# COSMIC

# UPLOADING THE LATEST FIRMWARE FOR STM32F411CEU6 BASED FLIGHT COMPUTERS

Last modified: February 12 2025
By Cosmic Aerospace Technologies
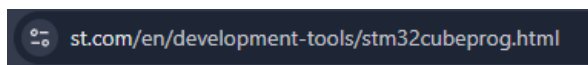
Compatible Flight Computers:
- Vega FC-301
Please view Sections 9 & 10 of the Vega user manual for additional information
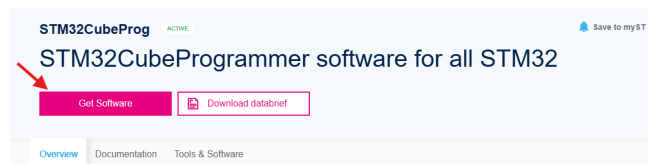
## 1 – Install STM32CubeProgrammer

Install the latest version of STM32CubeProgrammer from the STM's official website st.com.



After navigating to the site by following the link above, you will be greeted with the following.
> Press "Get Software"



You will be navigated down to where you will find different version of the software based on your computer's specifications. Choose the appropriate one for your operating system.

### Get Software

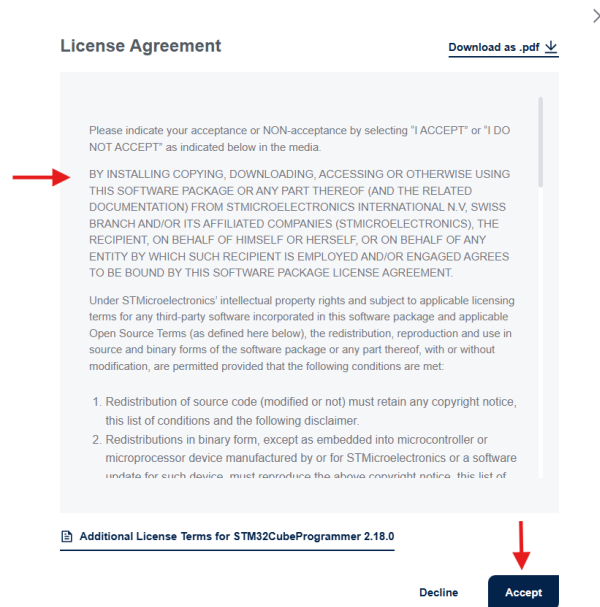| | Part Number | General Description | Latest version | Download | All versions |
|---|---|---|---|---|---|
| + | STM32CubePrg-Lin | STM32CubeProgrammer software for Linux | 2.18.0 | Get latest | Select version |
| + | STM32CubePrg-Mac | STM32CubeProgrammer software for Mac | 2.18.0 | Get latest | Select version |
| + | STM32CubePrg-W32 | STM32CubeProgrammer software for Win32 | 2.18.0 | Get latest | Select version |
| + | STM32CubePrg-W64 | STM32CubeProgrammer software for Win64 | 2.18.0 | Get latest | Select version |

If you have:
Linux - 1$^{st}$ option
Mac - 2$^{nd}$ option
Windows 32bit - 3$^{rd}$ option
Windows 64bit – 4$^{th}$ option (Most common for windows)

Read their License Agreement and press "Accept" to continue.



According to the recent changes , you will no longer have to create an account with ST in order to download their software. However, you will have to provide and E-mail address and name to receive a download link.



Once you have filled out the form, they will send the downloadable link to your inbox (Check **Spam Folder**)

Follow the instructions and you should be able to download the software once you receive the link. It may take a few minutes to receive the link.

# 2 – Download & Upload the latest firmware

>Locate the latest firmware for your Vega flight computer on the GitHub repository.
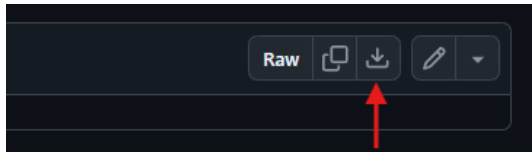
**Vega-FC-3XX** / FC-301 / Latest Software / **Firmware** /

Link:

https://github.com/Cosmic-Aerospace-Technologies/Vega-FC-3XX/tree/main/FC-301/Latest%20Software/Firmware

> Press "firmware.bin"

Name

.. 

firmware.bin
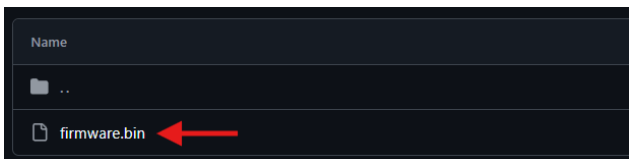
> Press "Download raw file" on the top right corner.

Raw

Save this file in a location you will remember(e.g. Desktop, Documents, etc…)

Now we will be connecting the STM32CubeProgrammmer to the flight computer.

Let's put the flight computer into "bootloader mode".

> Plug the flight computer into your PC via USB-C with the provided cable or one that supports data transfers.

> Press and Hold the B0 (boot 0) button & then press the RST (reset) button **while still pressing down on the B0 button.**

Press B0 first               Hold B0    Press RST

BOOT 0     RESET          BOOT 0    RESET
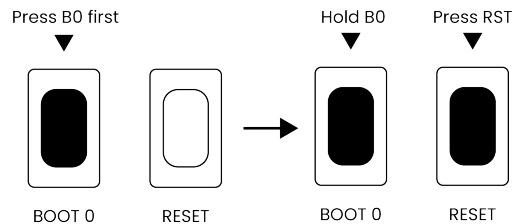
> You will notice that the 2 TX lights are now on, this indicates that the flight computer is indeed in bootloader mode.

TX              TX

TX              TX
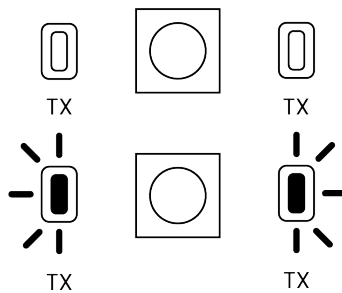
*(Optional) You can check that the device is indeed in "Bootloader" mode by going to:*
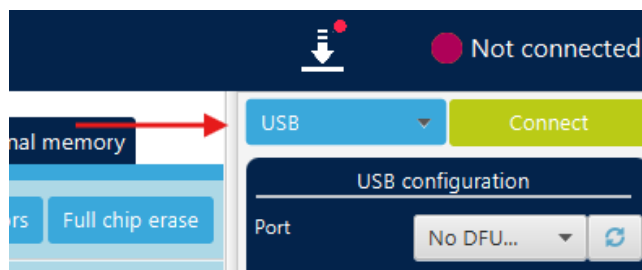
*Device manager> "Universal Serial Bus devices (not controllers)" > "STM32 BOOTLOADER"*

*Note: If you do not see this, repeat the last step in order to properly place the flight computer into bootloader.*

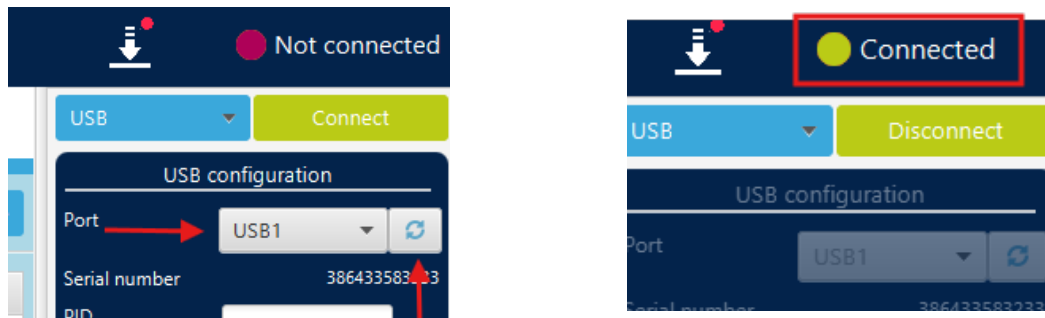> Now open the **STM32CubeProgrammer** which you have installed.

To connect the flight computer:
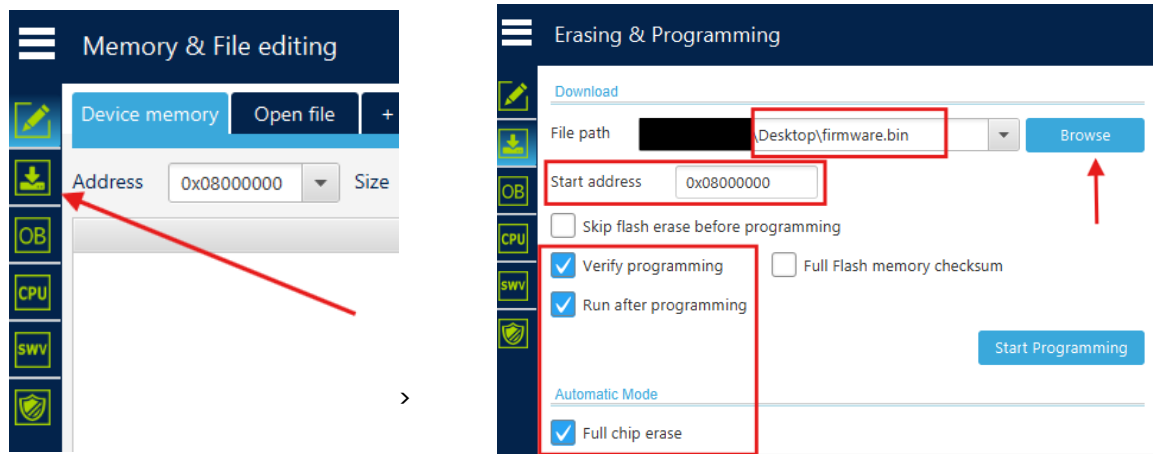
> Have "USB" selected as the connection type.

> Press the refresh icon next to "port".

You should see a "USB{#}" show up, make sure it is selected. Press "Connect"



> Press the second icon the left side, called **"Erasing & Programming"**

> Press "Browse" and locate the "firmware.bin" which you have installed previously.



Make sure the Start address is 0x08000000, this is the starting location of the Main memory sector on this MCU.

>Press "Start Programming" , the Programmer should erase and reboot the flight computer with the new firmware.
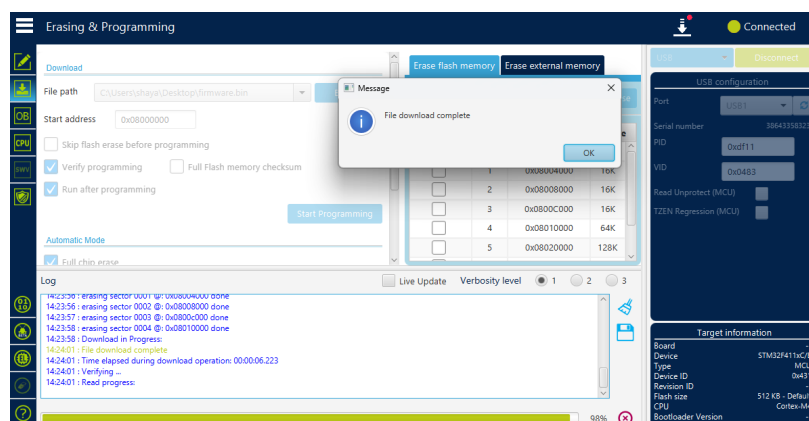


You may get warnings and errors after the bootloader is done uploading (e.g. "Connection with device is lost").

This is normal, as long as the warnings/errors are not RED in color.