created in ApsaraDB for RDS must be at least twice larger than the displayed data size of Azure Database to be migrated. Because imported data to ApsaraDB for RDS generates binlog, which will be automatically cleaned up later.*Create an ECS instance on Alibaba Cloud, with the operating system of Windows or Linux and an Internet IP address.

  Note: *This solution uses Windows Server 2016 (English version).*
- Install MySQL Workbench or MySQL Client 5.6 on the ECS instance of Alibaba Cloud. Refer to the MySQL official website for the download address.

  Note: *This solution uses MySQL Workbench for implementation.*

Attentions

- This solution is only applicable to full migration, but not to incremental migration.
- The duration of downtime is dependent on the size of the data. If the downtime is too long for you, you can consider using this solution to migrate your data in batch, which requires the cooperation of your business service.
- Stop the write operation to the source database to ensure data consistency.
- If the database in ApasaraDB for RDS still has data, back it up. Because the data in the destination database will be overwritten.

Migration procedure

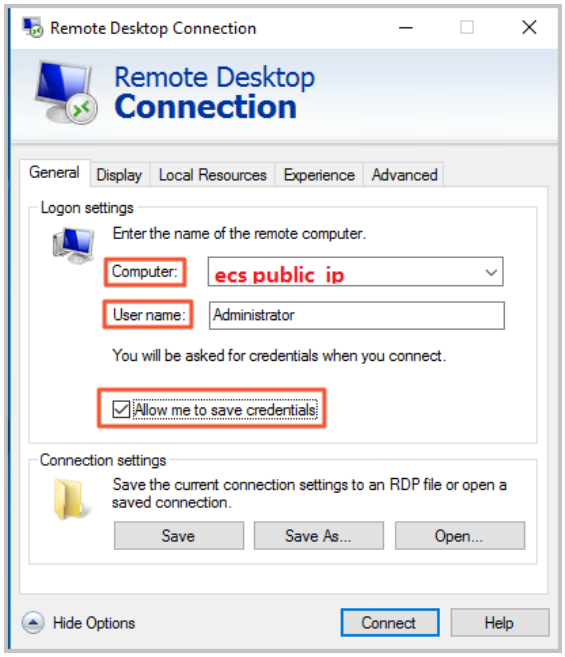
a) 1. Log on to the ECS instance of Alibaba Cloud remotely. The detailed procedure is as follows. On your local device, select **Start** > **Remote Desktop Connection**, to launch the **Remote Desktop Connection** dialog box.

b) Enter the Internet IP address of the ECS instance in the **Computer** field.

c) Click **Show Options**.

d) Enter the user name. The default value is **Administrator**.

e) Check the box before **Allow me to save credentials** if you do not want to manually enter the password again when you log on later, as shown in the following figure.



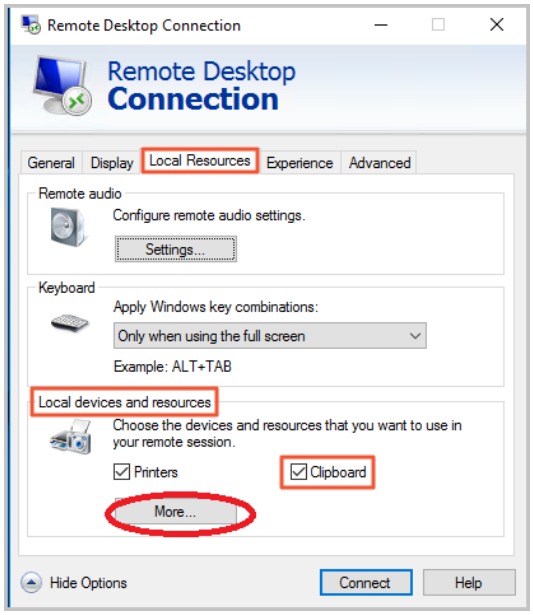
f) Enable the sharing of local computer resources through remote desktop to make it easy to copy local files to the ECS instance . The detailed procedure is as follows.

i. Select the **Local Resources** tab page.

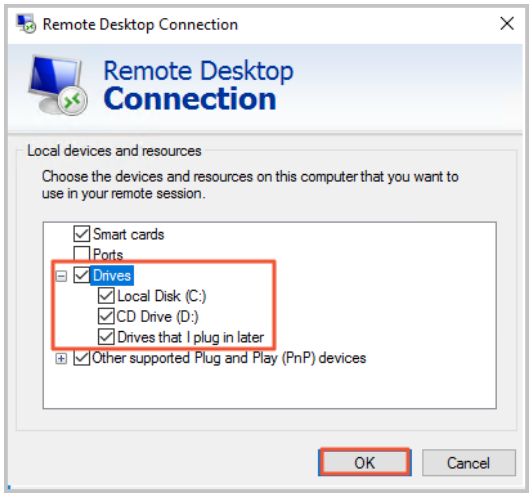
ii. In the **Local devices and resources** area, check the box before **Clipboard**.

Note: *If the* ***Clipboard*** *option is selected, only local text messages can be copied directly to the ECS instance, and files cannot be copied.*

iii. To copy files, click **More**, as shown in the following figure.



iv. Select **Drives** to choose the drive for storing files, and then click **OK**, as shown in the following figure.



v. Click **Connect** to access the ECS instance.

2. Migrate the Azure Database for MySQL to MySQL of ApsaraDB for RDS. The detailed procedure is as follows.

a) Enter cmd in the search bar and start the **Command Prompt** window.

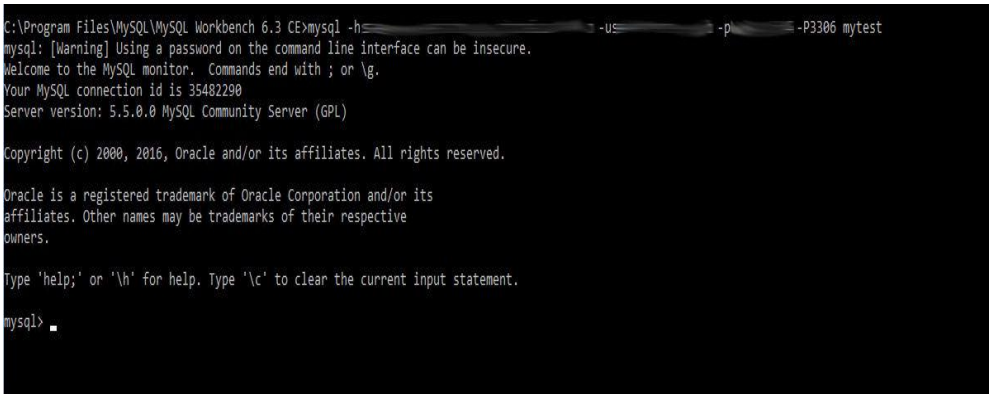
b) Go to the MySQL Workbench installation directory. The directory in the following example is "C:\Program Files\MySQL\MySQL Workbench 6.3 CE" .

```
C:\Program Files\MySQL>cd "MySQL Workbench 6.3 CE"

C:\Program Files\MySQL\MySQL Workbench 6.3 CE>dir
 Volume in drive C has no label.
 Volume Serial Number is 5855-989C

 Directory of C:\Program Files\MySQL\MySQL Workbench 6.3 CE

06/18/2017  05:28 PM    <DIR>          .
06/18/2017  05:28 PM    <DIR>          ..
02/03/2017  09:15 PM           144,896 Aga.Controls.dll
02/03/2017  09:16 PM           524,288 base.dll
02/03/2017  09:15 PM           115,200 base.windows.dll
02/03/2017  09:17 PM           419,328 base.wr.dll
02/03/2017  09:15 PM            51,063 cairo.py
06/18/2017  05:28 PM            61,521 cairo.pyc
02/03/2017  09:18 PM           120,320 cdbc.dll
02/03/2017  07:40 PM            18,121 COPYING
06/18/2017  05:28 PM    <DIR>          data
```

c) Execute the following command to test whether ApsaraDB for RDS can be connected to Azure Database for MySQL normally.

```
mysql –h <connection address> -P <port> -u <user name> -p <password> <database name>
```

If the following information appears, it indicates that ApsaraDB for RDS is successfully connected to Azure Database for MySQL.



d) Execute the following command to back up the Azure Database for MySQL to the Alibaba Cloud ECS server.

```
mysqldump –h <Azure Database for MySQL address> -P <port> -u <user name> –p <password> <database name> --single-transaction --routines --triggers --compress –compact –r c:\backup.sql (path where the exported files are stored)
```

e) View backup files to check whether they are the correct data to be migrated.

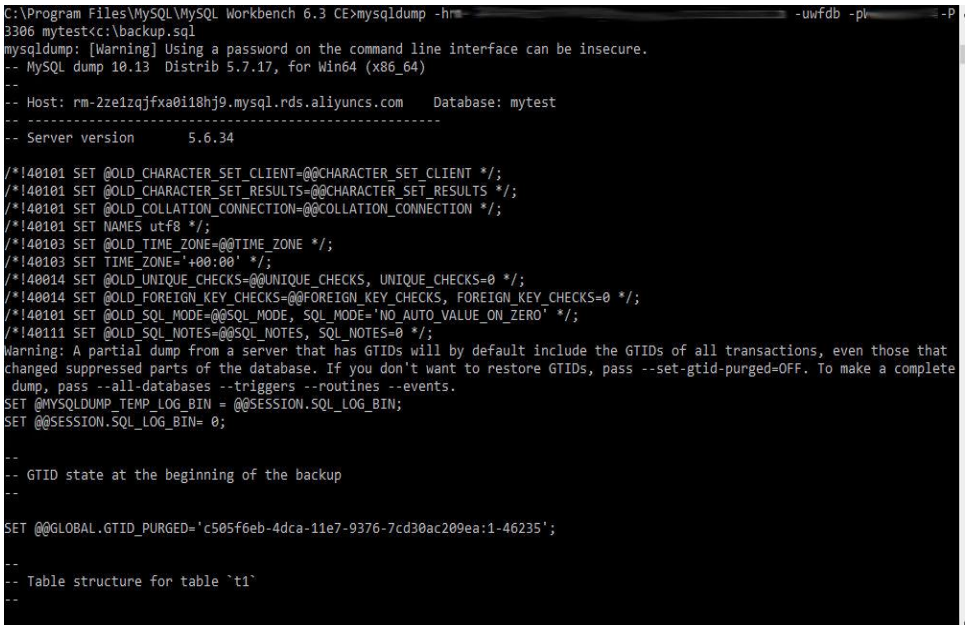
f) Import the backup files to ApsaraDB for RDS. Both of the following methods can implement data imports. Choose either one as needed.

Method 1:

Execute the following command to import the backup files.

```
mysqldump –h <Alibaba Cloud RDS address> -P <port> -u <user name> –p <password> <database name> <c:\backup.sql (backup file)
```

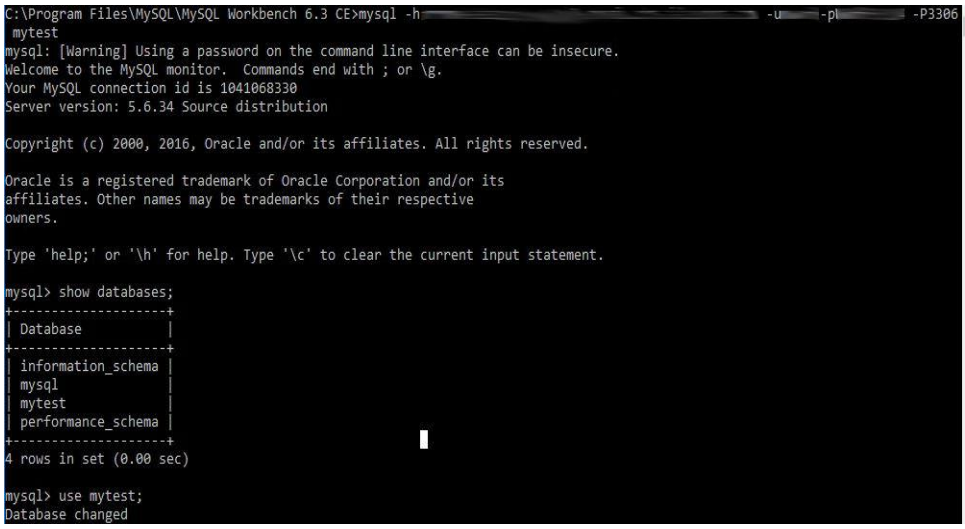
The returned result is shown as the following figure.

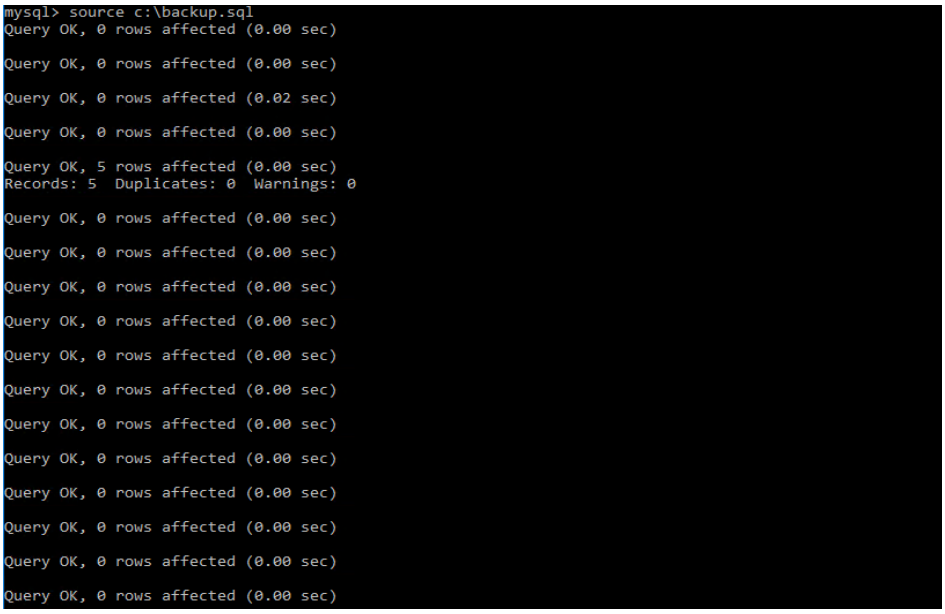


Method 2:

Execute the following command to directly call the backup script in the database to restore data, as shown in the following figures.

```
#mysql -h <Alibaba Cloud RDS address> -u <user name> -p

#use <database name>;

#source <backup file name>;
```

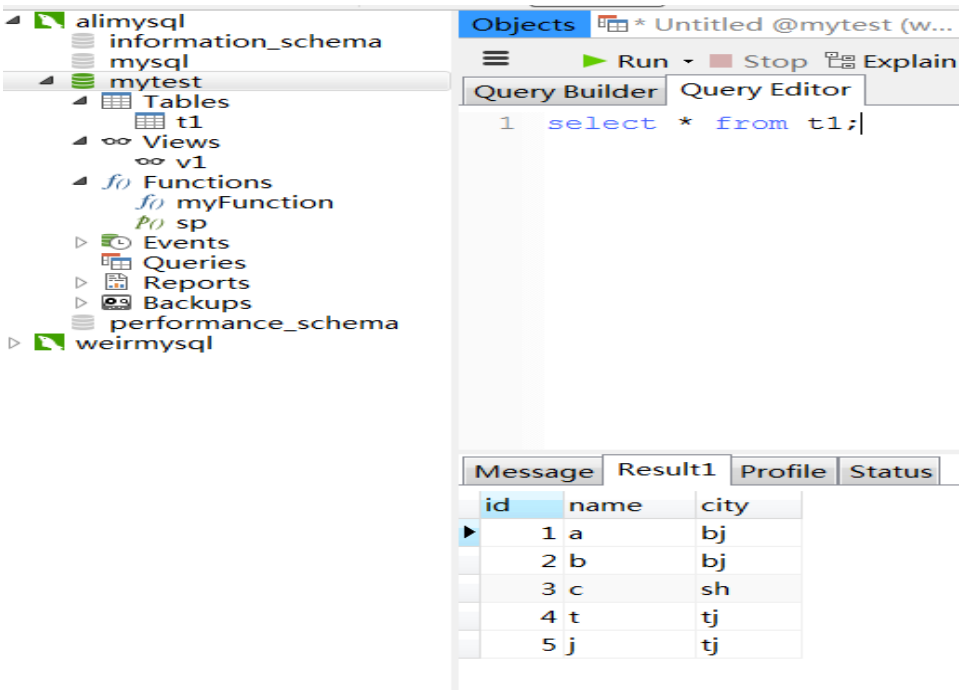




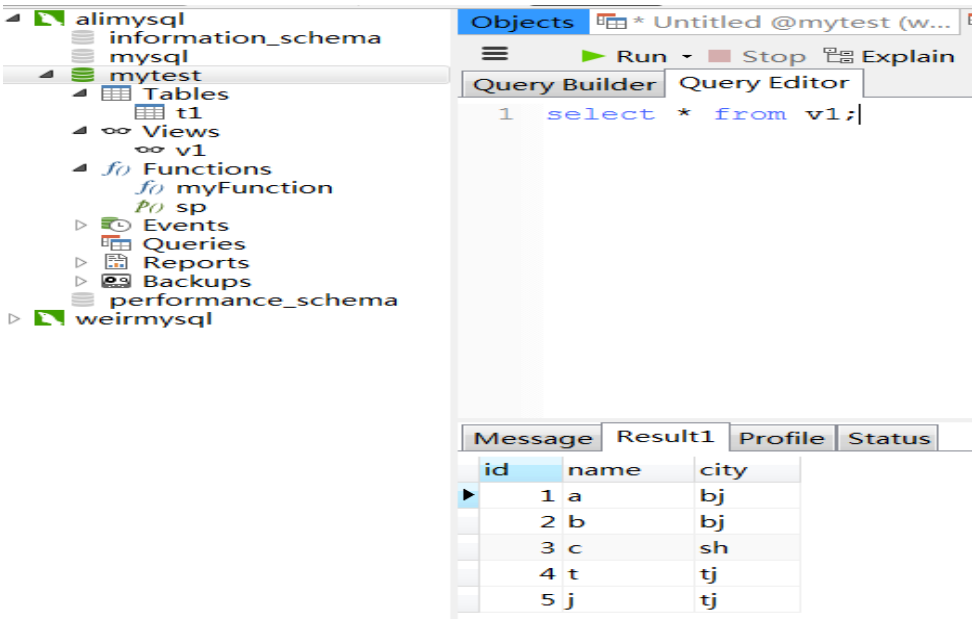
Note: *The database migration task from Windows Azure to ApsaraDB for RDS is completed. If an error occurs during the import, handle it according to the error message. It is necessary to validate the data after the import to check whether the imported data is correct.*

3. Validate whether the imported data is correct. The detailed procedure is as follows.

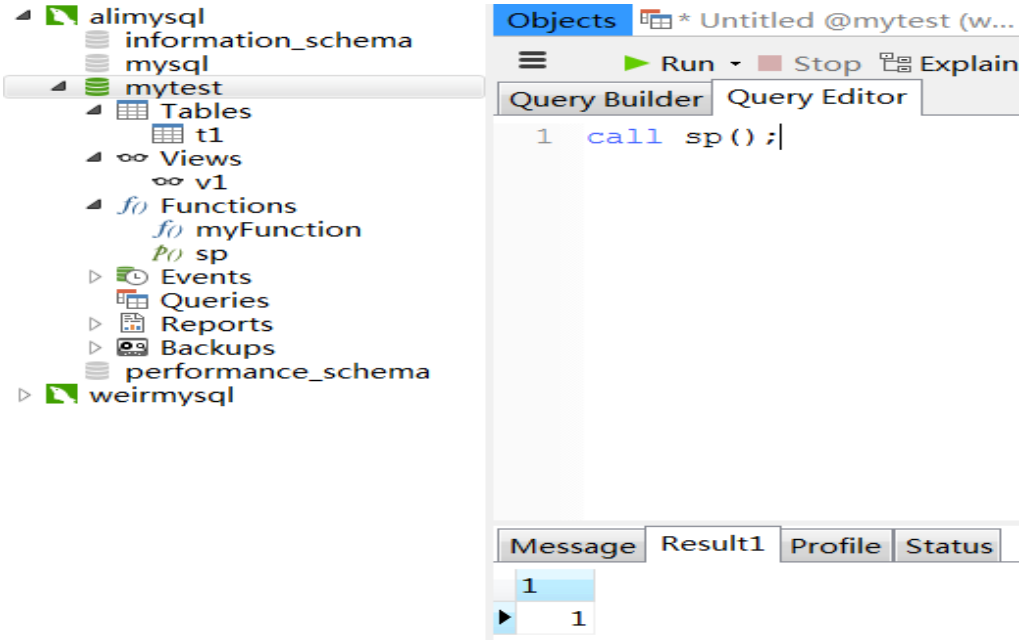
a) Data validation for mytest database



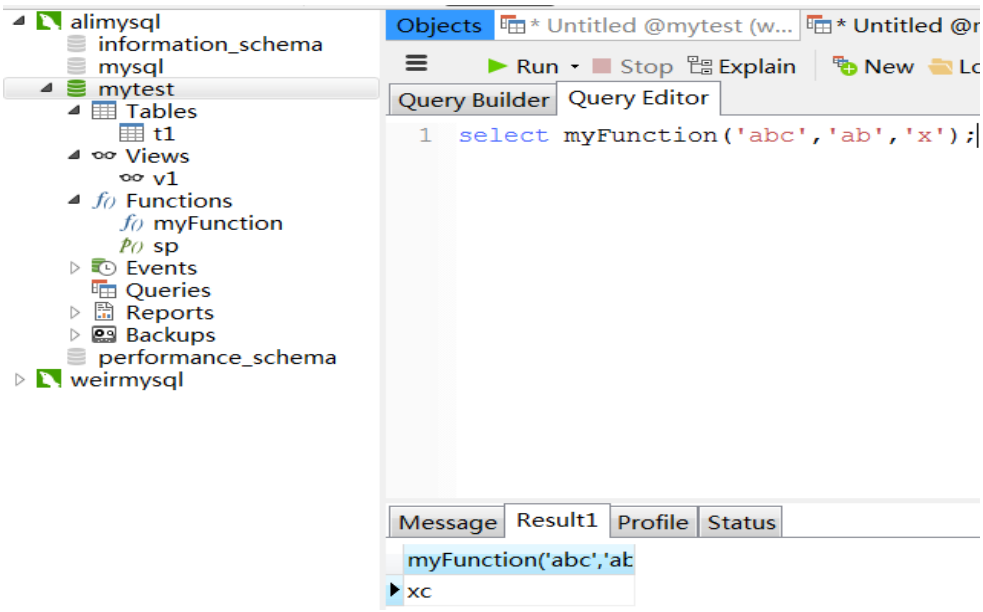
(2) View validation



(3) Stored procedure validation



(4) User-defined function validation



Further reading

Migrate the MySQL database created on Alibaba Cloud ECS to ApsaraDB for RDS