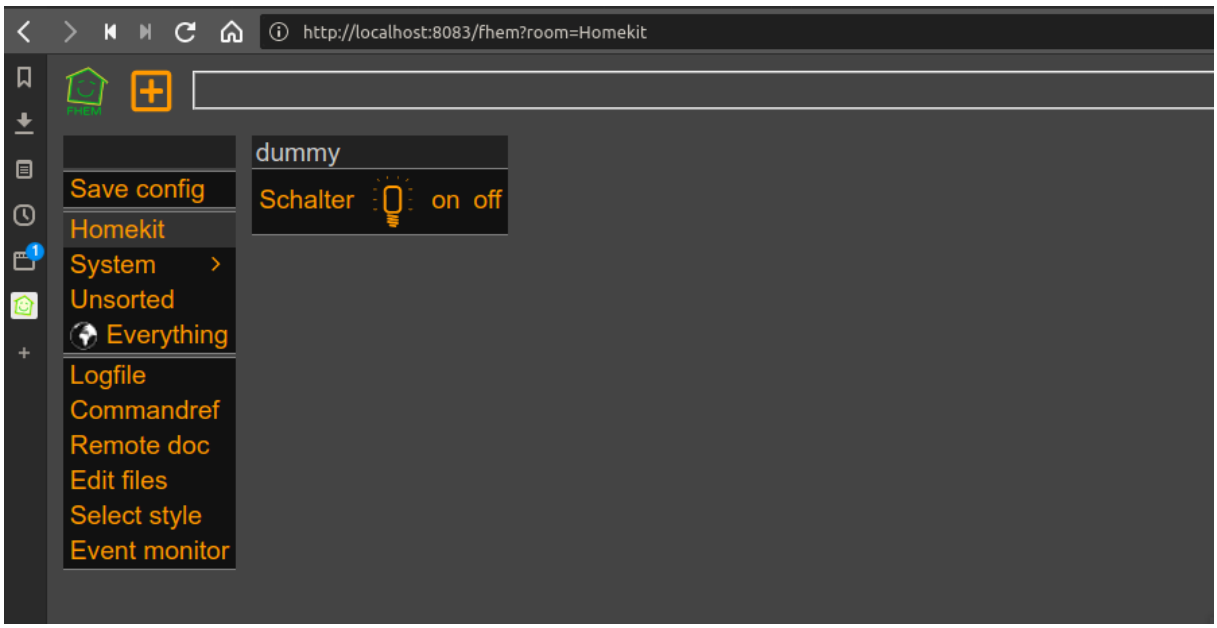
## Home Automation Stack




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

**Disable swap**

```
sudo dphys-swapfile swapoff && \
sudo dphys-swapfile uninstall && \
sudo systemctl disable dphys-swapfile
```

**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 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

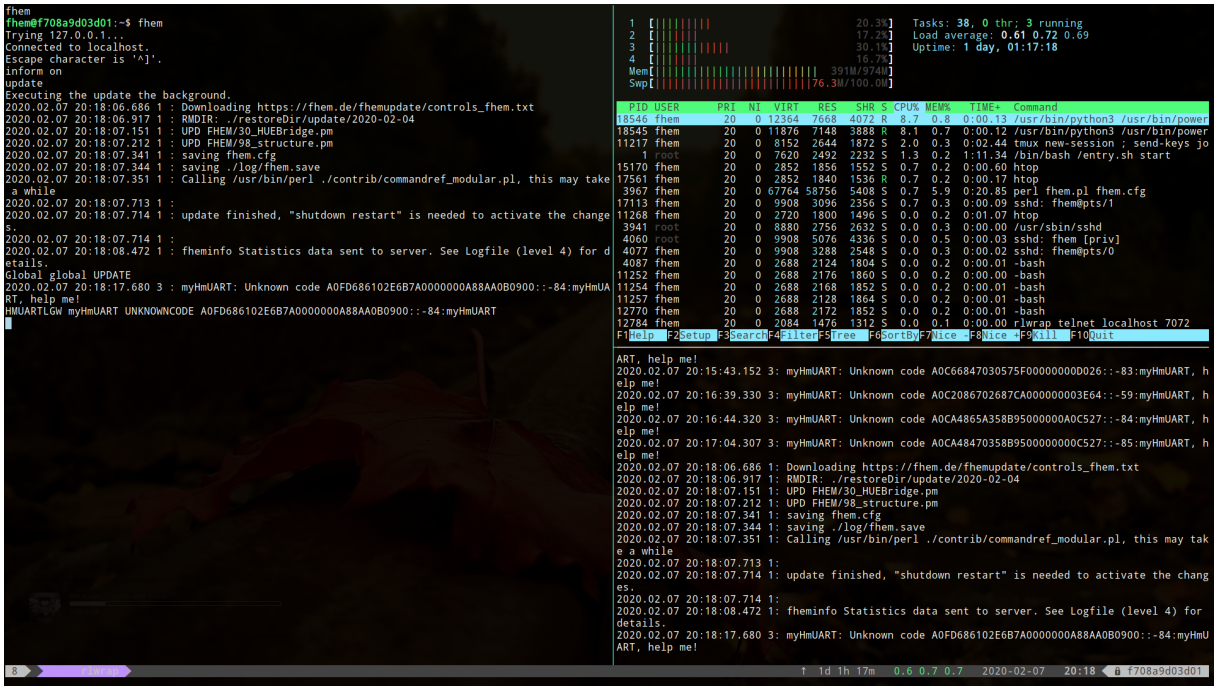



**Abbildung 1:** “fhemtmux”

http://localhost:80

## Container

### Tasmota Admin

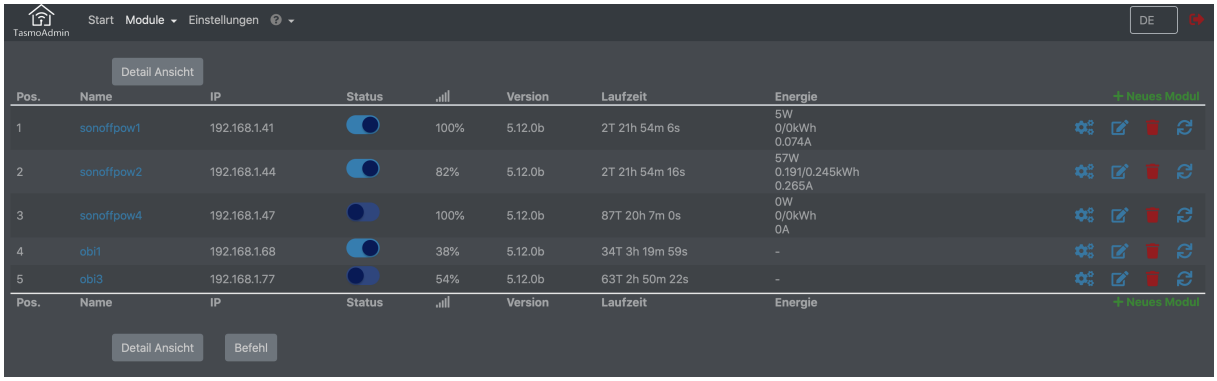



**Abbildung 2:** “tasmotaadmin”

http://localhost:8081

### Tasmota Compiler

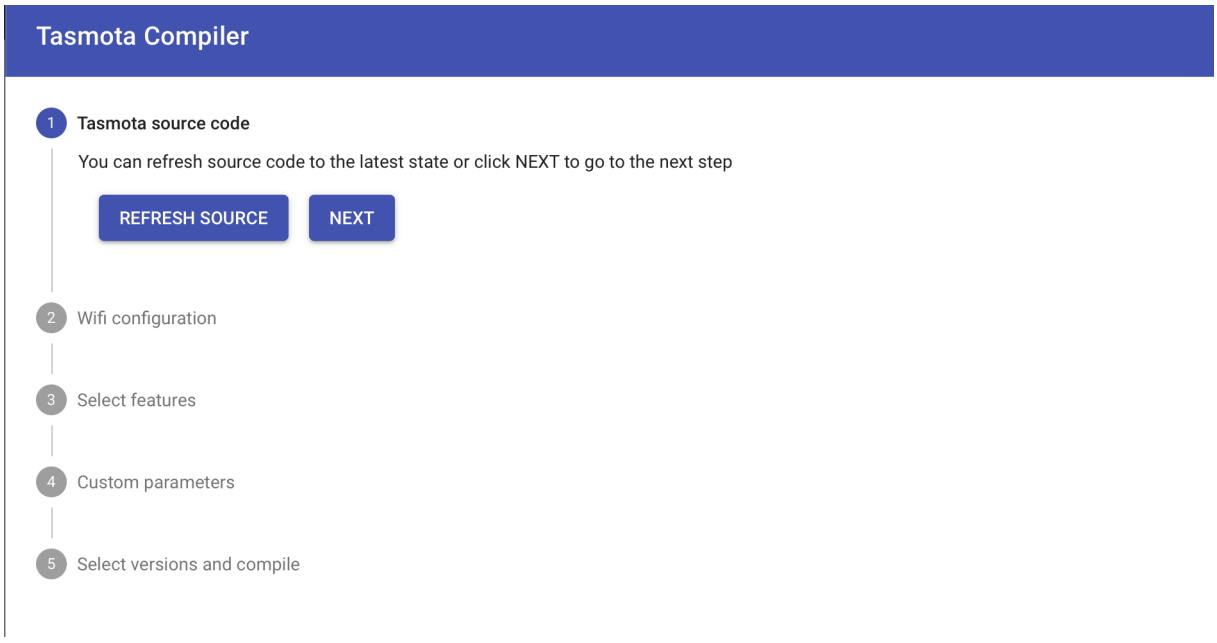



**Abbildung 3:** “tasmotacompiler”

http://localhost:8082

## Homebridge

Default User: admin Default Passwort: admin

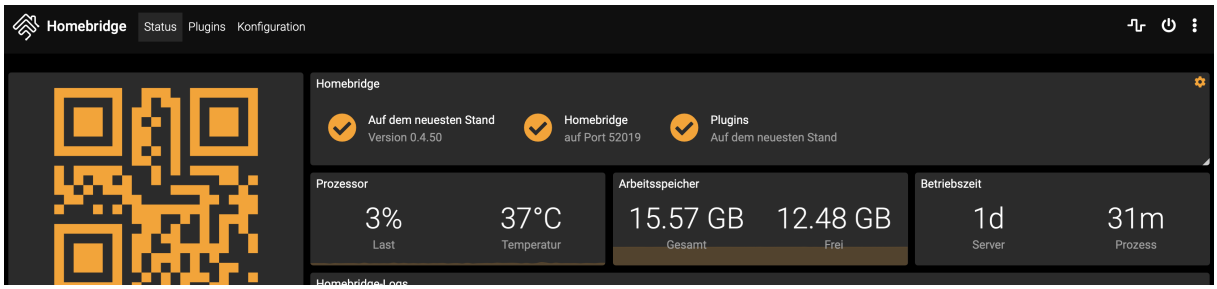



**Abbildung 4:** “homebridge”

http://localhost:8080

## Portainer

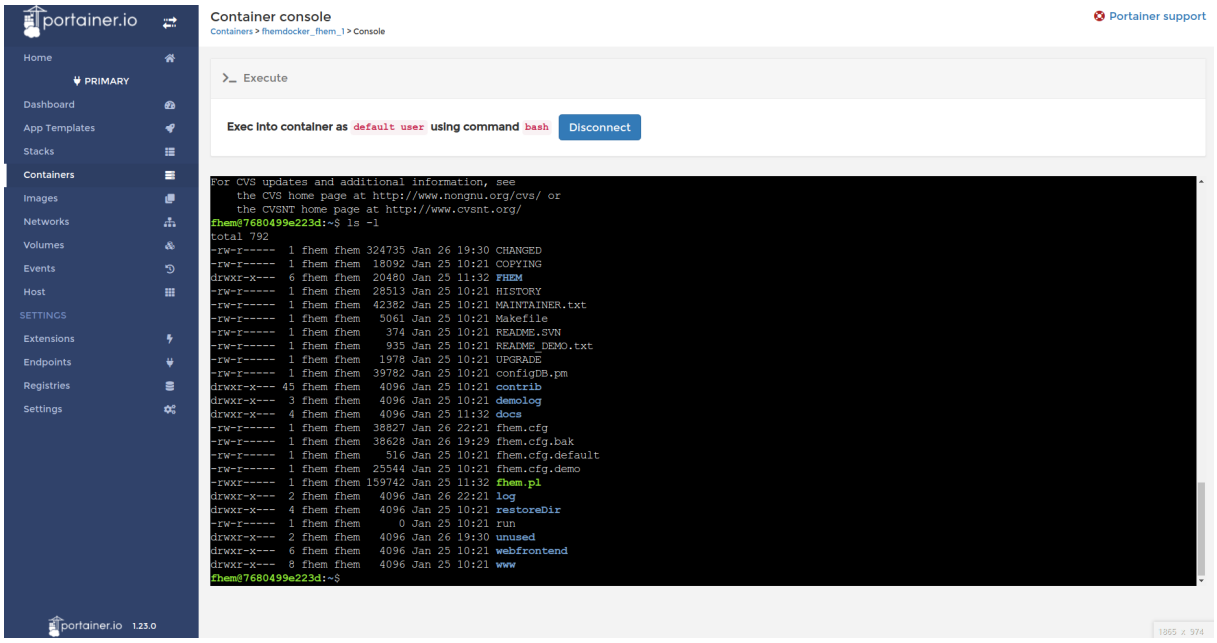



**Abbildung 5:** “portainer”

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.

#### 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

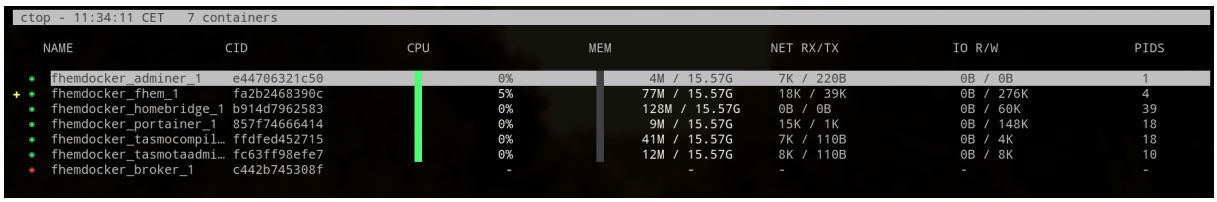



**Abbildung 6:** “ctop”

### 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

```
sudo wget https://github.com/bcicen/ctop/releases/download/v0.7.3/
    ctop-0.7.3-linux-amd64 -O /usr/local/bin/ctop
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!

## Accessing the docker container via remote

```
Username: pi
Hostname: raspberrypi4

fcmd.sh <FHEM Command>
```