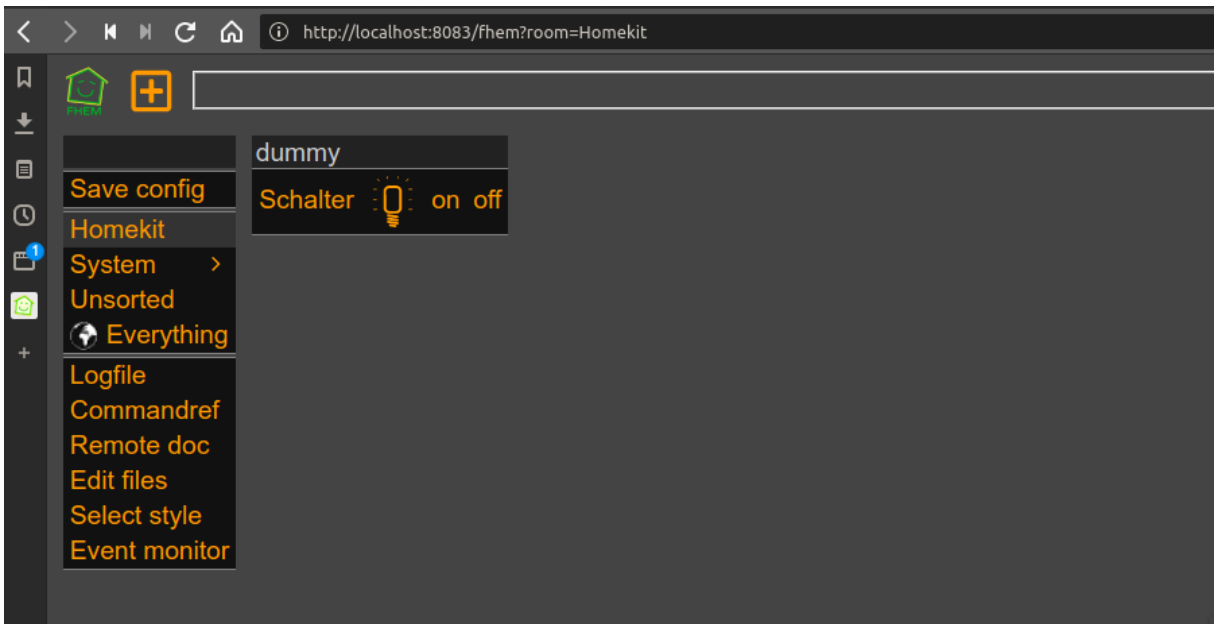
Home Automation Stack



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

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

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

```
sudo touch /media/boot/ssh
sync
umount /media/boot
umount /medua/rootfs
```

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

```
ssh pi@raspberrypi4
```

```
pi@raspberrypi:~ $ passwd
Changing password for pi.
Current password:
New password:
Retype new password:
passwd: password updated successfully
pi@raspberrypi:~ $
```

System Update

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

Set timezone

```
sudo dpkg-reconfigure tzdata
```

Raspberry Config

1) Expand the root filesystem (A1 / Advanced Options)
2) Update raspi-config

   sudo raspi-config sudo reboot

Intall additional packages

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

Configure ntpd daemon

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

```
server 192.168.1.1
```

Install oh-my-zsh

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

Install log2ram (/var/log 2 ram)

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

Setup ssh key for user

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

Install .ssh/config file to ignore strictHostKeyChecking

```
vi ~/.ssh/config

Host fhemlocalhost
Hostname localhost
Port 222
User fhem
StrictHostKeyChecking no
UserKnownHostsFile=/dev/null
```

Install docker & docker-compose

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

git repository export and start all container

```
cd
git clone https://github.com/stormmurdoc/fhemdocker.git
cd fhemdocker
docker-compose up
```

Access the application

FHEM

FHEM tmux session inside the container

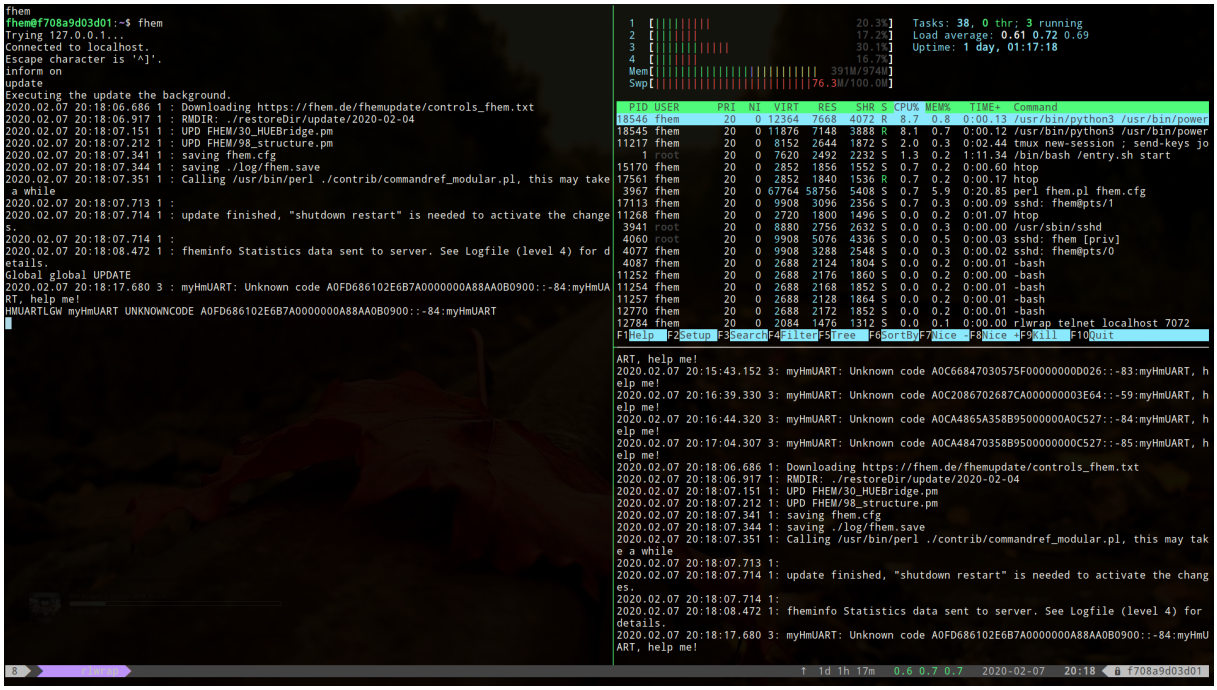


Abbildung 1: “fhemtmux”

http://localhost:80

Container

Tasmota Admin

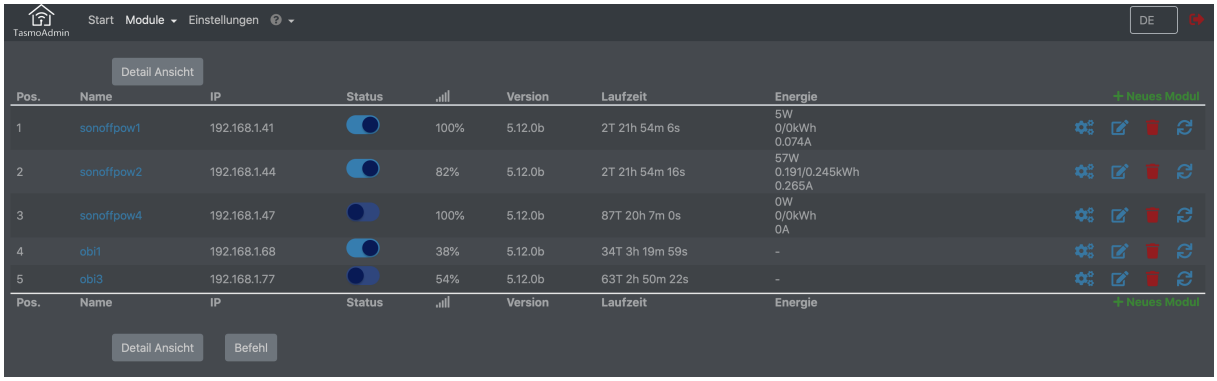


Abbildung 2: “tasmotaadmin”

http://localhost:8081

Tasmota Compiler

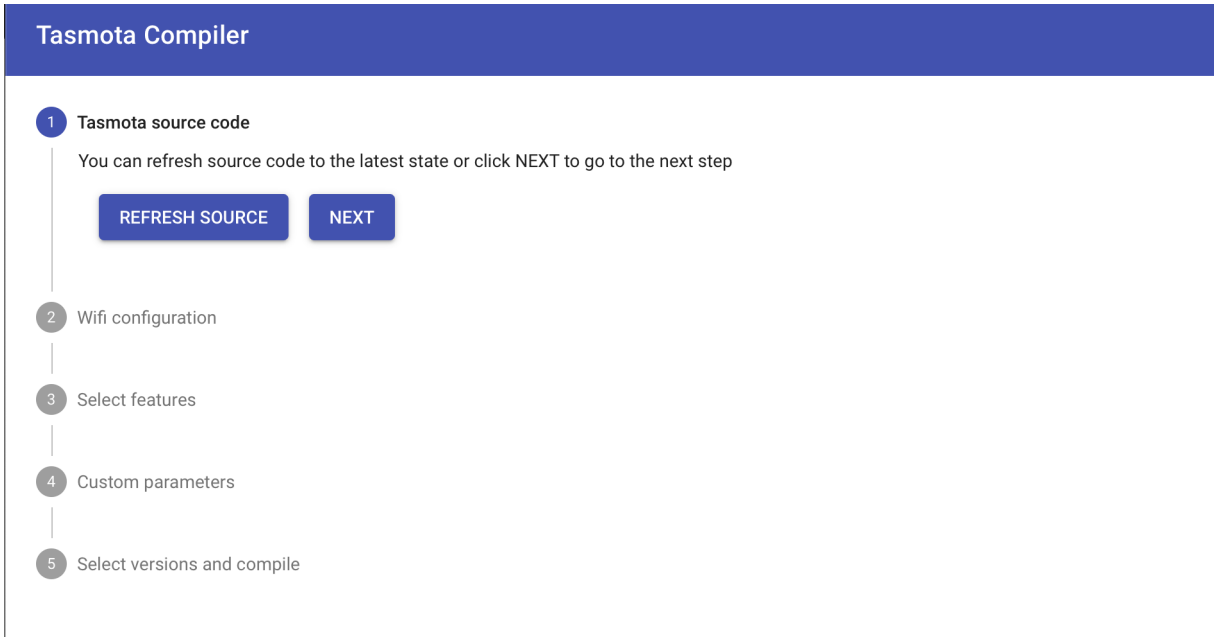


Abbildung 3: “tasmotacompiler”

http://localhost:8082

Homebridge

Default User: admin Default Passwort: admin

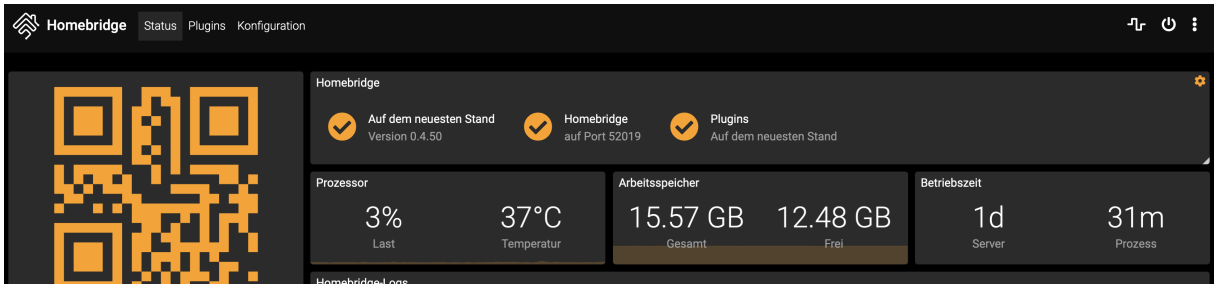


Abbildung 4: “homebridge”

http://localhost:8080

Portainer

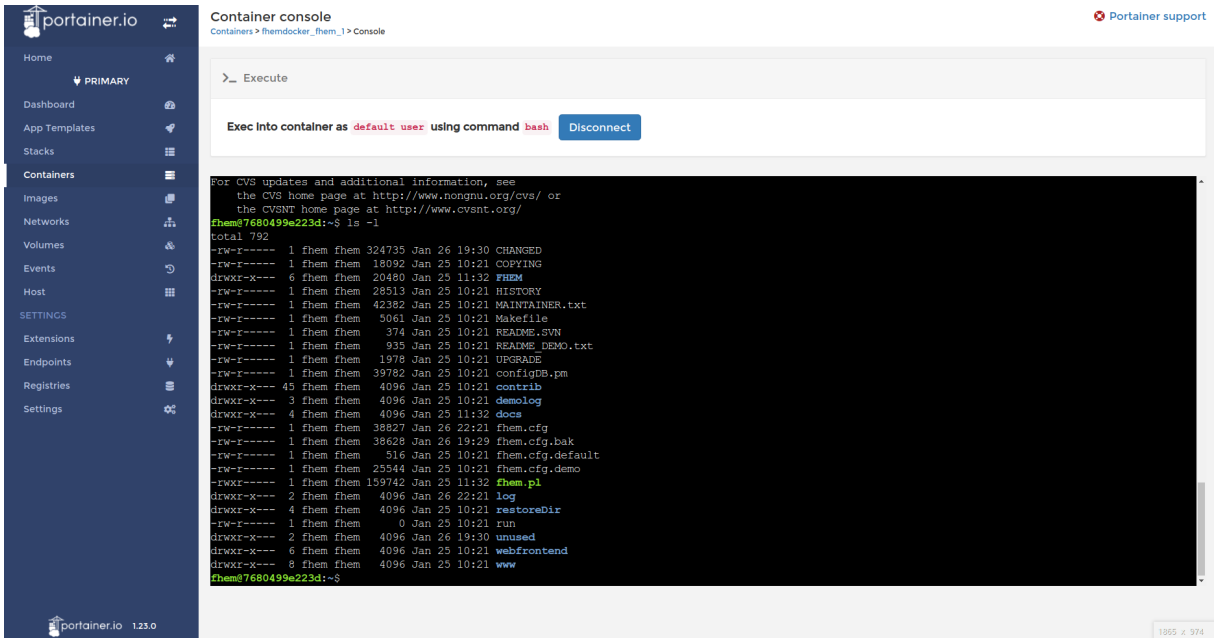


Abbildung 5: “portainer”

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.

ctop

Description

ctop is a commandline monitoring tool for linux containers

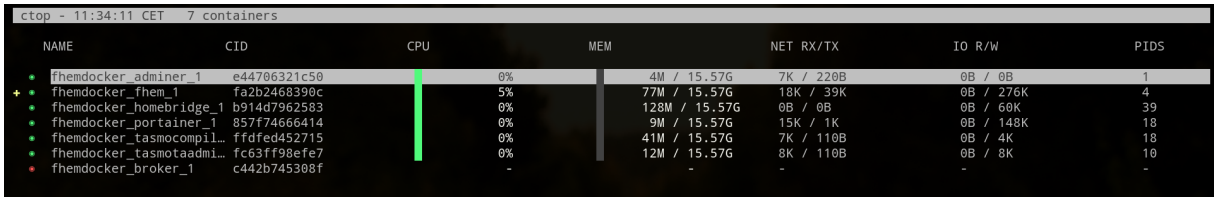


Abbildung 6: “ctop”

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

```
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
```

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

Contributing to fhemdocker

Contributions are encouraged and welcome!