How to Build Ardupilot with Arduino

From Version 3.1

For APM 2.0, 2.5, and 2.6

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ProfiCNC

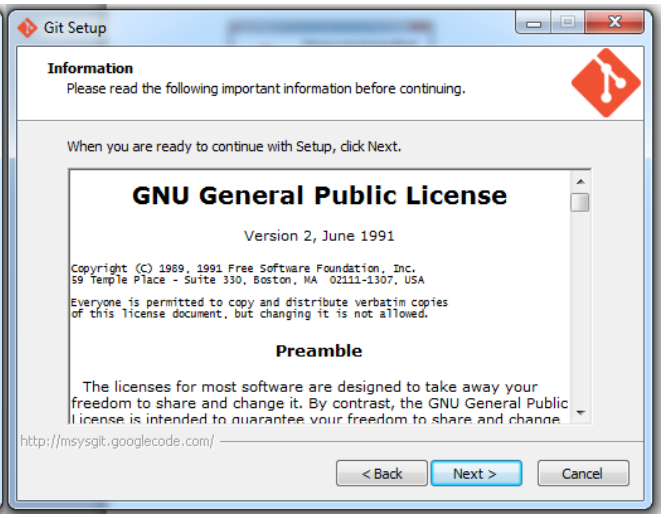
Rowse Avionics

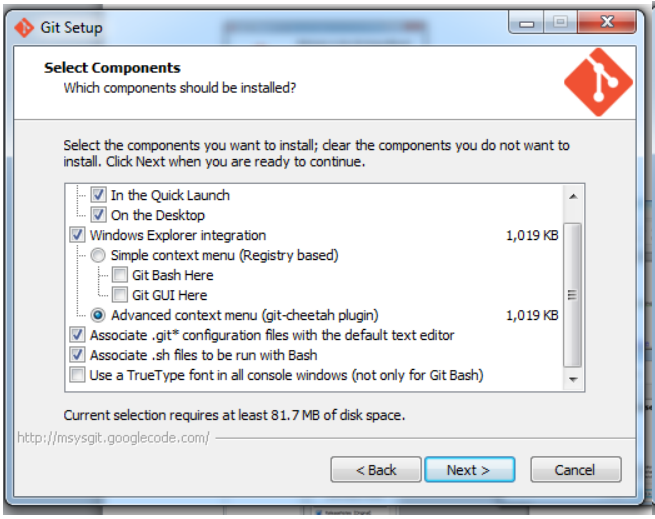
Contents

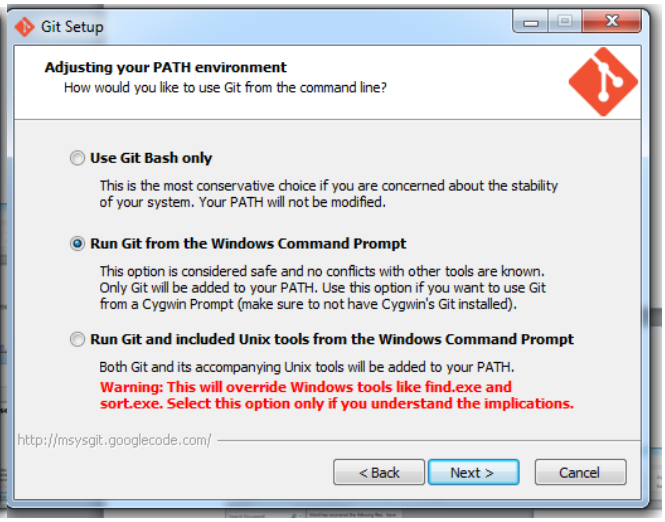
Step 1 Install Git-SCM

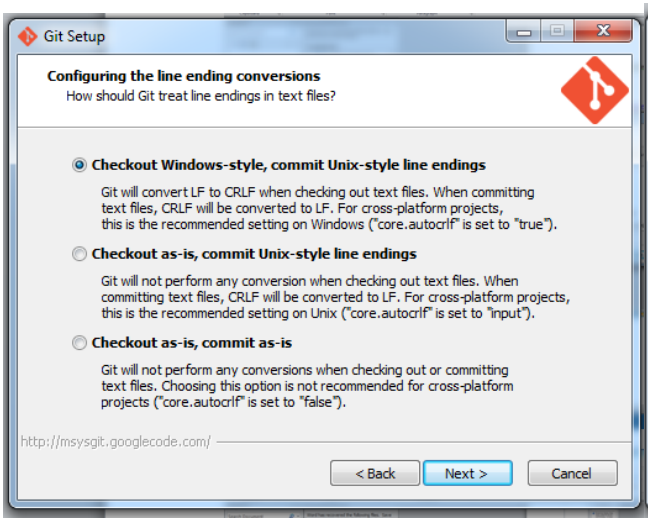
http://git-scm.com/download/win

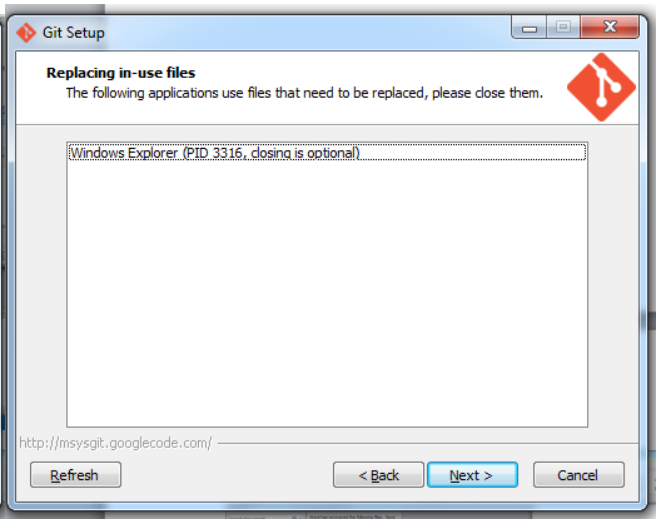
Please follow the screenshots below to make your selections during install.

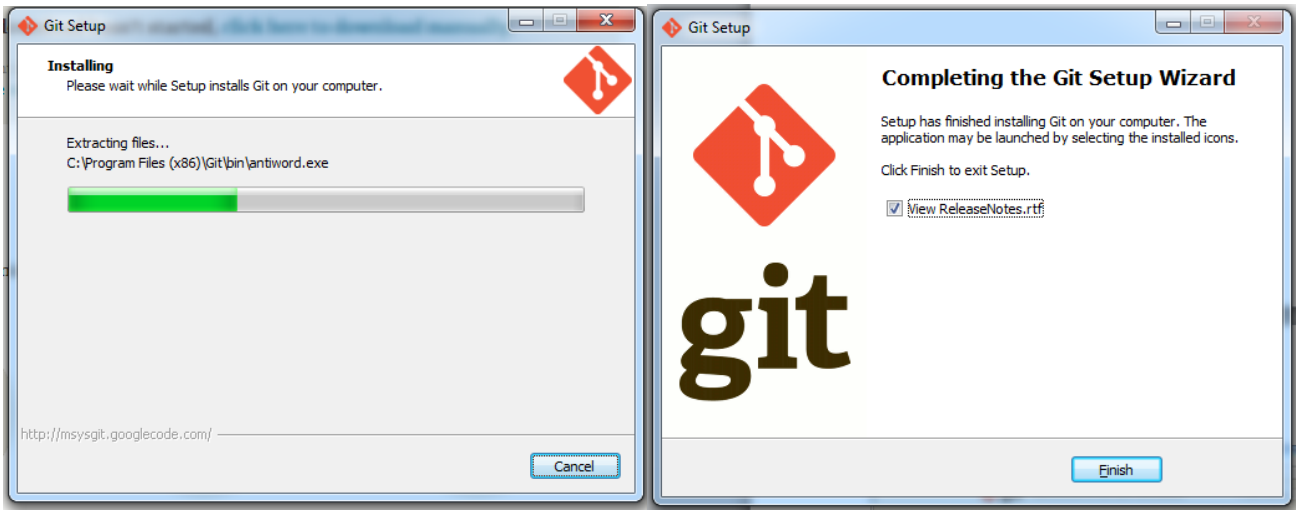








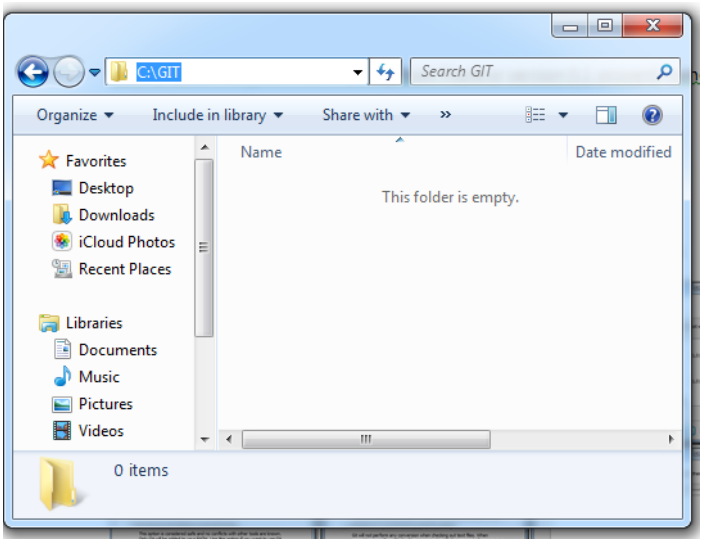



Git Setup
Installing
Please wait while Setup installs Git on your computer.
Extracting files...
C:\Program Files (x86)\Git\bin\antiword.exe
http://msysgit.googlecode.com/
Cancel
Git Setup
Completing the Git Setup Wizard
Setup has finished installing Git on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
View ReleaseNotes.rtf
git
Finish

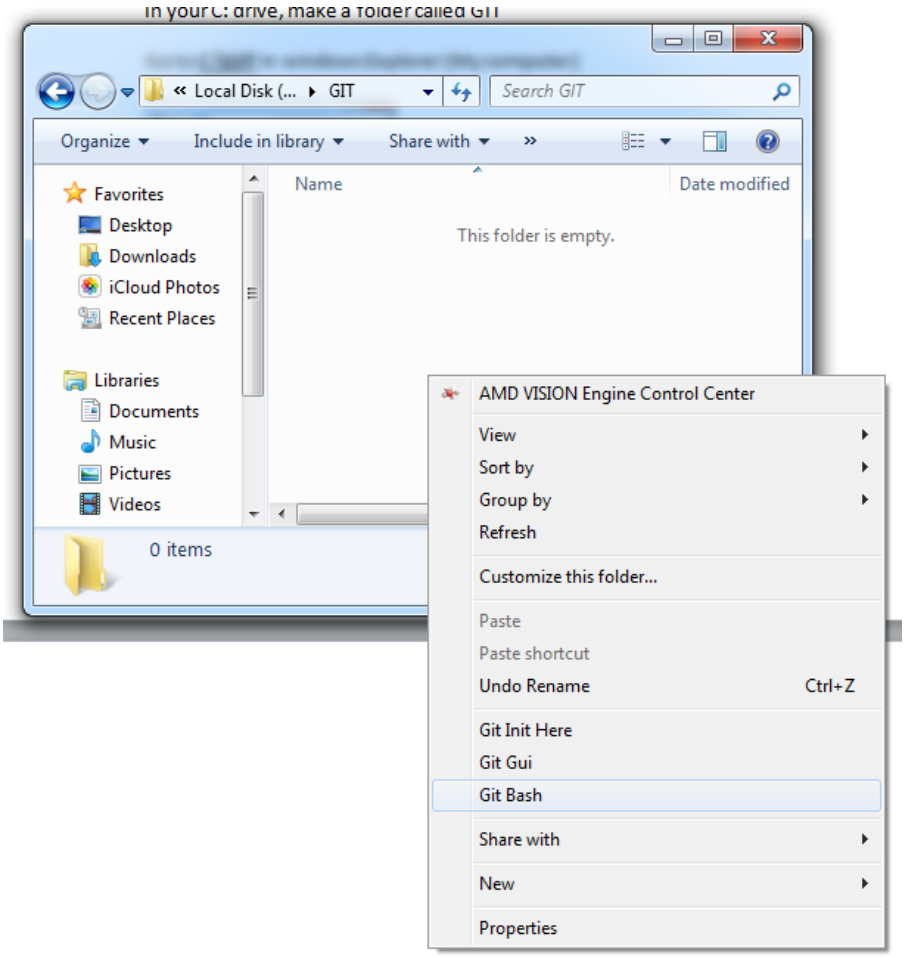
Step 2 Download source

In your C: drive, make a folder called GIT

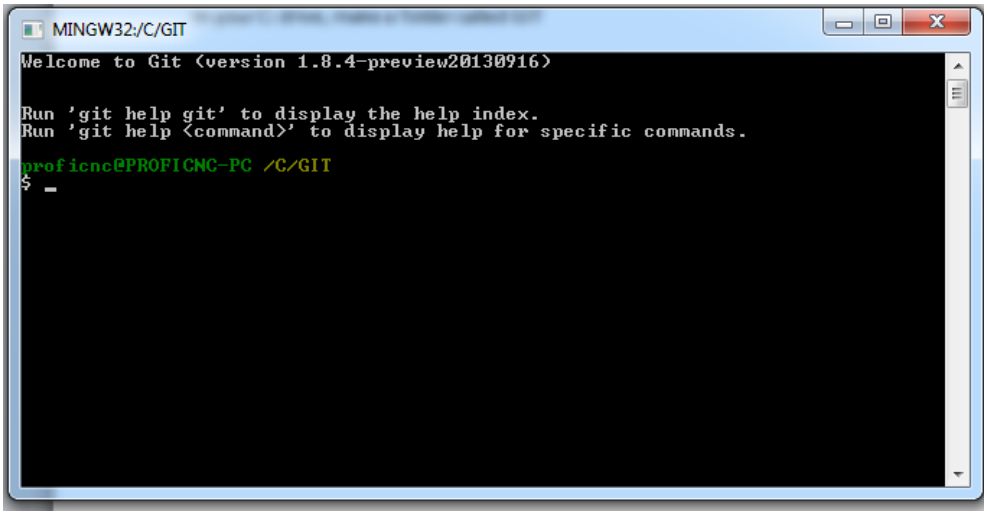
Go to **C:\GIT** in windows Explorer (My computer)



Right click anywhere in the folder and click git bash

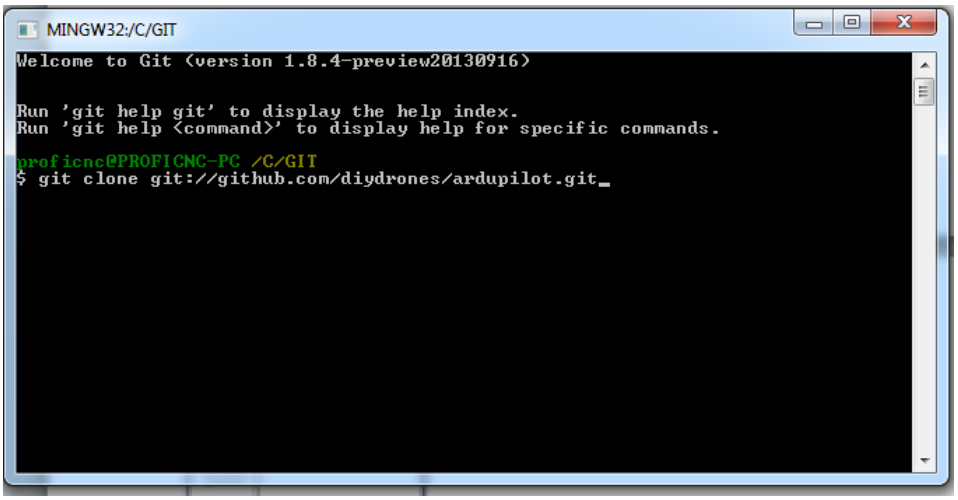


This screen will come up

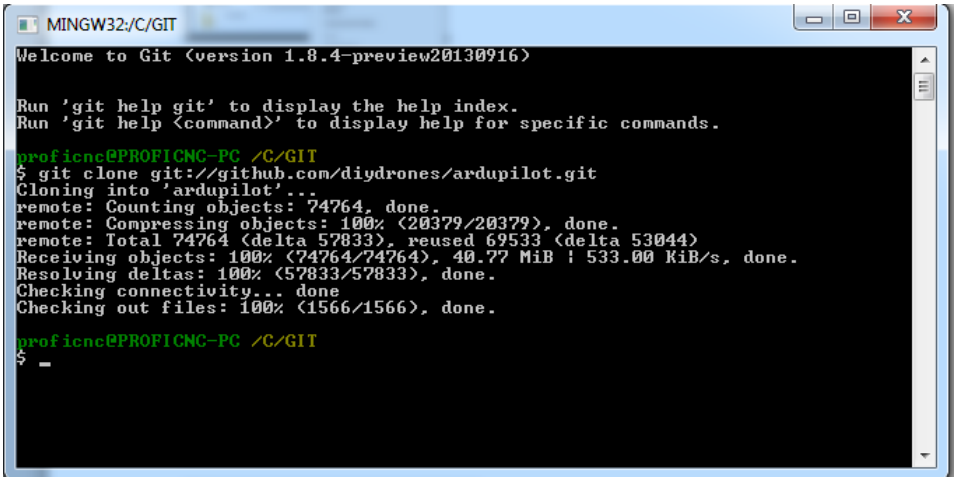


In this screen type

git clone git://github.com/diydrones/ardupilot.git

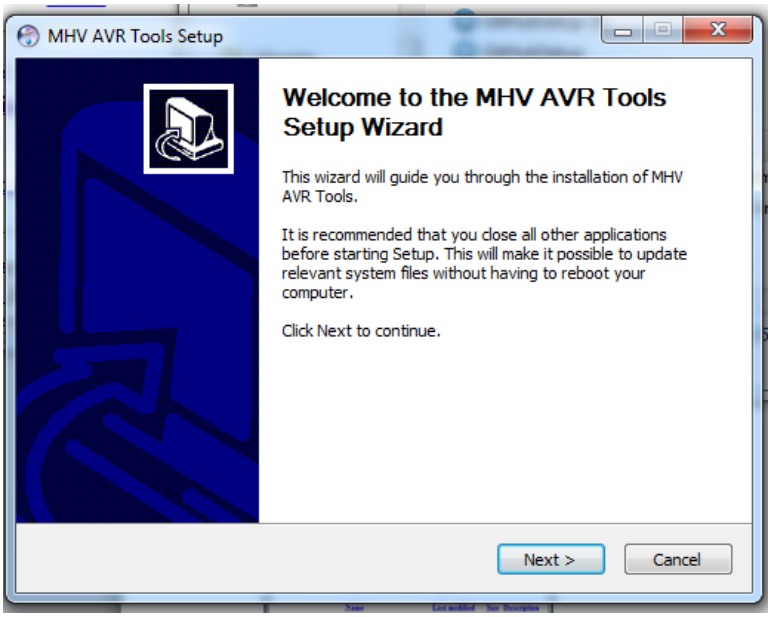


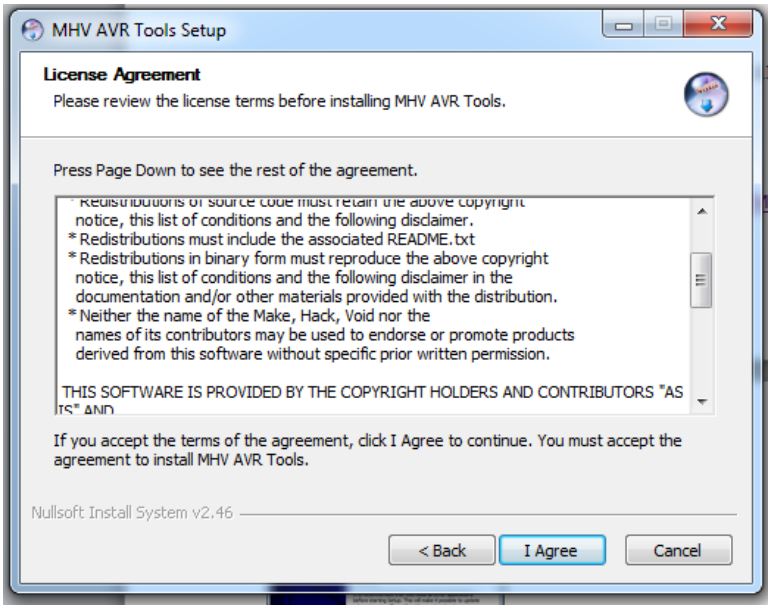
When it is finished it should look like this….

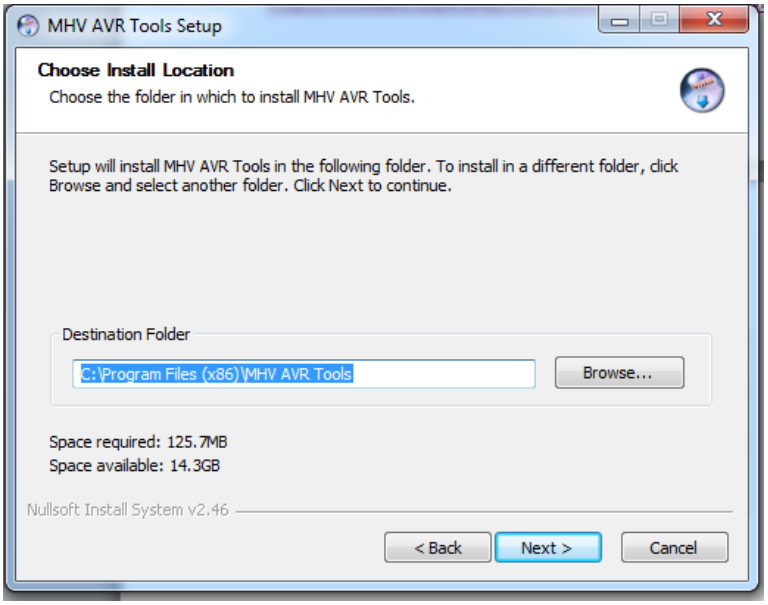


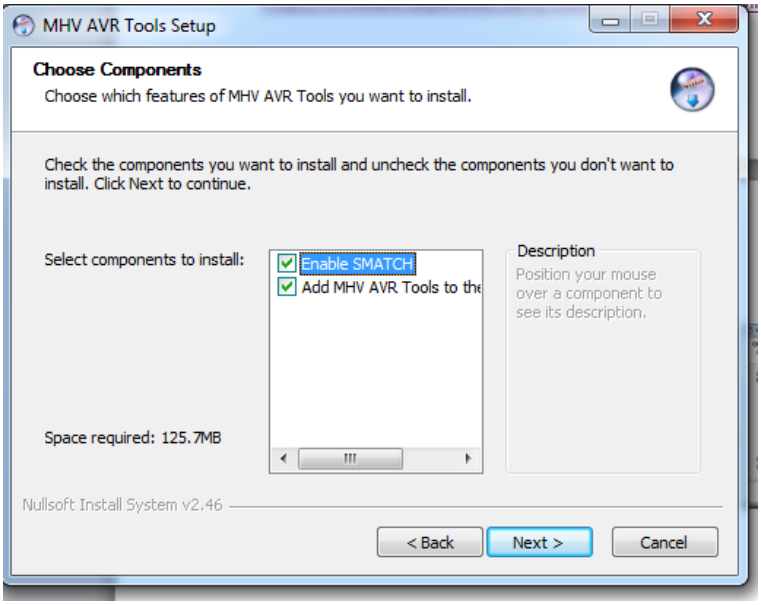
Step 3 Install MHV_AVR_Tools to its default location.

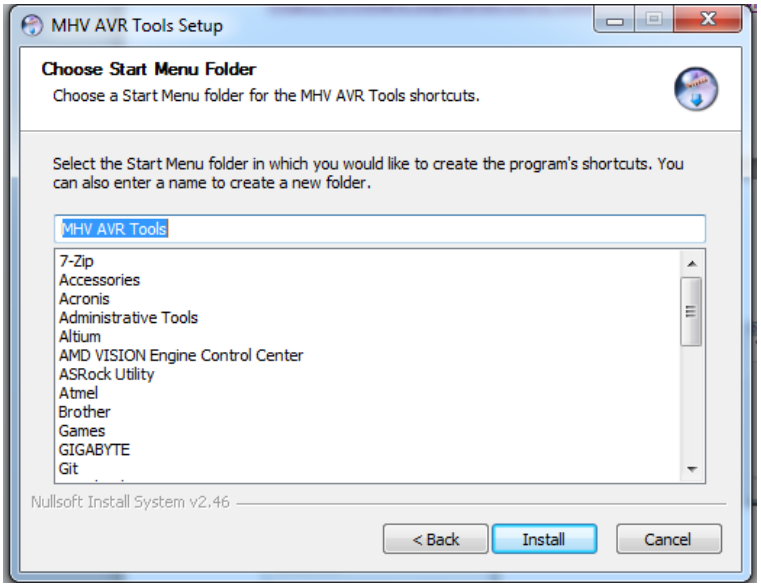
http://firmware.diydrones.com/Tools/Arduino/MHV_AVR_Tools_20121007.exe








MHV AVR Tools Setup
Choose Components
Choose which features of MHV AVR Tools you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.
Select components to install:
Enable SMATCH
Add MHV AVR Tools to the
Description
Position your mouse over a component to see its description.
Space required: 125.7MB
Nullsoft Install System v2.46
< Back
Next >
Cancel


MHV AVR Tools Setup
Choose Start Menu Folder
Choose a Start Menu folder for the MHV AVR Tools shortcuts.
Select the Start Menu folder in which you would like to create the program's shortcuts. You can also enter a name to create a new folder.
MHV AVR Tools
7-Zip
Accessories
Acronis
Administrative Tools
Altium
AMD VISION Engine Control Center
ASRock Utility
Atmel
Brother
Games
GIGABYTE
Git
Nullsoft Install System v2.46
< Back
Install
Cancel

Step 4 Install ArduPilot-Arduino

Next unzip the special ArduPilot Arduino package

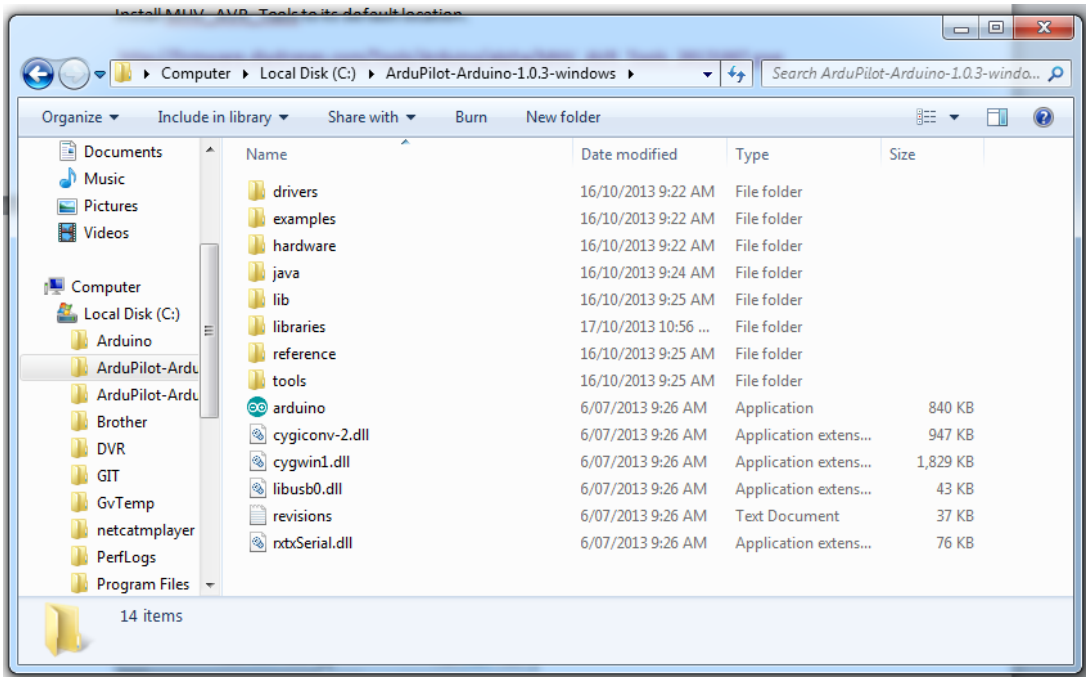
This is a new version, using the 4.7.2 version of GCC

http://firmware.diydrones.com/Tools/Arduino/ArduPilot-Arduino-1.0.3-gcc-4.7.2-windows.zip

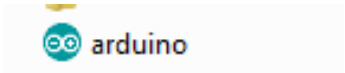
I unzipped this Directly to my C: drive.

Step 5. Configure Arduino

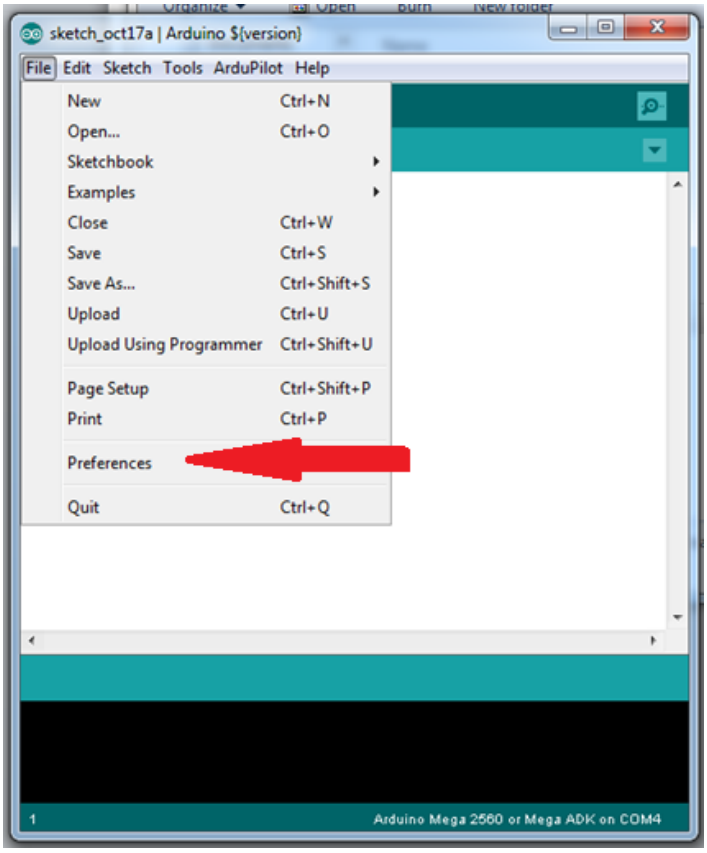
Go to your Arduino folder



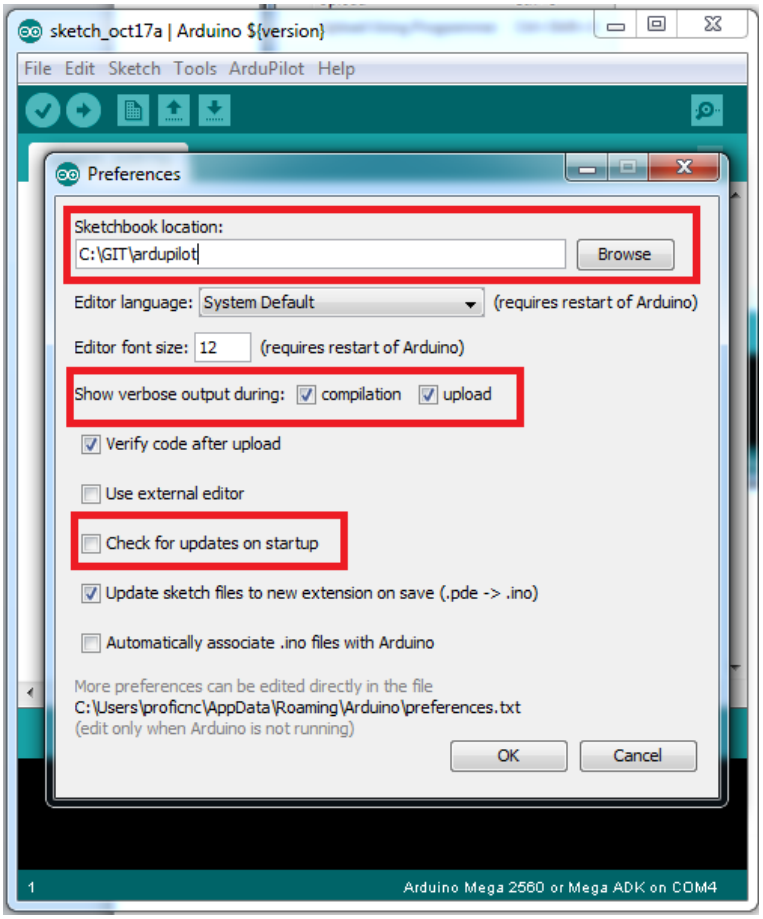
Double click the Arduino icon



When Arduino opens, go to the file menu



Select preferences



Set Sketchbook location to your Ardupilot directory in your GIT folder.

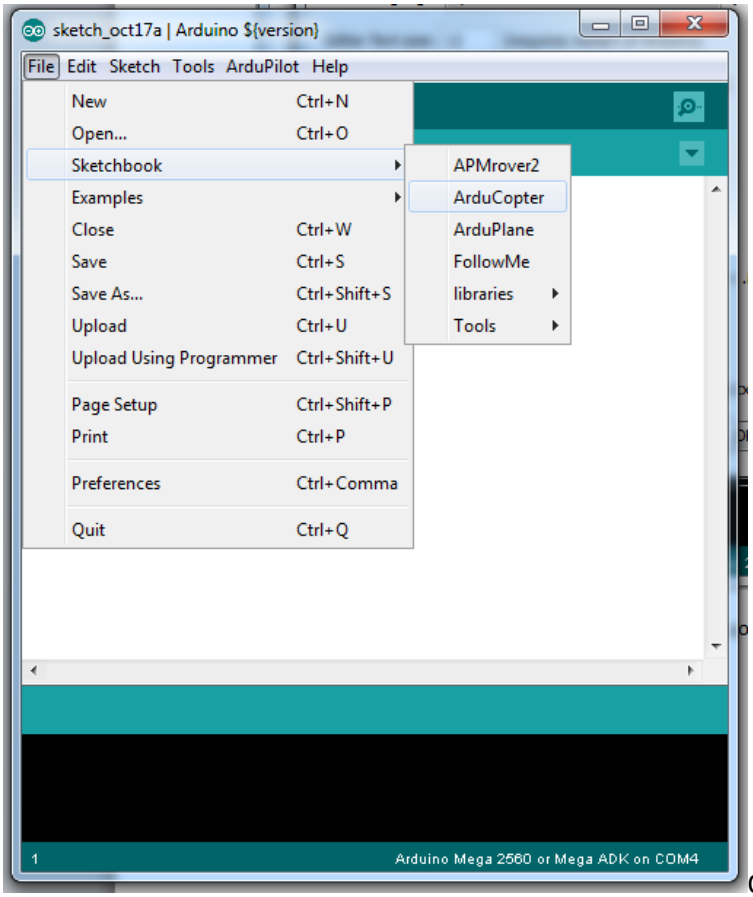
Also set verbose for both compile and upload

And DO NOT check for updates on start-up… (Remember, this is a special version just for ArduPilot.)

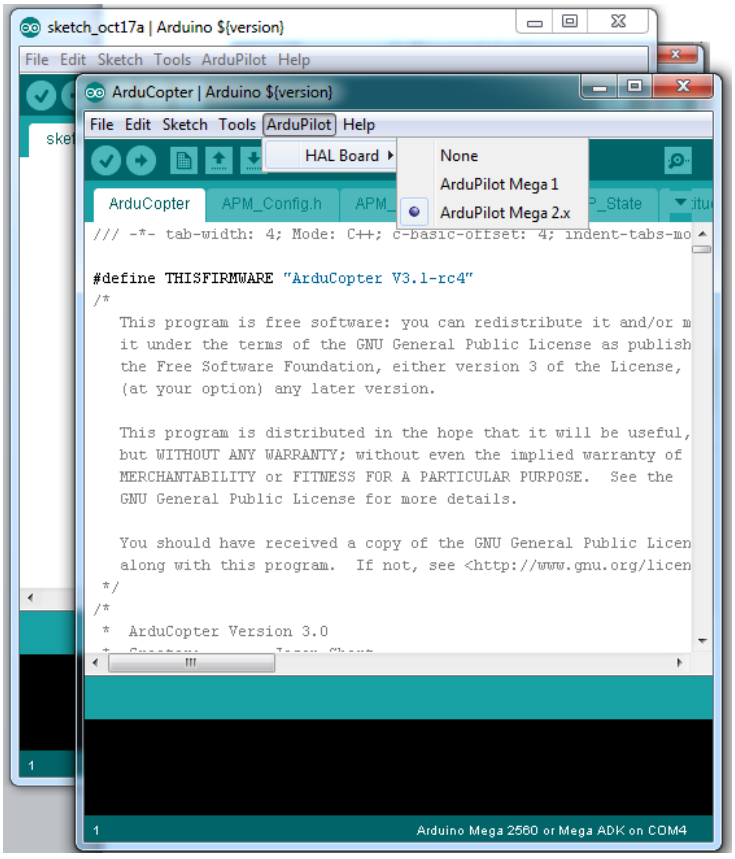
Click OK and close Arduino

Step 6 Connect your APM to your USB

Re-open Ardupilot and under the file tab, click on sketchbook, then the program you wish to load onto your APM2.x (for this example we will use Arducopter, though the others use the same methods.

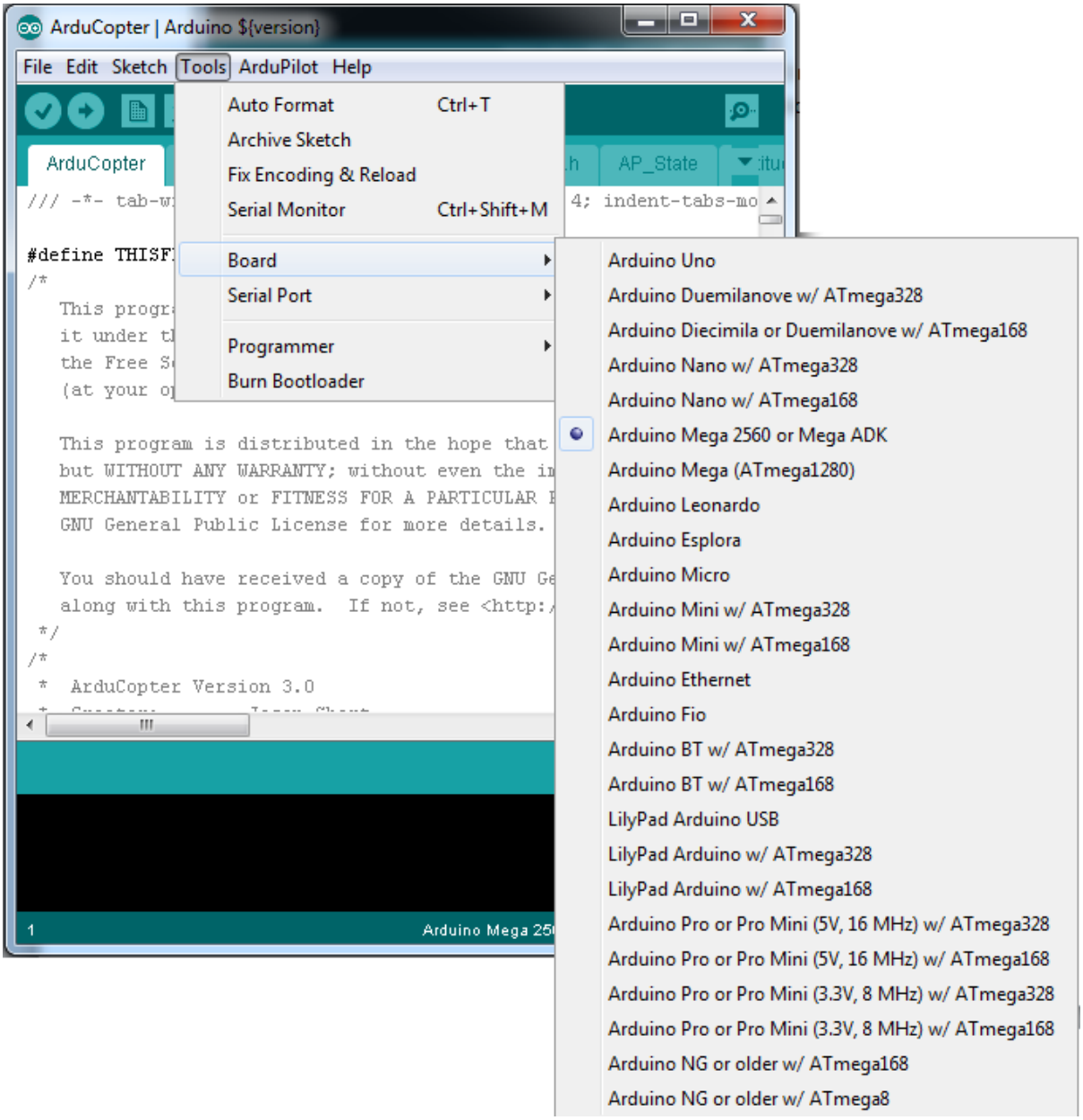


Once this is loaded, click on the Ardupilot tab, and select Ardupilot mega 2.x out of the HAL options.

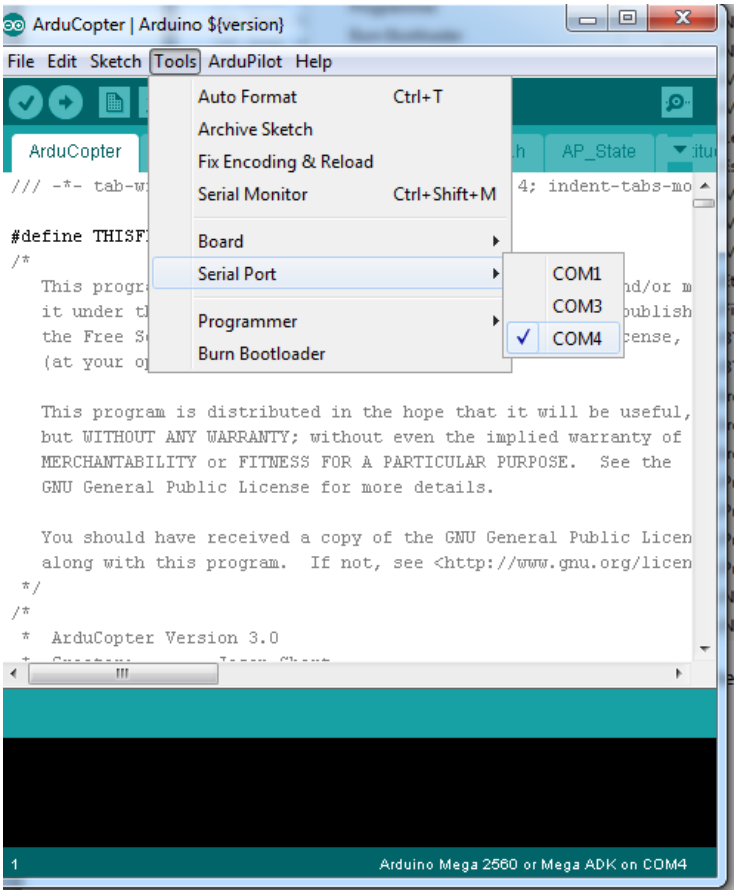


Then click the “Tools” tab,

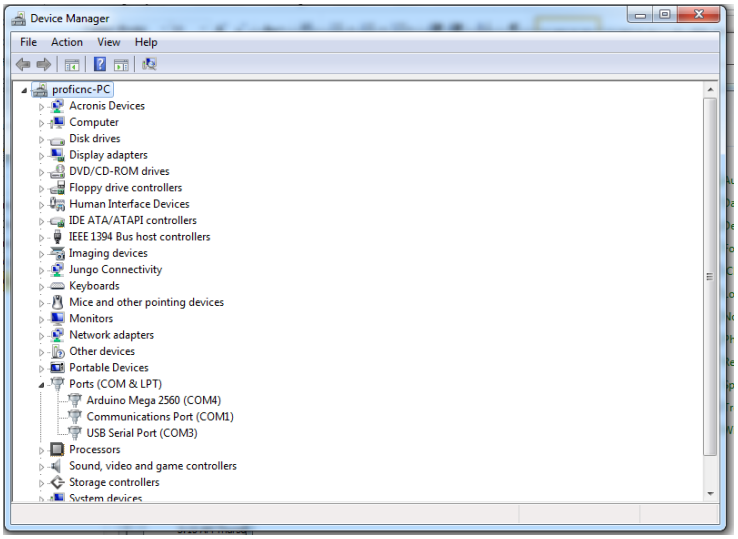
and select “Arduino Mega 2560 or Mega ADK” from the “Board” tab.



Next select the “Tools” tab again, and set the “Serial Port” to the one your APM is connected to.



In my case it was COM4, but check under device manager / Ports to find out on your system..



Step 7 Configure Arducopter.

Click on the APM_Config.h file tab.

Enable or disable the features you wish in this file.

Ie if you want to compile with auto tune enabled, make sure the line

#define AUTOTUNE DISABLED // disable the auto tune functionality to save 7k of flash

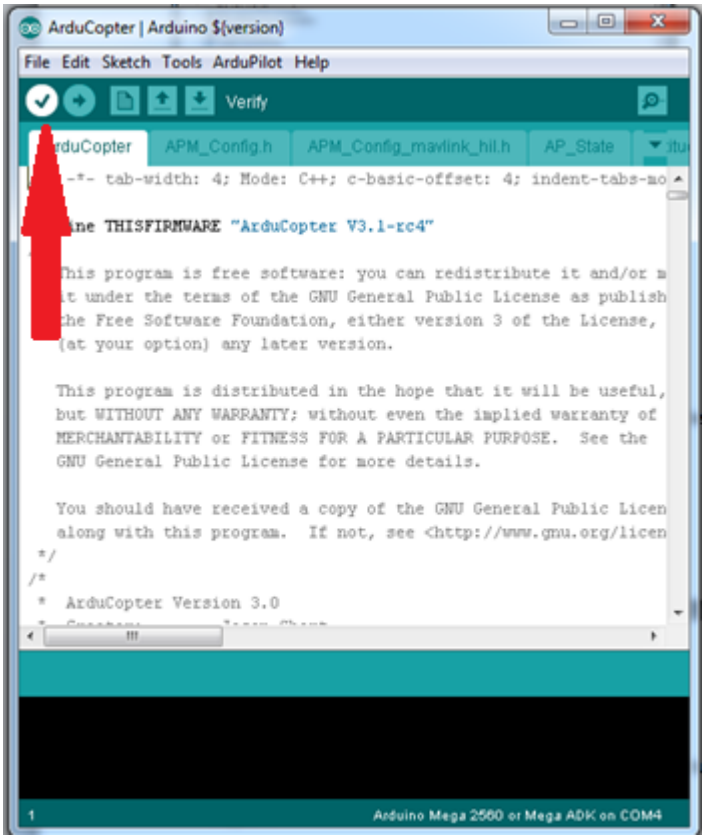
Is changed to

#define AUTOTUNE ENABLED // disable the auto tune functionality to save 7k of flash

Save this file and select the file Arducopter.

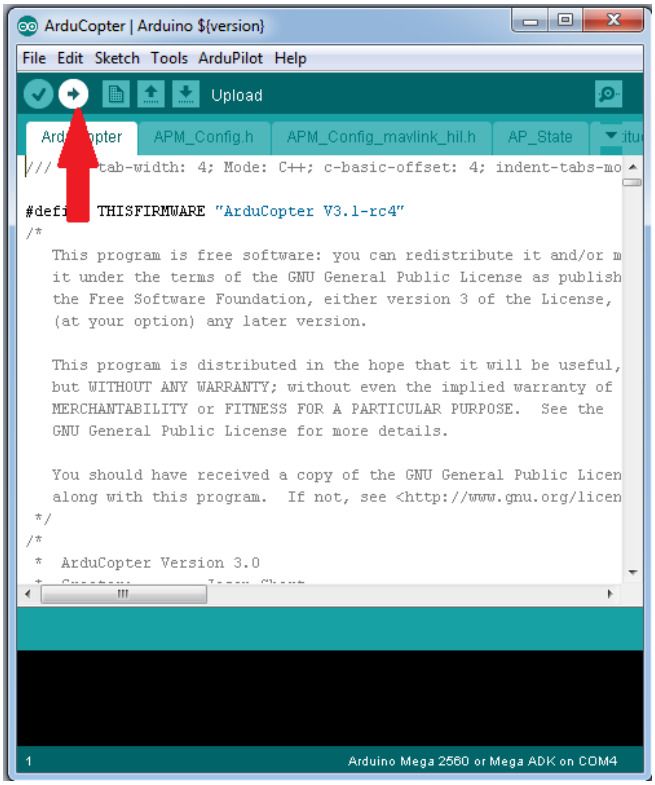
At this point you are ready to compile.

I would choose Verify for the first attempt.



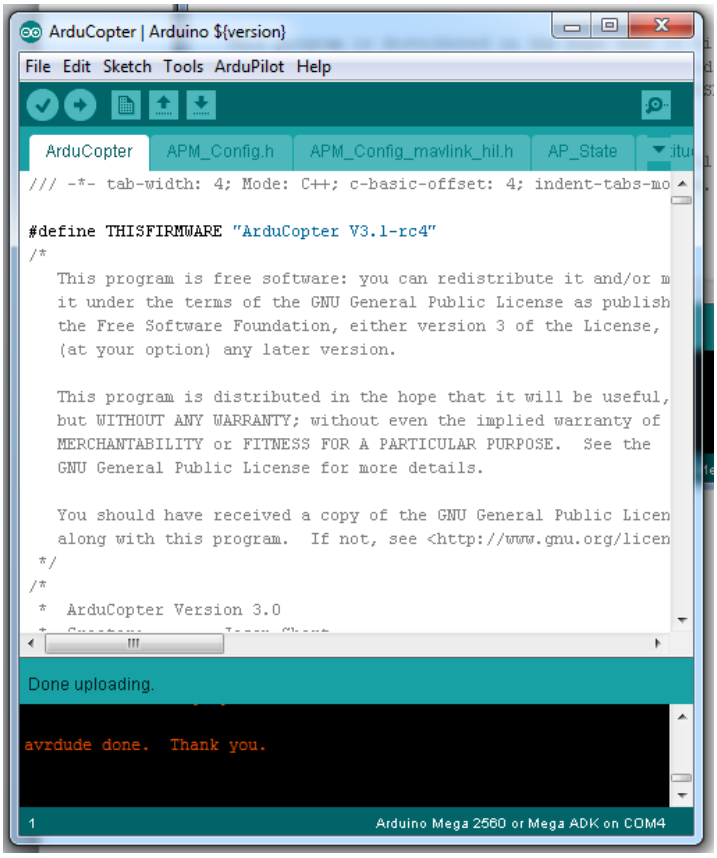
Step 8 Upload to your ArduPilot.

Then if all is well



This may take a while…

You should end up with…



Configure Your ArduPilot using planner, as normal.

WARNING

The code you have just compiled is now UN-TESTED in your configuration. Please use only for testing. If you are not confident, please just use mission planner to upload pre-compiled code.

Updating your code

Please ensure that the version of code on your PC is the latest version, use git to update your code to the latest code.