Getting Started with MySQL Workbench

The MySQL DBMS Environment

MySQL Workbench is client software used to connect to MySQL Servers. The client can be run independently from the server. In other words, you can install the client on a PC and use it to connect to either a remote server (such as the University's Mudfoot MySQL Server) as shown in figure 1 or a local server (i.e. a localhost setup) as shown in figure 2.

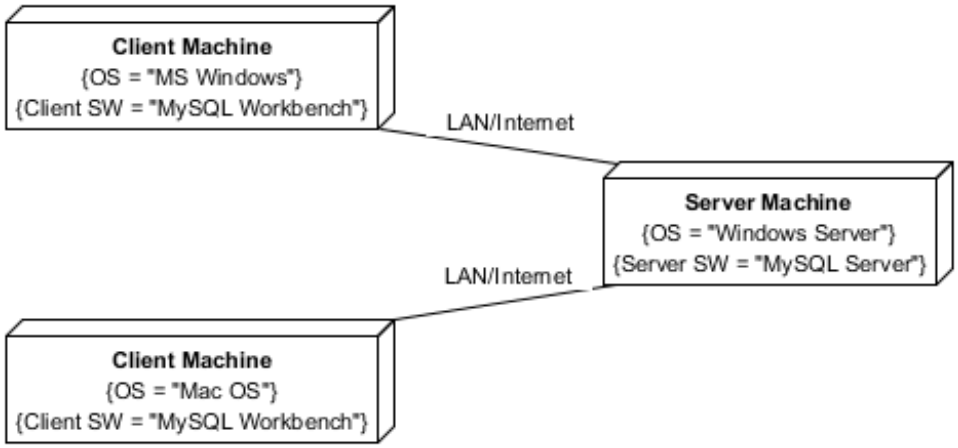


Figure 1: MySQL client<>remote server setup

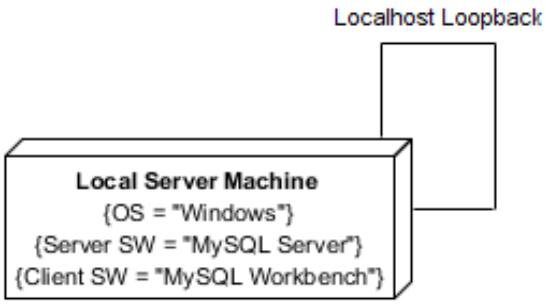


Figure 2: MySQL localhost setup

Login details for the university's Mudfoot MySQL Server will be emailed to your MMU email account. You can connect to it using the MySQL Workbench client software which is installed on the university lab machines. Currently, the Mudfoot Server is accessible off-campus so you can also connect to it using MySQL Workbench at home. To install MySQL Workbench on your own home machine or laptop, download it from http://dev.mysql.com/downloads/ and install it. If you do not have admin rights on your own machine, click the "Looking for previous GA versions?" link in the downloads section of the webpage. Previous versions are available in zipped, 'noinstall' versions which should run without being installed and requiring admin rights.

The community (free/open source) version of the MySQL Server (MySQL Community Server) also be downloaded from the above link if you want to install both the MySQL Server and the MySQL Workbench Client software on your own machine to create a localhost server setup.

This guide will talk your through using MySQL Workbench on the University machines to connect to the University's Mudfoot MySQL server, but the technique is the same if you set up the MySQL Workbench client on your own machine.

Start MySQL Workbench and Connecting to a Server

On your lab machine, start MySQL Workbench by clicking 'MySQL Workbench' from either 'Start > All Programs > MySQL' or 'Start > All Programs > Campus Applications' folder (depending on the lab you are using on campus). You should be presented with the screen shown in figure 3 below.

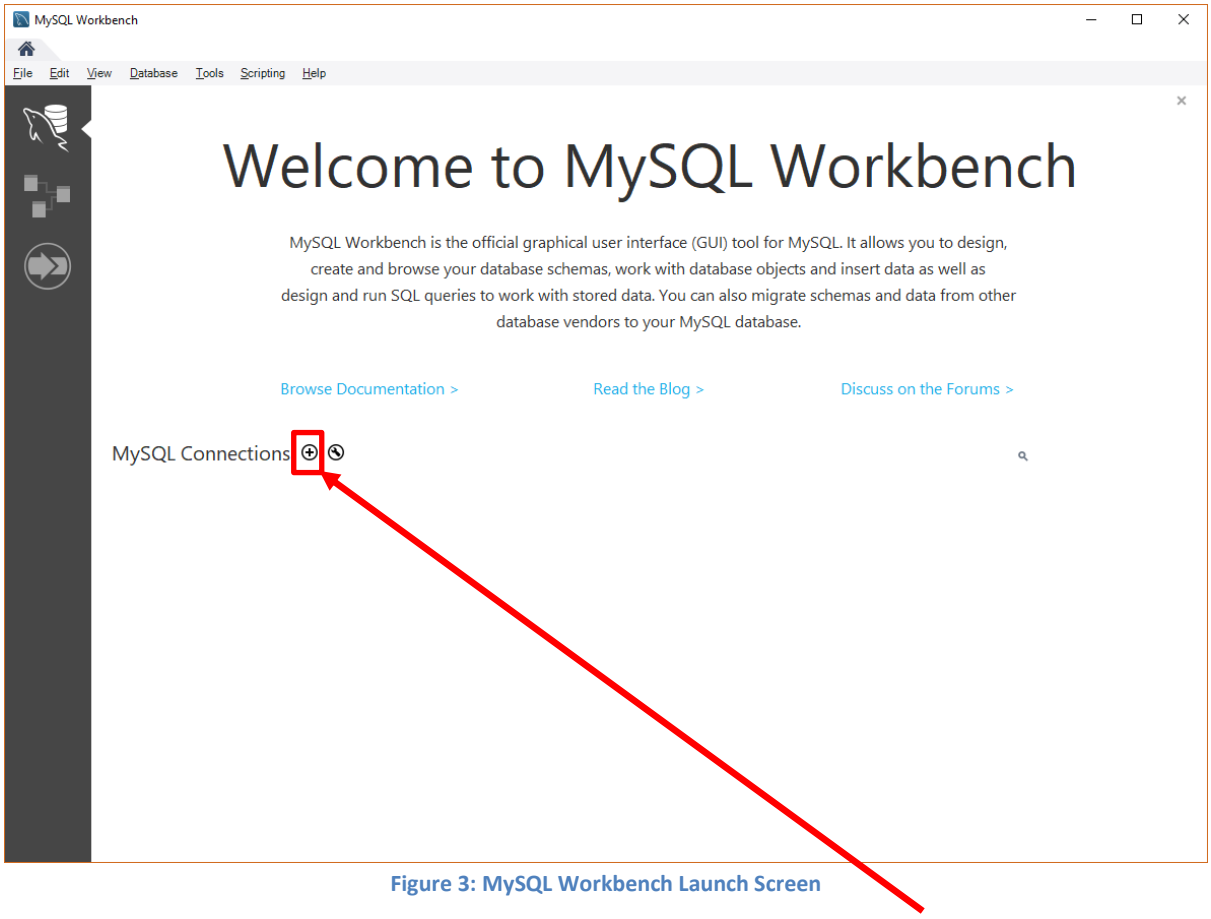


Figure 3: MySQL Workbench Launch Screen

The next step is to setup a new connection to the Mudfoot server. Click 'New Connection' plus symbol to proceed (as shown in figure 3 above).

The New Connection screen shown in figure 4 will appear.

Enter the details as below:
Connection Name: Enter your name (although this can actually be anything)
Hostname: Enter *mudfoot.doc.stu.mmu.ac.uk*
Port: 6306
Username: Enter your mudfoot username (that you were sent via email)
Default Schema: Enter your mudfoot username (that you were sent via email)

Note: If you are installing MySQL Server on your own machine and want to connect to it using MySQL Workbench (i.e. a localhost setup) the default connection details should work (i.e. hostname: 127.0.0.1 or localhost, port: 3306).

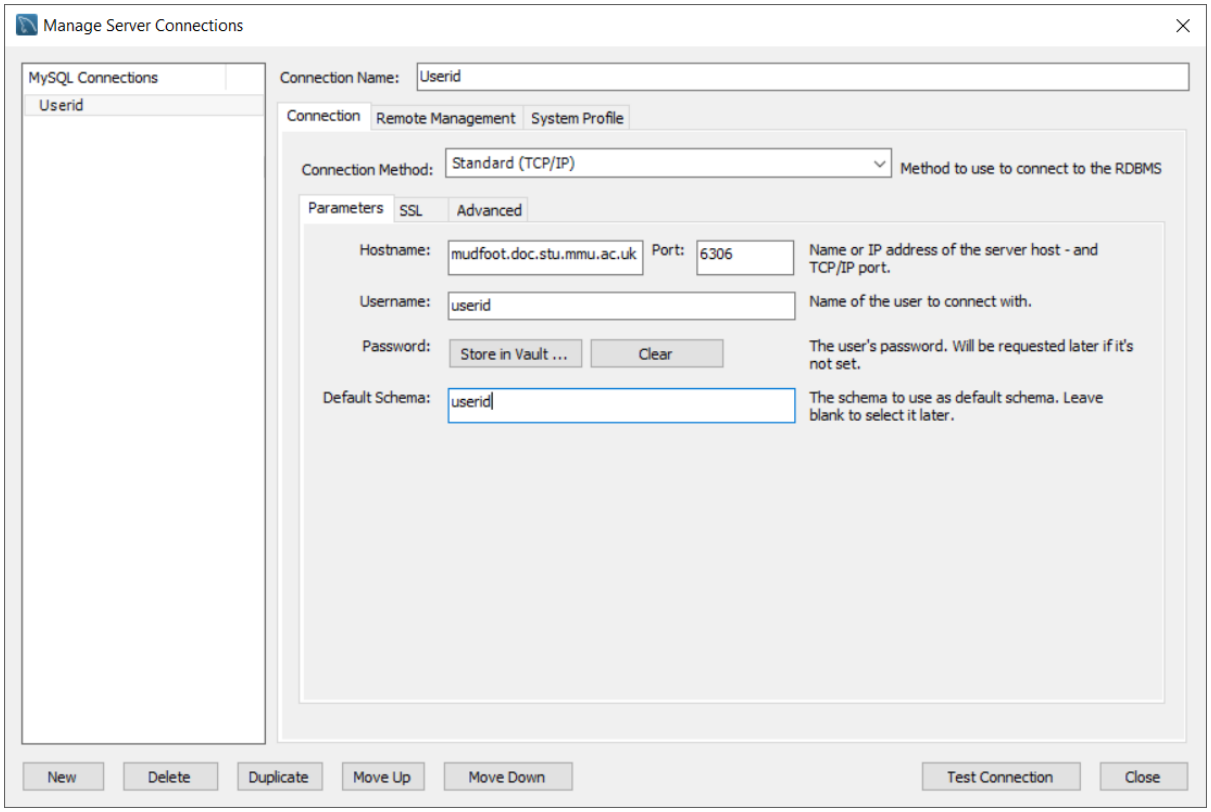


Figure 4: New Connection in MySQL Workbench

Hit 'OK' and the connection will be created. You will be taken back to the initial screen shown in figure 3. You should see a new connection box with your name listed. Click the connection and you will be prompted for your password (that you were sent via email).

If you do not get in because of an SSL related error you need to do the following. You can downgrade to version 8.0.22. Older versions of Workbench (up to 8.0.22) had the option in the connection properties to use SSL 'if available' (https://downloads.mysql.com/archives/workbench/) as below:

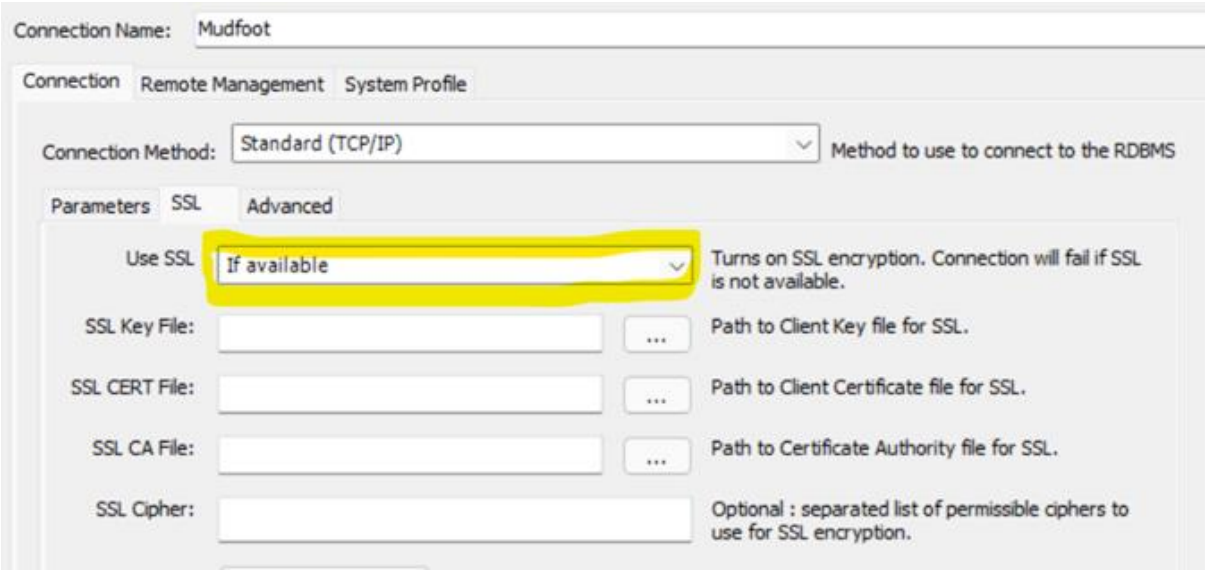


Figure 4a: Fixing the SSL issue, method 1: using older version

Or, if using Windows you can go to C:\Users\<your username>\AppData\Roaming\MySQL\Workbench\connections.xml and change:

<value type="int" key="useSSL">2</value>

to

<value type="int" key="useSSL">1</value>

Other solutions and more on this solution can be found here:

https://stackoverflow.com/questions/69769563/how-do-i-disable-ssl-requirement-in-mysql-workbench

Once you are logged in, the standard Workbench interface should appear as shown in figure 5.

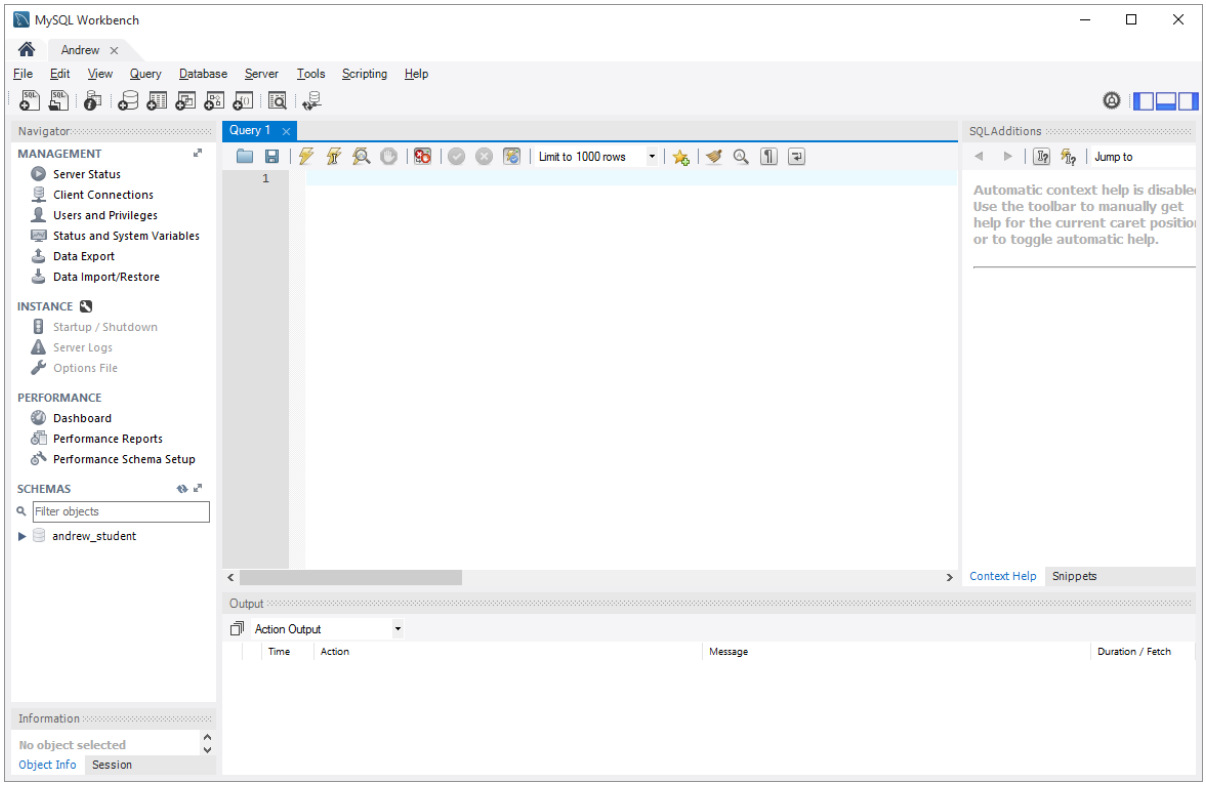
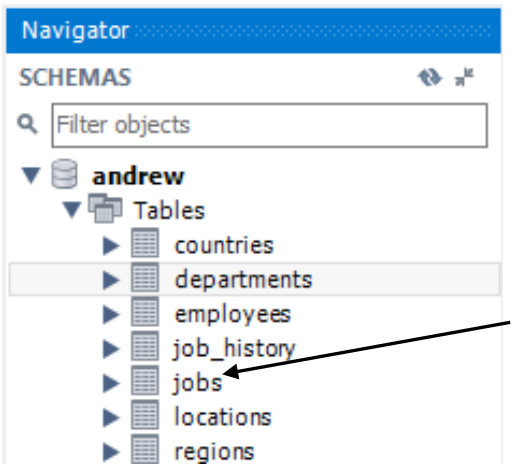


Figure 5: The MySQL Workbench Interface

In the left pane is the navigator which shows available schemas, including your connection (showing your connection name). You may wish to hide some of the sections in the navigator to make it easier to follow using the  buttons. You may also need to click 'Schemas' in the left window pane to see your connection

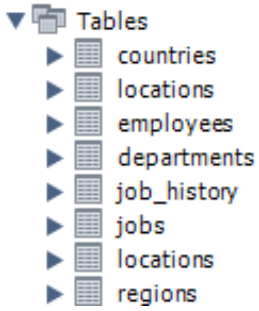


Clicking the arrow next to the connection name will expand the view to show Tables and other objects. Clicking the arrow next to Tables will show all the tables in your database (there will not be any unless you have previously used your Mudfoot database).

The central pane is the query editor where you can write your SQL queries. The two buttons  shown in the toolbar above the query editor are used to run all statements in the editor, or to run the query statement currently under the cursor.

Below the central pane is the Output pane which shows any feedback from the statements run in the editor. If a SELECT query (covered later) is run, a results pane will also appear showing the output of the query.

We will now create a sample set of tables from a human resource management system (see the ERD in Appendix A). Download the 'createHR.sql' file from this week's section on Moodle and save it on your "One Drive" space. Then go back to SQL Workbench, go to 'File > Open SQL Script' and open the sql file that you've just downloaded. Alternatively, you can copy the contents of the file into the Workbench query editor pane. Once opened click the  button to run the script.



If you now click the arrow next to 'Tables' in the navigator pane you should see all the tables created by the createHR script. If not, click the refresh icon  and then try again.

Clicking on any of these tables will show the details of the table in the information pane below the object browser. This will include the name of the columns, the type and size of the data supported by that column and if the column is a primary key.

In recent versions of MySQL Workbench you can also hover your cursor over the table names which will reveal three small icons:

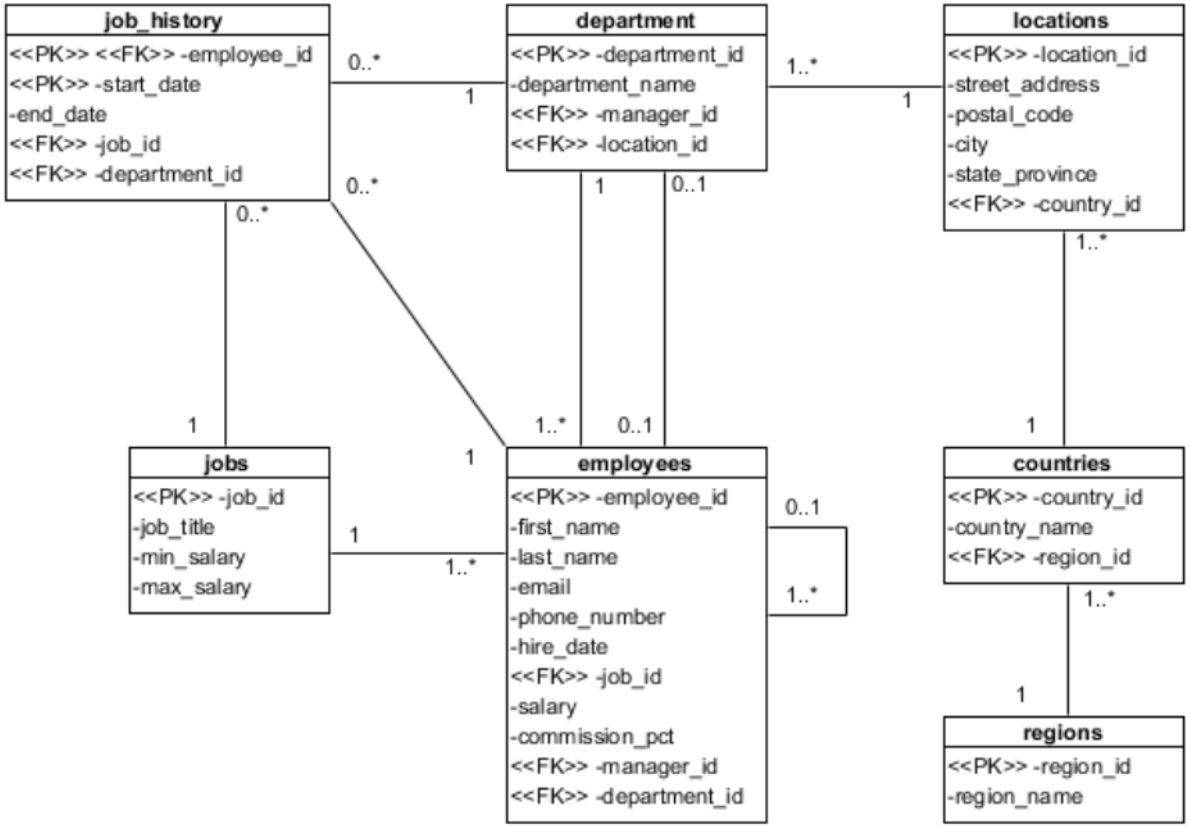
 This will give you information about the table including columns and primary and foreign keys

 This will allow to make changes to the table structure such as renaming columns, changing datatypes and setting primary and foreign keys

 Shows the data in the table and allows you edit it, add/delete rows and sort and filter the data.

Familiarise yourself with the HR Entity Relationship Diagram in Appendix A and then look through the tables that you have just created in MySQL to see how the design has been implemented. In particular, note primary and foreign keys. Don't worry if you don't understand everything, we will be covering database object creation later in the unit. Feel free to ask any questions.

Appendix A – Human Resources Entity Relationship Diagram



(Oracle, 2012)