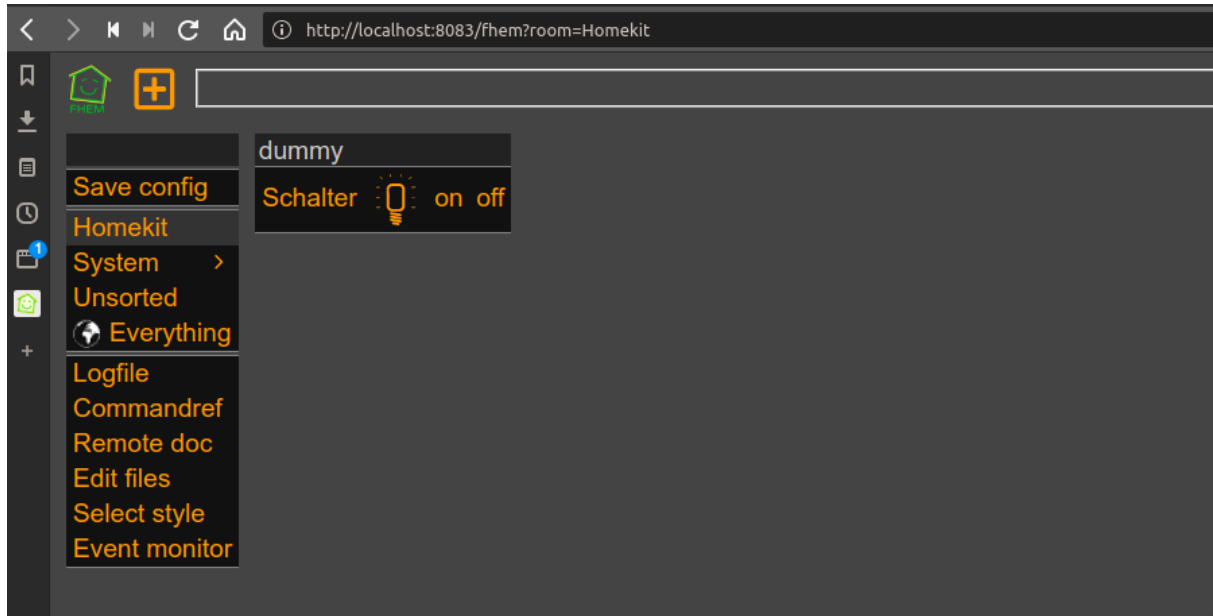# Home Automation Stack

The stack contains everything to run FHEM on a Docker host. Mosquitto is used as message broker. SIRI functions are realized with the help of a homebridge container. The complete stack runs on x86 as well as arm architectures. It is very easy to clone its complete productive environment and has a simple way to build a test system.

Todo

- Mosquitto user-/groupid problem
- DBLog Integration
- Boot config Raspberrypi for Homematic modul

define myHmUART HMUARTLGGW /dev/ttyAMA0

Requirements

- docker
- docker-compose

Installation raspberrypi

Raspian Download

Download latest image from website Raspian Download. Unplug the sd-card and install with

```
1    sudo dd bs=4M if=2019-09-26-raspbian-buster-full.img of=/dev/mmcblk0
         conv=fsync
2    sync
```

Eject the card and insert it again to mount the filesystems boot & rootfs. Touch a blank file ssh to enable the ssh-configuration.

```
1    sudo touch /media/boot/ssh
2    sync
3    umount /media/boot
4    umount /medua/rootfs
```

Eject the card and insert into your raspberrpi. After that power on the rpi and login with the known raspberrypi credentials.

```
1    ssh pi@raspberrypi4
```

Change password with the passwd command.

```
1    pi@raspberrypi:~ $ passwd
2    Changing password for pi.
3    Current password:
4    New password:
5    Retype new password:
6    passwd: password updated successfully
7    pi@raspberrypi:~ $
```

System Update

```
1    sudo apt-get update
2    sudo apt-get dist-upgrade
```

Set timezone

```
1    sudo dpkg-reconfigure tzdata
```

Raspberry Config

1) Expand the root filesystem (A1 / Advanced Options)

2) Update raspi-config

   sudo raspi-config sudo reboot

Disable swap

```
1   sudo dphys-swapfile swapoff && \
2   sudo dphys-swapfile uninstall && \
3   sudo systemctl disable dphys-swapfile
```

Intall additional packages

```
1   sudo apt-get install wget git apt-transport-https vim telnet zsh zsh-
        autosuggestions zsh-syntax-highlighting ntp ksh logwatch
```

Configure ntpd daemon

```
1   sudo vi /etc/ntp.conf
```

```
1   server 192.168.1.1
```

Install oh-my-zsh

```
1   sh -c "$(curl -fsSL https://raw.github.com/ohmyzsh/ohmyzsh/master/
        tools/install.sh)"
```

Install log2ram (/var/log 2 ram)

```
1   echo "deb http://packages.azlux.fr/debian/ buster main" | sudo tee /
        etc/apt/sources.list.d/azlux.list
2   wget -qO - https://azlux.fr/repo.gpg.key | sudo apt-key add -
3   apt update
4   apt install log2ram
```

Setup ssh key for user

```
1   ssh-keygen -t rsa -b 8192
```

Install .ssh/config file to ignore strictHostKeyChecking

```
1   vi ~/.ssh/config
2
3   Host fhemlocalhost
4   Hostname localhost
5   Port 222
6   User fhem
```

```
7    StrictHostKeyChecking no
8    UserKnownHostsFile=/dev/null
```

Install docker & docker-compose

```
1    #curl -sSL https://get.docker.com | sh
2    #sudo systemctl enable docker
3    #sudo systemctl start docker
4    sudo apt-get install docker docker-compose
5    sudo usermod -aG docker pi
6    sudo reboot
```

git repository export and start all container

```
1    cd
2    git clone https://github.com/stormmurdoc/fhemdocker.git
3    cd fhemdocker
4    docker-compose up
```
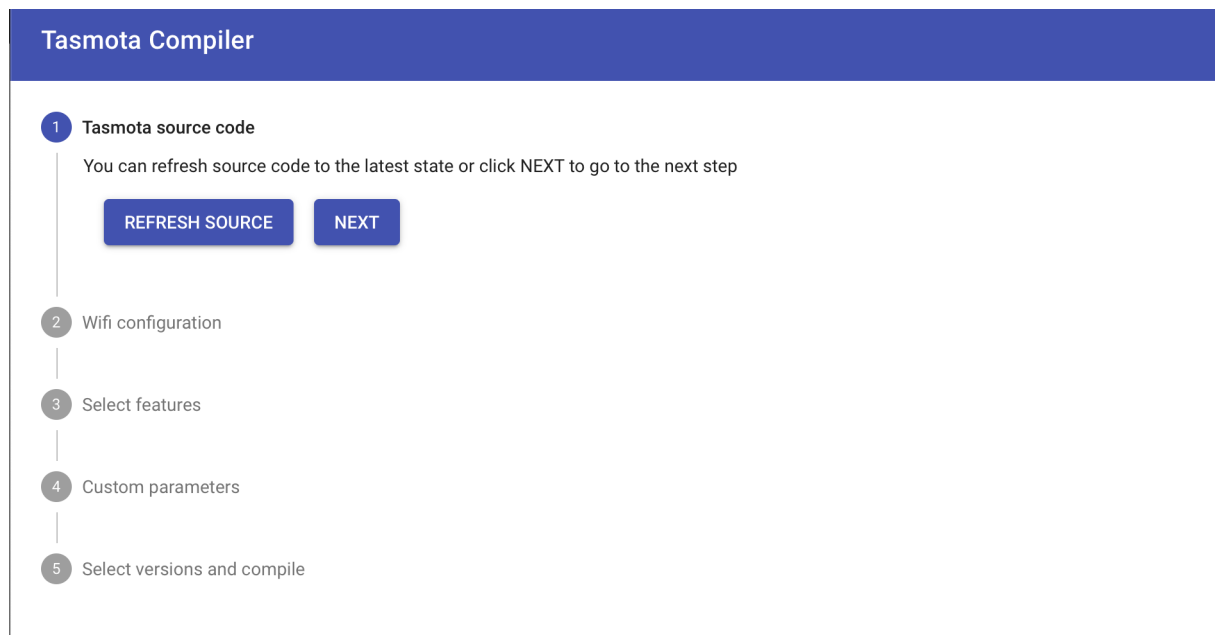
Access the application
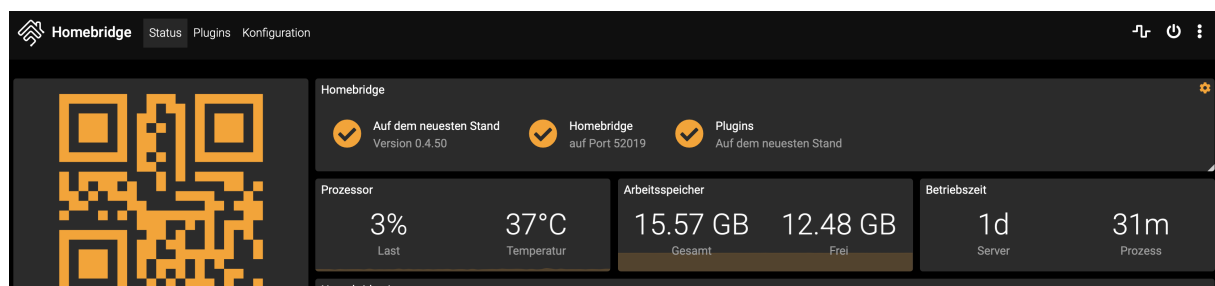
FHEM

FHEM tmux session inside the container

Abbildung 1: "fhemtmux"

http://localhost:80

Container

Tasmota Admin

Abbildung 2: "tasmotaadmin"

http://localhost:8081

Tasmota Compiler

Abbildung 3: "tasmotacompiler"

http://localhost:8082

Homebridge

Default User: admin Default Passwort: admin

Abbildung 4: "homebridge"

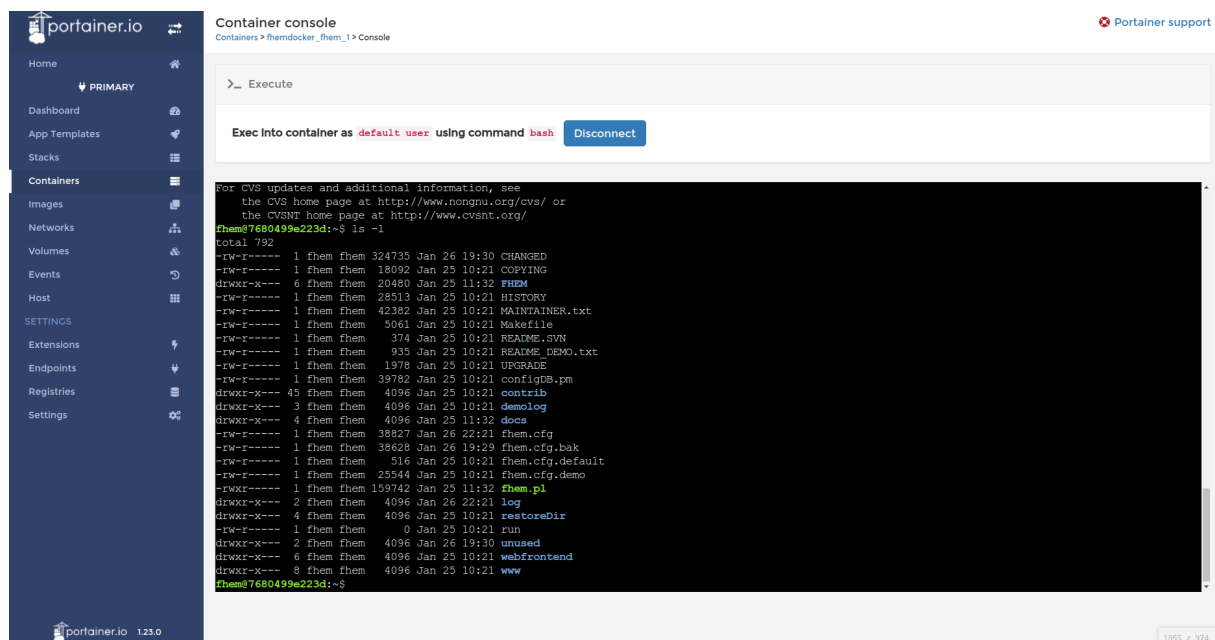http://localhost:8080

Portainer

Abbildung 5: "portainer"

http://localhost:9000

Deconz

deCONZ Image Container Integration

Configuring Raspbian for RaspBee

Raspbian defaults Bluetooth to /dev/ttyAMA0 and configures a login shell over serial (tty). You must disable the tty login shell and enable the serial port hardware, and swap Bluetooth to /dev/S0, to allow RaspBee to work properly under Docker.

To disable the login shell over serial and enable the serial port hardware:

1) sudo raspi-config
2) Select Interfacing Options
3) Select Serial
4) "Would you like a login shell to be accessible over serial?" Select No
5) "Would you like the serial port hardware to be enabled?" Select Yes

6) Exit raspi-config and reboot To swap Bluetooth to /dev/S0 (moving RaspBee to /dev/ttyAMA0), run the following command and then reboot:

```
echo 'dtoverlay=miniuart-bt'| sudo tee -a /boot/config.txt
```

This will exchange the UART and the Mini-UART so the Mini-UART is connected to the bluetooth and the UART to the GPIO pins.

On Raspberry Pi 4 verify that file /boot/config.txt does NOT contain a line "enable_uart=0". If the line exists remove or comment (#) this line.

After running the above command and rebooting, RaspBee should be available at /dev/ttyAMA0.

Watchtower

This container automatically update all running container within a given time interval.

https://containrrr.github.io/watchtower/

ctop

Description

ctop is a commandline monitoring tool for linux containers

Abbildung 6: "ctop"

Installation

ctop is available in AUR, so you can install it using AUR helpers, such as YaY, in Arch Linux and its variants such as Antergos and Manjaro Linux.

Installation Linux

x86 Platform

```
1    sudo wget https://github.com/bcicen/ctop/releases/download/v0.7.3/
         ctop-0.7.3-linux-amd64 -O /usr/local/bin/ctop
2    sudo chmod +x /usr/local/bin/ctop
```

```
1    sudo wget https://github.com/bcicen/ctop/releases/download/v0.7.3/
         ctop-0.7.3-linux-arm -O /usr/local/bin/ctop
2    sudo chmod +x /usr/local/bin/ctop
```

Contributing to fhemdocker

Contributions are encouraged and welcome!