Setting Up the world_x Database

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This document describes `world_x` sample database installation, structure, usage, and history.

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For help with using MySQL, please visit the MySQL Forums, where you can discuss your issues with other MySQL users.

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1 Preface and Legal Notices

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2 Installation

To enable MySQL users to perform manipulation of the `world_x` sample database using MySQL, the data set is available as a set of four tables:

- `country`: Information about countries of the world.

- `city`: Information about some of the cities in those countries.

- `countrylanguage`: Languages spoken in each country.

- `countryinfo`: Information about each country represented as a JSON document.

The `world_x.sql` file containing the `world_x` database is available for download at https://dev.mysql.com/doc/index-other.html. The file is provided as a compressed `tar` file or Zip archive.

> **Note**
>
> The `world_x` database uses features specific to X DevAPI, and thus requires MySQL 5.7 or higher. A `world` database variant also exists that does not use X

DevAPI features and may be used with MySQL 5.5 and higher. See Setting Up the world Database.

To install the world_x sample database, follow these steps:

1. Download the installation archive to a temporary location such as C:\temp\ or /tmp/ and unpack it. Unpacking the archive results in a directory named world_x-db containing files named README.txt and world_x.sql.

2. Execute the world_x.sql script to create the database structure and insert the data using one of the following methods:

   - Use MySQL Shell:

     ```
     $> mysqlsh -u root --sql --recreate-schema world_x < C:\temp\world_x-db\world_x.sql
     ```

   - Use the standard MySQL command-line client:

     Connect to MySQL:

     ```
     $> mysql -u root -p
     ```

     From the mysql client, load the file:

     ```
     mysql> SOURCE C:/temp/world_x-db/world_x.sql;
     ```

   Enter your password when prompted. A non-root account can be used, provided that the account has privileges to create new databases.

   Replace the path to the world_x.sql file with the actual path on your system.

   > **Note**
   >
   > On Windows, use slashes rather than backslashes when executing the SOURCE command.

3. To confirm that the sample world_x database is installed correctly, execute the following statements. You should see output similar to that shown here.

   ```
   mysql> USE world_x;
   Database changed

   mysql> SHOW TABLES;
   +-------------------+
   | Tables_in_world_x |
   +-------------------+
   | city              |
   | country           |
   | countryinfo       |
   | countrylanguage   |
   +-------------------+
   4 rows in set (0.00 sec)

   mysql> SELECT COUNT(*) FROM city;
   +----------+
   | COUNT(*) |
   +----------+
   |     4079 |
   +----------+
   1 row in set (0.02 sec)

   mysql> SELECT COUNT(*) FROM country;
   +----------+
   | COUNT(*) |
   +----------+
   |      239 |
   +----------+
   ```

```
1 row in set (0.00 sec)
```

You now have the `world_x` sample database installed.

Another popular sample database is the Sakila database. For additional details, see http://dev.mysql.com/doc/sakila/en/.

3 History

September 2016

Prior releases used mixed-case table names. Because MySQL Shell is case-sensitive, table names are changed to lowercase.

December 2019

The `world_x.sql` file was changed to address several issues:

- The `world_x` database used `utf8`, but MySQL as of 8.0 uses a default character set of `utf8mb4`. Converting the database to use `utf8mb4` brings it up to date with MySQL 8.0, while retaining compatibility with older series.

  Conversion of the database to `utf8mb4` was done as follows:

  ```
  USE world_x;

  -- turn off foreign key checking; otherwise, the ALTER TABLE
  -- statements fail with incompatible foreign key errors.
  SET SESSION foreign_key_checks=0;

  -- convert database and tables to utf8mb4
  ALTER DATABASE world CHARACTER SET utf8mb4;
  ALTER TABLE city CONVERT TO CHARACTER SET utf8mb4;
  ALTER TABLE country CONVERT TO CHARACTER SET utf8mb4;
  ALTER TABLE countrylanguage CONVERT TO CHARACTER SET utf8mb4;
  ALTER TABLE countryinfo CONVERT TO CHARACTER SET utf8mb4;
  ALTER TABLE countryinfo
    MODIFY `_id` varchar(32) GENERATED ALWAYS AS
    (json_unquote(json_extract(`doc`,_utf8mb4'$._id'))) STORED NOT NULL;

  -- re-enable foreign key checking
  SET SESSION foreign_key_checks=1;
  ```

  Using `mysqldump` with options of `--default-character-set=utf8mb4` to set the character set and `--set-charset` so the dump includes `SET NAMES` for that character set writes a `utf8mb4`-encoded dump file.

- MySQL 8.0.17 deprecates these features:

  - Number of digits in floating-point column definitions; for example, `FLOAT(10,2)`.

  - Display width in integer column definitions; for example, `INT(10)`.

  The `world_x.sql` file used both features, causing load warnings in MySQL 8.0.17 and higher.

  To avoid number of digits in `FLOAT` columns, it is necessary to manually alter the relevant column. That was done as follows, by altering `FLOAT($M,D$)` to `DECIMAL($M,D$)`:

  ```
  USE world_x;

  ALTER TABLE countrylanguage
    MODIFY Percentage DECIMAL(4,1) NOT NULL DEFAULT '0.0';
  ```

  To produce integer column definitions without display widths in the dump file, it suffices to use `mysqldump` from MySQL 8.0.19 or higher.