# How to upgrade the Firmware on the
# STM32_DVM_USB V3 (BLUE) Board

This guide assumes you are Running a Pi_Star image and that you wish to upgrade firmware on a STM32_DVM_USB.

Log into Pi-Star's HTML configuration page, or connect to its IP address via SSH using a application such as PuTTY.
Login Defaults ->    usr:pi-star -- pwd:raspberry

If using SSH, proceed as below. If connecting via the HTML configurator, go to Admin->Expert->SSH Access then login.

| | | |
|---|---|---|
| **pi-star@pi-star(rw):~$** *sudo –s* | | *gives ROOT permissions |
| **root@pi-star(rw):** *rpi-rw* | | *makes file system read/write |
| **root@pi-star(rw):** *mv /etc/mmdvmhost /etc/mmdvmhost.save* | | *rename mmdvmhost so it won't auto start and interrupt us while upgrading |
| **root@pi-star(rw):** *cd /home/pi-star* | | *go to pi-star directory |
| **root@pi-star(rw):** *wget -N http://dvswitch.org/files/HAM/MMDVM/stm32flash* | | *get flash utility |
| **root@pi-star(rw):** *wget -N http://dvswitch.org/files/HAM/MMDVM/ Version_3_Firmware/mmdvm_f4.hex* | *get Firmware |
| **root@pi-star(rw):** *chmod +x stm32flash* | | *make flash utility executable |
| **root@pi-star(rw):** *reboot* | | |

Wait for the Pi to reboot.

Now you need to put the board in bootloader mode:

**UNPLUG** the USB cable from the Raspberry Pi to the DVM.

Insert JP1 jumper (Or short pins with tweezers or similar)

**CONNECT** the USB cable            ***NOTE: Jumper does NOT need to remain shorted after processor is in boot mode.

PWR, ACT and DMR should be lit solid, NOT flashing.

**\*\*\* If the LEDs are NOT in this configuration, STOP!!  Re-do the short/power-on procedure described above until they are.**

Log into the Raspberry Pi via SSH or via web SSH access as above; then:

| | |
|---|---|
| **pi-star@pi-star(rw):~$** *sudo –s* | |
| **root@pi-star(rw):** *rpi-rw* | |
| **root@pi-star(rw):** *cd /home/pi-star* | *go to pi-star directory |
| **root@pi-star(rw):** *./stm32flash -v -w mmdvm_f4.hex  -R /dev/ttyUSB0* | *do the actual flash programming |

The response to the above command should be:

```
stm32flash 0.5

http://stm32flash.sourceforge.net/

Interface serial_posix: 57600 8E1
Version    : 0x22
Option 1   : 0x00
Option 2   : 0x00
Device ID  : 0x0418 (STM32F105xx/F107xx)
- RAM      : 64KiB  (4096b reserved by bootloader)
- Flash    : 256KiB (size first sector: 2x2048)
- Option RAM : 16b
- System RAM : 18KiB
Write to memory
Erasing memory
Wrote and verified address 0x0800fec8 (100.00%) Done.
```

Once writing is successful, do some clean up:

| | |
|---|---|
| **root@pi-star(rw):** *mv /etc/mmdvmhost.save /etc/mmdvmhost* | *"re-enable" mmdvmhost |
| **root@pi-star(rw):** *reboot* | |