Flashing Guide STM32F407 on Linux

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Installation of ChibiOS

1. Go to https://osdn.net/projects/chibios/releases/ and get the latest stable release of ChibiOS. (at writing 20.3.3.7)
2. Unzip it in a new directory (e.g. Embedded, Fachprojekt, STM)
3. Under demos/STM32 you will find examplary project. You have to build them before using.

Installation of ST-Link

1. Install libraries & tools needed

```
sudo apt-get install git make cmake libusb-1.0-0-dev sudo apt-get install gcc build-essentials
```

2. Download and build the ST-Link utilities form git to your ChibiOS directory

```
git clone https://github.com/stlink-org/stlink cd stlink make
```

3. Copying the binaries in the builds & libraries to the system libraries

```
cd bin sudo cp st-* /usr/local/bin cd ..lib sudo cp *.so* /lib32
```

4. Copying the udev rules for activating access through the usb port

```
sudo cp <your path where ST-Link is>/stlink/config/udev/rules.d/49-stlinkv* /etc/udev/rules.d/
```

5. Plug in your STM32F4

```
lsusb
```

If everythings works you will see a device from STMicroelectronics ST-Link.

Installation of STMCubeProgrammer

1. Get the STMCubeProgrammer Software from https://www.st.com/en/development-tools/stm32cubeprog.html
2. Unzip the package in the same folder as your ST-Link folder
3. Copy the rules for accessing the usb-port

```
cd <your path to STM32CubeProgrammer>/STM32CubeProgrammer/Drivers/rules sudo cp *.* /etc/udev/rules.d/
```

4. Get the firware upgrade of ST-Link from https://www.st.com/content/st_com/en/products/development-tools/software-development-tools/stm32-software-development-tools/stm32-programmers/stsw-link007.html
5. Unzip the package, launch the Installation and install the same folder as your ST-Link-Folder
6. Make a new Folder in the Drivers of the STM32

```
cd <your path to the STM32Programmer>/STM32CubeProgrammer/Drivers mkdir FirmwareUpgrade
```

7. Copy the upgrader from the ST-Link Firmware Upgrader to the FirwareUpgrade folder of STM32CubeProgrammer

```
cd <your path to the ST-Link Upgrader>/stsw-link-007/AllPlatforms cp *.* <your path to the STM32Programmer>/STM32CubeProgrammer/Drivers/FirmwareUpgrade
```

8. Start your STM32CubeProgrammer

```
cd <your path to the STM32Programmer>/STM32CubeProgrammer/bin ./STM32CubeProgrammer
```

9. Connect your Board while in ST-Link Configuration
10. Firware Upgrade on the Board
11. Click on the hamburger menu on the left and select Erasing & Programming

Board is already in the right bootmode (Flash Memory Boot), for others see the boot manual of the STM32 on STM

12. Under Download browse your .bin or your .hex file you are going to use and select it , e.g.

```
<path to your chibiOS folder>/ChibiOS_20.3.3/demos/STM32/RT-STM32F407-DISCOVERY/ build/ch.bin
```

13. enable the properties *Verify programming* & **Run after programming**
14. Click the Button Start Programming. You will get a message in the log, if your flashing was successfull. The programm should run immediately.

Optional [if you want to use the command line interface of the programm]

1. Copy your /bin path of the STM Programmer
2. Insert it in your environment variables

```
sudo nano /etc/environment
```

3. Restart the PC
4. Start the Command Line Interface

```
STM32_Programmer_CLI
```

Lets get started.