M4 Lab1:
Getting Started With MicroPython

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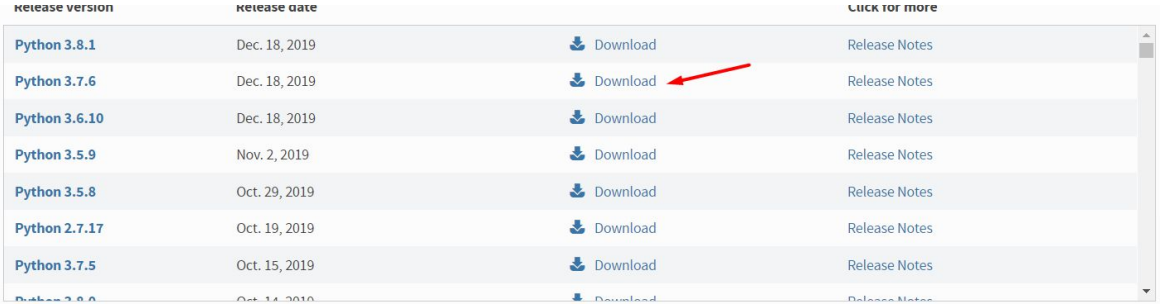
LAB 1: GETTING STARTED WITH MICROPYTHON

Objective:
In this lab we are going to install softwares used for micropython programming. MicroPython is a full Python compiler and runtime that runs on the bare-metal. You get an interactive prompt (the REPL) to execute commands immediately, along with the ability to run and import scripts from the built-in filesystem. uPyCraft is an IDE that works with Windows and Mac and designed with a simple interface which is convenient to use.

Steps:

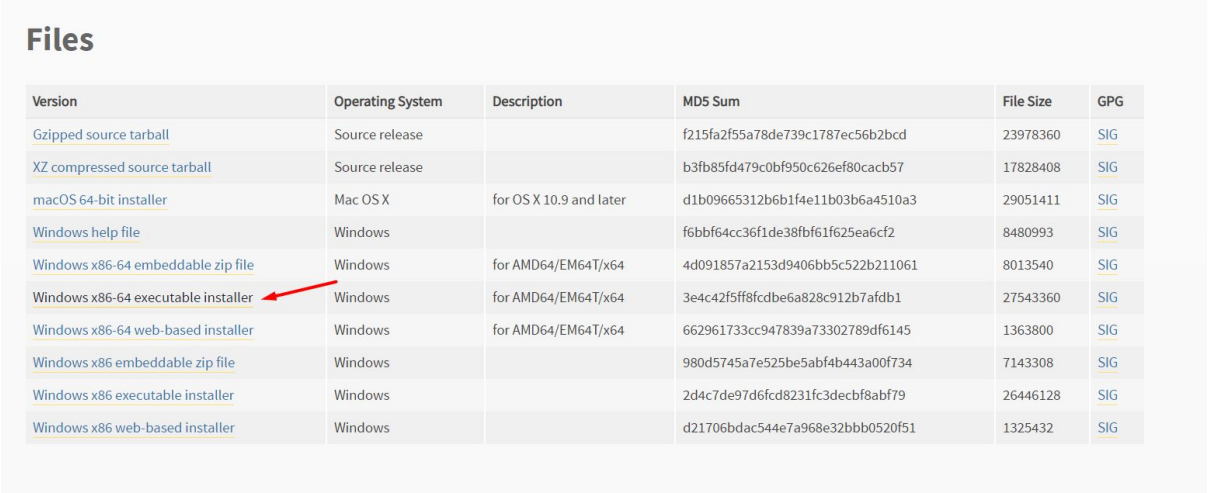
Install uPyCraft

1. To use uPyCraft we need to install python first
2. Go to https://www.python.org/downloads/release/python-382/



Release version	Release date		Click for more
Python 3.8.1	Dec. 18, 2019	Download	Release Notes
Python 3.7.6	Dec. 18, 2019	Download	Release Notes
Python 3.6.10	Dec. 18, 2019	Download	Release Notes
Python 3.5.9	Nov. 2, 2019	Download	Release Notes
Python 3.5.8	Oct. 29, 2019	Download	Release Notes
Python 2.7.17	Oct. 19, 2019	Download	Release Notes
Python 3.7.5	Oct. 15, 2019	Download	Release Notes

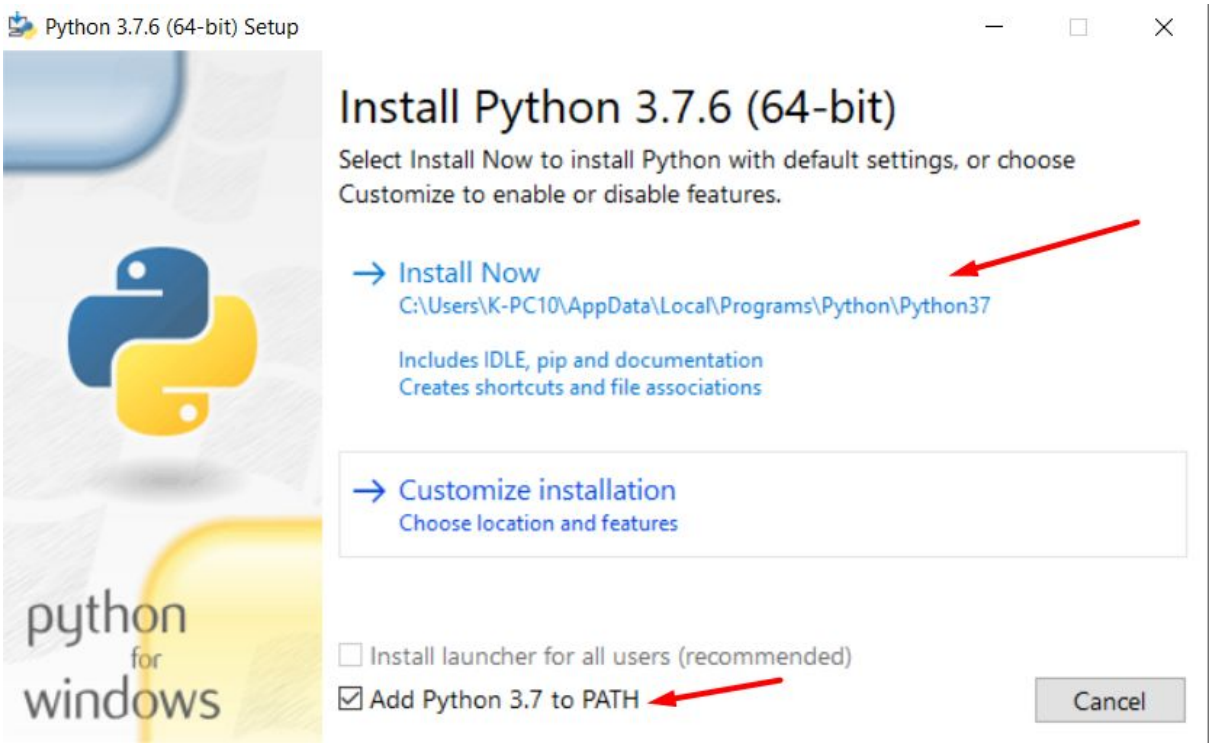
3. Scroll down and select executable file suitable for your OS version (64bit or 32bit(x86))



Files

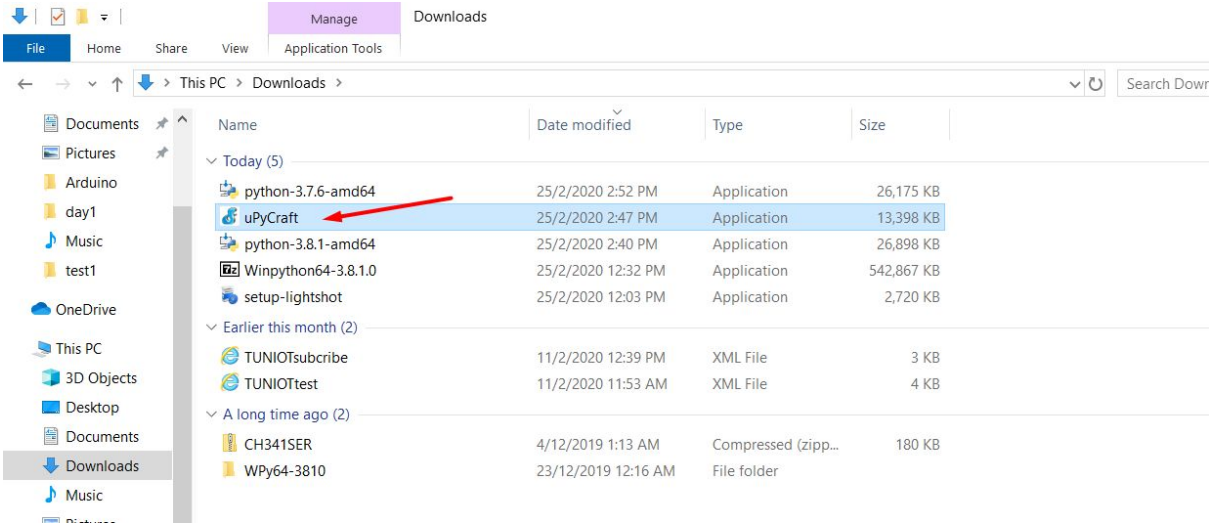
Version	Operating System	Description	MD5 Sum	File Size	GPG
Gzipped source tarball	Source release		f215fa2f55a78de739c1787ec56b2bcd	23978360	SIG
XZ compressed source tarball	Source release		b3fb85fd479c0bf950c626ef80cacb57	17828408	SIG
macOS 64-bit installer	Mac OS X	for OS X 10.9 and later	d1b09665312b6b1f4e11b03b6a4510a3	29051411	SIG
Windows help file	Windows		f6bbf64cc36f1de38fbf61f625ea6cf2	8480993	SIG
Windows x86-64 embeddable zip file	Windows	for AMD64/EM64T/x64	4d091857a2153d9406bb5c522b211061	8013540	SIG
Windows x86-64 executable installer	Windows	for AMD64/EM64T/x64	3e4c42f5ff8fcdbe6a828c912b7afdb1	27543360	SIG
Windows x86-64 web-based installer	Windows	for AMD64/EM64T/x64	662961733cc947839a73302789df6145	1363800	SIG
Windows x86 embeddable zip file	Windows		980d5745a7e525be5abf4b443a00f734	7143308	SIG
Windows x86 executable installer	Windows		2d4c7de97d6fcd8231fc3decbf8abf79	26446128	SIG
Windows x86 web-based installer	Windows		d21706bdac544e7a968e32bbb0520f51	1325432	SIG

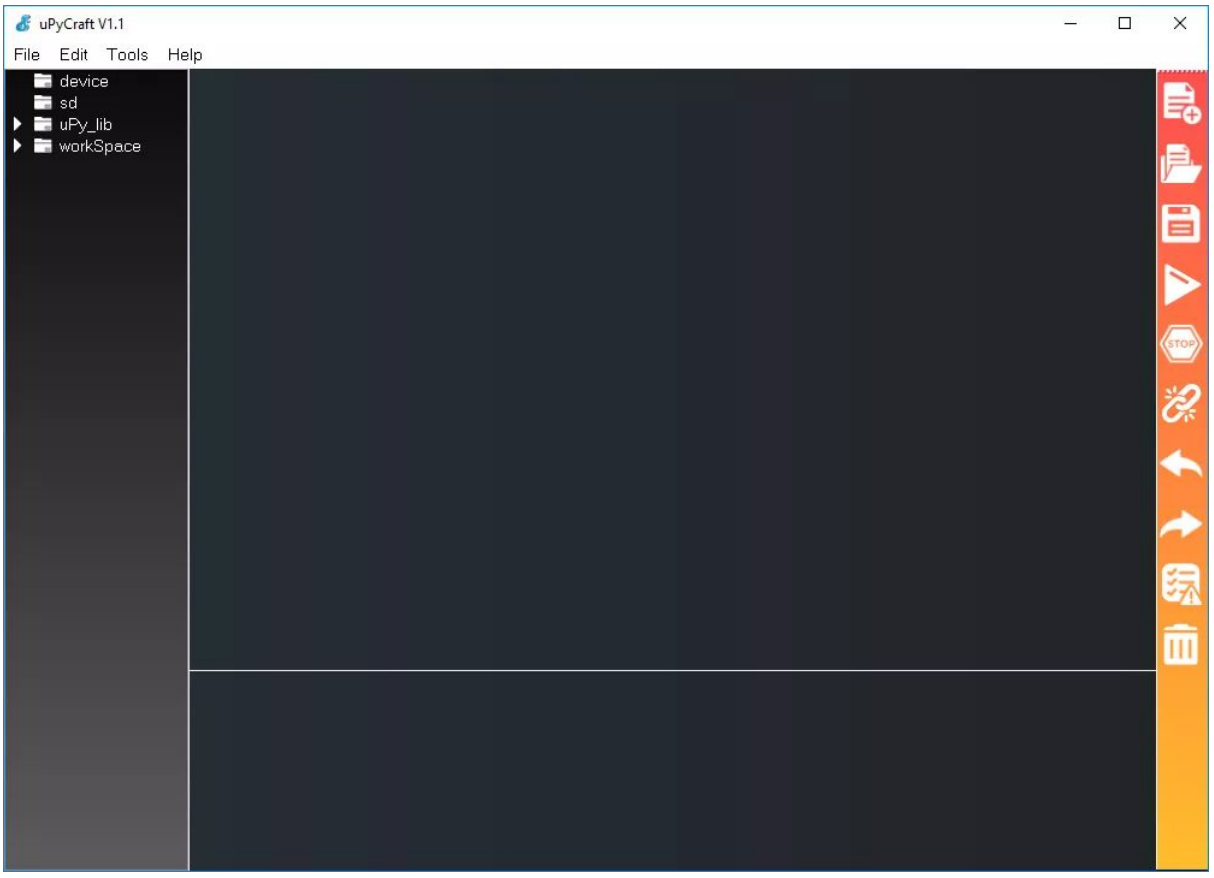
4. Install python - **check Add Python 3.8 to PATH !!!**



5. Download uPyCraft IDE for Windows. Go to this link : https://randomnerdtutorials.com/uPyCraftWindows

6. Launch uPyCraft IDE

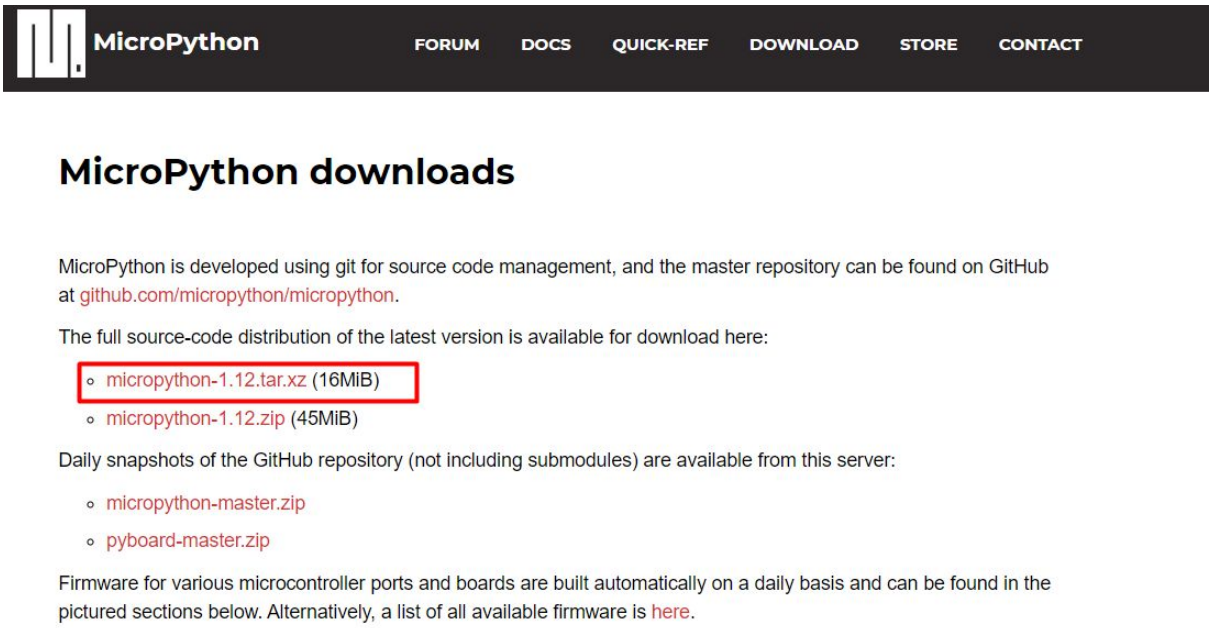




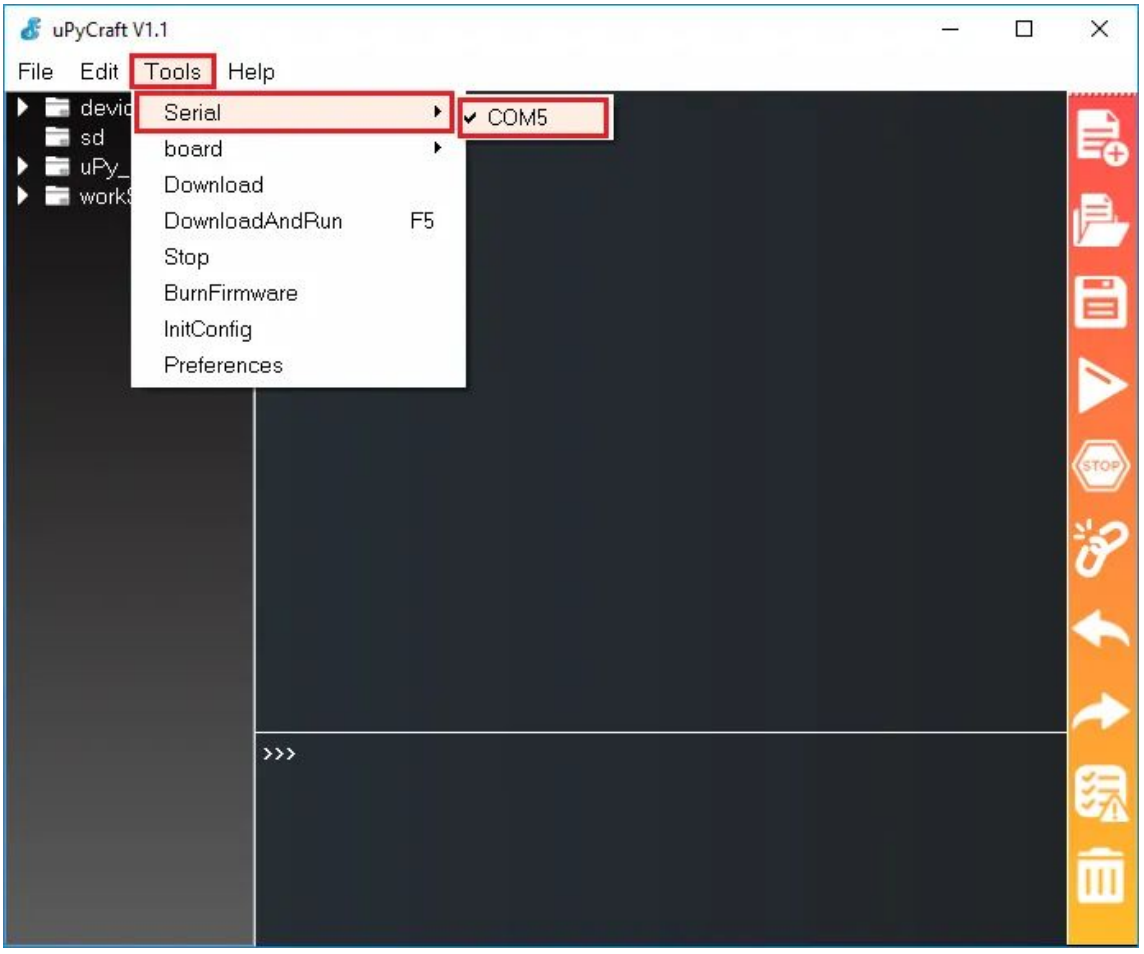
***If missing mscvr100.dll, install microsoft visual c++ 2010 redistributable package x86 and x64
https://www.microsoft.com/en-my/download/details.aspx?id=5555
https://www.microsoft.com/en-us/download/details.aspx?id=14632

Flash Micropython firmware into ESP32/ESP8266

1. We'll be using this software to flash our ESP based boards with MicroPython firmware as well as to program the boards.
2. Download the latest version of MicroPython firmware for the ESP32. Go to https://micropython.org/download/#esp32.



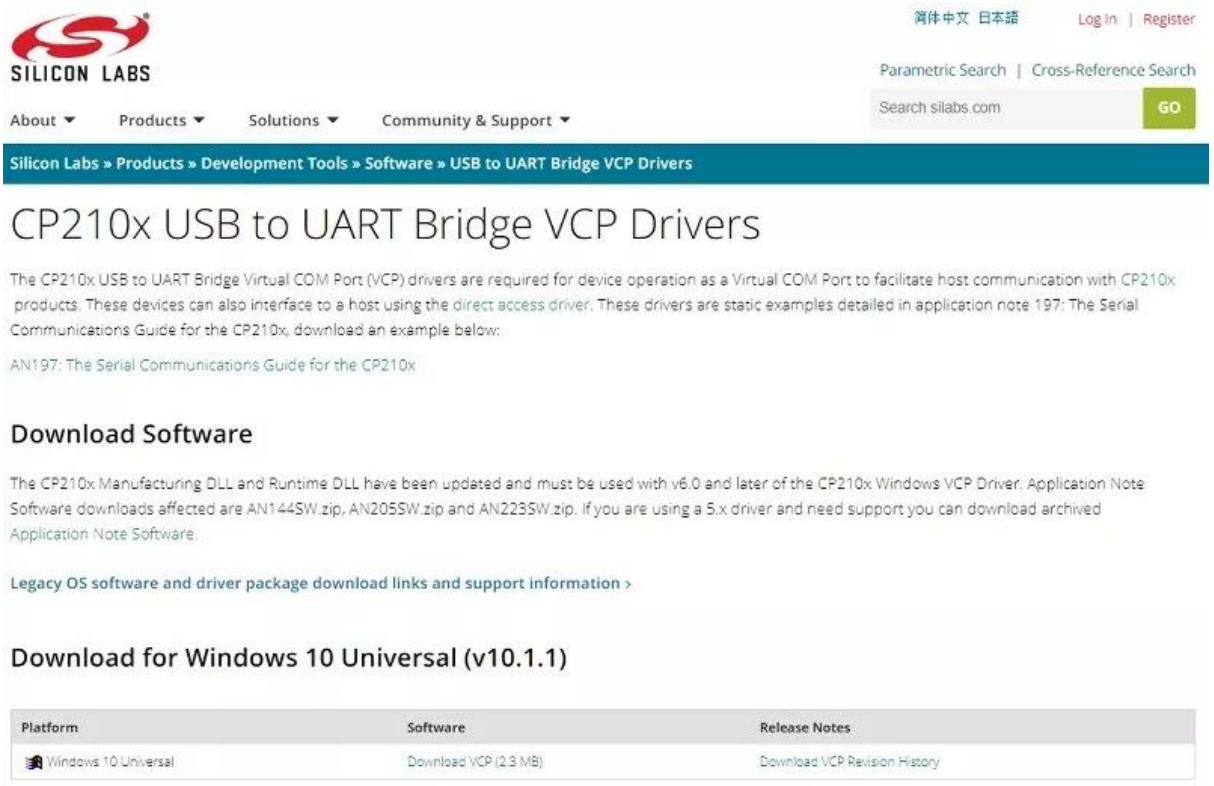
3. Go to Tools > Serial and select your ESP32 COM port (in our case it's COM5).



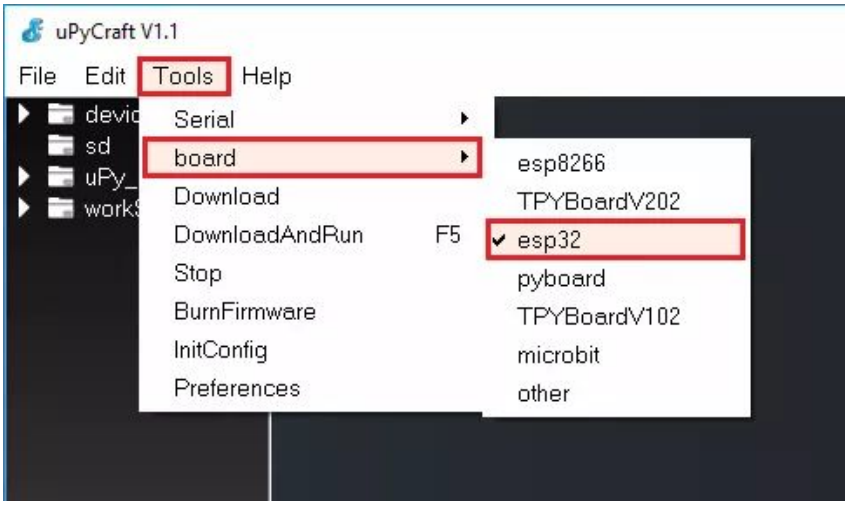
Important: if you plug your ESP32 board to your computer, but you can't find the ESP32 Port available in your uPyCraft IDE, it might be one of these two problems: USB drivers missing or USB cable without data wires.

If you don't see your ESP's COM port available, this often means you don't have the USB drivers installed. Take a closer look at the chip next to the voltage regulator on board and check its name.

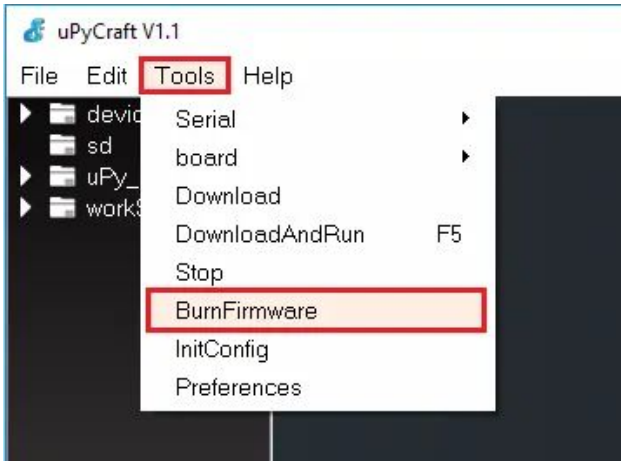
4. The ESP32 DEVKIT V1 DOIT board uses the CP2102 chip. download the CP2102 drivers on the Silicon Labs website.



5. Go to Tools > Board. To select the correct board which ours is esp32.

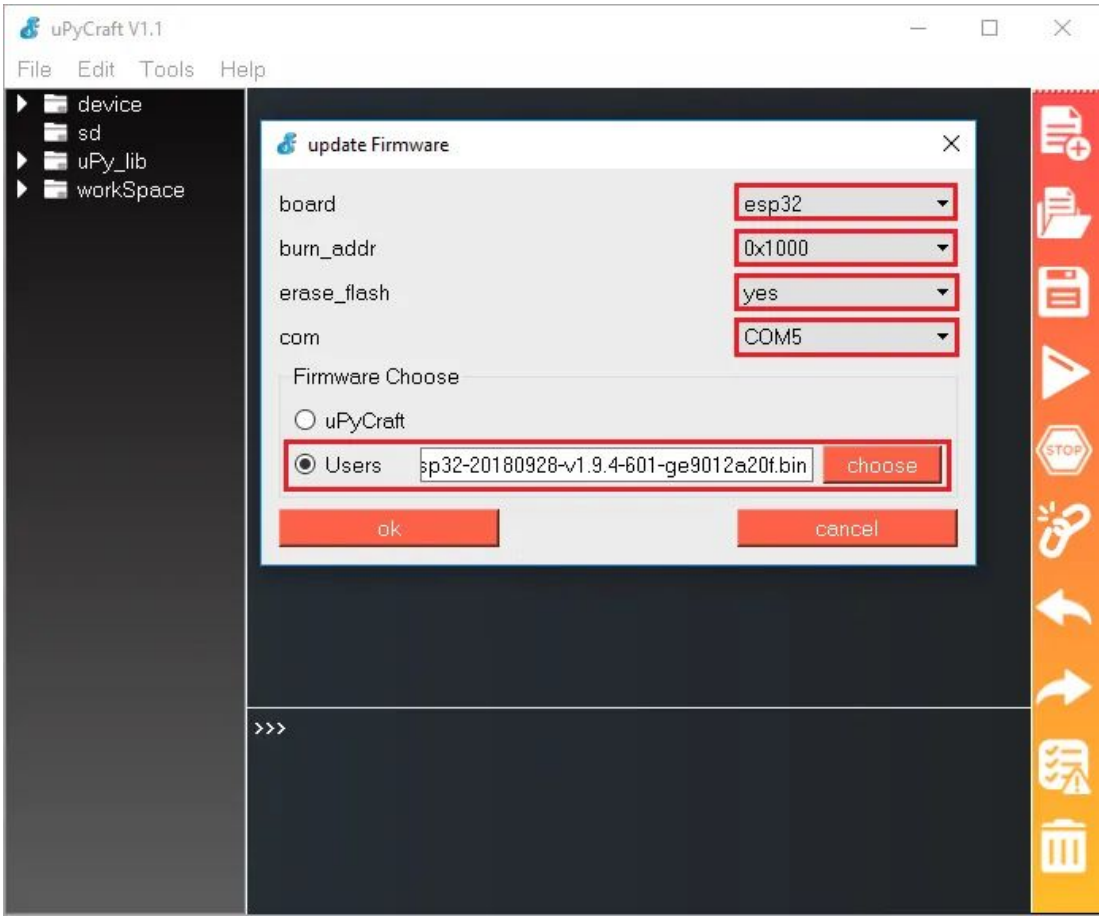


6. Finally, go to Tools > BurnFirmware menu to flash your ESP32 with MicroPython.

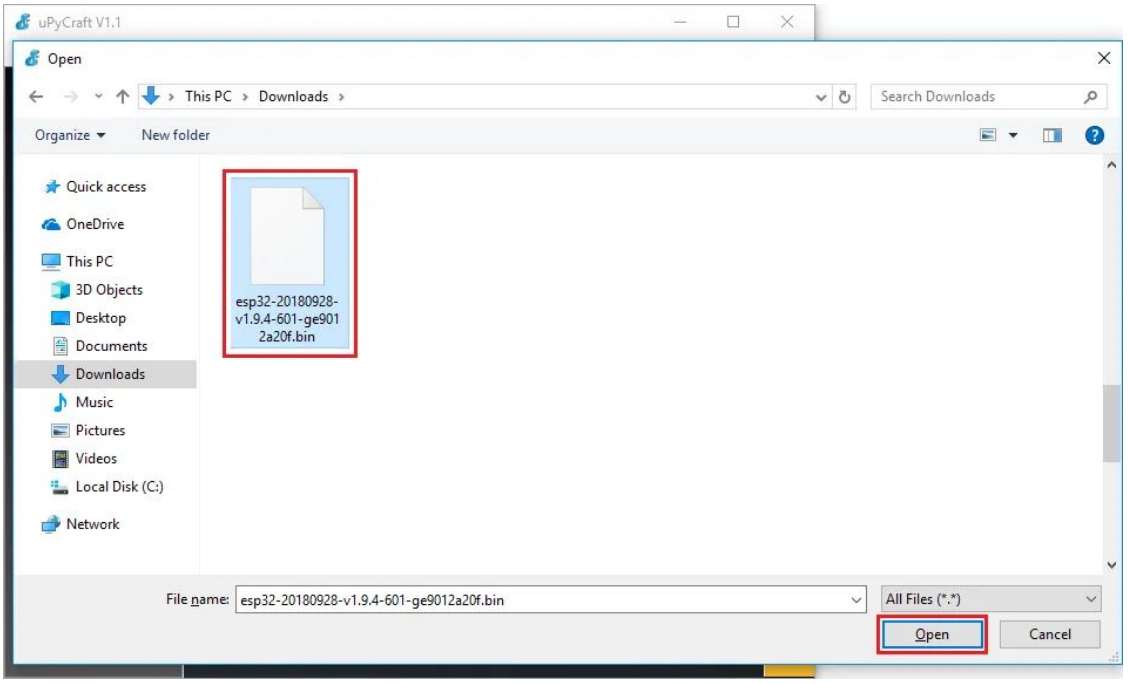


Select all these options to flash the ESP32 board:

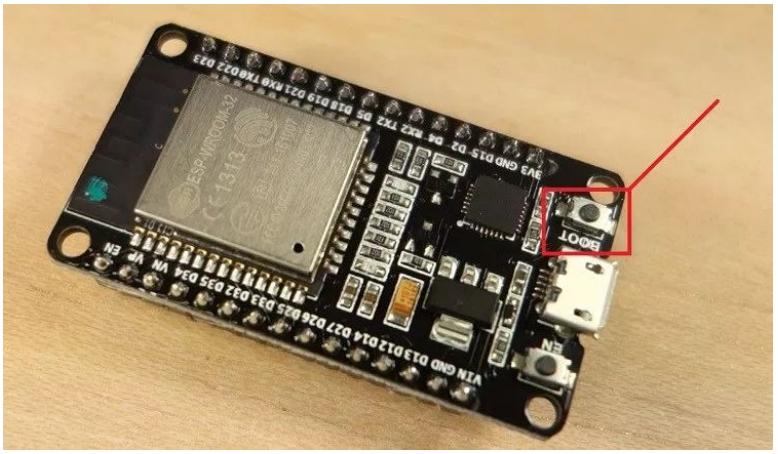
- ➔ board: esp32
- ➔ burn_addr: 0x1000
- ➔ erase_flash: yes
- ➔ com: COMX (in our case it's COM5)
- ➔ Firmware: Select "Users" and choose the ESP32 .bin file downloaded earlier



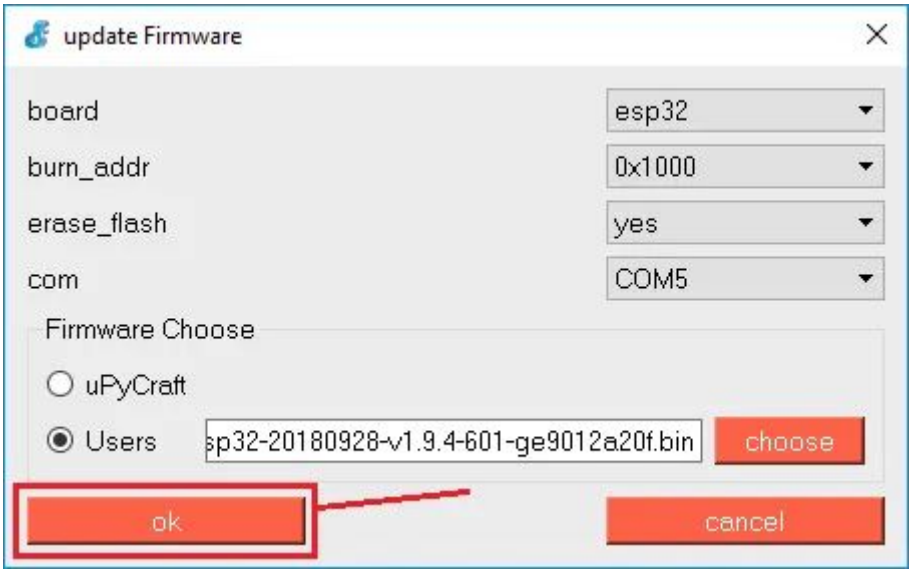
After pressing the “Choose” button, navigate to your Downloads folder and select the ESP32 .bin file:



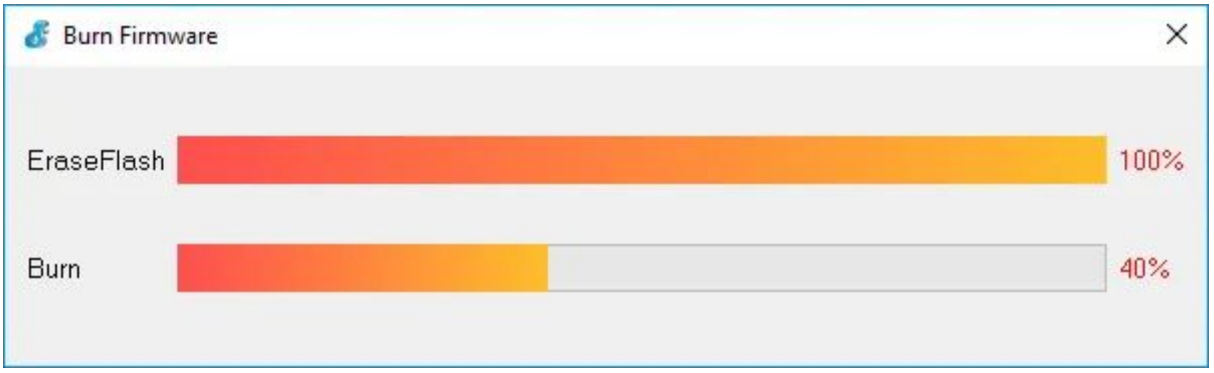
Having all the settings selected, hold-down the “BOOT/FLASH” button in your ESP32 board:



While holding down the “BOOT/FLASH“, click the “ok” button in the burn firmware window:



When the “EraseFlash” process begins, you can release the “BOOT/FLASH” button. After a few seconds, the firmware will be flashed into your ESP32 board.



Note: if the “EraseFlash” bar doesn’t move and you see an error message saying “erase false.“, it means that your ESP32 wasn’t in flashing mode. You need to repeat all the steps described earlier and hold the “BOOT/FLASH” button again to ensure that your ESP32 goes into flashing mode.

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References:

1. https://randomnerdtutorials.com/flash-upload-micropython-firmware-esp32-esp8266/