Arduino Setup Instructions for 2023 Cannonball Express clinic

Hi there!

Thank you for signing up for the BEGINNERS ARDUINO clinic!

It is important that you show up for the clinic **with** your computer and Arduino kit **AND** have completed the 10 steps below. It is simply not fair to other attendees if we need to help you with these tasks while they have to wait.

THINGS TO DO BEFORE THE CLINIC

1) Please **install** the Arduino IDE version 2.2.1 from https://www.arduino.cc/en/software for your appropriate operating system.

Then do the step 2 and 3 for Windows: a) or Linux b) or MacOS c)

a) Windows:
2a) Open the Windows **Device Manager** (https://www.makeuseof.com/windows-open-device-manager/).

3a) Plug the Arduino Uno (biggest board in the kit) into the same computer with the blue (or black) USB cable and reply with what Serial COM port your machine is assigning to it. Example: COM5
(You can also unplug it and plug it back in, until you see the place where the line is added for the Serial Port....You need to let me know if you see a yellow exclamation mark appear, since your computer need a little more hand holding)

b) Linux:
2b) From a command line run (before plugging the Uno in):
`ls /dev/tty*`
and
`ls /dev/cu.*`
This is to get a list of serial ports before you plug the Arduino Uno in.

3b) Plug the Arduino Uno (biggest board in the kit) into the same computer with the blue (or black) USB cable. And then run the commands above again to see what serial port was added:
`ls /dev/tty*` and `ls /dev/cu.*`

The serial port that was added after the plug in, `/dev/ttyACM0`, is the one you need to select in step 7 below.

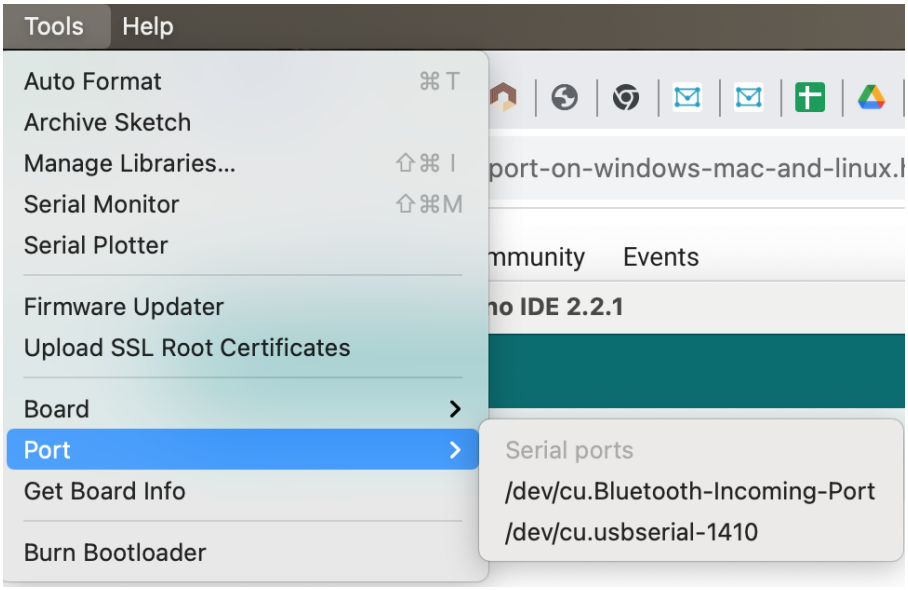
After the plug in, a command like `dmesg` in Linux also shows:

```
[519676.693954] usb 1-1.1: Manufacturer: Arduino (www.arduino.cc)
[519676.693957] usb 1-1.1: SerialNumber: 95036303235351C06182
[519676.772743] cdc_acm 1-1.1:1.0: ttyACM0: USB ACM device
```

to give you a clue to what to look for.

c) MacOS:
2c) Mac users can follow the steps for Linux or save a little trouble to see what the Arduino IDE shows on this screen **before** plugging in the Arduino Uno and then again after.

Open the Arduino IDE and select **Tools** -> **Port** and make a note of the list shown (note in step 4 that the IDE wants to install updates from the internet: let that happen, please):



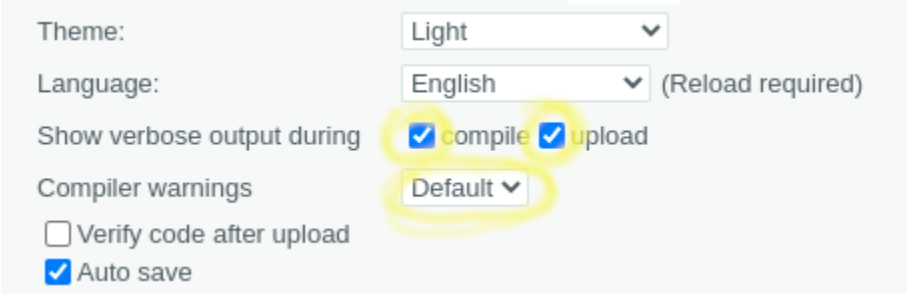
3c) Then **escape** out of the menus. Now plug the Arduino Uno into the computer with the USB cable, give it 10 seconds to "align some stars" and open the Tools -> **Port** menu again. Find which ports were added during the plug in and memorize the "usbserial" one.

If `/dev/cu.usbserial-1410`, as shown in the screenshot above, was added after plugging the Uno in, that is the port you will need.

Everyone again:

4) Make sure your computer is **connected to the internet** and **open** the Arduino IDE to let the software **start up** and **update** its libraries.

5) Then click File -> Preferences..., check both the boxes at Show verbose output during [x] **compile** and [x] **upload** AND select **Default** for **Compiler warnings**. And then, of course, **click OK** in the bottom right.



6) Now venture over to Tools -> Board -> **Arduino AVR Boards** and select **Arduino UNO**

7) Then Tools -> **Port** and **select** the serial port that you discovered earlier.

(From here on you can use the drop down box below the menu bar to select the Board and Port, but I did not have an example with NONE selected!)

8) **Notice** the LED on the Uno is blinking, so check this box -> [ ].

9) Select Sketch -> **Upload** and see how your current empty program is getting compiled in the black window below and then uploaded (text in orange) onto the Arduino Uno and then the LED stops blinking.
Check this box -> [ ].

(To get it back blinking, do an **Upload** after selecting File -> Examples -> 01.Basics -> **Blink** AND making sure the Select Board underneath the menu changes to Arduino Uno as it loads the example Blink program.)

(First important Arduino IDE thing to note is that every time you open a file or an example, it loads another copy of the whole IDE. The output window, Serial Port Monitor and Serial Port Plotters are shared, so to avoid looking at the wrong windows and frames, always close the previous IDE as soon as you open the new file. Since it loads a new IDE, you need to make sure the correct board and port is selected as well. This is somewhat important, since we are going to open quite a few files in the clinic.)

10) And now you please send me an email (gertmul@gmail.com), to tell me what your Arduino Uno's serial port is and that you have completed the previous 9 steps. And if you have ANY trouble, also send me an email (gertmul@gmail.com) so I can help you before the clinic starts!

You are also welcome to send me a direct message in Discord (speed7486) or call me at +1 469 345 0022 before or after work hours. A short text message (SMS) first will avoid the natural "Don't Answer system".

Hope to hear from you soon!

Speed Muller