S103 · Machine installation project

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Table of contents

Arch GNU/Linux installation

This section was moved to another file

Problems

Xserver did not work on the installation, and we didn't find any documebtation concerning our error. "startx" returned an error exit status.

We wanted to have a GUI for our system, so we gave up on Arch ARM and restarted from scratch with Raspberry OS...

Raspberry Pi OS installation

Flashing the SD card

```
sudo rpi-imager
```

Choose Raspberry Pi OS 64-bits

In the options:

choose `enable SSH`, set `locale fr`, user `student` and set password to `pwdstudent`.

First boot and setting up

Plug the SD card in the Raspberry Pi, power the card and boot up.

Language and keyboard settings

- Language (Settings -> Raspberry Pi Configuration -> Localisation)
  - set locale to `fr`
  - set keyboard to `fr`
  - set language to `fr`
  - set country to `fr`
  - set character set to `UTF-8`
- Timezone and keyboard
  - set time zone to `Europe/Paris`
  - change keyboard layout to `french - France`

Network setup

Manually set the time and date of the Raspberry Pi.

```
sudo date -s "YYYY-MM-DD HH:MM:SS"
```

Normally, if you haven't tried connecting to WLAN or modified the properties of `eth0`, internet should work fine.

MariaDB installation

Resources used: https://raspberrytips.com/install-mariadb-raspberry-pi/

Update package list

```
sudo apt-get update [--fix-missing] (if problems with next step)
sudo apt upgrade
```

Install MariaDB server

```
sudo apt install mariadb-server
```

This command will also install `MariaDB client` and `MySql` (they're dependencies of this package).

MariaDB setup

Accessing the database

To access the MariaDB CLI, we use:

```
sudo mysql
```

Root user creation

To create our first user (root), we use:

```
sudo mysql_secure_installation
```

Next, press `ENTER` to enter the password for `root` (currently, there is none, that's why we press `ENTER`).

Press `Y` to switch to unix_socket authentication, then `Y` again to set a new password for `root`.
Set the password to `"root"`.

Press `N` to not disallow remote root connection to the database.

Press `Y` three times until the setup is complete.
Now, MariaDB is ready to use with root login.

Connect to the MariaDB server

Use this command to connect to the server.
`-u` specifies the user, so we put `-uroot` to connect as user `root`.
`-p` specifies the password, so we put `-proot` for the password.

```
mysql -uroot -proot
```

The same command, but with more verbose:

```
mysql --user=root --password=root
```

Create the database and data

Create the database

To create the database and use this database, we use the following MySQL command:

```
CREATE DATABASE CAMPING;
USE CAMPING;
```

And MariaDB should show that you're in the database like so:

```
MariaDB[CAMPING]>
```

Next time you log in MariaDB, to gain time, you should use:

```
mysql -uroot -proot -p CAMPING
```

Create tables and insert data into the tables

To create the tables, we simply use MySQL, like so:

```
CREATE TABLE ... (...);
```

To fill the tables with data, we simply use MySQL, like so:

```
INSERT INTO ... VALUES(...);
```

We made scripts in advance so we could just create everything in a single command:
Tables creation - Data insertion
Download the scripts in the personal repository.

To execute the scripts, we used:

```
source ~/tables.sql
source ~/data.sql
```

Setup users

First we need to modify the `bind_address` attribute for our server, to allow any IP to connect to it.

```
cd /etc/MySQL/mariadb.conf.d
sudo nano 50-server.cnf
```

And find the line beginning by `bind_address` and change the address to `0.0.0.0`.

To create a new user, after logging in to MariaDB and allow the user to do anything on the database:

```
CREATE USER 'prof'@'10.42.0.1' IDENTIFIED BY 'pwdprof';
GRANT ALL PRIVILEGES ON CAMPING.* TO 'prof'@'10.42.0.1';
```

Reboot the Raspberry Pi.

Finally, create a text file in your personal directory containing the name of your group's students.

```
touch students.txt
nano students.txt
```

Difficulties encountered

We wasted 3 hours installing Arch only to realize we wouldn't have a GUI and a guarantee that SSH would work.

First of all, ther's been an overall confusion about the `hostname` for the `prof` user. There's been a mix-up between '10.42.0.2', '%', and finally, the one that worked out: '10.42.0.1'.

Also, we had a hard time finding the problem about the `bind_address` problem: we found some documentation online and got helped by another group concerning this issue.

Task dispatching

- Alain SANDOZ
  - SQL scripts
  - Finding help online (chatbots, forums...)
- Naomie FAZER
  - Most of the commands that we ran
  - The first and end part of the report
  - Documentation gathering
- Ash MERIENNE
  - Some commands
  - The rest of the report (including ARCH-README)