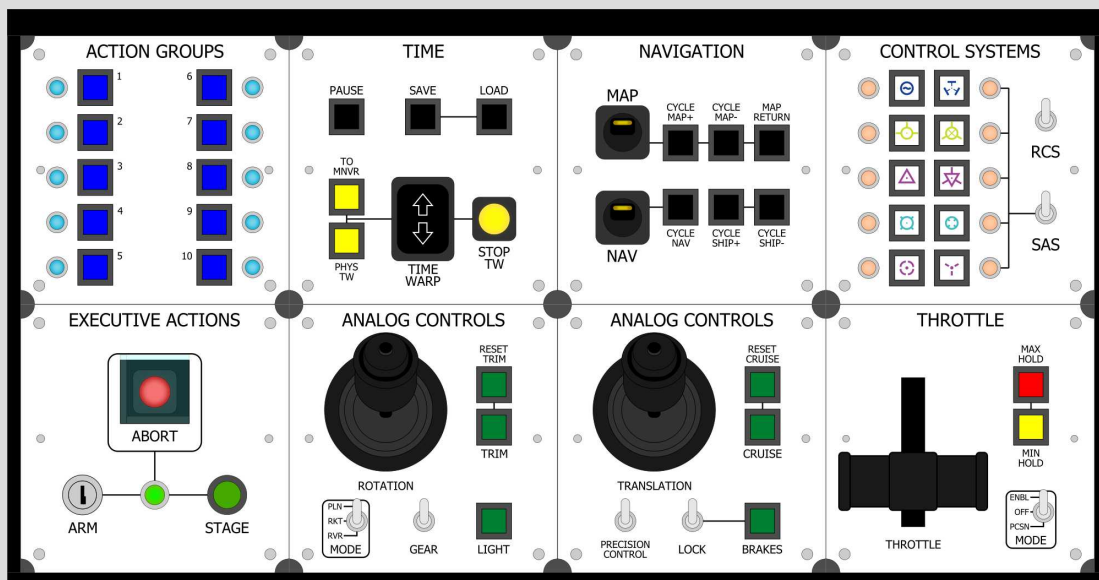


# Untitled Space Craft

## Code Flashing Guide



## 1. Download and install the Arduino IDE.

<https://www.arduino.cc/en/software>



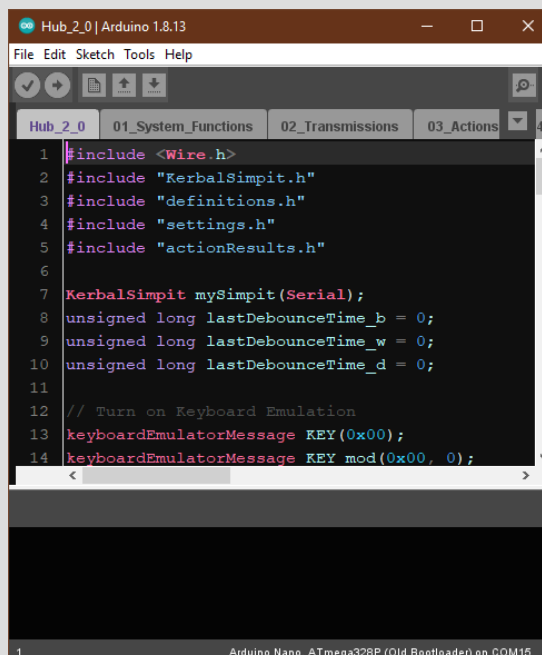
The screenshot shows the Arduino IDE 2.3.1 download page. On the left, there's a description of the new major release, highlighting its speed, modern editor, responsive interface, and features like autocompletion, code navigation, and a live debugger. It also mentions that nightly builds with the latest bugfixes are available. On the right, under 'DOWNLOAD OPTIONS', there are links for Windows (Win 10 and newer, 64 bits) with MSI installer and ZIP file, Linux (AppImage 64 bits (X86-64) and ZIP file 64 bits (X86-64)), and macOS (Intel, 10.14: "Catalina" or newer, 64 bits; Apple Silicon, 11: "Big Sur" or newer, 64 bits). A 'Release Notes' link is also present.

## 2. Download the latest version of the USC hub software.

[https://drive.google.com/drive/folders/1We1jZiN67R4KNCPk3y\\_iGojDVWFFW5ga?usp=sharing](https://drive.google.com/drive/folders/1We1jZiN67R4KNCPk3y_iGojDVWFFW5ga?usp=sharing)

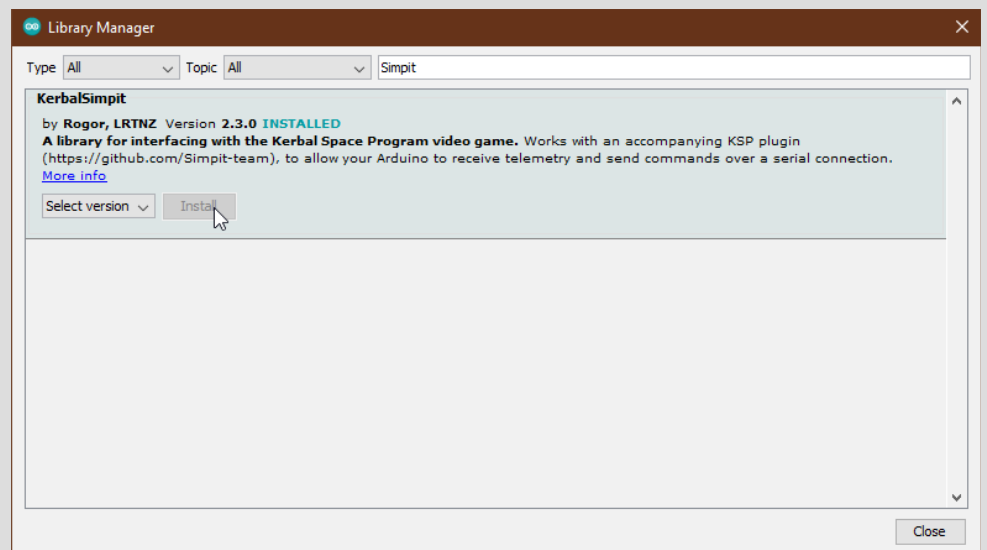
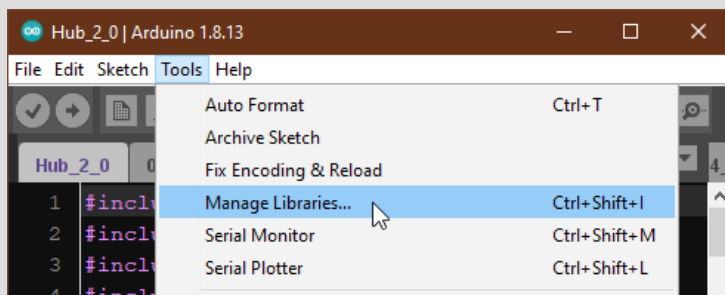
Legacy	me	Feb 15, 2024	—	⋮
Other Libraries	me	Feb 15, 2024	—	⋮
Hub_2_0.zip	me	Feb 15, 2024	13 KB	⋮

3. Extract the folder and then open the file inside that has the same name as the folder. It should open into the Arduino IDE. Yours may look slightly different due to theme or version differences.

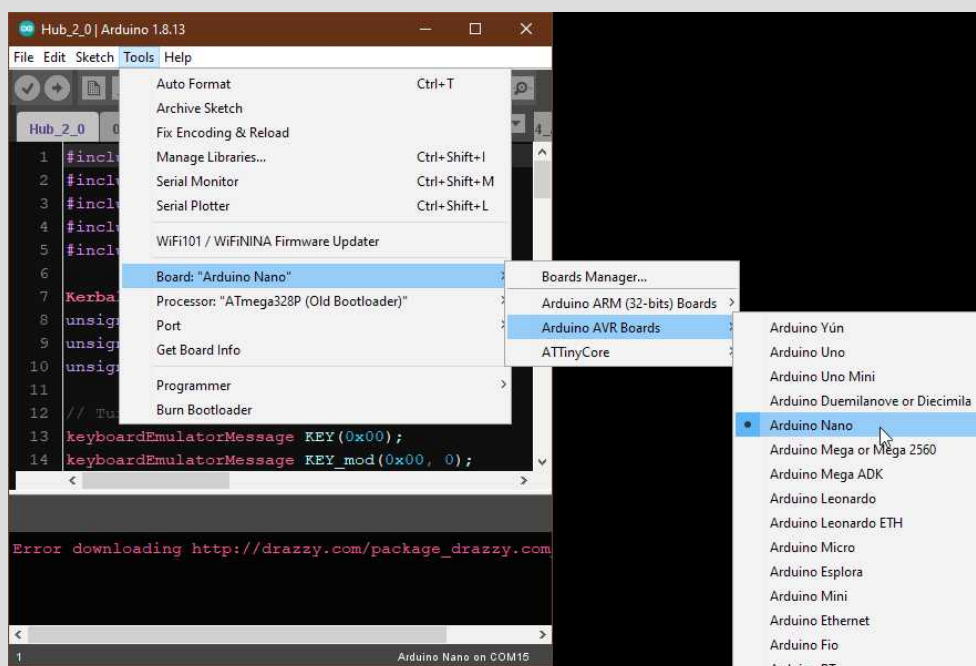


The screenshot shows the Arduino IDE interface with the 'Hub\_2\_0' project open. The file explorer on the left shows the project structure: 'Hub\_2\_0', '01\_System\_Functions', '02\_Transmissions', and '03\_Actions'. The main editor window displays the code for '01\_System\_Functions.h', which includes headers like <Wire.h>, KerbalSimpit.h, definitions.h, settings.h, and actionResults.h. It also shows the initialization of mySimpit and the setup of keyboard emulation.

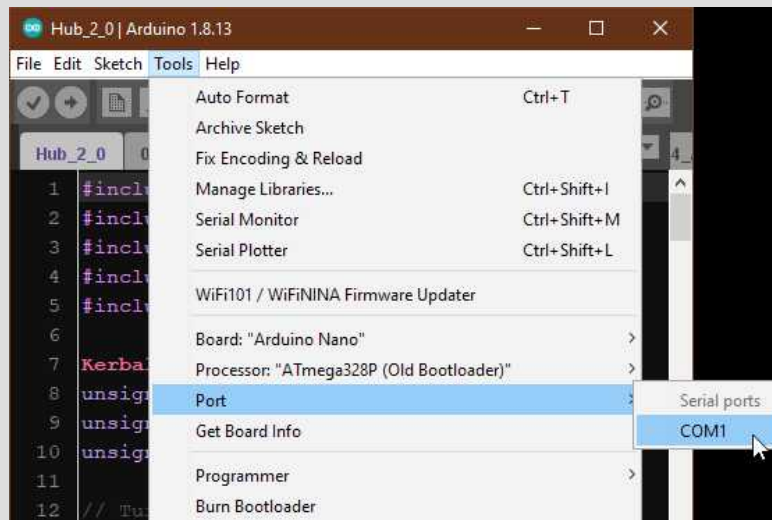
4. Go into Tools>Manage Libraries. Wait a few seconds for the Library Manager to open. Once it pops up, type 'Simpit' into the search bar and press Enter. Then click 'install' on the KerbalSimpit entry.



5. Select the board. If your controller arrived after May 2024, then you need to choose "Arduino Micro". If your controller arrived before, then you likely need to choose "Arduino Nano". You can also check the serial number on your hub. A, B, and C all use Nano. Series D uses Micro.



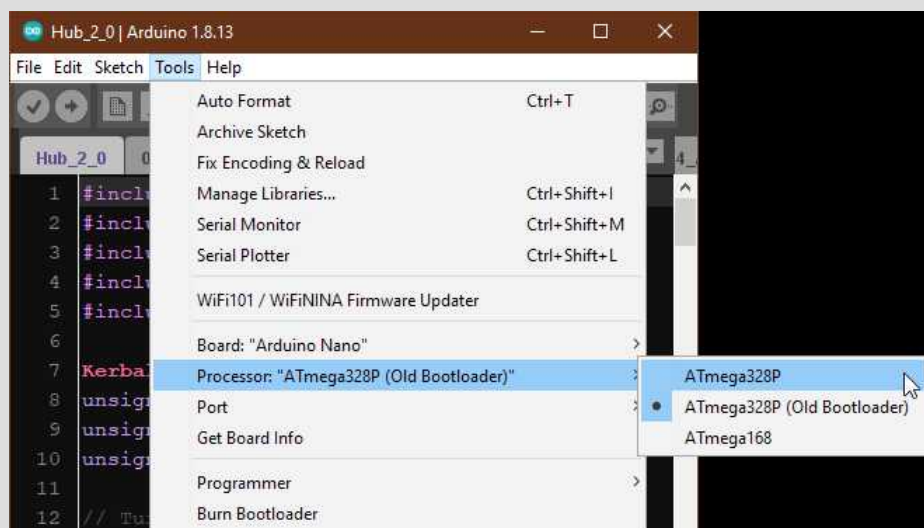
6. Select the Port. This should be the same COM port that you chose for the installation guide, though please keep in mind that it may have changed.



7. Plug the controller in to USB (power is unnecessary). Click the 'Upload' arrow to flash the code. Make sure you click the arrow and not the check mark.

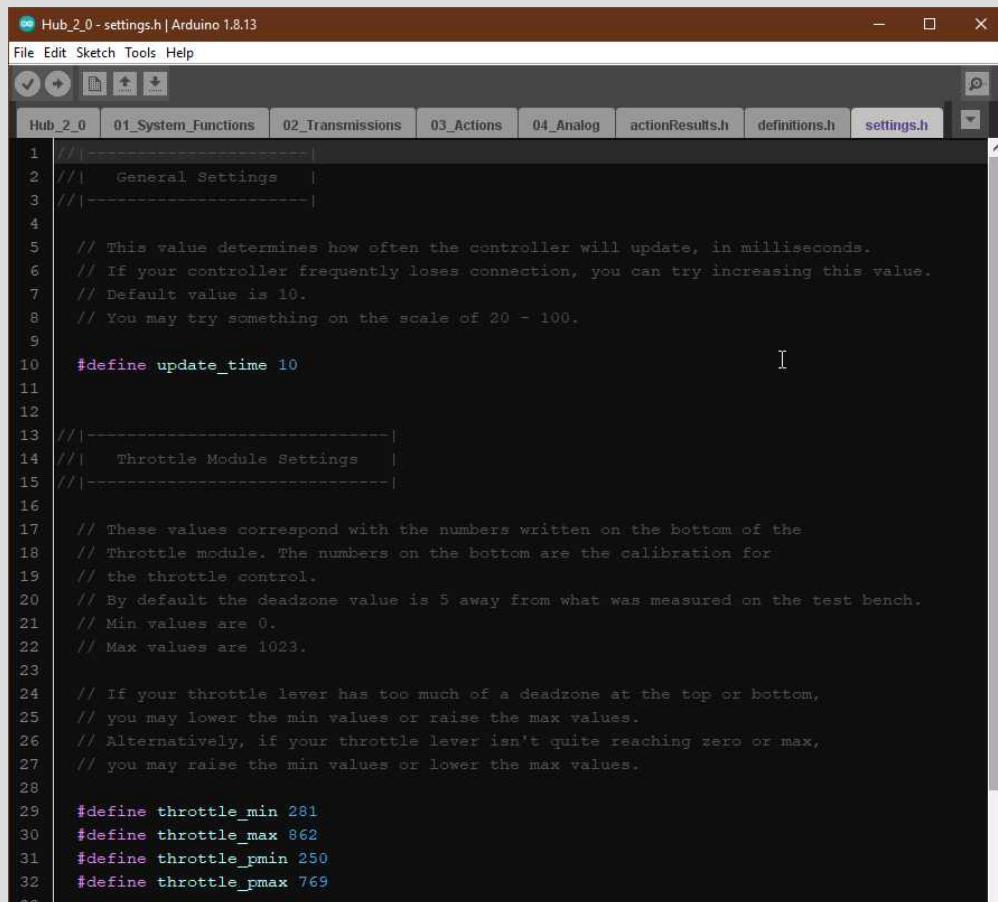


8. On some nanos, Step 7 will fail due to the bootloader. You can change the bootloader to the other option. The only two options you should use are "ATmega328P" and "ATmega328P (Old Bootloader)". Then click the arrow again.



9. If the IDE says "Done" near the bottom or otherwise confirms that the code has loaded, then you should be all set!

There are some further settings options that you can change to suit your needs by editing the settings.h file. This is especially useful if your controller has a Throttle module.



```
Hub_2_0 - settings.h | Arduino 1.8.13
File Edit Sketch Tools Help

Hub_2_0 01_System_Functions 02_Transmissions 03_Actions 04_Analog actionResults.h definitions.h settings.h

1 //|-----|
2 //| General Settings |
3 //|-----|
4
5 // This value determines how often the controller will update, in milliseconds.
6 // If your controller frequently loses connection, you can try increasing this value.
7 // Default value is 10.
8 // You may try something on the scale of 20 - 100.
9
10 #define update_time 10
11
12
13 //|-----|
14 //| Throttle Module Settings |
15 //|-----|
16
17 // These values correspond with the numbers written on the bottom of the
18 // Throttle module. The numbers on the bottom are the calibration for
19 // the throttle control.
20 // By default the deadzone value is 5 away from what was measured on the test bench.
21 // Min values are 0.
22 // Max values are 1023.
23
24 // If your throttle lever has too much of a deadzone at the top or bottom,
25 // you may lower the min values or raise the max values.
26 // Alternatively, if your throttle lever isn't quite reaching zero or max,
27 // you may raise the min values or lower the max values.
28
29 #define throttle_min 281
30 #define throttle_max 862
31 #define throttle_pmin 250
32 #define throttle_pmax 769
33
```