

How to flash firmware through SWD interface

VESC is a great project, it is powerful, flexible, supports a wide range of applications, and can easily update firmware through UART. In some cases, the update will fail, the device will become a brick, or the bootloader sometimes have lost. At this time, we need to flash in the firmware through the SWD interface. The great VESC itself integrates SWD flashing function. With one normal VESC, we can flash firmware into another VESC.

The Ubox has two ESCs, which can perform SWD function with one ESC and write firmware to the other ESC.

Let's take Ubox as an example to illustrate this function step by step.

Equipment used in this example:

Ubox,

CAN bus cable,

USB cable,

Windows PC,

VESC tool PC version

The firmware merged with bootloader. Here we use the binary format file(attached):

VESC_UBOX_3.3V_100A_FW5.2_R2_TYPE_C_MERGED.bin

Required preparation: the PC needs to install STM32 virtual COM port driver, attached file 'STM32 Virtual COM Port Driver', or download from this link:

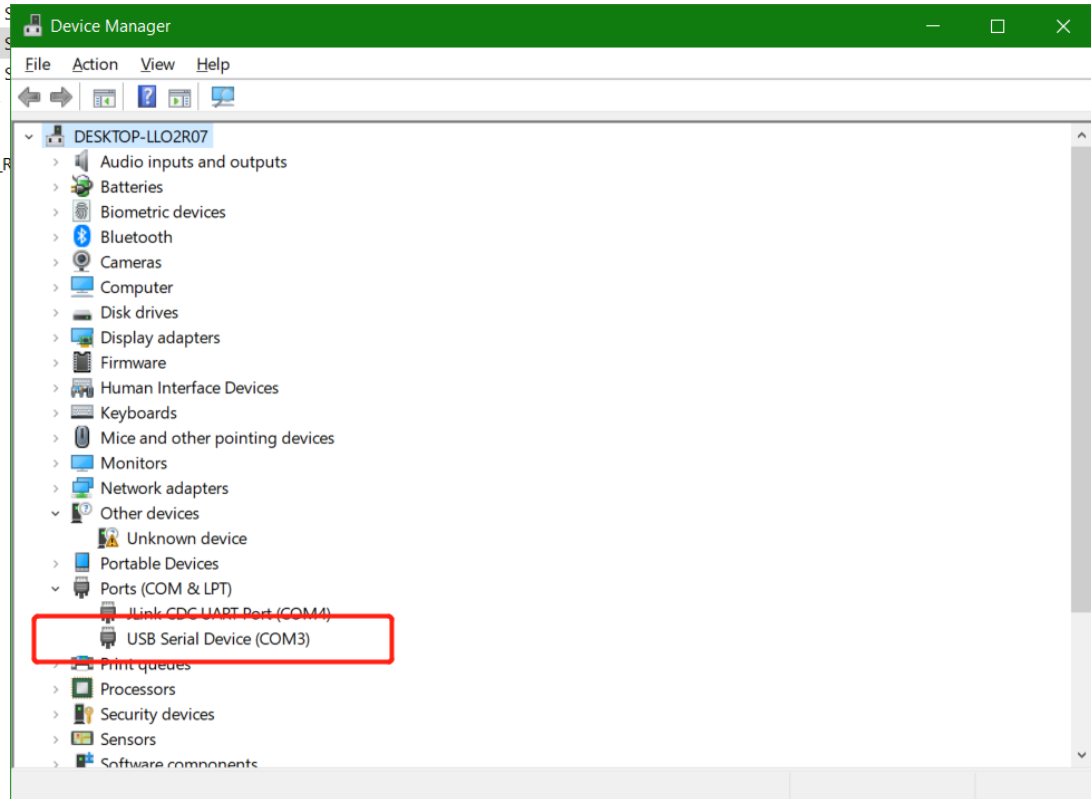
<https://www.st.com/en/development-tools/stsw-stm32102.html>.

Windows 10 may have built-in this driver. Users can try to connect the VESC to the PC to see if the PC can correctly identify the device.

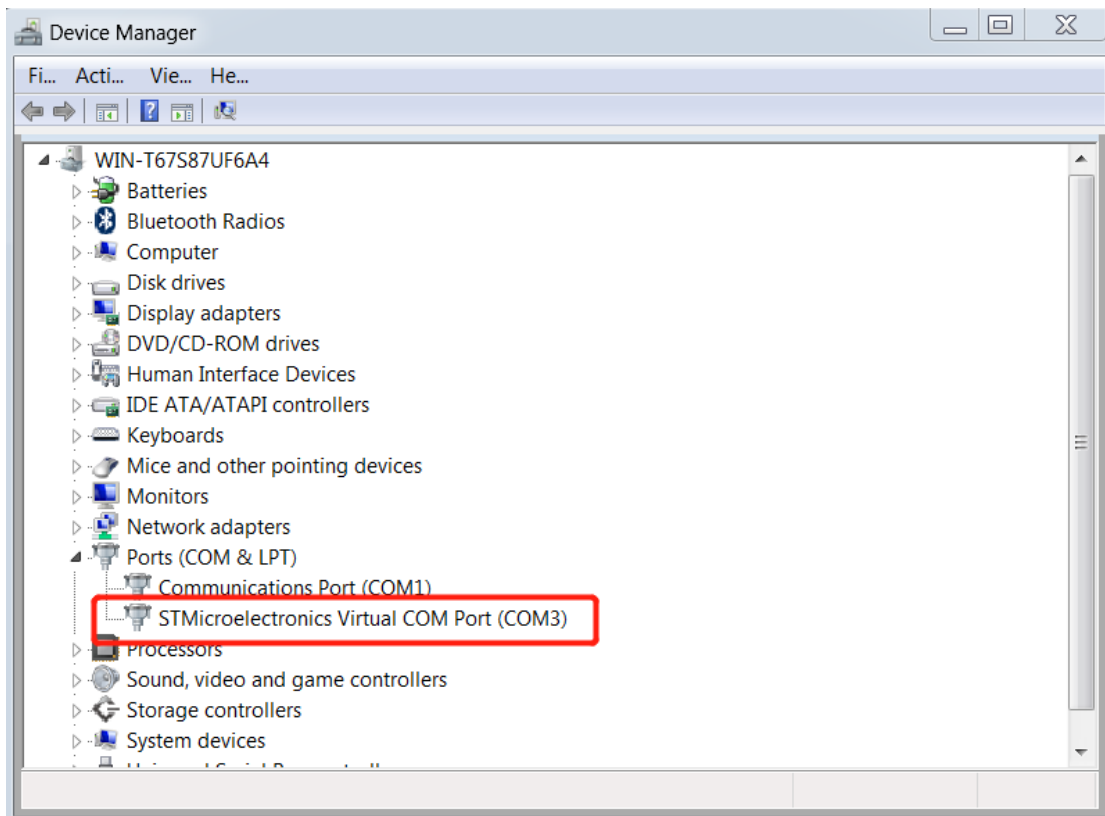
To view the VESC device of your PC:

Win + R, then type in "devmgmt.msc", and then run to open the device manager window:

Windows 10:

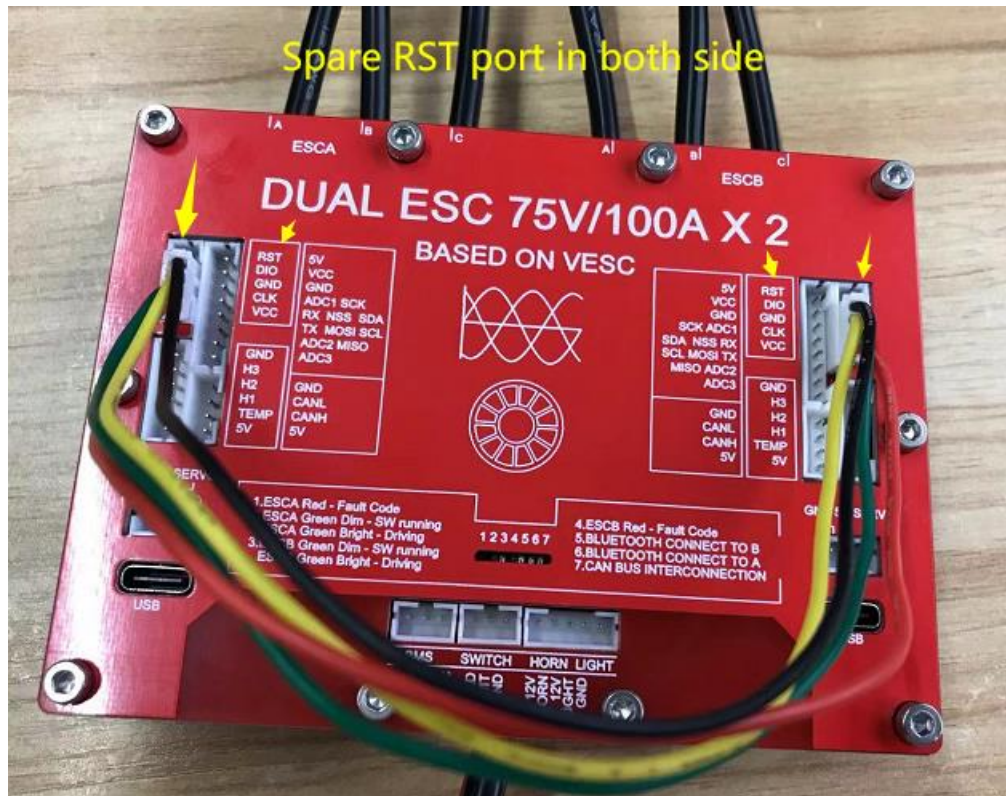


Windows 7:

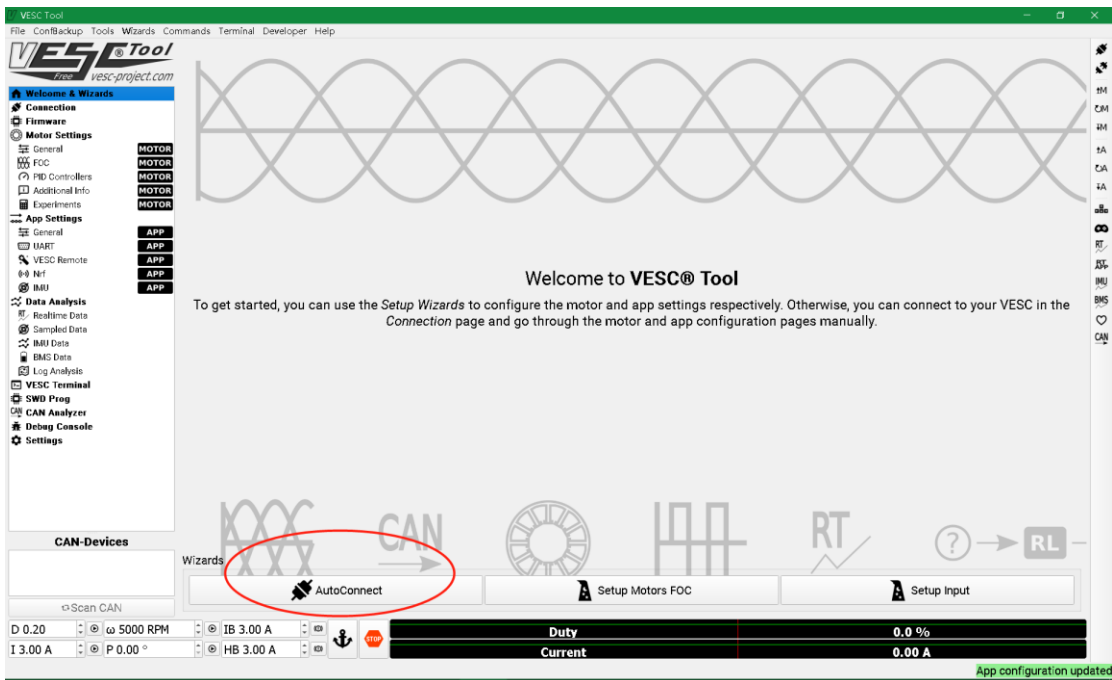
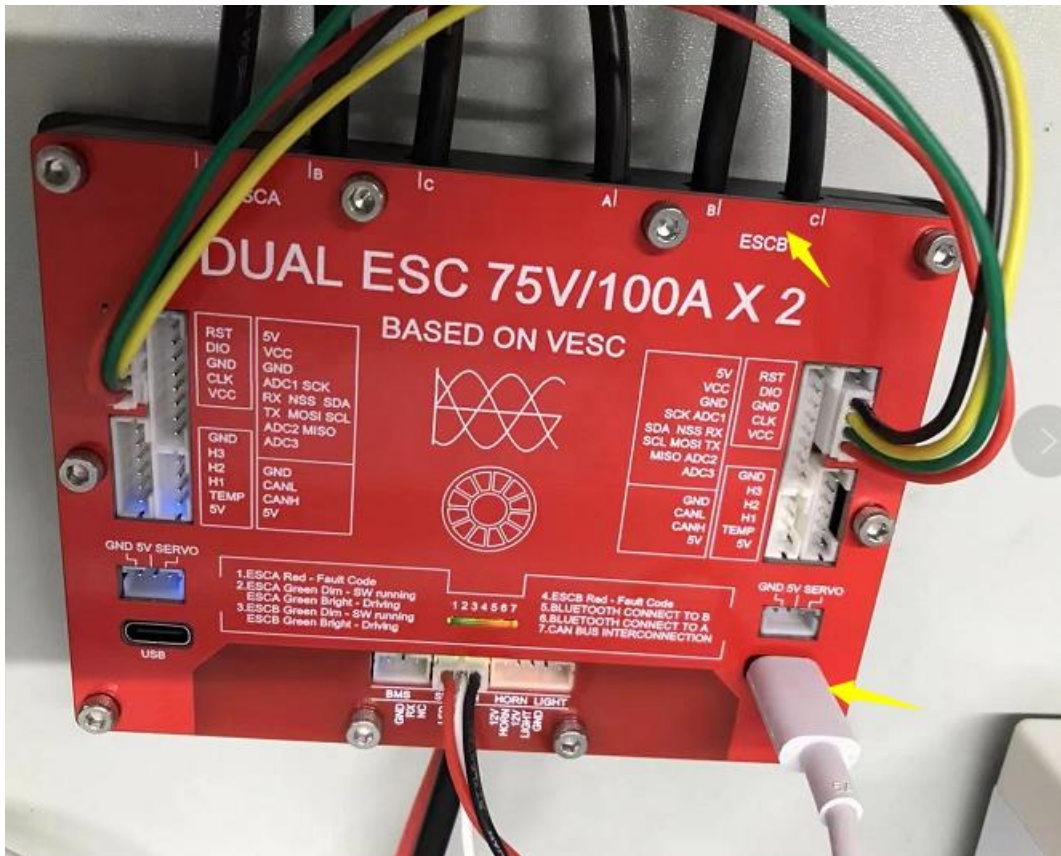


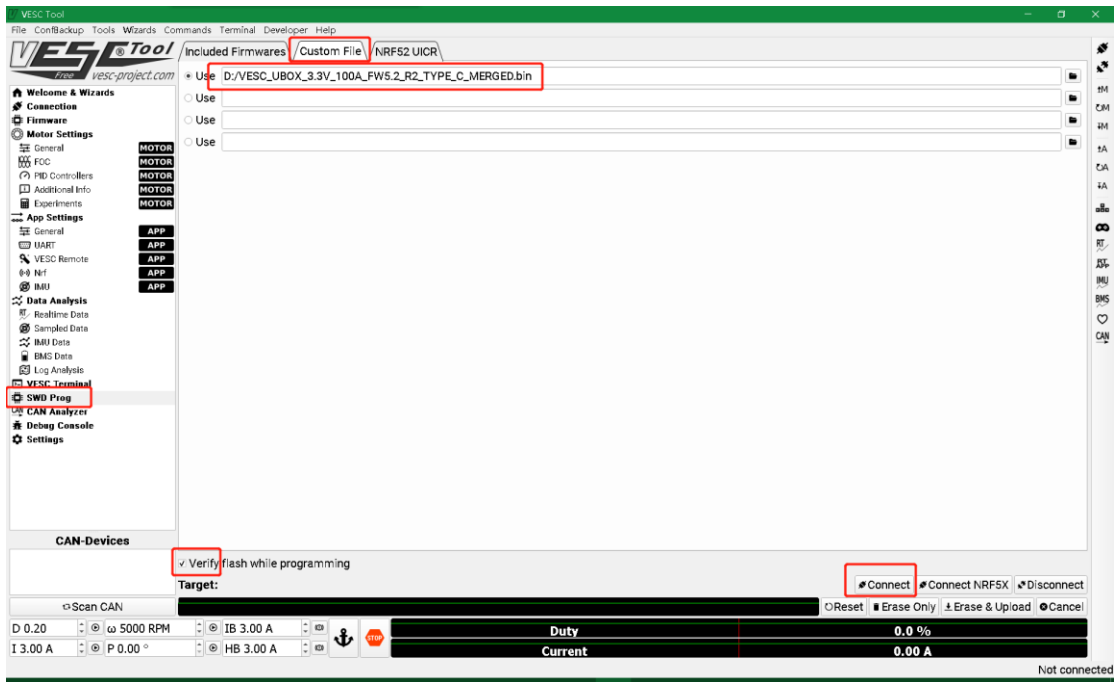
After the PC can correctly identify the com (UART) device, start the following steps:

1. Use the CAN cable to bridge the SWD ports of the ESC on both sides (we leave the RST idle, because the RST of the SWD socket is usually not needed).

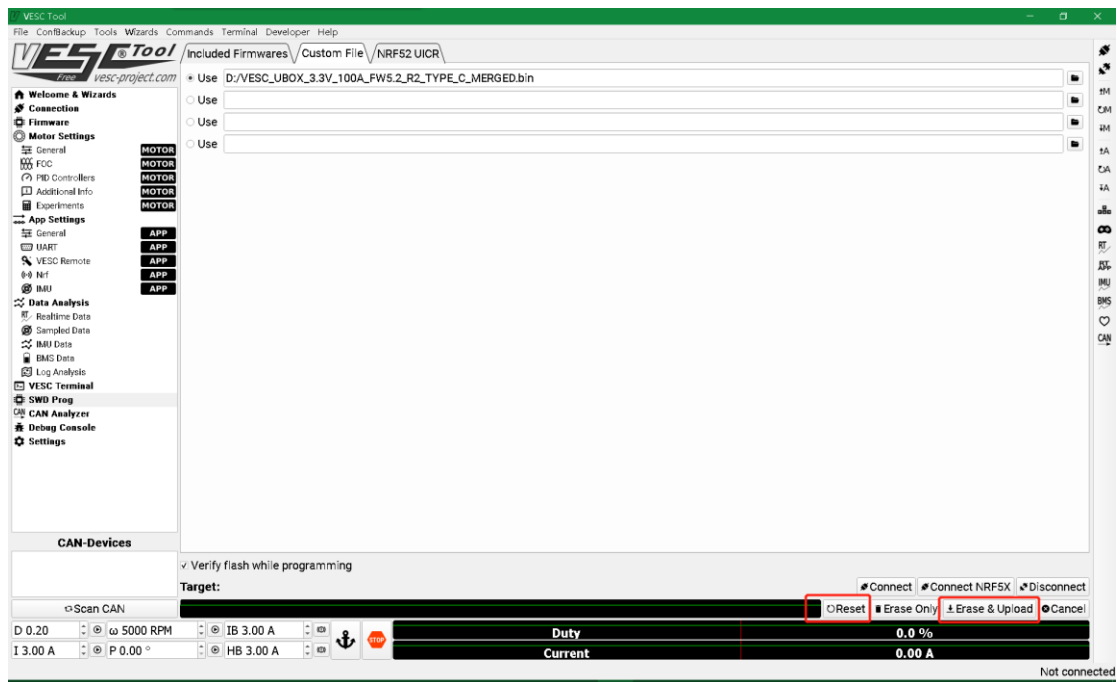


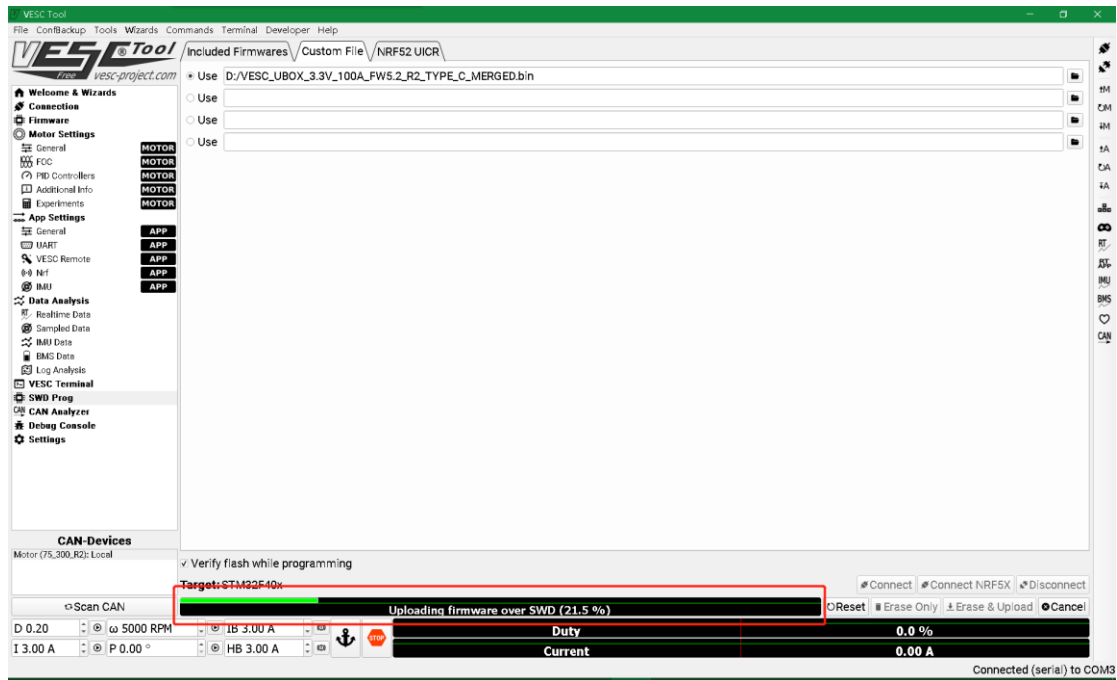
2. Run the VESC tool, power on the ESC, connect the ESC to the PC, and then:
Eg. Connect ESCB side with PC, then it flashes the A side's firmware.



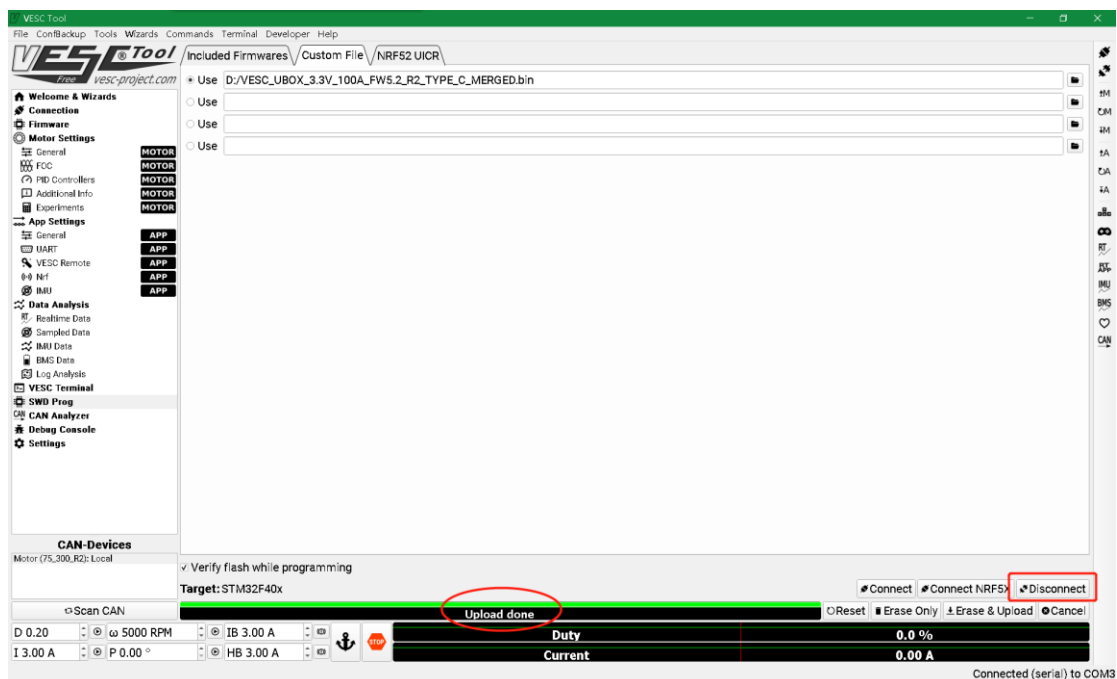


Reset, then Erase & Upload





When done, disconnect.

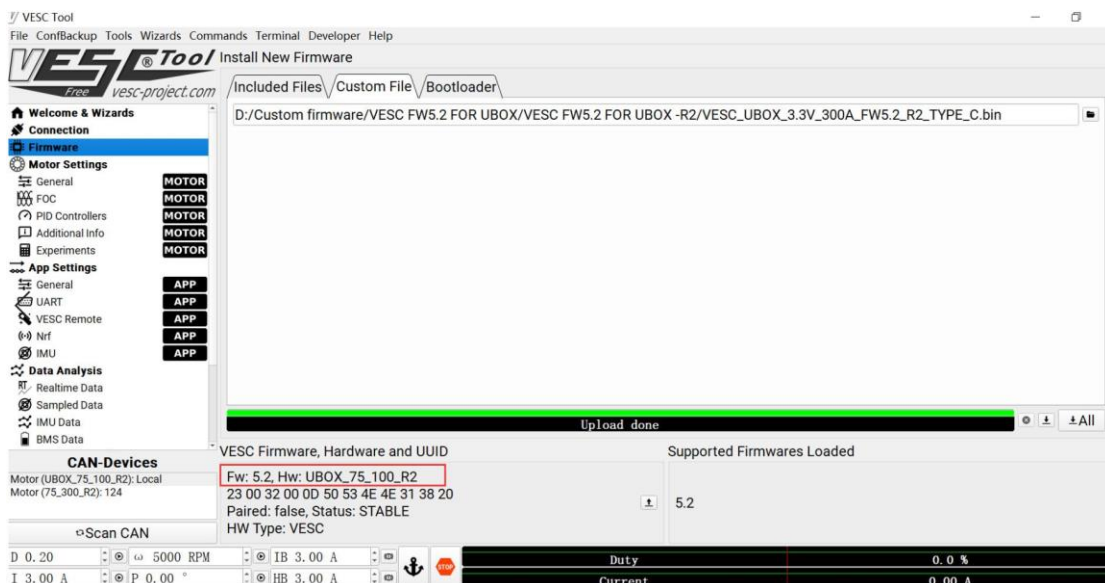
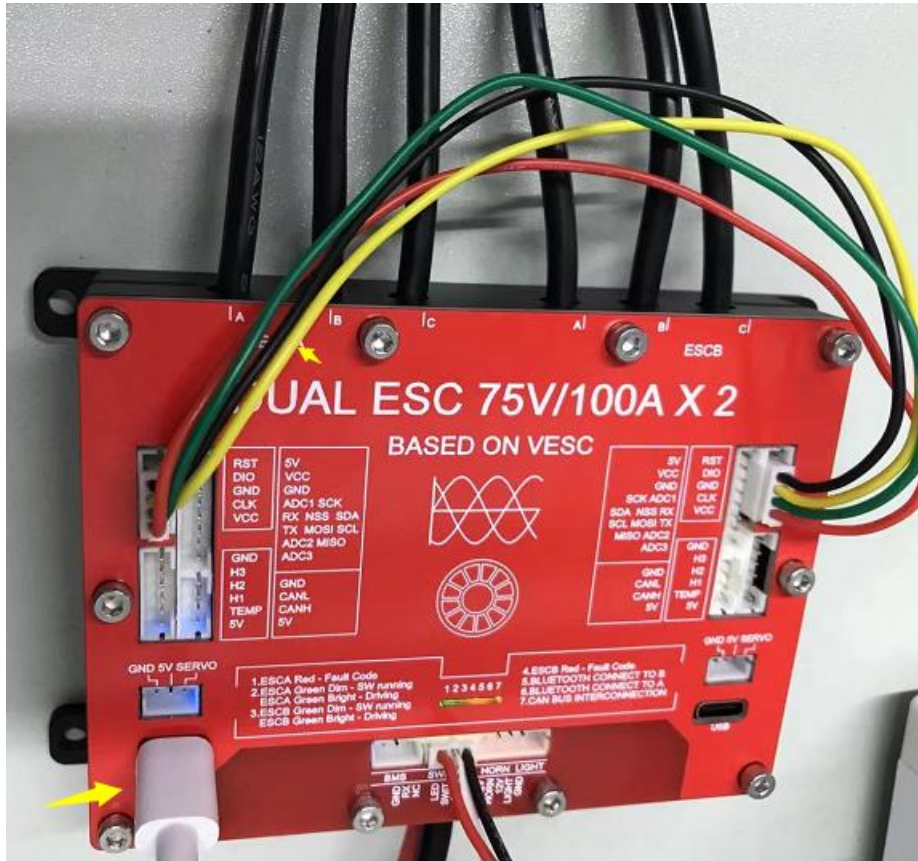


Do the same step in other side ESC.

Remember : the If the USB in A side, then A side is local (shown in can-Device), it actually flashed B side's firmware. Simply as A→B, B→A

The firmware flashing is completed. Now we can test whether the newly flashed firmware works normally.

Check another side ESCA, to see the firmware name , if it's burned in .



Revision history

07/07/2021

Initial version