
fritz-tools Documentation

Freifunk Darmstadt

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This is a collection of useful scripts, primarily for use with the bootloader of AVM networking devices.

1.1 Selecting the right Image

Gluon builds by default factory and sysupgrade images. AVM devices don't need special factory-images, so most of them are flashed via the sysupgrade images.

Note: In case your community uses a tool for providing firmware, factory-images are often referenced as “First-installation-images” and sysupgrade-images are often called “update-” or “upgrade-images”.

Exceptions apply for the FRITZ!Box 4040. This device needs a special bootloader-image for use with the flash-script. Flashing with a sysupgrade image won't work.

Flash Gluon using Windows 10

Your router can be flashed in a few easy step from Windows 10.

2.1 Preperation

First you need to download the image for your device from your local Freifunk community. This is important to do right now as you will have no ability to do so later on.

2.2 Download Python 3 for Windows

Download and install the latest version of Python 3. It can be obtained from the [website](#) of the Python project.

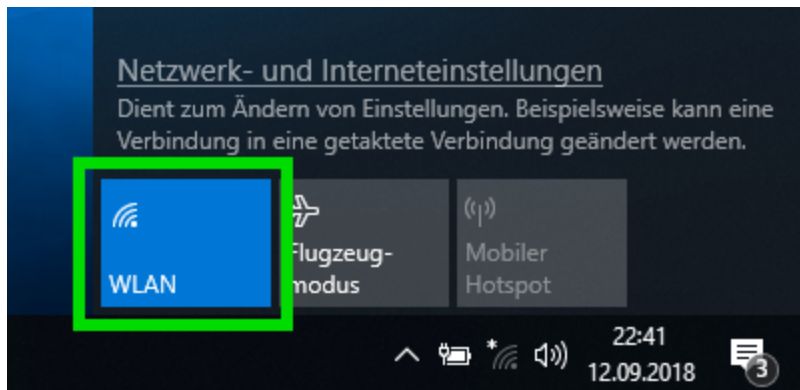
2.3 Download the flash-script

Download the latest version of the flash-script `fritzflash.py` at the link below. In case you are prompted whether you want to save or open this file, select save.

[fritzflash.py](#)

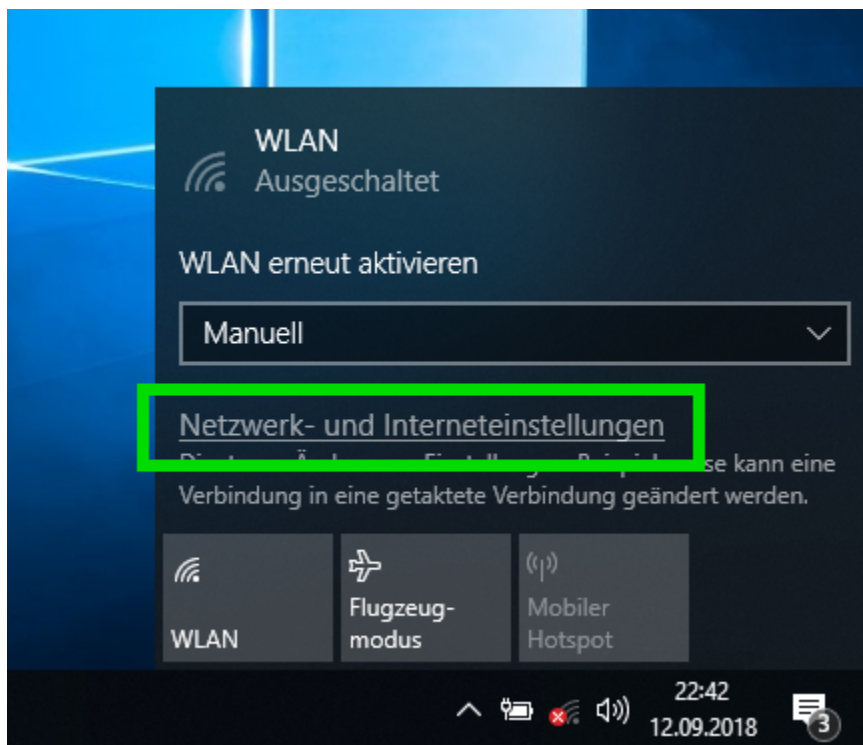
2.4 Disable WiFi

In case your computer is connected via WiFi, make sure to disable this connection by opening the Quick-settings in the lower right corner. Make sure WiFi is disabled there.

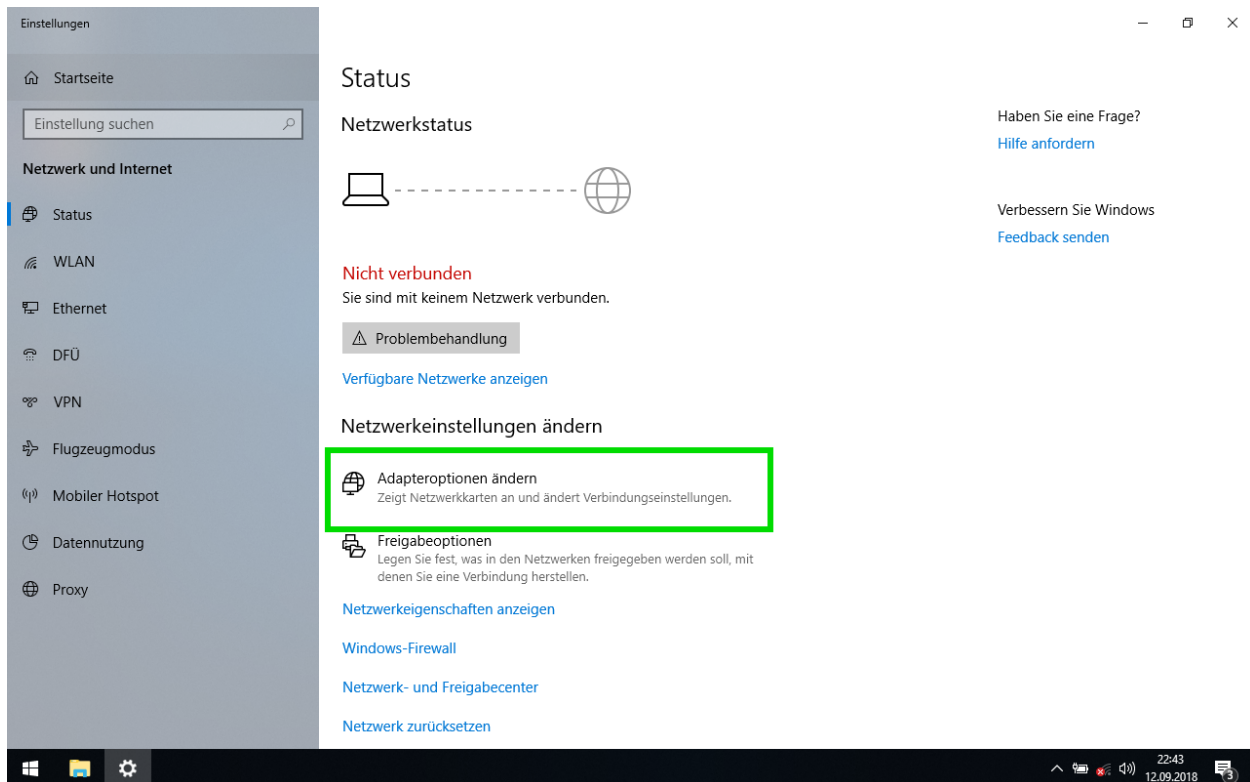


2.5 Configuring a static IP-address

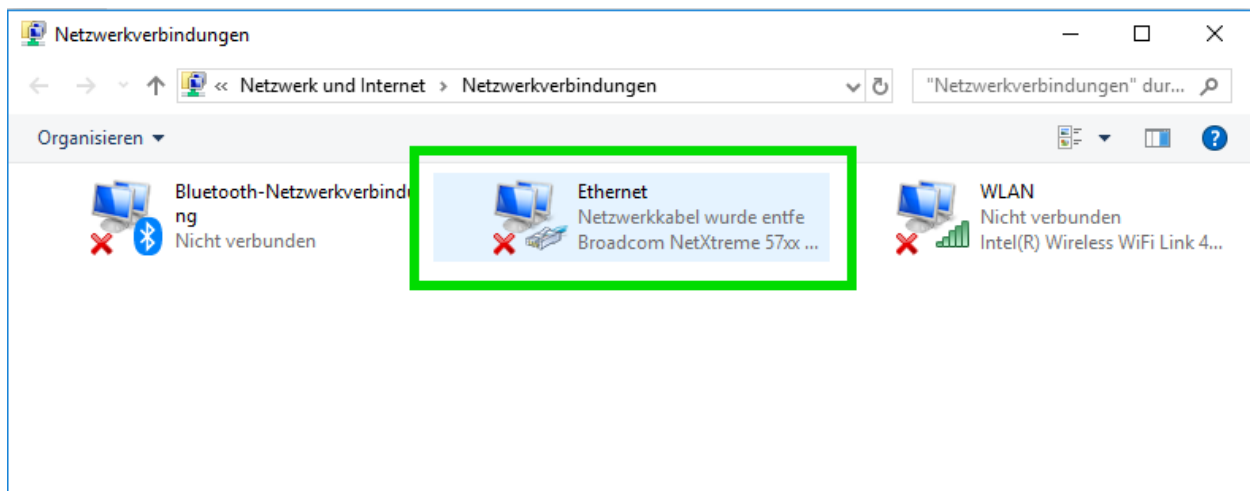
Open the network settings by opening Quick-settings and navigate to the Network and Sharing Center.



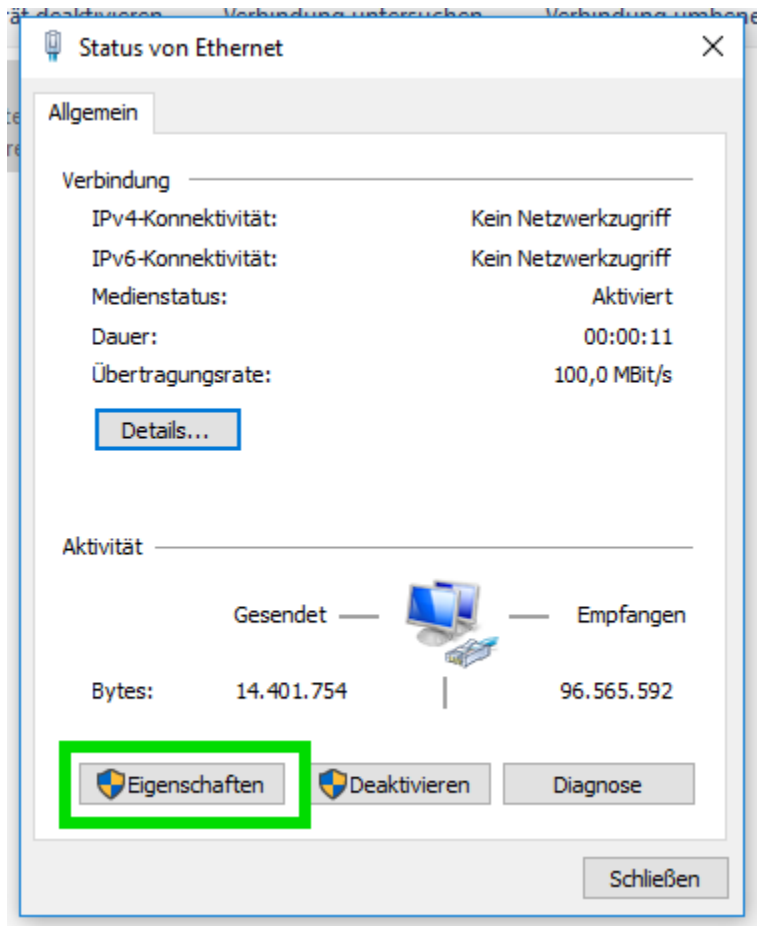
Go to the Network Adapter Settings.



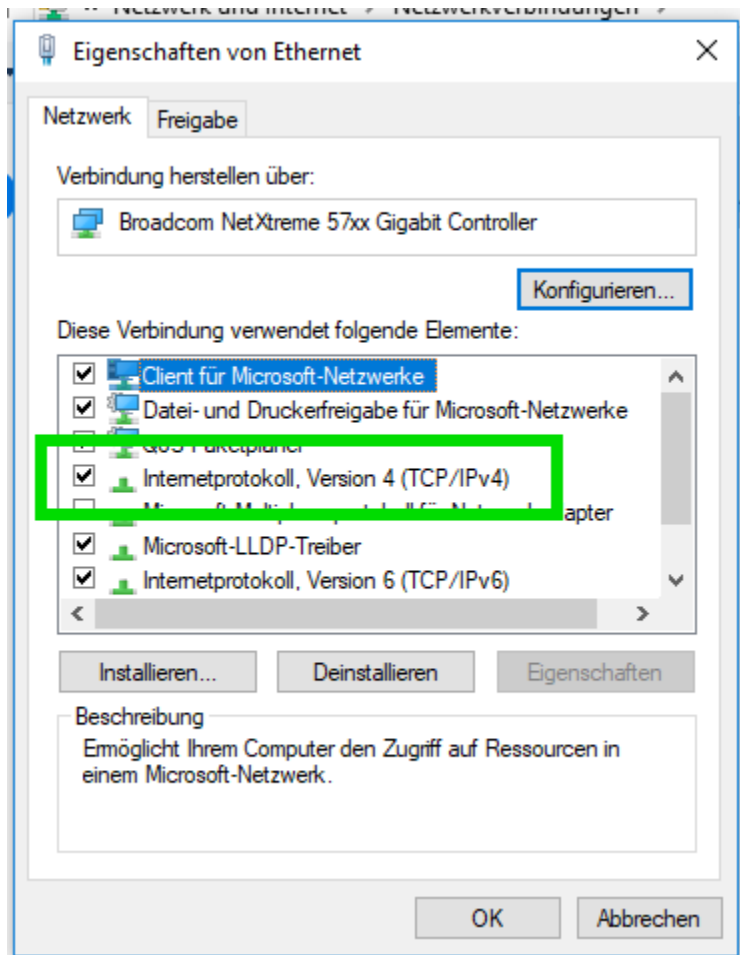
Select the adapter called `Ethernet`.



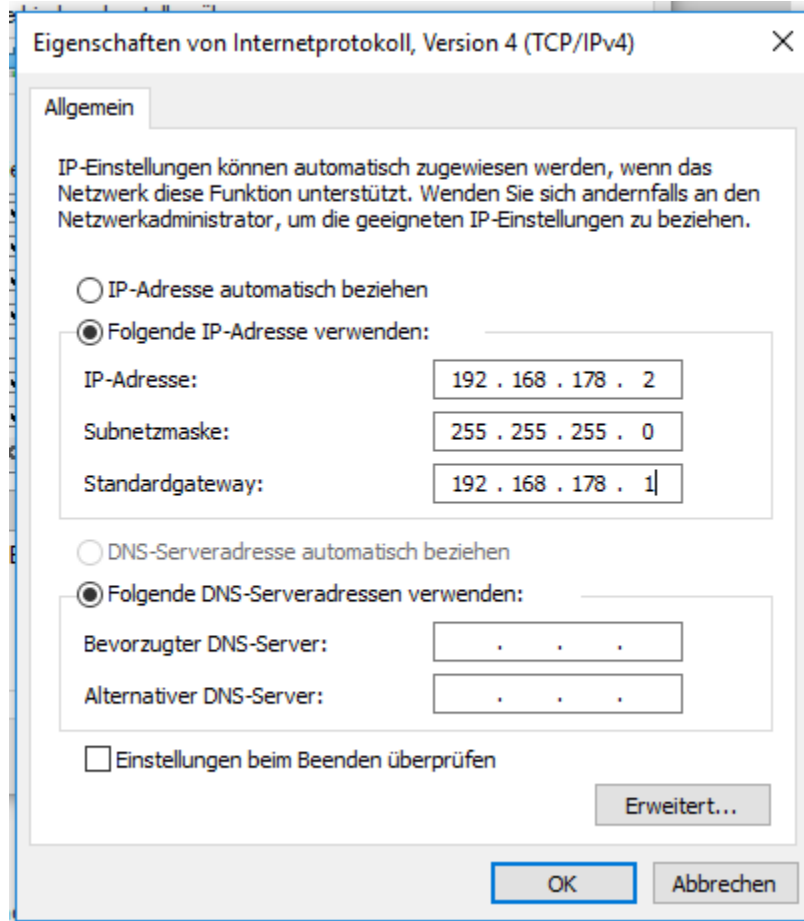
In the adapter-status window, select properties.



Double-click on Internet Protocol Version 4.



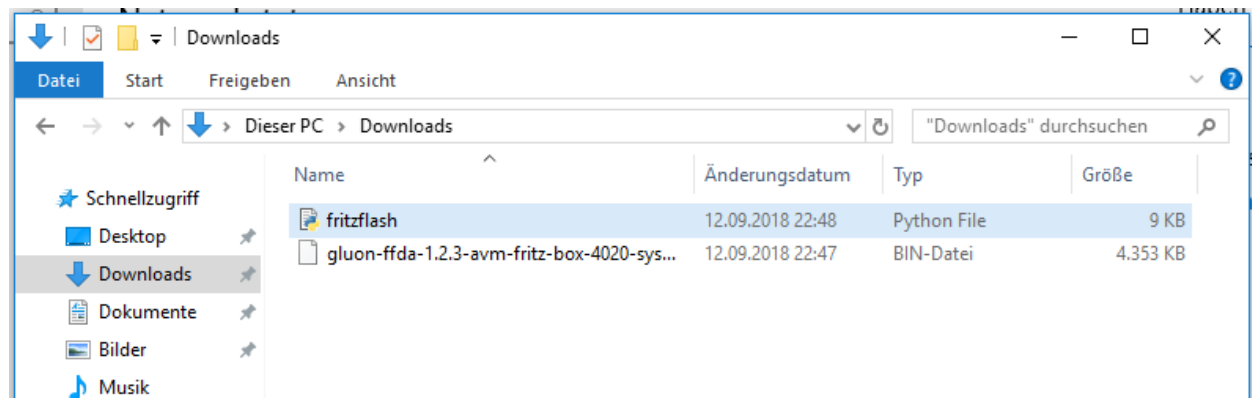
Fill out all fields as seen on the image below. Close afterwards both windows by clicking OK.



2.6 Install Gluon

Now move both fritzflash.py and the Gluon image in an empty directory.

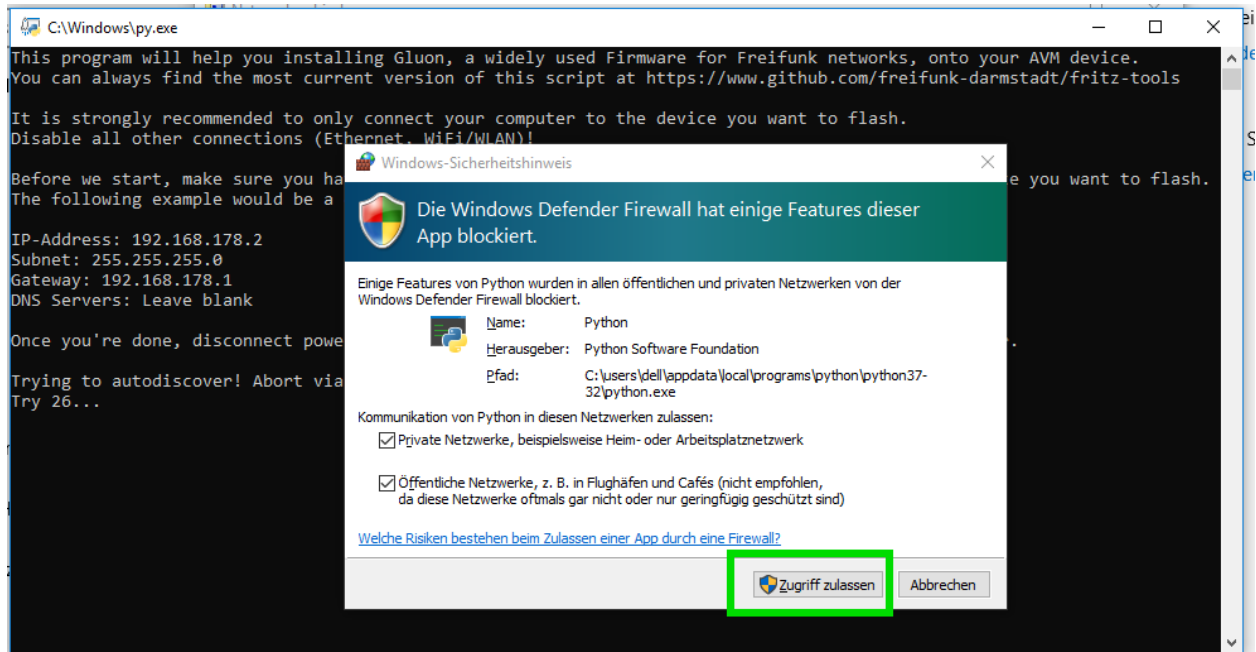
Note: It is important both files are located in the same directory. Otherwise the process won't work.



Connect the router with your computer. In case it has multiple ports, use the yellow LAN-ports.

Execute the flash-script by double-clicking on `fritzflash.py`.

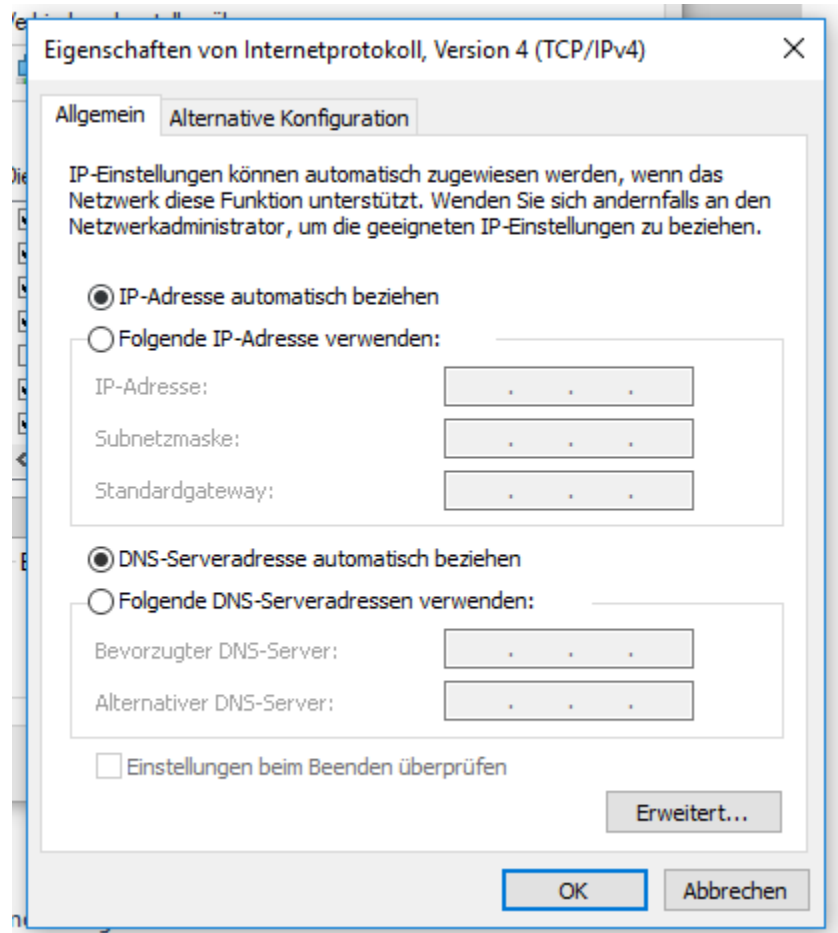
In case Windows Firewall asks you whether you want to allow or deny network activity, select **Allow**.



2.7 Revert network settings

Before you are able to reach the Config-mode of your new node you have to reconfigure your network interface to automatically obtain an IP-address using DHCP.

Configure your network interface as pictured on the screenshot below and confirm by selecting **OK** in both windows.



Also remember to turn on your WiFi again.

Flash Gluon using MacOS X

Your router can be flashed in a few easy step from MacOS X.

3.1 Preperation

To execute the fritzflash.py script you need to have Python 3 installed. You can obtain the latest version from the Python project [here](#).

You also need to download the image for your device from your local Freifunk community. This is important to make right now as you will have no ability to do so later on.

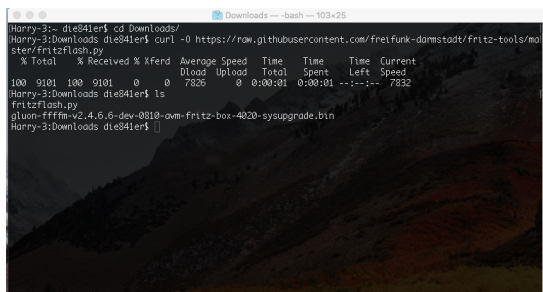
3.2 Download the flash-script

Open a terminal by pressing cmd+Space.

Next, go to the directory you saved the Image you downloaded in the preperation step. In most cases this is done by executing `cd Downloads`.

Now you want to download the script by executing `curl -O https://raw.githubusercontent.com/freifunk-darmstadt/fritz-tools/master/fritzflash.py`.

Confirm both the Gluon image you want to flash and the script are present in the current directory by executing `ls`.

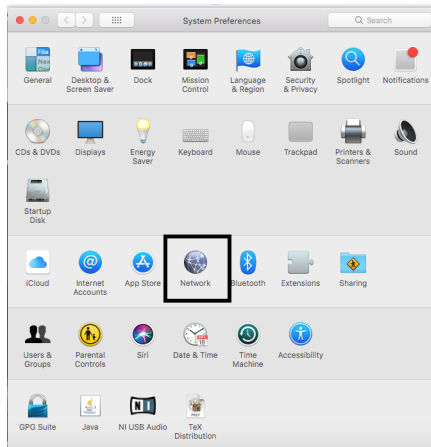


```
Harry-3:~$ cd Downloads/
Harry-3:Downloads$ curl -O https://raw.githubusercontent.com/freifunk-darmstadt/fritz-tools/master/fritzflash.py
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 9101  100 9101    0     0  7832      0  0:00:01  0:00:01 --:--:-- 7832
Harry-3:Downloads$ ls
fritzflash.py
gluon-ffrm-v2.4.6.6-dev-0810-om-fritz-box-4820-sysupgrade.bin
Harry-3:Downloads$
```

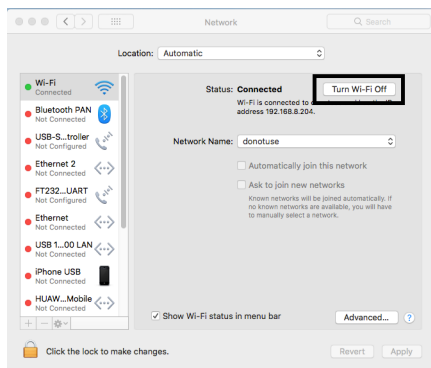
Keep the Terminal window open.

3.3 Configuring a static IP-address

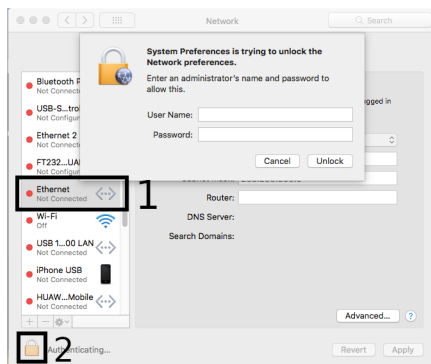
Open System Preferences and select Network.



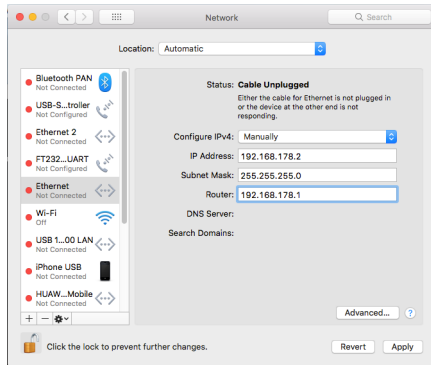
Make sure to disable your Wireless connection now.



Select Ethernet from the left menu and in case input fields are grayed out, unlock settings by clicking on the Lock in the bottom left corner.



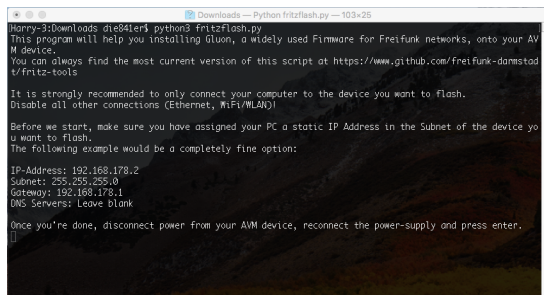
Configure your settings as seen in following screenshot and confirm by clicking on Apply. Keep the window opened.



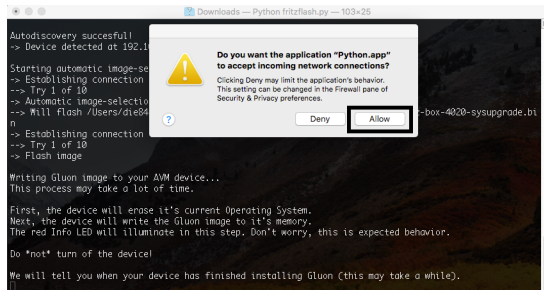
3.4 Install Gluon

Connect the router with your computer. In case it has multiple ports, use the yellow LAN-ports.

Execute the flash-script by executing `python3 fritzflash.py` in the Terminal window you left open.



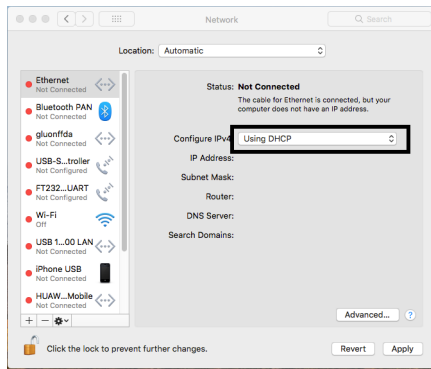
In case you're asked to allow incoming connection or not select **Allow**.



3.5 Revert network settings

Before you are able to reach the Config-mode of your new node you have to reconfigure your network interface to automatically obtain an IP-address using DHCP.

Configure your Ethernet interface as pictured on the screenshot below and confirm by selecting **Apply**.



CHAPTER 4

Flash Gluon using Ubuntu 18.04

Your router can be flashed in a few easy step from Ubuntu 18.04.

4.1 Preperation

First you need to download the image for your device from your local Freifunk community. This is important to do right now as you will have no ability to do so later on.

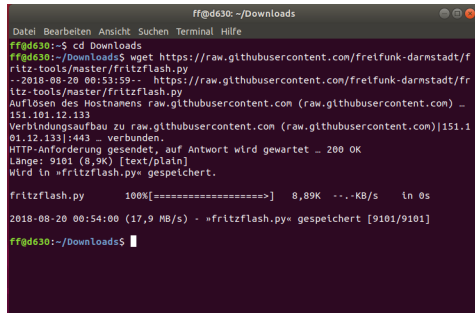
4.2 Download the flash-script

Open a terminal by pressing `Ctrl+Alt+T` or open the application-drawer (bottom left) and search for Terminal.



Next, go to the directory you saved the image you downloaded in the preperation step. In most cases this is done by executing `cd Downloads`.

Now you want to download the script by executing `wget https://raw.githubusercontent.com/freifunk-darmstadt/fritz-tools/master/fritzflash.py`.



```
ff@d630: ~/Downloads
Datei Bearbeiten Ansicht Suchen Terminal Hilfe
ff@d630:~/Downloads$ cd Downloads
ff@d630:~/Downloads$ wget https://raw.githubusercontent.com/freifunk-darmstadt/fritz-tools/master/fritzflash.py
--2018-08-20 00:13:59-- https://raw.githubusercontent.com/freifunk-darmstadt/fritz-tools/master/fritzflash.py
Auflösen des Hostnamens raw.githubusercontent.com (raw.githubusercontent.com) ...
151.101.12.133
Verbindungsaufbau zu raw.githubusercontent.com (raw.githubusercontent.com)|151.101.12.133|:443 ... verbunden.
HTTP-Anforderung gesendet, auf Antwort wird gewartet ... 200 OK
Länge: 9101 (8,9K) [text/plain]
Wird in »fritzflash.py« gespeichert.

fritzflash.py 100%[=====] 8,89K ...KB/s in 0s
2018-08-20 00:14:00 (17,9 MB/s) - »fritzflash.py« gespeichert [9101/9101]
ff@d630:~/Downloads$
```

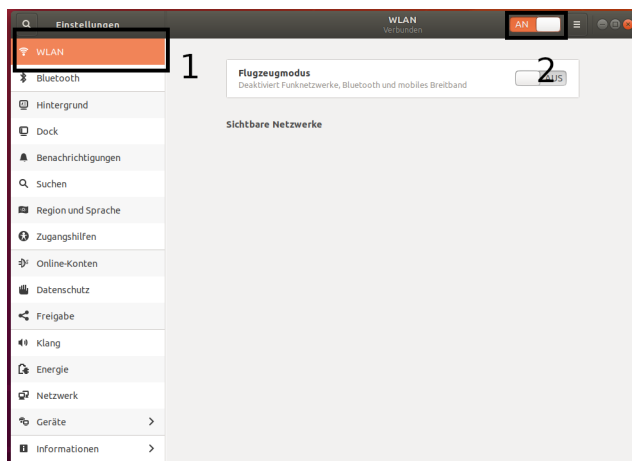
Confirm both the Gluon image you want to flash and the script are present in the current directory by executing `ls`.

Keep the Terminal window open.

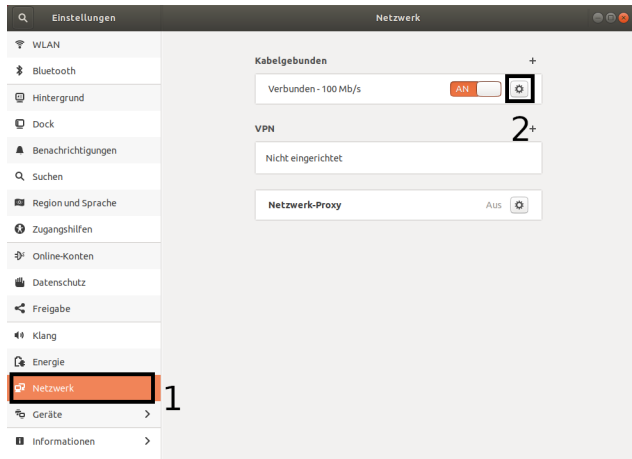
4.3 Configuring a static IP-address

Open the settings application.

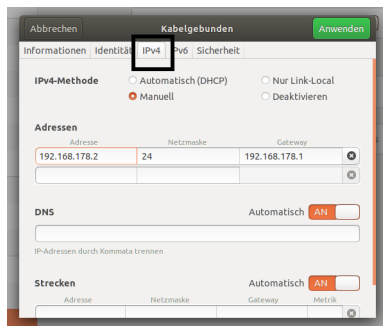
If your computer has WiFi, make sure to disable it now.



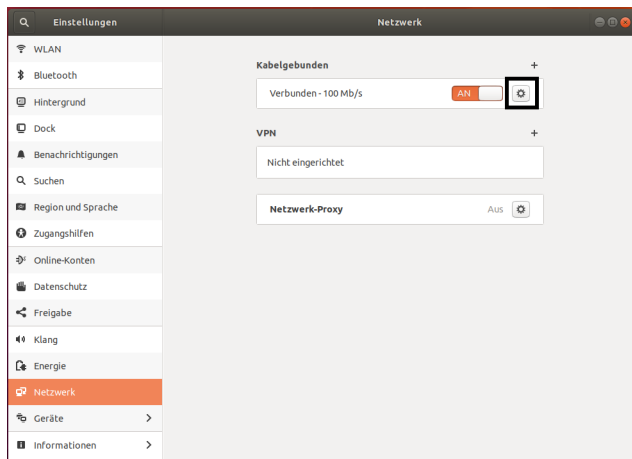
Select **Network** from the left menu and open the settings by clicking on the gear button.



Configure your Settings as seen in the following screenshot and confirm by clicking on **Apply** in the top right corner.



Now you will need to deactivate and reactivate the network interface to correctly apply the settings. Do so by turning the connection from On to Off. Wait two seconds and turn the connection back On again.



Keep the settings window open.

4.4 Install Gluon

Connect the router with your computer. In case it has multiple ports, use the yellow LAN-ports.

Execute the flash-script by executing `python3 fritzflash.py` in the Terminal window you left open.

```
fritz@fritz: ~/Downloads
fritz@fritz:~/Downloads$ python3 fritzflash.py
This program will help you installing Gluon, a widely used Firmware for Freifunk
networks, onto your AVM device.
You can always find the most current version of this script at https://www.glthub.com/freifunk-darmstadt/fritz-tools

It is strongly recommended to only connect your computer to the device you want
to flash.
Disable all other connections (Ethernet, WiFi/WLAN)!

Before we start, make sure you have assigned your PC a static IP Address in the
Subnet of the device you want to flash.
The following example would be a completely fine option:

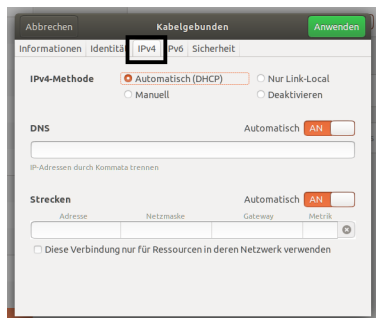
IP-Address: 192.168.178.2
Subnet: 255.255.255.0
Gateway: 192.168.178.1
DNS Servers: Leave blank

Once you're done, disconnect power from your AVM device, reconnect the power-supply and press enter.
```

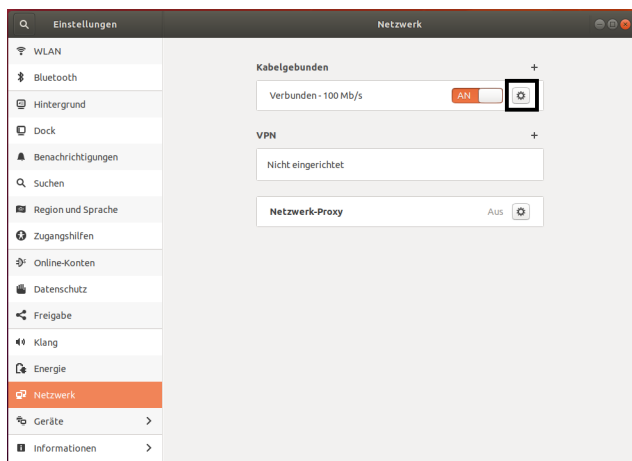
4.5 Revert network settings

Before you are able to reach the Config-mode of your new node you have to reconfigure your network interface to automatically obtain an IP-address using DHCP.

Configure your network interface as pictured on the screenshot below and confirm by selecting **Apply**.



You will (again) need to deactivate and reactivate the Network interface to correctly apply the settings. Do so by turning the connection from On to Off. Wait two seconds and turn the connection back On again.



CHAPTER 5

Supported Devices

These devices are confirmed working using the tools provided in this repository.

- FRITZ!Box 4020
- FRITZ!Box 4040
- FRITZ!WLAN Repeater 300E
- FRITZ!WLAN Repeater 450E
- FRITZ!WLAN Repeater 1750E

CHAPTER 6

License

See [LICENCE](#)

CHAPTER 7

Indices and tables

- `genindex`
- `modindex`
- `search`