



Technical University of Denmark



DTU Compute

Department of Applied Mathematics and Computer Science

Database Tools

Installation and Use

©Anne Haxthausen

Overview

- About MariaDB and MySQL Workbench



- Exercise:

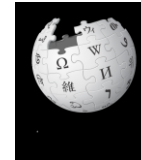
1. Install MariaDB and MySQL Workbench
2. Try the Workbench
3. Try the Command Line Client (optional – not needed in the course)



About MariaDB



- Is a widely used *Relational Database Management System* supporting SQL.
- Is an open-source, community-developed fork of MySQL.
- Some *prominent users* : Google, Mozilla, Wikipedia, archlinux, RedHat, and Fedora.
- We will use it in this course.



- Online documentation:
<https://mariadb.com/kb/en/library/documentation/>

About MariaDB and its User Interfaces



■ MariaDB Server

- Receives SQL input and returns SQL output to other programs via Port 3306.

■ MySQL Workbench

- Enables editing of SQL queries in a **Graphical User Interface** to be sent to execution in the MariaDB Server.
- Entity-Relationship Diagrams for data modeling



■ MariaDB Command Line Client

- Enables editing of SQL queries in a **Command Line Interface**

■ Program Stack

MySQL Workbench

Command Line Client

DB Applications

MariaDB Server (Port 3306)

Operating System (Windows 10 Pro)

Personal Computer Hardware (Lenovo T450)

Exercises



- Purpose:

to get the MariaDB server together with its Command Line Client and MySQL Workbench up and running on your PC.

- Exercises on the next pages:

1. Install the Tools
2. Try the Workbench
3. Try the Command Line Client (optional – not needed in the course)

Exercise 1: Install the Tools

For Windows:

In the Course Content of DTU Learn, in the *Tools Guides* folder, there are installation guides for

1. Installing the MariaDB Server with the MySQL Command Line Client on Windows.
2. Installing the MySQL Workbench on Windows.

For Mac:

In the Course Content of DTU Learn, in the *Tools Guides* folder, there is a document with a guide for installing the tools on Mac.

For Linux:

The installation procedure depends on the Linux distribution and package manager you are using. Therefore, no general recipe is given, but some tips can be found in the document *InstallationsOnLinux.pdf*, which can be found in the Course Content of DTU Learn, in the *Tools Guides* folder. You might also use Google to find a solution.

Exercise 2: Try MySQL Workbench

Try [MySQL Workbench](#) by following the guide “MySQL Workbench – Ultra-short Introduction” (in the file *WorkbenchUserGuide.pdf*) which can be found in the *Tools Guides* folder in the Course Content of DTU Learn.

MySQL Workbench

The screenshot displays the MySQL Workbench application window. The top menu bar includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The Database menu is currently open, showing options like Connect to Database, Open Recent, Recent Databases, Recent Servers, Recent Schemas, Recent Tables, Recent Views, Recent Procedures, Recent Functions, Recent Triggers, Recent Events, Recent Users, Recent Privileges, Recent Status and System Variables, Recent Data Export, Recent Data Import/Restore, Recent Startup / Shutdown, Recent Server Logs, Recent Options File, Recent Dashboard, Recent Performance Reports, and Recent Performance Schema Setup.

The left sidebar contains the Navigator pane with 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), PERFORMANCE (Dashboard, Performance Reports, Performance Schema Setup), and SCHEMAS (temporal, transactions, university, university35, Tables). The SCHEMAS section is expanded, showing the 'university35' database selected.

The central SQL editor shows a file named 'SQL File 4*' with the following SQL code:

```
1 • CREATE DATABASE University35;
2 • USE University35;
```

The right pane displays the 'SQLAdditions' section, which includes a 'CREATE TABLE' dropdown, a 'Topic: USE' section with syntax and description, and a 'See also: Online help use' link. The 'Output' pane at the bottom shows the execution results of the SQL statements:

	Time	Action	Message	Duration / Fetch
✓	1 09:50:54	CREATE DATABASE University35	1 row(s) affected	0.000 sec
✓	2 09:51:12	USE University35	0 row(s) affected	0.000 sec

MySQL Workbench

■ MySQL Panels

- Navigator Panel: to start/stop the Server, ...
- SQL Panel: to write and execute SQL statements
- Output Panel: to show status (GYR) for each executed SQL statement
- SQL Additions Panel: to display SQL syntax and options
- Information Panel: to show information about an object or connection

OPTIONAL Exercise 3: Try the Command Line Client

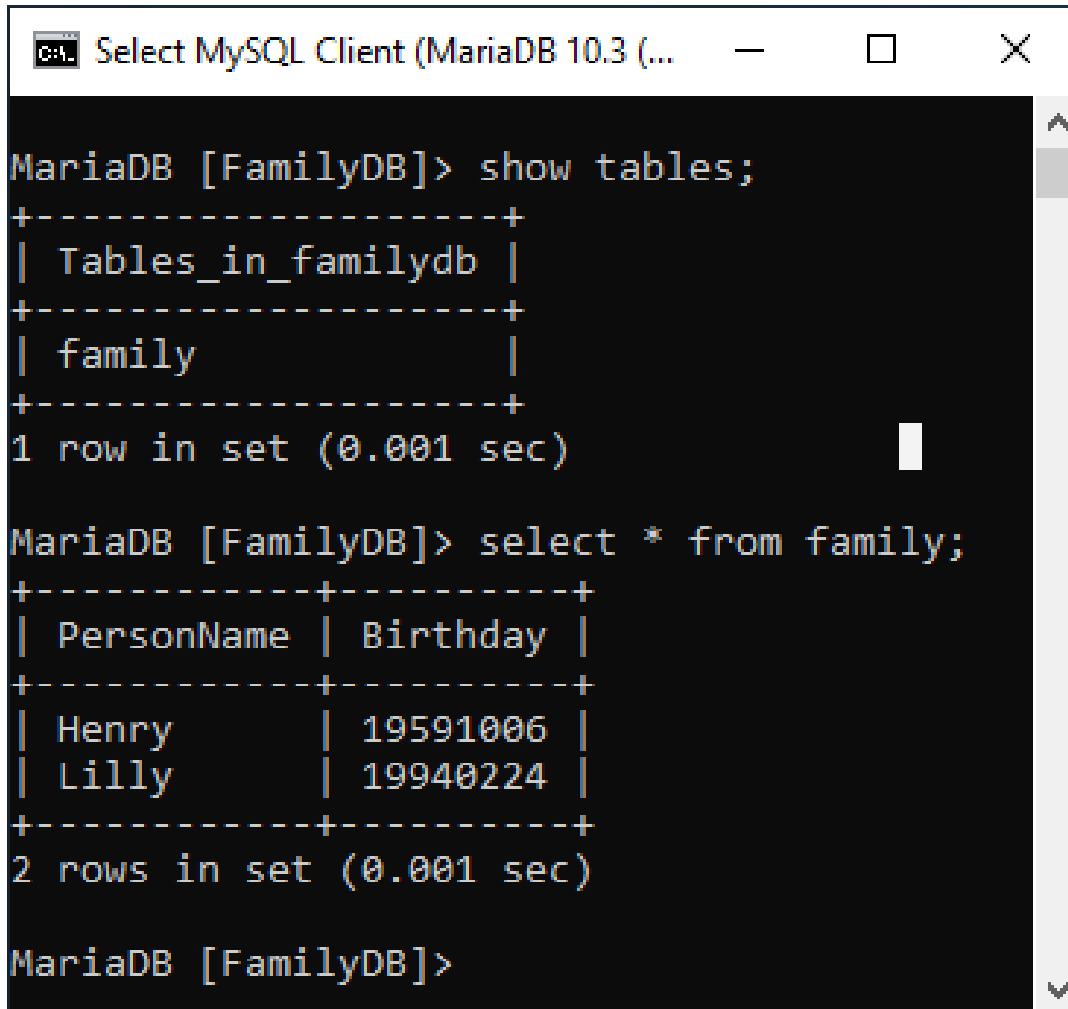
1. Download "FamilyDB.sql" file from the *Databases* folder in the Course Content of DTU Learn to a file, e.g. it could be `C:\Users\aeaha\Documents\02170\Databases\FamilyDB.sql` This file contains SQL commands to create and populate a table with data.
2. Start MariaDB Command Line Client as follows and enter your server password:
 - Under **Windows**: you can start the tool from the start menu by selecting `MariaDB->MySQL Client (MariaDB ...)`
 - Under **Linux**: you can start the tool by the command: `mariadb -u root -p` or `mysql -u root -p`
 - Under **Mac**:
 - Start Docker by double-clicking the Docker.app application in the Applications folder.
 - In the Containers section of the Docker Desktop, select the *mariadbtest* container instance, and then
 1. click the play button in the Actions section
 2. click on the ... icon in the Actions section and choose **Open in Terminal**
 - In the resulting terminal you can now start the Command Line Client by executing the command: `mariadb -u root -p`
3. Now you can enter SQL commands on the command line after the `MariaDB [...]>` prompt.
4. Try to execute the following SQL commands and see what the system replies.

(On Mac, in order to use the FamilyDB.sql file below, you must first copy it from your local host to a folder in the *mariadbtest* container as follows: Go to the **Files** tab in the Docker Desktop (see page 12). Then right-click the container folder to where you want the file to be copied, and choose the "import" option which allows you to select the use Family.sql from the file system on your local host.)

```
MariaDB [(none)]> \h
MariaDB [(none)]> create database FamilyDB;
MariaDB [(none)]> use FamilyDB;
MariaDB [FamilyDB]> source C:/Users/aeaha/Documents/02170/Databases/FamilyDB.sql;
The green text should be modified so it is the path to the FamilyDB.sql file. In some cases the slashes (/) in the path should be changed to backslashes (\).
MariaDB [FamilyDB]> show databases;
MariaDB [FamilyDB]> show tables;
MariaDB [FamilyDB]> select * from family;
MariaDB [FamilyDB]> exit;
```

Exercise 3. Try the Command Line Client, continued

Here you see the output from two of the SQL commands:



```

Select MySQL Client (MariaDB 10.3 (...
MariaDB [FamilyDB]> show tables;
+-----+
| Tables_in_familydb |
+-----+
| family              |
+-----+
1 row in set (0.001 sec)

MariaDB [FamilyDB]> select * from family;
+-----+-----+
| PersonName | Birthday |
+-----+-----+
| Henry      | 19591006 |
| Lilly      | 19940224 |
+-----+-----+
2 rows in set (0.001 sec)

MariaDB [FamilyDB]>
```

Mac: Import of Files into Docker Container

mariadbtest docker.io/library/mariadb:10.6 **STATUS** Running (4 minutes ago)

0452c3b96857 [3306:3306](#)

Logs Inspect Bind mounts Exec **Files** Stats [Open file editor](#)

Name ↑	Note	Size	Last modified	Mode
.dockerenv		0 Bytes	5 minutes ago	-rwxr-xr-x
bin -> usr/bin		7 Bytes	1 month ago	Lrwxrwxrwx
> boot			4 years ago	drwxr-xr-x
> dev			5 minutes ago	drwxr-xr-x
> docker-entrypoint-initdb.d			13 days ago	drwxr-xr-x
> etc			5 minutes ago	drwxr-xr-x
> home			4 years ago	drwxr-xr-x
lib -> usr/lib		7 Bytes	1 month ago	Lrwxrwxrwx
lib32 -> usr/lib32		9 Bytes	1 month ago	Lrwxrwxrwx
lib64 -> usr/lib64		9 Bytes	1 month ago	Lrwxrwxrwx
libx32 -> usr/libx32		10 Bytes	1 month ago	Lrwxrwxrwx
> media			1 month ago	drwxr-xr-x
> mnt			1 month ago	drwxr-xr-x
> opt			1 month ago	drwxr-xr-x

Edit file
 Delete
 Save
 Import

RAM 2.59 GB CPU 0.38% Signed in v4.26.1