

## STELLA-Q assembly and programming:

### Part 1. Putting CircuitPython on the microcontroller, Microsoft Windows version

Hello and welcome to STELLA!

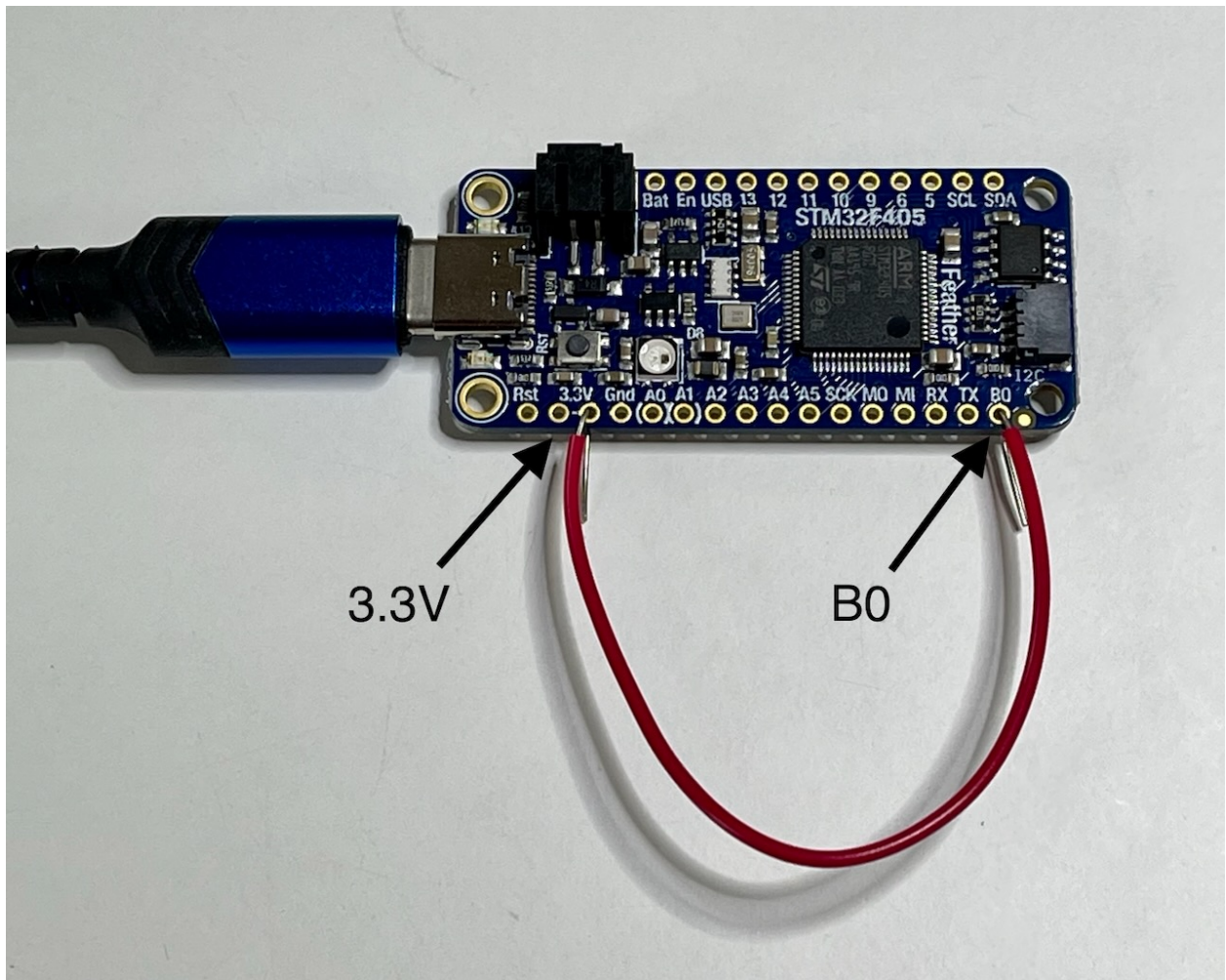
Let's program and assemble a STELLA-Q!

STELLA-Q stands for Science and Technology Education for Land/ Life Assessment - Quick connect version.

First thing, let's put the CircuitPython operating system onto the microcontroller.

The microcontroller is an Adafruit Industries Feather STM32F405. We're following the instructions on this webpage: <https://learn.adafruit.com/adafruit-stm32f405-feather-express/dfu-bootloader-details>

With the microcontroller disconnected from the computer, use a piece of wire to temporarily connect the B0 via to the 3.3V via. When plugged in, the microcontroller powers up into bootloader mode.



Once it's powered up, check that the bootloader appears in the device listing: Open the Control Panel, Hardware and Sound, Devices and Printers, and STM32 BOOTLOADER should show up in the Unspecified devices list.

## STELLA-Q assembly and programming:

### Part 1. Putting CircuitPython on the microcontroller, Microsoft Windows version

Get the STM32CubeProgrammer from [ST.com](https://www.st.com/en/development-tools/stm32cubeprog.html)

<https://www.st.com/en/development-tools/stm32cubeprog.html>

Click "Get Software", and choose the operating system version you have, most likely for Win64. Click "Get Latest"

At this point you have to register for an ST account. No way around that.

Submit your registration, and check your email to confirm. In your email, make very sure it's from [ST.com](https://www.st.com), and click "Download Now".

The download will be a 218MB .zip file. Open it and click "Extract All".

You'll need administrator privileges to install the software.

The guide for operating the STMCubeProgrammer is here:

<https://learn.adafruit.com/adafruit-stm32f405-feather-express/dfu-bootloader-details#step-3045684>

It's detailed and step by step, so I won't duplicate it.

After following the STMCubeProgrammer instructions, remove the wire between B0 and 3.3V, and unplug the microcontroller. Plug it back in, and you should see a CIRCUITPY drive on the hierarchy on the left in Windows.

Programming the STELLA-Q is the easy part. Copy the contents of the STELLA-Q\_code\_and\_libraries folder onto the CIRCUITPY drive. When it asks if you want to replace the ones that are already there, say yes. That's it. Now STELLA-Q should boot normally.