KiCad 7 Database libraries with MariaDB in Ubuntu 22.04

MariaDB ODBC Driver installation and connection in Ubuntu 22.04:

This is an tutorial/explanation for those who are interested in using KiCad 7 and MariaDB running on a server in the local network. To prevent othes from wasting the same amount of time that I did, I will proceed to explain what I tried and what I learned. If you are not intereseted in the learning part, you can jump to section 2.1.

Requirements: You should have already a MariaDB database with some test components running in you local network. I suggest doing something like you can see in [3].

1. First attemp with Microsoft ODBC 17/18 Driver:

My first attempt was to follow the video-tutorial [3] and install Microsoft ODBC driver 18 by following the instructions in the official microsoft page. Everything seemd to work fine, but it was not connecting to my database. I enabled the TRACE outputs of the ODBC drives by adding the header below to the `/etc/odbcinst.ini`. This file lists the ODBC drivers installed in your system.

```
[ODBC]
Trace=Yes #// Print connection information
TraceFile=/dev/stdout #// In this case, print to the terminal instead of a file
```

Specifically, I got the following error: `[Microsoft][ODBC Driver 18 for SQL Server]Protocol error in TDS stream`. The trace output helped me verify the connection was reaching to my Mariadb IP and port, but still there was some issue I could not debug.

After some investigation, I found a StackOverflow post in which someone was asking why "ODBC Driver 18 for SQL Server" is not connecting to MySQL. Somebody replied something along the lines of: 'Of course is not going to work, you are trying to connect a SQL driver to MySQL!'. It seems it is not the appropiate driver! :rollingeyes:

2. Attempt with MariaDB ODBC Driver

As of 11.03.2023, the latest version of the Mariadb ODBC driver (3.1.17) for Ubuntu 22.04 seems to have an incompatibility:

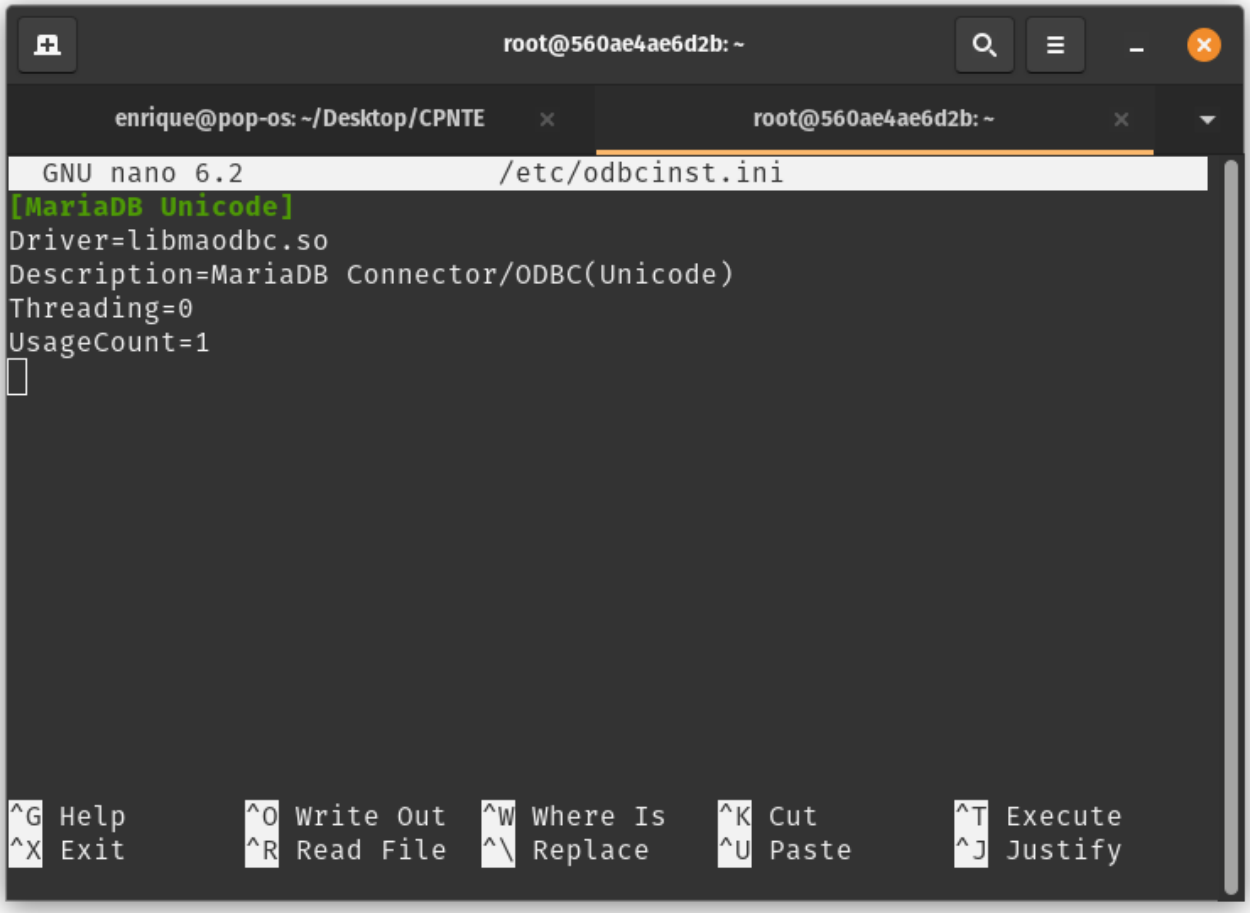
1. This is known as the ODBC-278

2. `Error from ODBC 0 01000 \[unixODBC\]\[Driver Manager\]Can't open lib '/usr/lib/libmaodbc.so' : file not found"`
3. By using ldd command in /usr/lib/libmaodbc.so, it can be seen that libssl.co.1.0.0 and libcrypto.1.0.0 can't be found

This problem does not seem to show up when using version 3.1.15, isntalled with the procedure I explain below. If you find any problem, try to modify the first command so that the version 3.1.15 of the odbc-mariadb driver is installed.

2.1 Procedure:

1. Install Mariadb ODBC Driver `sudo apt-get install -s odbc-mariadb`.
2. install unixODBC driver manager `apt install unixodbc`
3. Check with `nano /etc/odbcinst.ini` that the Mariadb driver is correctly installed:

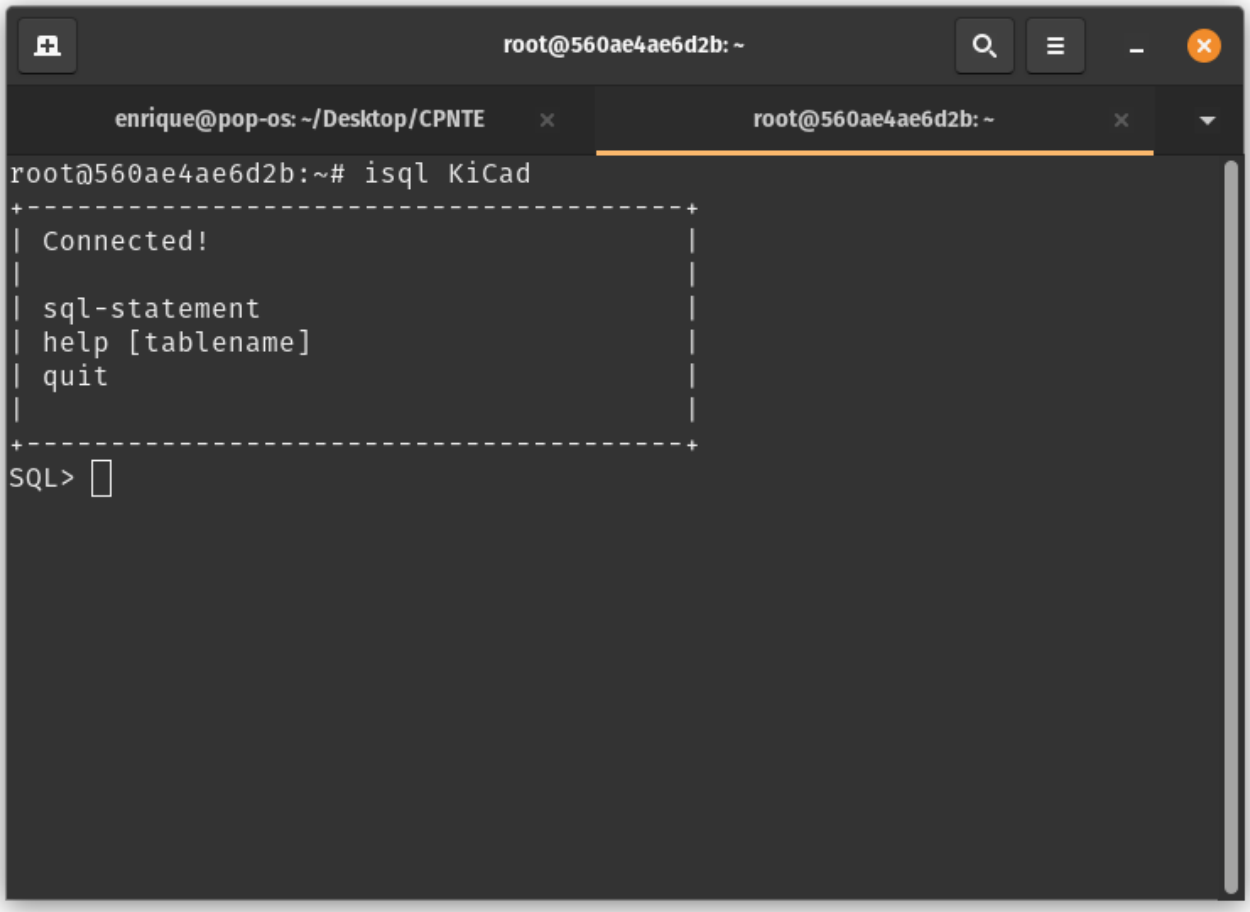


4. Go to the home directory and create the ".odbc.ini" file: `sudo nano ~/.odbc.ini`



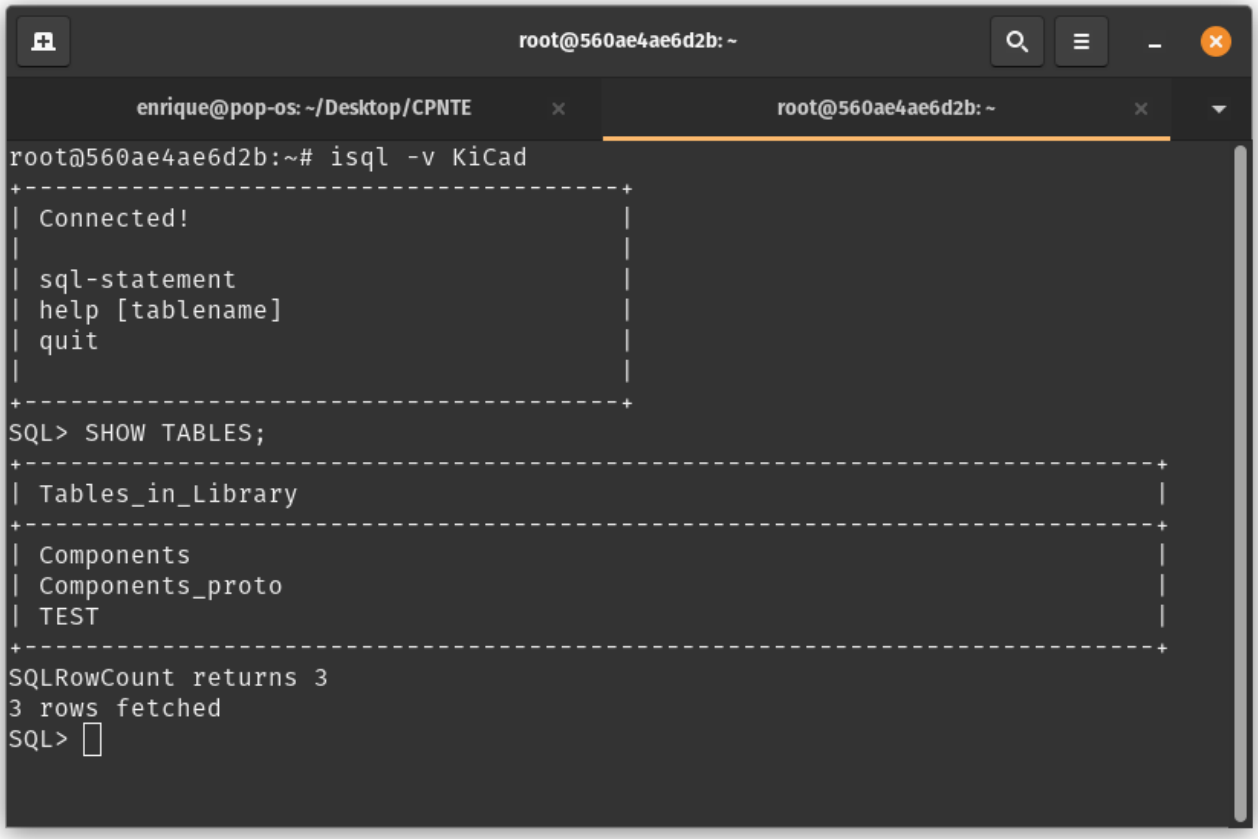

```
[KiCad] # This assigns a local DNS to your IP and port, put whatever you like
Description=MariaDB server #
Driver=MariaDB Unicode
SERVER=192.168.1.1 ## example ip
USER=root ## example user, do not use root!
PASSWORD=password
DATABASE=Library # Not needed to connect to MariaDB, but KiCad needs it to find the tables!
PORT=3306
```

5. Check correct connection to the database:



- For debuging, the verbose parameter '-v' can be useful
- If the password and user fields are not specified, they can be added to the isql command: `isql KiCad root password`

6. Check all tables are visible by the user with `SHOW TABLES;`:



7. From here you should be able to write the .kicad_dbl file from the KiCad 7 documentation and add the required information for connecting to the database. Notice that for the database to load in the schematic editor when adding new components, at least in my case, at least one component with a valid symbol has to be available. Otherwise, in my case, KiCAD will close after trying to load the libraries.

4. Useful commands:

- `isql -v KiCad root password` To connect to MariaDB using declared KiCad DNS in ".odbc.ini" file
- `sudo nano ~/.odbc.ini` To edit DNS configuration of ODBC driver
- `sudo nano /etc/odbcinst.ini` To check which ODBC drivers are installed and the driver string

4. Useful links:

- [1] https://mariadb.com/kb/en/about-mariadb-connector-odbc/
- [2] https://mariadb.com/kb/en/creating-a-data-source-with-mariadb-connectorodbc/
- [3] https://youtu.be/r3PTyCH4PQk