

Firmware update procedure for Ubuntu LINUX



Copy following files in an own directory:

```
flash_typhoon_bootloader
px_uploader.py
yuneec_typhoon_h.fw
```

```
Start script
Flash utility
The firmware itself
```

⚠ The file name for the firmware may change. "yuneec_typhoon_h.fw" is used here as example.

To find out what TTY port is used by the drone you have to disconnect and connect again the USB cable between drone and LINUX PC. Open a terminal and enter following commands:

```
dmesg | grep usb
dmesg | grep tty
```

The first command shows which USB devices where detected. The second commands shows which TTY port was assigned at the same time.

```
he@SSD256 ~
PS/2 Optical Mouse] on usb-0000:00:1a.0-1.4.4/input0
[ 5.877427] usbcore: registered new interface driver btusb
[ 5.988457] input: HP Webcam [2 MP Macro]: HP Webc as /devices/pci0000:00/0000:00:1a.0/usb1
1/1-1.5/1-1.5:1.0/input/input20
[ 5.988562] usbcore: registered new interface driver uvcvideo
[ 6.045226] audit: type=1400 audit(1577738889.496:9): apparmor="STATUS" operation="profile_
d" profile="unconfined" name="/usr/sbin/ippusbxd" pid=755 comm="apparmor_parser"
[ 162.227296] usb 2-1.4: new full-speed USB device number 3 using ehci-pci
[ 162.338320] usb 2-1.4: New USB device found, idVendor=0001, idProduct=0480
[ 162.338325] usb 2-1.4: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[ 162.338328] usb 2-1.4: Product: TyphoonH_Bootloader
[ 162.338331] usb 2-1.4: Manufacturer: PX4 AP
[ 162.338334] usb 2-1.4: SerialNumber: 0
[ 162.367625] usbcore: registered new interface driver cdc_acm
[ 171.061725] usb 2-1.4: USB disconnect, device number 3
[ 171.283316] usb 2-1.4: new full-speed USB device number 4 using ehci-pci
[ 171.397945] usb 2-1.4: New USB device found, idVendor=26ac, idProduct=0001
[ 171.397950] usb 2-1.4: New USB device strings: Mfr=1, Product=2, SerialNumber=3
[ 171.397953] usb 2-1.4: Product: PX4 Typhoon H
[ 171.397956] usb 2-1.4: Manufacturer: Yuneec
[ 171.397959] usb 2-1.4: SerialNumber: 0
he@SSD256 ~ $ dmesg | grep tty
[ 0.000000] console [tty0] enabled
[ 1.531997] 00:04: ttyS0 at I/O 0x3f8 (irq = 4, base_baud = 115200) is a 16550A
[ 1.554576] 0000:00:16.3: ttyS4 at I/O 0x6050 (irq = 17, base_baud = 115200) is a 16550A
[ 162.366799] cdc_acm 2-1.4:1.0: ttyACM0: USB ACM device
[ 171.398678] cdc_acm 2-1.4:1.0: ttyACM0: USB ACM device
he@SSD256 ~ $
```

Bootloader

Autopilot

number 3 bootloader assigned

number 4 flight mode assigned

Here we see the port is "ttyACM0".

Also we can see that after power-on (USB connected again) the bootloader starts first and after a while the Autopilot starts. If Autopilot is running we cannot flash anymore. This is the reason why we have to start the script for flashing prior to power-up the MCU board which must only be powered via USB. If we plug-in the USB cable when the script is already running we will be able to catch the bootloader.

Now we edit the file "flash_typhoon_bootloader" to set the correct port. The file text should look like that:

```
python px_uploader.py --port /dev/tttyACM0 --force yuneec_typhoon_h.fw
```

In terminal, move to the directory where the three files are located and make the scripts executable:

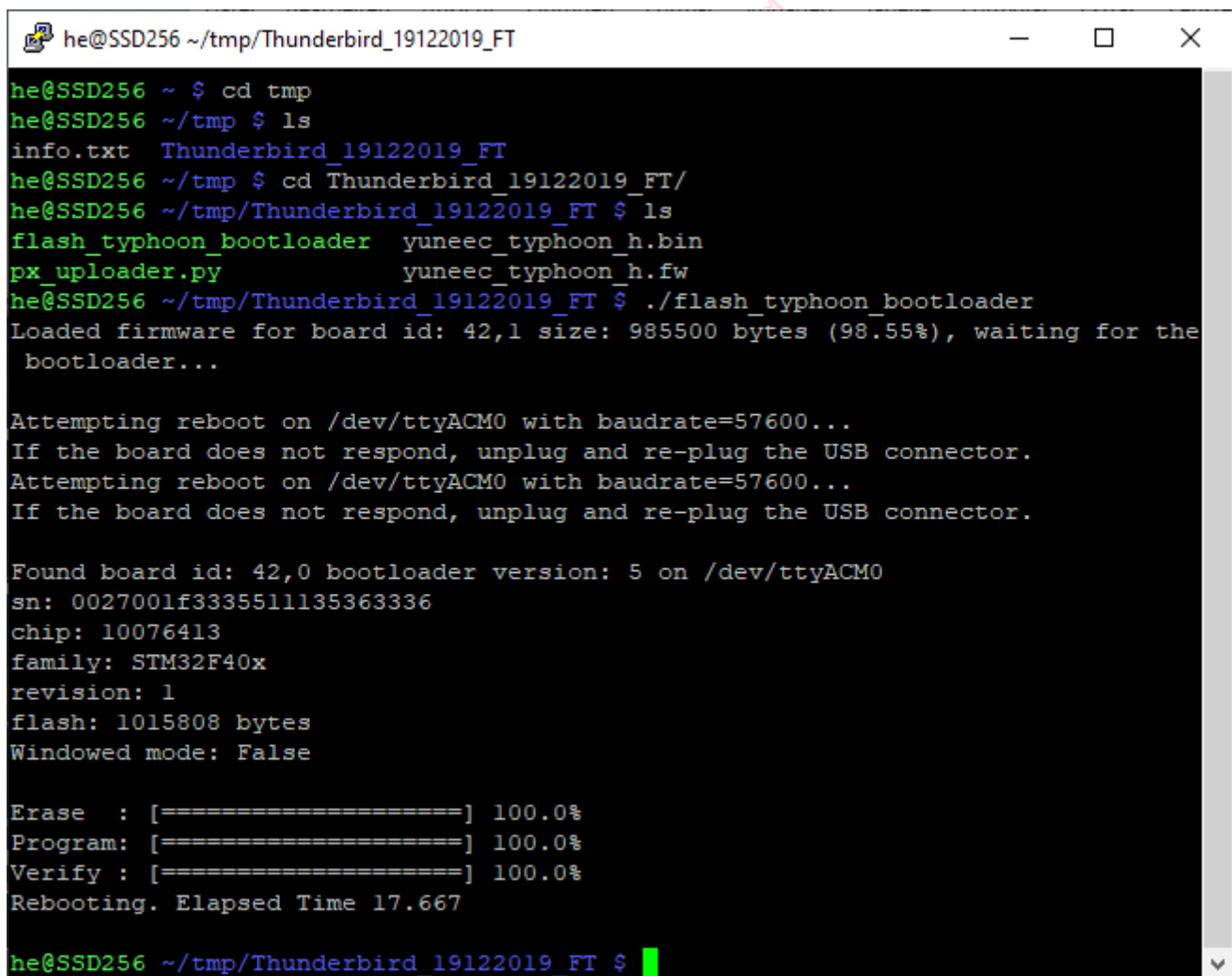
```
chmod +x ./flash_typhoon_bootloader  
chmod +x ./px_uploader.py
```

⚠️ **Make sure the USB connection is cut and no battery in the drone. (MCU-board powered off).**

Start firmware update script:

```
./flash_typhoon_bootloader
```

Plug in the USB cable immediately. Wait and observe terminal output. Update process will start soon...



```
he@SSD256 ~/tmp/Thunderbird_19122019_FT  
he@SSD256 ~ $ cd tmp  
he@SSD256 ~/tmp $ ls  
info.txt  Thunderbird_19122019_FT  
he@SSD256 ~/tmp $ cd Thunderbird_19122019_FT/  
he@SSD256 ~/tmp/Thunderbird_19122019_FT $ ls  
flash_typhoon_bootloader  yuneec_typhoon_h.bin  
px_uploader.py             yuneec_typhoon_h.fw  
he@SSD256 ~/tmp/Thunderbird_19122019_FT $ ./flash_typhoon_bootloader  
Loaded firmware for board id: 42,1 size: 985500 bytes (98.55%), waiting for the  
bootloader...  
  
Attempting reboot on /dev/tttyACM0 with baudrate=57600...  
If the board does not respond, unplug and re-plug the USB connector.  
Attempting reboot on /dev/tttyACM0 with baudrate=57600...  
If the board does not respond, unplug and re-plug the USB connector.  
  
Found board id: 42,0 bootloader version: 5 on /dev/tttyACM0  
sn: 0027001f3335511135363336  
chip: 10076413  
family: STM32F40x  
revision: 1  
flash: 1015808 bytes  
Windowed mode: False  
  
Erase   : [=====] 100.0%  
Program: [=====] 100.0%  
Verify  : [=====] 100.0%  
Rebooting. Elapsed Time 17.667  
  
he@SSD256 ~/tmp/Thunderbird_19122019_FT $
```

Reboot drone after firmware was flashed successfully. Done! 🍷