

# How to install the IFS mock-up MySQL Database

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## Purpose

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The scripts in this repository can be used to create the IFS mock-up MySQL database and all tables within this database. This is work in progress (about 170 of the planned 210 tables are already included), but only minor tables are still missing.

## Requirements

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The following programs need to be installed on your computer in order to run the scripts properly:

- [Python](#) 3.8 or higher
- [MySQL community server](#)
- Python module: mysql.connector-python

For the installation of *mysql.connector-python* we recommend using pip3, running the following from the command line:

```
pip3 install mysql.connector-python
```

Furthermore, we recommend using the [MySQL Workbench](#) to make the necessary local configurations.

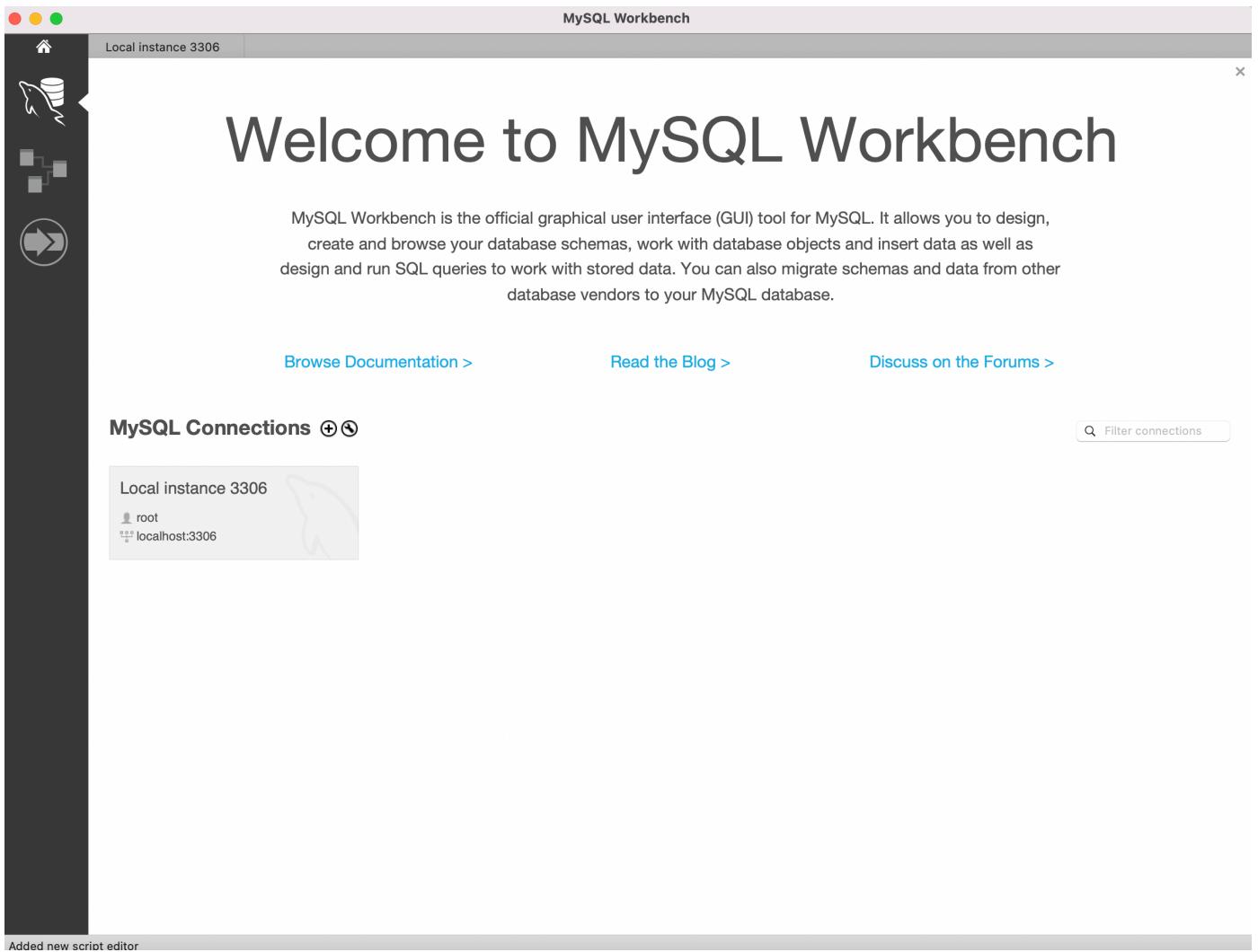
In the Python scripts the connector uses the following configuration:

- host="localhost"
- user="IFS"
- password="IFS\_pw"
- database="Mock\_up\_DB"

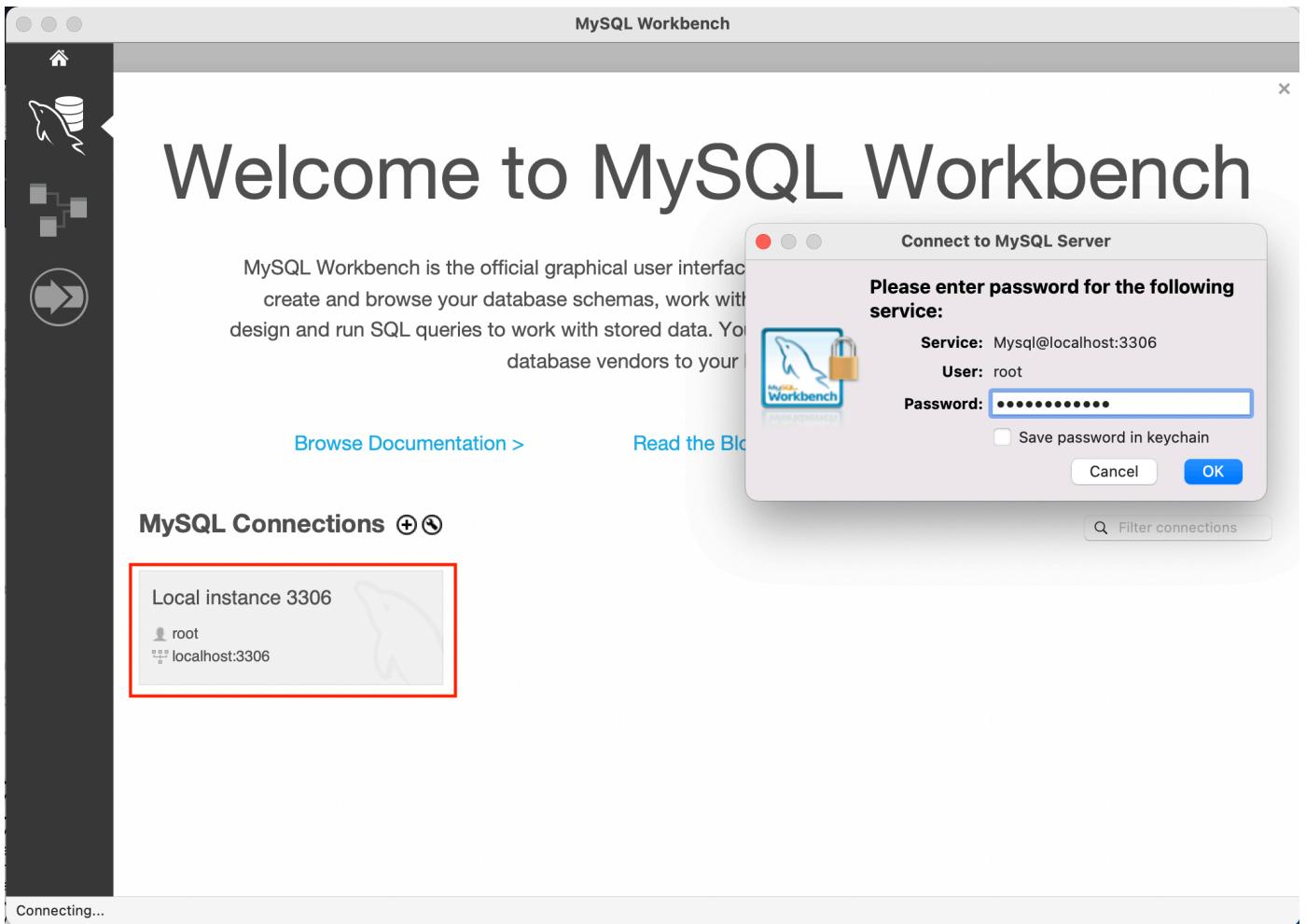
## Create connection IFS and user IFS

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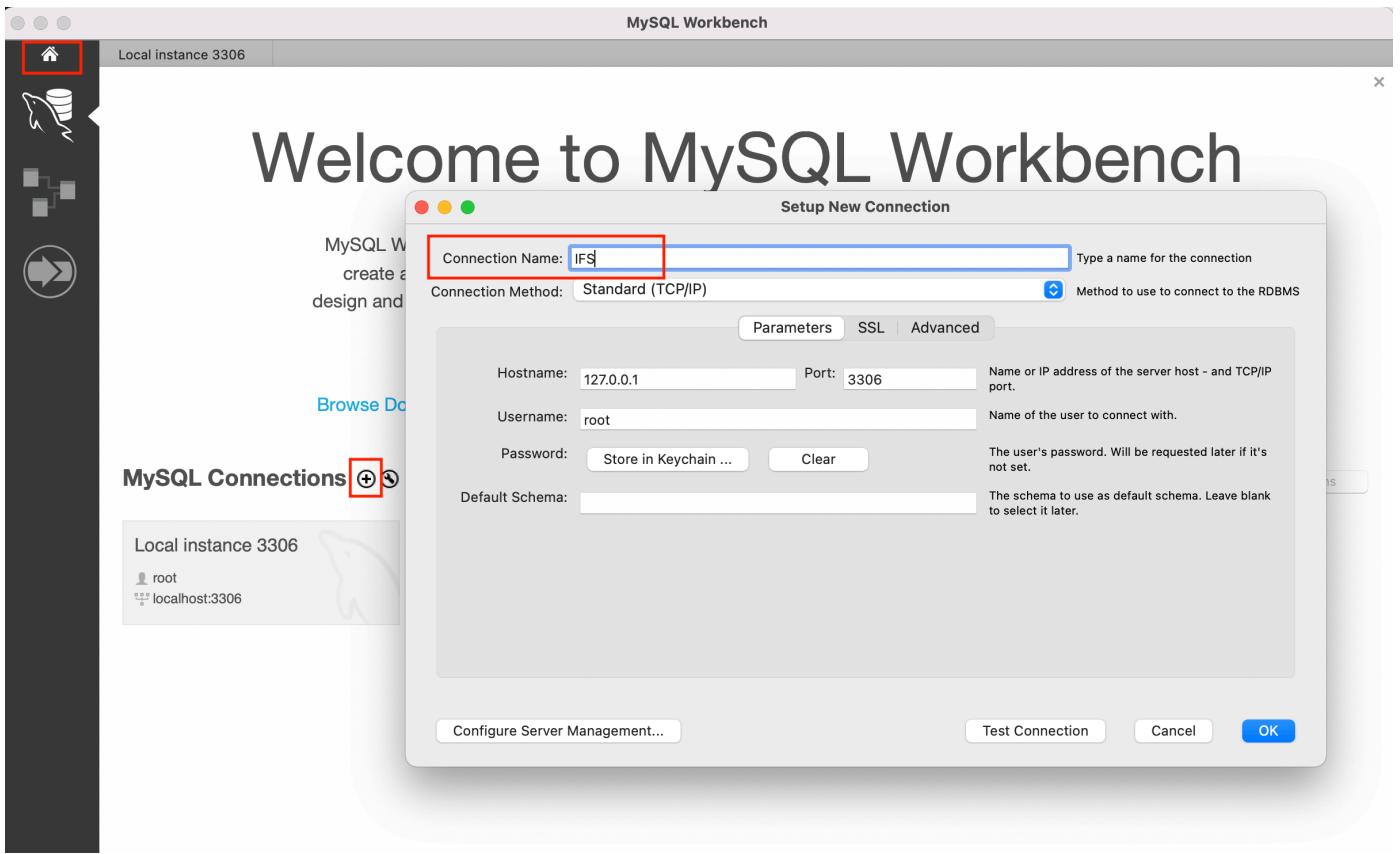
When you open MySQL Workbench for the first time, your window should look like this:



You then have to connect to your MySQL Server. You need to enter the root password which you chose during the installation process of *MySQL community server*.



If this works properly, go back to the home menu (click on the home button on the top left). Click on the plus sign icon next to *MySQL Connections* and add a connection named */FS*:



Afterwards, connect to *IFS* using your user root for login.

After having successfully connected to your server, your window should look like in the following image. Click *Users and Privileges* and then *Add Account*:

MySQL Workbench

Local instance 3306

Administration Schemas Query 1 Administration - Users and Privileges

**MANAGEMENT**

- Server Status
- Client Connections
- Users and Privileges**
- Status and System Variables
- Data Export
- Data Import/Restore

**INSTANCE**

- Startup / Shutdown
- Server Logs
- Options File

**PERFORMANCE**

- Dashboard
- Performance Reports
- Performance Schema Setup

Object Info Session

No object selected

Add Account Delete Refresh Revert Apply

Local instance 3306

## Users and Privileges

User Accounts

User	From Host
mysql.infoschema	localhost
mysql.session	localhost
mysql.sys	localhost
root	localhost

Select an account to edit or click [Add Account] to create a new one

Login Account Limits Administrative Roles Schema Privileges

Login Name:  You may create multiple accounts to connect from different hosts.

Authentication Type:  For the standard password select 'Standard'.

Limit to Hosts Matching:  % and \_ wildcards may be used.

Password:  Type a password to reset it.

Consider using a password with 8 or more characters with mixed case letters, numbers and punctuation marks.

Confirm Password:  Enter password again to confirm.

Expire Password

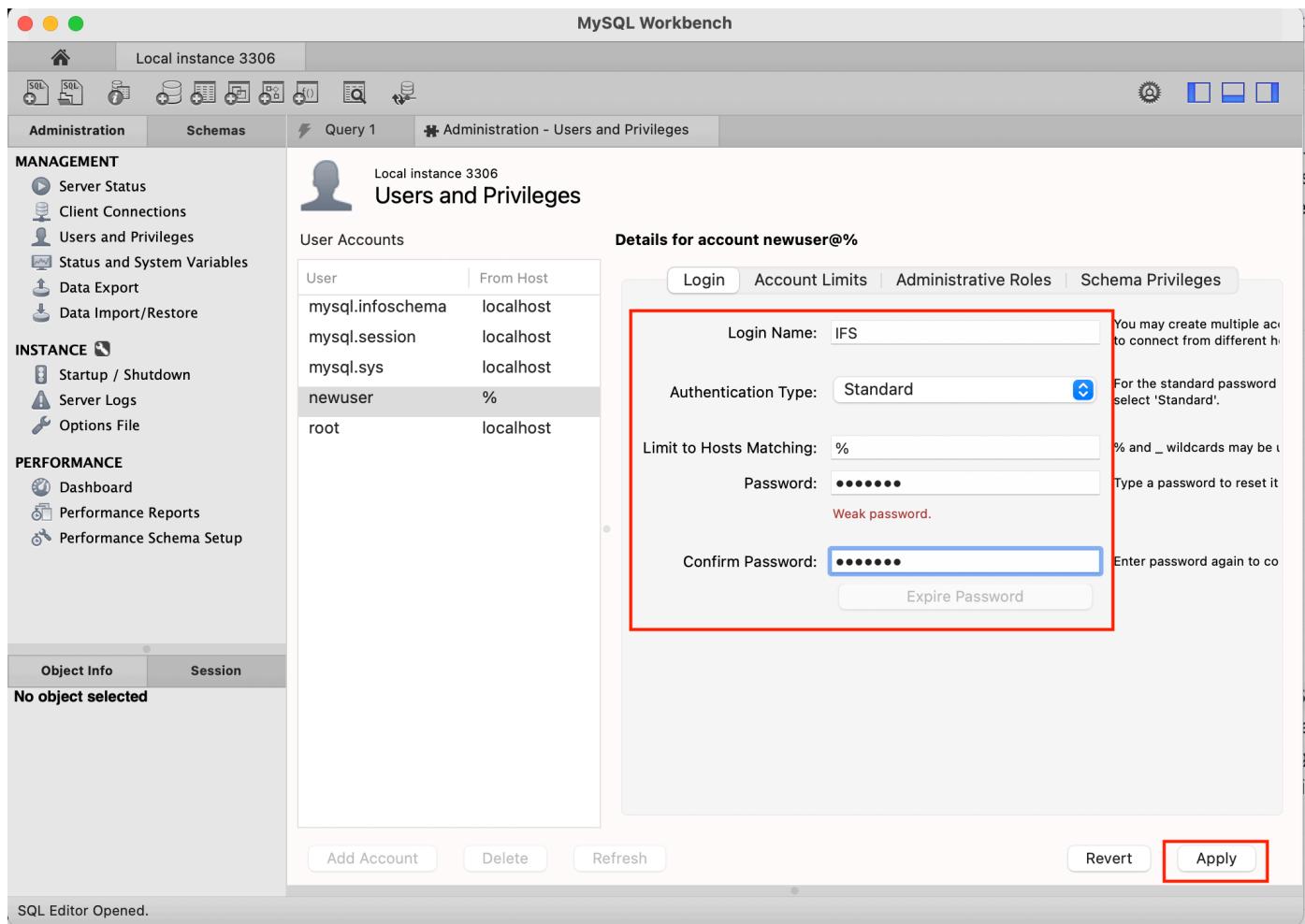
Authentication String:  Authentication plugin specification

Add Account Delete Refresh Revert Apply

SQL Editor Opened.

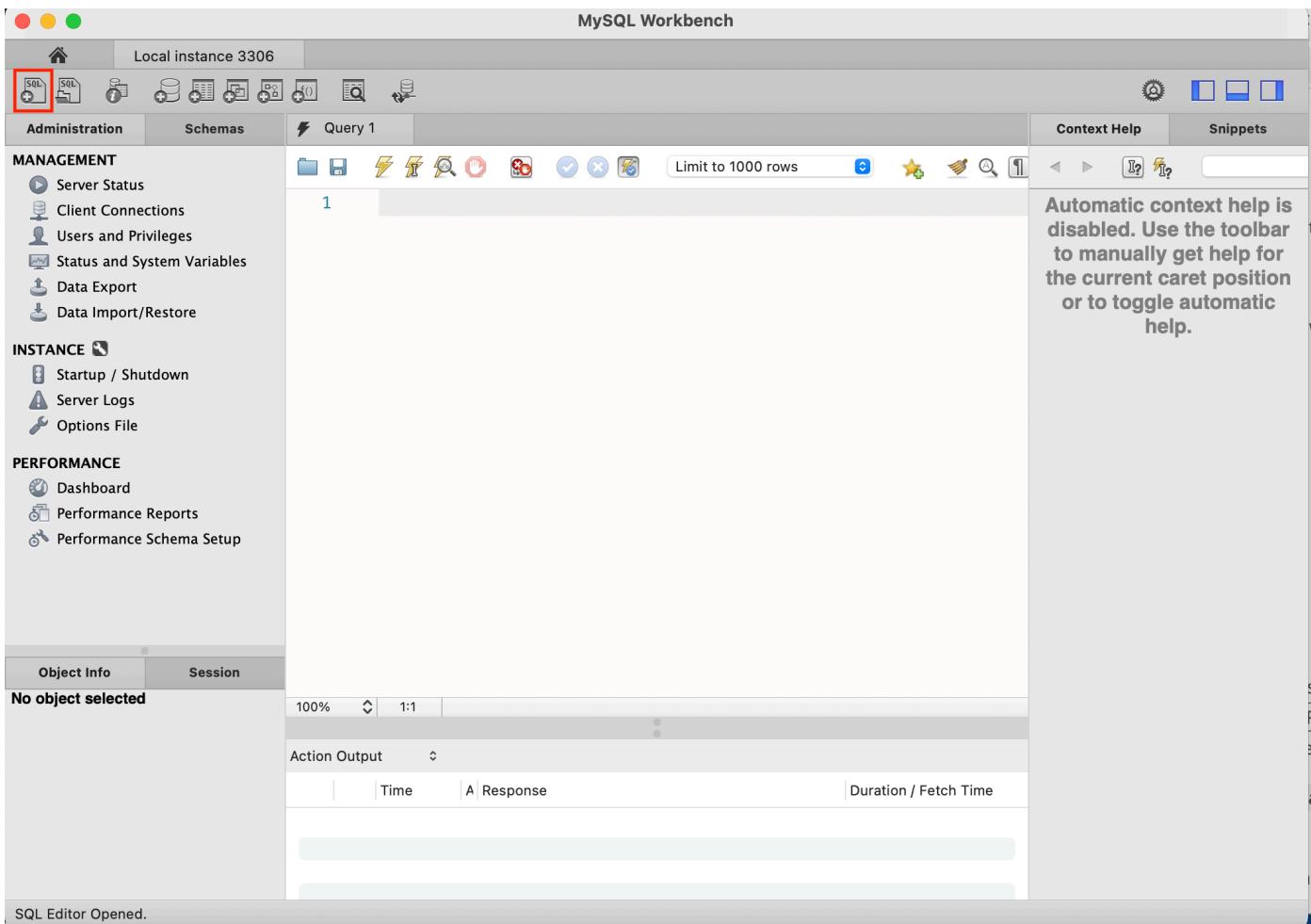
The screenshot shows the MySQL Workbench interface with the 'Users and Privileges' tab selected. On the left sidebar, the 'Management' section is expanded, showing options like Server Status, Client Connections, and Users and Privileges (which is highlighted with a red box). The main panel displays a list of user accounts with their host information. A large modal window is open for creating a new account, with fields for Login Name, Authentication Type (set to SHA256 Password), Password, Confirm Password, and Expire Password. The 'Add Account' button at the bottom left of this modal is also highlighted with a red box. The status bar at the bottom indicates 'SQL Editor Opened.'

Add a user *IFS* with password *IFS\_pw*:

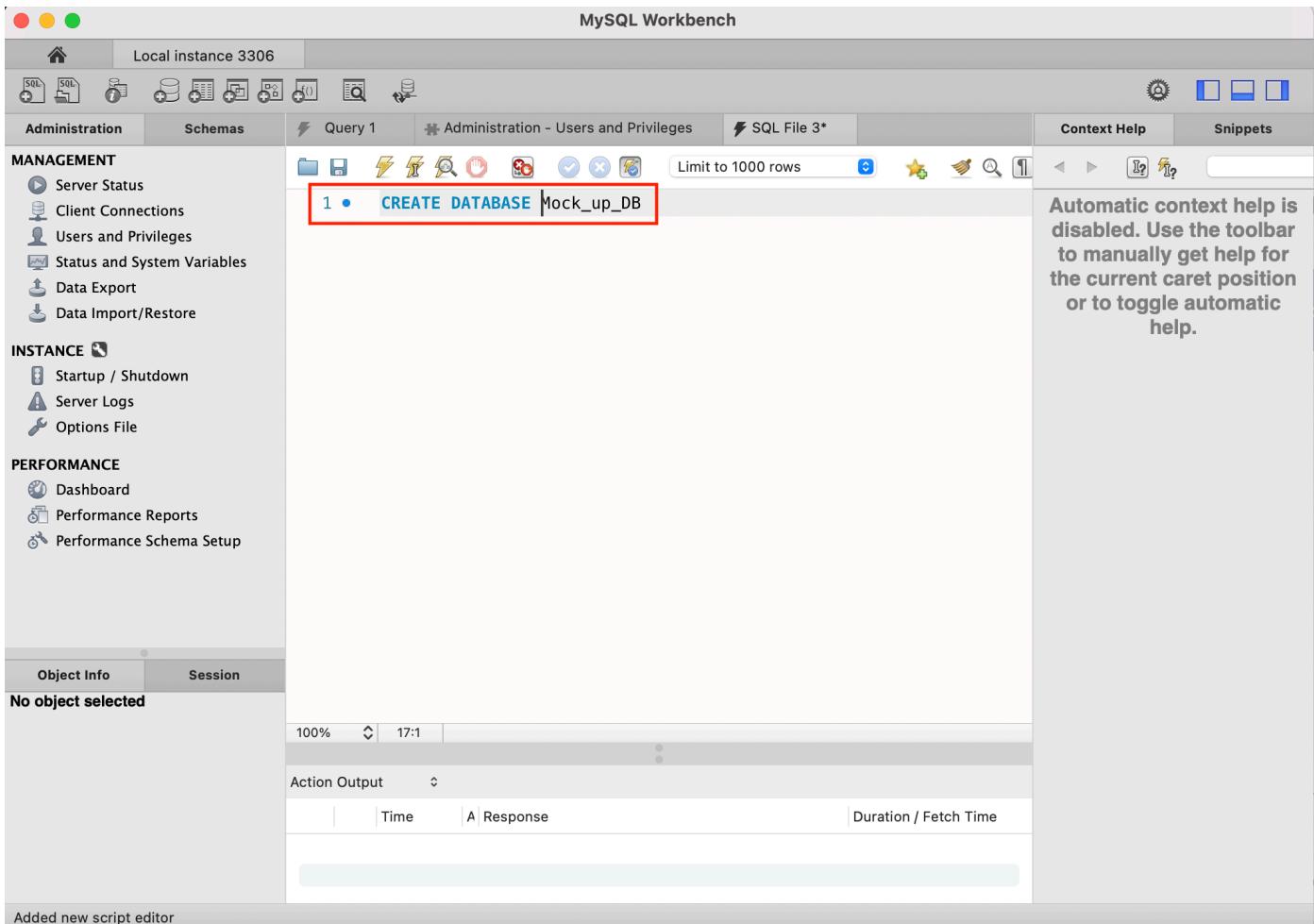


## Create database Mock-up-DB

Click on *SQL+* or the *Administration* tab:



Enter on the command line `CREATE DATABASE Mock-up-DB` and hit enter.



Now the database is created and your user *IFS* exists. You still have to provide your user with the necessary permissions to create and drop tables with the python scripts.

## Set permissions for user IFS

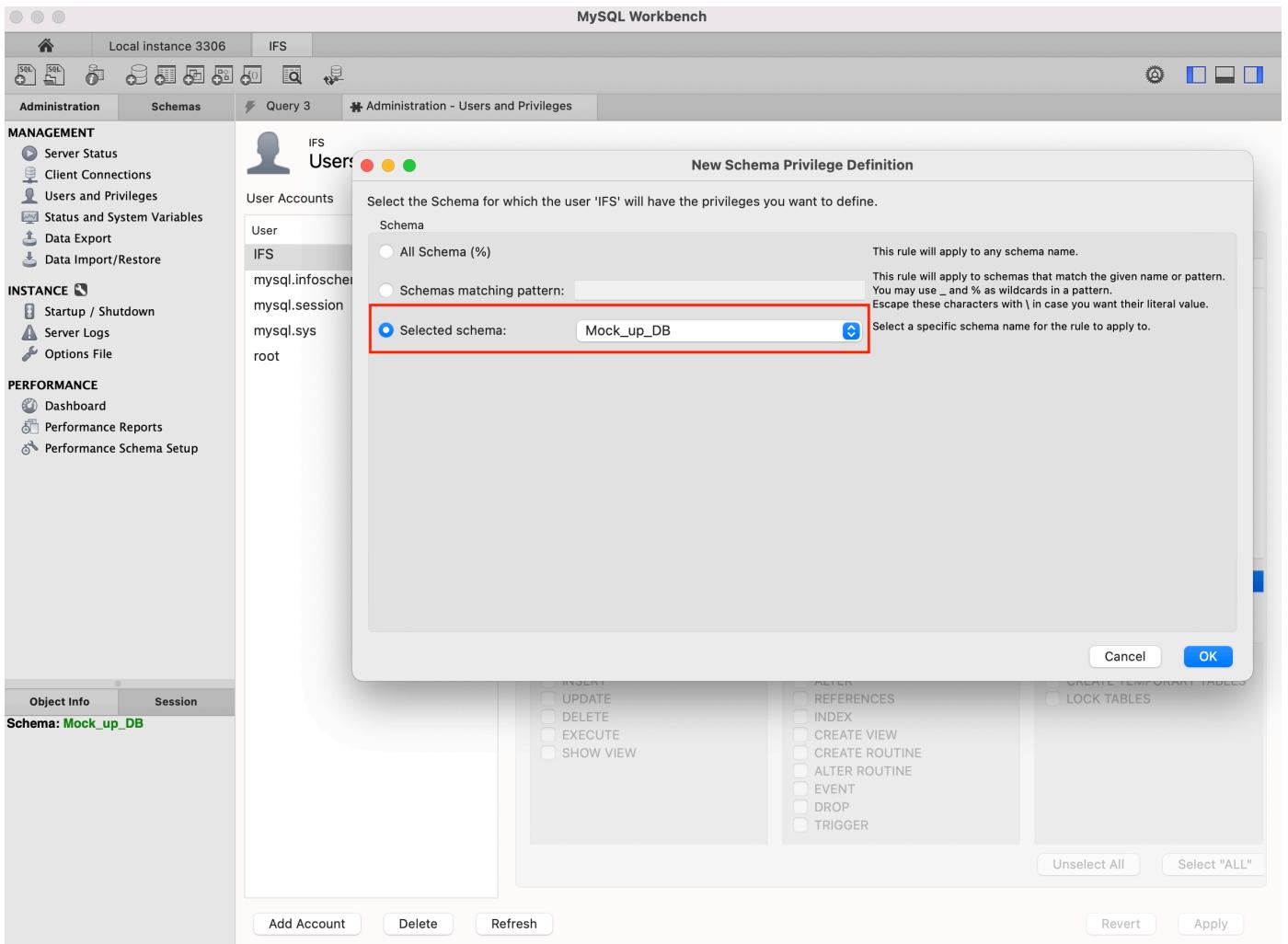
Click on tab *Administration*, select *Users and Privileges*, then the user *IFS* und click on tab *Schema Privileges*:

The screenshot shows the MySQL Workbench interface with the following details:

- Left Sidebar (Administration Tab):** Contains sections for MANAGEMENT (Server Status, Client Connections, Users and Privileges, Status and System Variables, Data Export, Data Import/Restore), INSTANCE (Startup / Shutdown, Server Logs, Options File), and PERFORMANCE (Dashboard, Performance Reports, Performance Schema Setup).
- Main Panel (Users and Privileges Page):**
  - User Accounts Table:** Shows a list of users and their hosts:

User	From Host
IFS	localhost
mysql.infoschema	localhost
mysql.session	localhost
mysql.sys	localhost
root	localhost
  - Form Fields (Schema Privileges Tab):** Includes fields for Login Name, Authentication Type (SHA256 Password), Limit to Hosts Matching, Password, Confirm Password, Expire Password, Authentication String, and Authentication plugin specific parameters.
  - Buttons:** Add Account, Delete, Refresh, Revert, and Apply.

Select the schema for which you want to grant user */FS* all permissions:



Click *Select all* and then *Apply*:

MySQL Workbench

Local instance 3306 IFS

Administration Schemas Administration - Users and Privileges Query 3

**MANAGEMENT**

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

**INSTANCE**

- Startup / Shutdown
- Server Logs
- Options File

**PERFORMANCE**

- Dashboard
- Performance Reports
- Performance Schema Setup

**Object Info Session**  
Schema: Mock\_up\_DB

**Users and Privileges**

User Accounts

User	From Host
IFS	localhost
mysql.infoschema	localhost
mysql.session	localhost
mysql.sys	localhost
root	localhost

**Details for account root@localhost**

Schema	Privileges
Mock_up_DB	ALTER, ALTER ROUTINE, CREATE, CREATE ROUTINE, CREATE TEMPORARY TABLES, C...

Schema and Host fields may use % and \_ wildcards.  
The server will match specific entries before wildcarded ones.

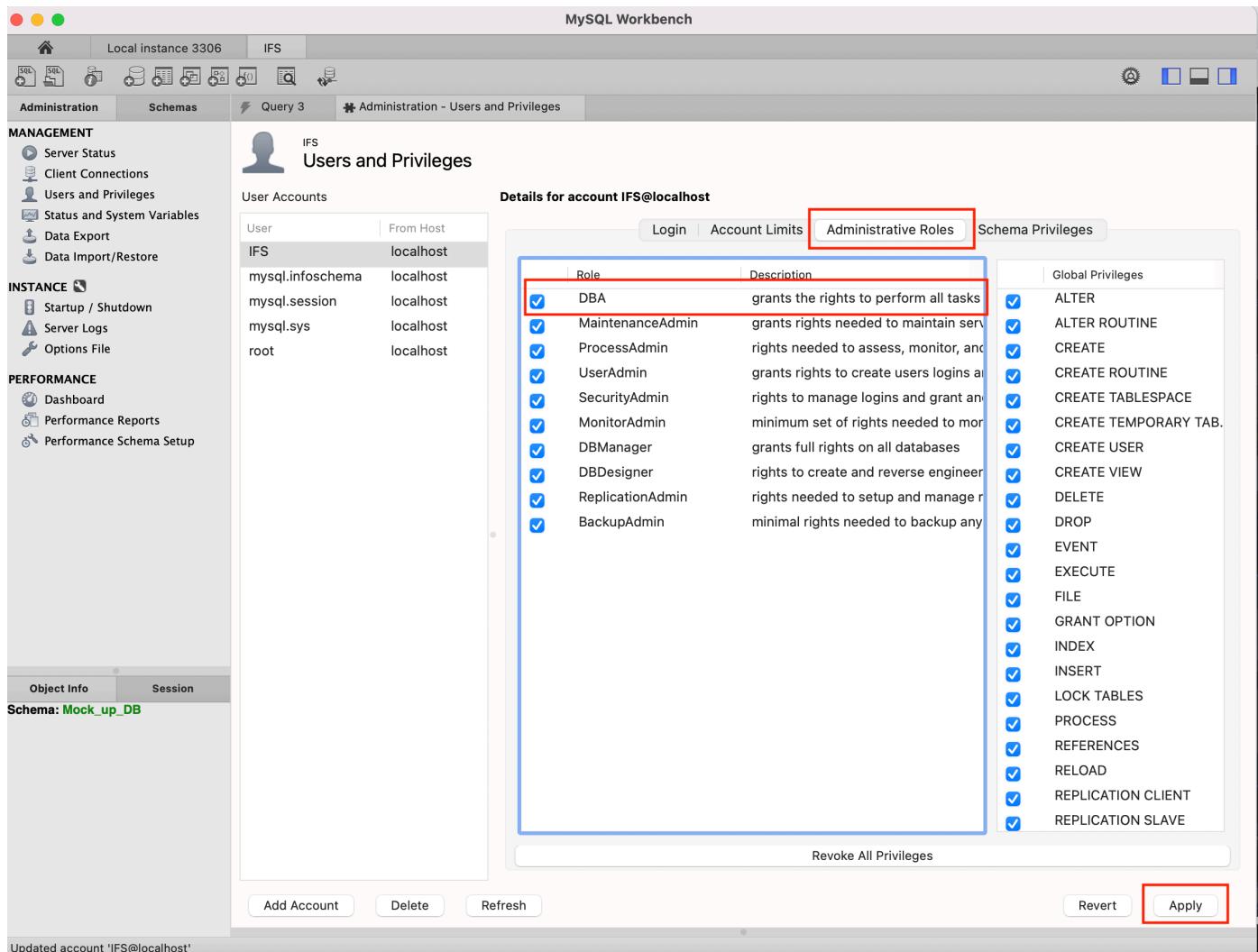
The user 'root'@'localhost' will have the following access rights to schemas matching 'Mock\_up\_DB':

Object Rights	DDL Rights	Other Rights
<input checked="" type="checkbox"/> SELECT <input checked="" type="checkbox"/> INSERT <input checked="" type="checkbox"/> UPDATE <input checked="" type="checkbox"/> DELETE <input checked="" type="checkbox"/> EXECUTE <input checked="" type="checkbox"/> SHOW VIEW	<input checked="" type="checkbox"/> CREATE <input checked="" type="checkbox"/> ALTER <input checked="" type="checkbox"/> REFERENCES <input checked="" type="checkbox"/> INDEX <input checked="" type="checkbox"/> CREATE VIEW <input checked="" type="checkbox"/> CREATE ROUTINE <input checked="" type="checkbox"/> ALTER ROUTINE <input checked="" type="checkbox"/> EVENT <input checked="" type="checkbox"/> DROP <input checked="" type="checkbox"/> TRIGGER	<input checked="" type="checkbox"/> GRANT OPTION <input checked="" type="checkbox"/> CREATE TEMPORARY TABLES <input checked="" type="checkbox"/> LOCK TABLES

**Buttons:**

- Revoke All Privileges
- Delete Entry
- Add Entry...
- Unselect All
- Select "ALL"
- Revert
- Apply

Now change to the tab *Administrative Roles* and grant *DBA* on top which will automatically select everything else, then hit *Apply*:



## Run python scripts

Now you are ready to create the tables of the database with the python scripts. Change to folder `IFS_DB_project/Mock_up_data_modeling` and run the script `main_mock_up_db.py`:

```
python3 main_mock_up_db.py
```

This will create all tables of the database.

How you can visualize the data model in MySQL Workbench is explained in document *ER-Diagram MySQL Workbench.pdf*.

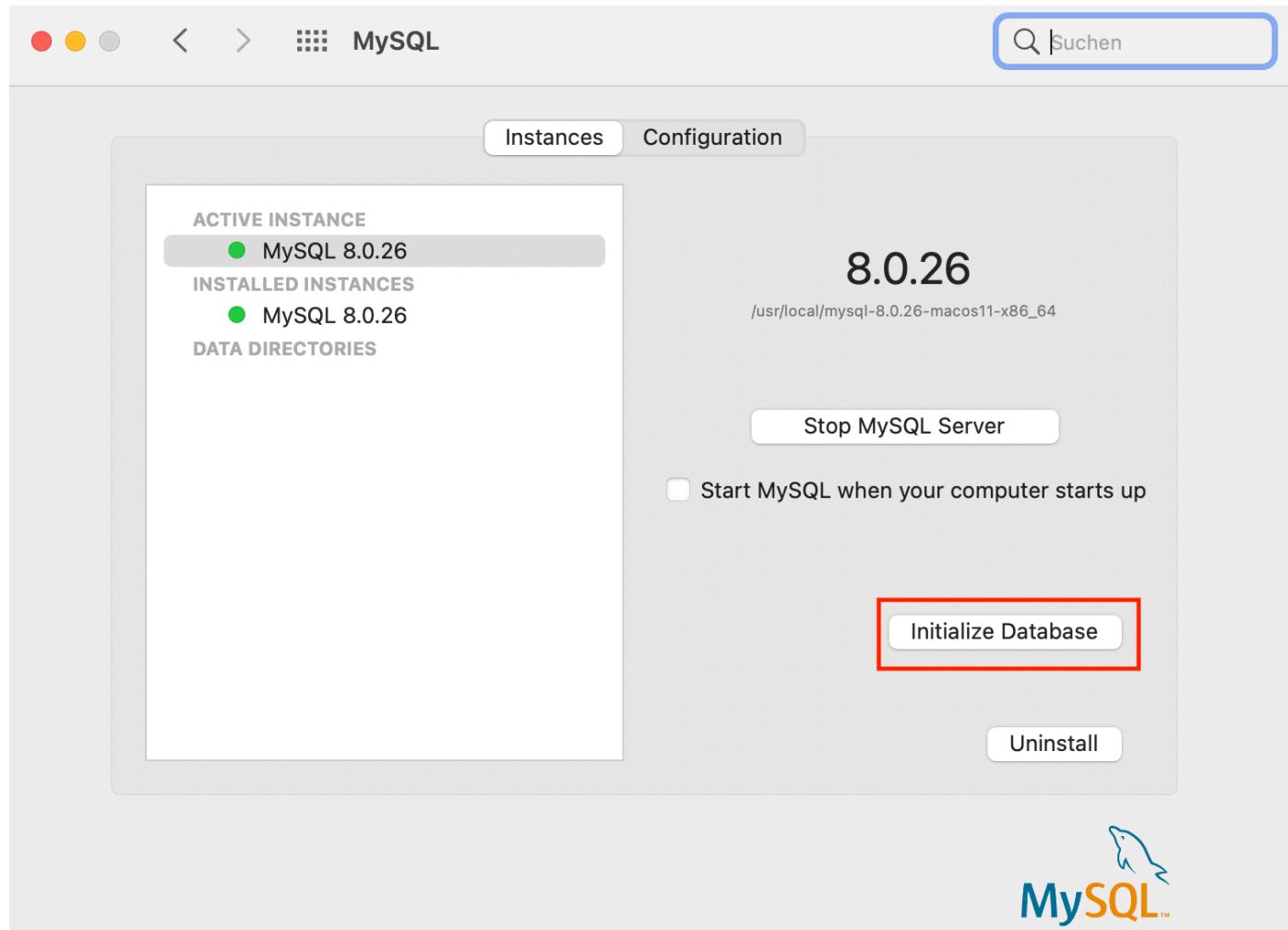
## Trouble shooting on MacOS

If you receive an error message such as

```
ERROR 1045 (28000): Access denied for user ...
```

when trying to create the tables on MacOS, you can try whether a simple stopping and re-starting of the MySQL Server in the system settings solves the problem.

If this does not help, it may be necessary to go to the system settings and hit the *Initialize Database* button:



Enter a password for your *root* user - it may be the same which you used before - in the pop-up window and click *OK*. Then you have to enter your MacOS password and to click *OK* once more.

In a terminal window, change to the folder `/usr/local/mysql/bin`.

There, type `mysql -u root -p [your password here]`

Afterwards it may be necessary to create your user and project again.