Phoenix ELN: MariaDB/MySQL Server Install Guide

1. Introduction

Phoenix ELN optionally synchronizes its local database with a server database, resulting in backup, data sharing, and central storage - some of the key benefits of an electronic lab notebook. *Phoenix ELN* supports the widely used open-source database management systems *MariaDB* and *MySQL* for server data storage.

2. Server Hardware

For user groups not having access to a corporate server, an NAS server may be a great alternative. An NAS server basically is an inexpensive and robust Linux mini-PC designed for 24/7 use, configurable via an intuitive, web browser-based UI. It can be plugged into your LAN just like any other PC and consumes little energy.

The required *MySQL* or *MariaDB* database management systems often are preinstalled on NAS devices or larger servers, or they can be installed via easy-to-use packages.

3. Common Database Tools

Once the required *MySQL* or *MariaDB* systems are in place, you will need a database administration tool for accessing them. On most servers the tool called **phpMyAdmin** either already is present, or comes as a one-click installation package (e.g. for NAS systems). Alternatively, you can also use a PC- tool like **HeidiSQL** for accessing the database from your local PC, which is often more convenient

When first running either of these tools, a database connection is requested. Specify the server as "localhost", the username as "root", and create a password for accessing the database as administrator.

4. Creating the Phoenix ELN Server Database

Once connected to the server, the next step is to create the *Phoenix ELN* database. The *Phoenix ELN* server package contains the database script "PhoenixData_Setup_V.x.x.sql". Import this script from within *phpMyAdmin* or *HeidiSQL* as follows:

- Using *phpMyAdmin:* Go to the Home section, then click the "Import" button on the toolbar.
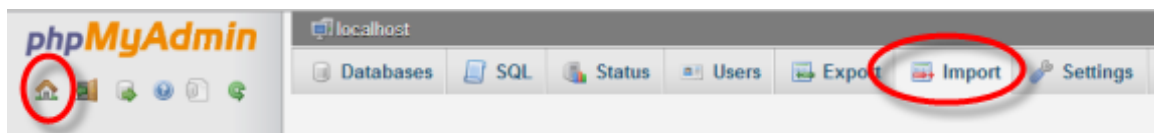
- Using *HeidiSQL:* Click the "Open SQL …" button in the *HeidiSQL* main toolbar.
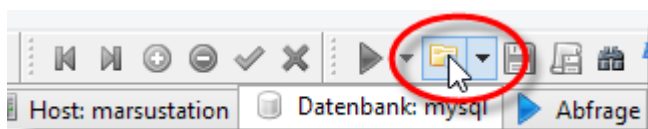
When loaded, click the appropriate "Run" or "Execute" button to start the script execution. After successful completion, your administration tool now should display the new "PhoenixElnData" database and its tables – you may need to refresh the view of the tool to see it.
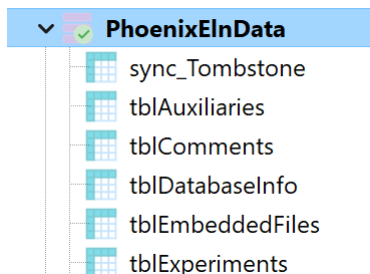
5. *Creating a User Account*

The next step is to create a database user account for connecting the *Phoenix ELN* clients to the database.

In *HeidiSQL,* follow these *steps* to create a new user role: Go to *Tools -> User Manager* and click the *New* toolbar button in the appearing user management window. This creates a new database user. Please note that the username is *required* to be exactly **PhoenixUser** to be recognized by Phoenix ELN. Then specify a password of your choice and the desired *From Host* setting, where you can choose if the user account can access the database from your local network only (intranet), or additionally from outside (internet). Please note that access from the internet increases security risks.

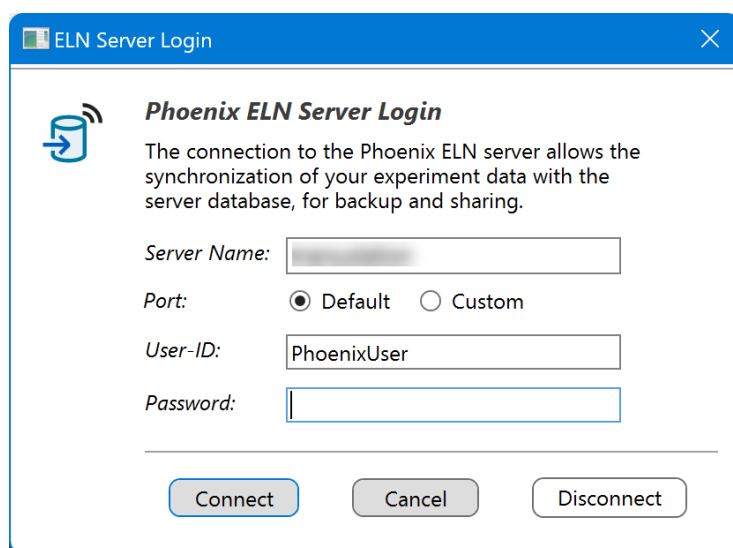Finally assign exactly following access rights to the new user, by checking the appropriate checkboxes:

- Select
- Alter
- Create
- Delete
- Insert
- Update
- Super (-> required for assigning sufficient connection transaction memory to the client)

When using *phpMyAdmin*, click the "User Accounts" tab on top, click the "Add user account" link below the list of database users, then proceed as above for specifying the PhoenixUser account.

After creating the the PhoenixUser account, the database setup is complete.

6. *Connecting Phoenix ELN*

Now you are ready to connect your local *Phoenix ELN* clients. Please note that the 'Demo' user cannot connect to the server, only non-Demo users have this option. To connect a non-Demo user, run *Phoenix ELN* and click the Tools > Server Connection item of the main toolbar to display the server login dialog below:

Enter the following connection data:

- **Server Path**: The machine name or IP address of your Phoenix ELN server (as visible in the 'Network Connections' node of Windows Explorer).
- **Port:** The server port normally should be left at the 'Default' option (this is port 3306). In special cases you may assign another port number by selecting the 'Custom' option.
- **User-ID**: This is required to be 'PhoenixUser'.
- **Password**: The server password for the 'PhoenixUser' account, as specified in Section 5, always is *identical* for all Phoenix ELN users within your organization. The entered login data are remembered when opening the application next time.

In case of **connection problems**, make sure that the server is visible in the Network Connection node of the *Windows Explorer* on the client – otherwise troubleshoot until visible to the LAN. Also consider to temporarily switch off your firewall(s) to determine if this is the cause of the issue.

If the connection was successful, the client will perform an initial upload of its local experiment database. From this point on, all changes applied in the client will be auto-synchronized to the server database.

7. *Automatic Schema Upgrades*

New releases of the *Phoenix ELN* application may include changes to the required server database schema. To minimize the database maintenance overhead, the server database is always auto-upgraded by the first connecting client requesting the change. These database schema upgrades only include additions of columns or tables and therefore keep the database backward compatible.

8. *Backup & Security*

1) Regularly **back up** your server database.
2) If not necessary, do not open your server for internet access, to **keep your data in-house**.

9. Disclaimer

Please note that the maintainers of this open-source project cannot provide any support for server installation issues beyond this document. Please consult the *MySQL* or *MariaDB* forums for support in case of problems. Also, this guide was created with the best of knowledge, but is provided "as is", with no warranties of any kind.