

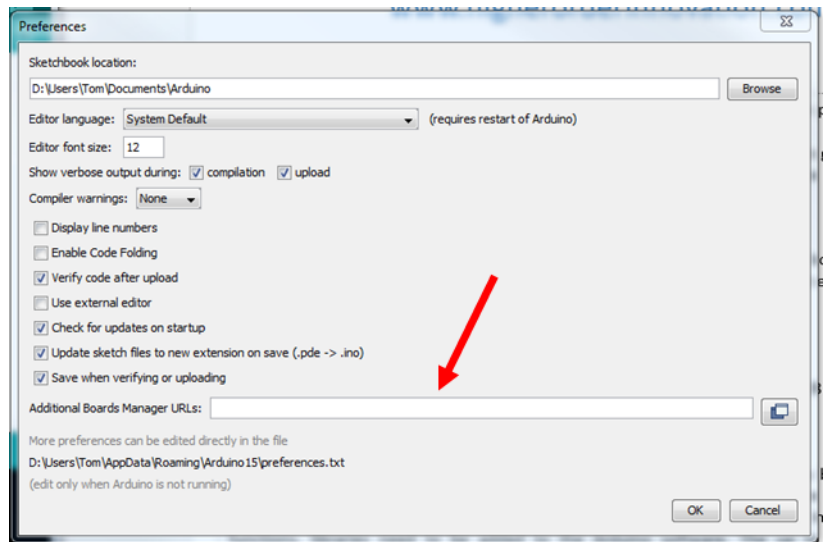
INTEGRATED DEVELOPMENT ENVIRONMENT (IDE)

The Apollo Control System can be reprogrammed via the USB-mini port. The program can be loaded through several different integrated development environments. The Arduino IDE (<http://arduino.cc/en/main/software>) is a basic environment and a good place to get started. When your code grows too large and becomes difficult to manage, Atmel Studio with the VisualMicro plugin is a great option. It provides many more features that are found in advanced IDEs.

ADDING APOLLO SUPPORT TO THE IDE

The Apollo is based on the same microcontroller as the 'Sparkfun Mega Pro' board with the 'ATMEGA 2560 (3.3V/8MHz)' processor. If this board is not included in your Arduino development environment, follow the instructions below to add it.

1. Download Arduino 1.6.5+ from Arduino.cc if you are not up to date.
2. Open the IDE and go to File → Preferences.
3. Near the bottom is a textbox for Additional Boards Manager URLs. Enter Sparkfun's URL, (https://raw.githubusercontent.com/sparkfun/Arduino_Boards/master/IDE_Board_Manager/package_sparkfun_index.json). Exit the preferences window.
4. Go to Tools → Boards → Boards Manager. Scroll down to the Sparkfun AVR Boards by Sparkfun Electronics and install this package.
5. Restart the IDE and the 'Sparkfun Mega Pro' board with the 'ATMEGA 2560 (3.3V/8MHz)' processor will be available for targeting.
6. To test that you can successfully reprogram Apollo, open File->Examples->Basics>Blink. Change the '13' in lines 20, 35, and 37 to '49'. Pin 49 is the pin that a green LED is mounted to on the board. Upload the code by pressing the green arrow in the top left corner. A green light should blink out from Apollo's case.



ADDING LIBRARIES TO THE IDE

There are several layers of functionality built into the PS3-arduino software base. These functions provide access to all of the features of the controller. These features include the battery level, vibration, LED readout, button reading, joystick reading, and orientation angle.

NOTE: In order to access these functions, libraries need to be added to the Arduino software. The up to date libraries can be downloaded from https://github.com/felis/USB_Host_Shield_2.0. Download the zip file containing the library, the download button will be on the right side of the page. From inside the Arduino IDE, go to Sketch → Include Library → Add zip Library and find the newly downloaded USB_Host_Shield_2.0 zip file. Select it and the library will be added to your installation.

