RAMPS1.4 Hex File Programming Guide

Rev: 2.1
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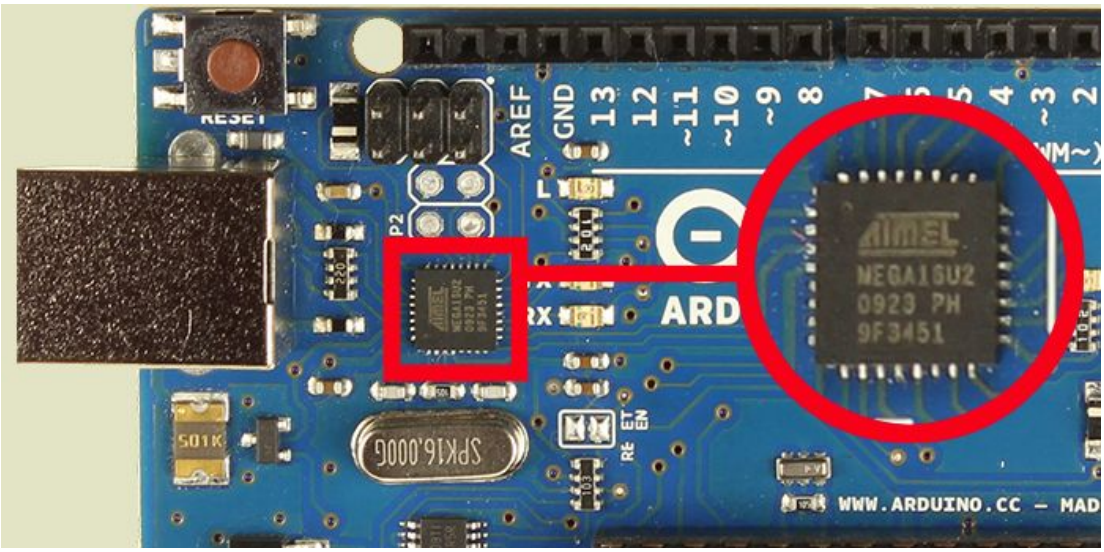
DIYElectronics.co.za

1. Download and Install the Arduino Drivers:

- There are two types of Arduino boards with different USB chips, let's call them Type A and Type B. First you must identify your board and download the correct driver.

- Most of our supplied Megas are Type A boards and have a 16U2 chip, simply download the following driver, extract and install it:
  http://www.diyelectronics.co.za/firmware/Software/Drivers/16U2%20Driver.zip
  If your computer now detects the Arduino Mega when you connect then move to step 2



Boards with the 16U2 chip look like the above picture.
If yours looks different please see [Appendix A: CH340 Mega 2560]

2. Download and unzip XLoader

- Download XLoader.zip from here: http://www.diyelectronics.co.za/firmware/Software/XLoader.zip (Alternatively you can get it here)
- Extract the program to somewhere you can find it on your PC, for example your C: drive or your desktop.

3. Download the .hex file for your printer configuration

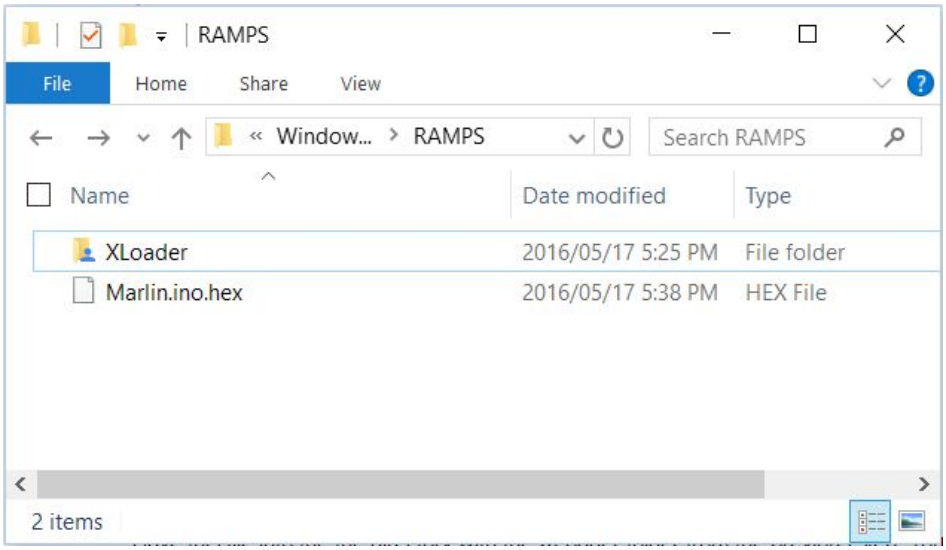
- As of 2017 DIYElectronics offers three Prusa i3 kit variations, please **Right Click** and select **'Save Link As'** on your variation from the list below :

    - **Standard Firmware**
    - **Plus Firmware**
    - **Premium Firmware**

  You must **select the correct firmware for your printer variation at this step**, if you do not your printer will behave strangely. Should you have made a mistake, simply download the correct firmware and reflash.

  NOTE For Older Kits: If you are building an older base kit with additions or a standard LCD, use this directory to access the older firmwares. Feeling lost? Drop the support desk a mail with the details on support@diyelectronics.co.za and you will be assisted.

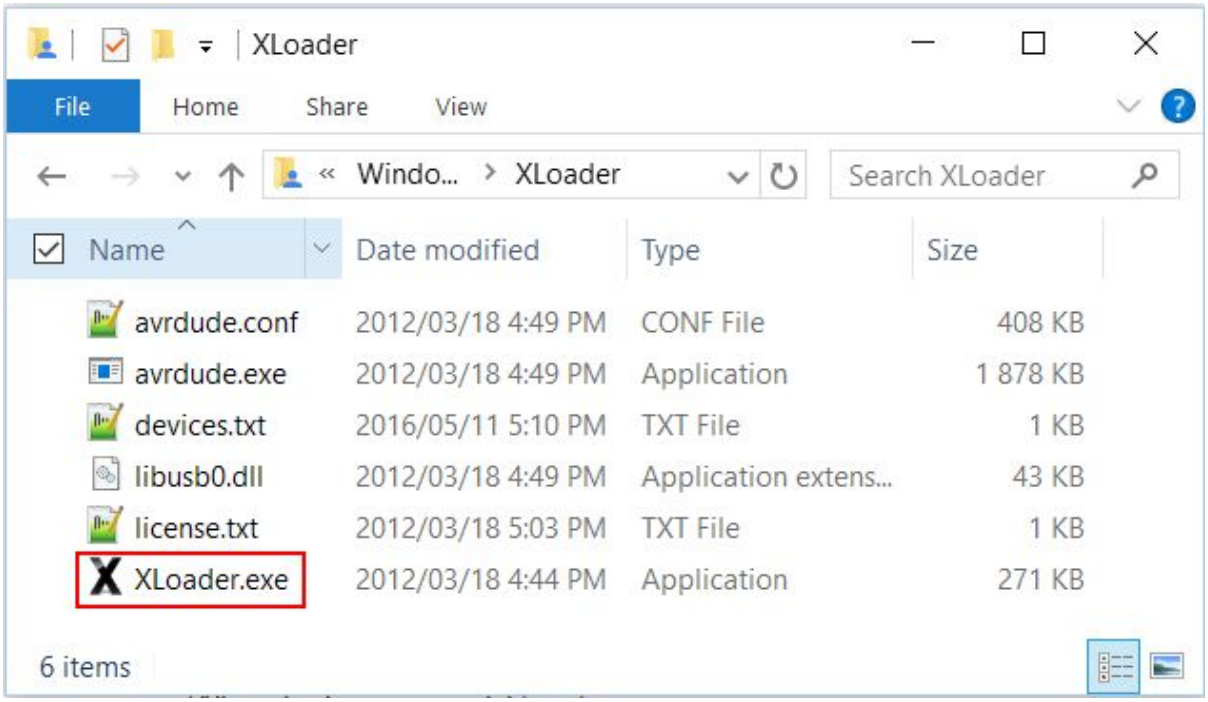
  Save this file into the the directory with the XLoader folder from the previous step. You should now have a folder that looks like this:



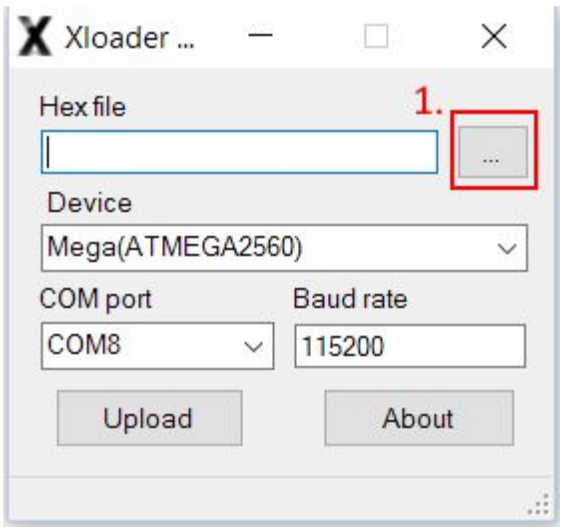
  If you don't then please double check the previous steps.

4. Program your Arduino board using XLoader

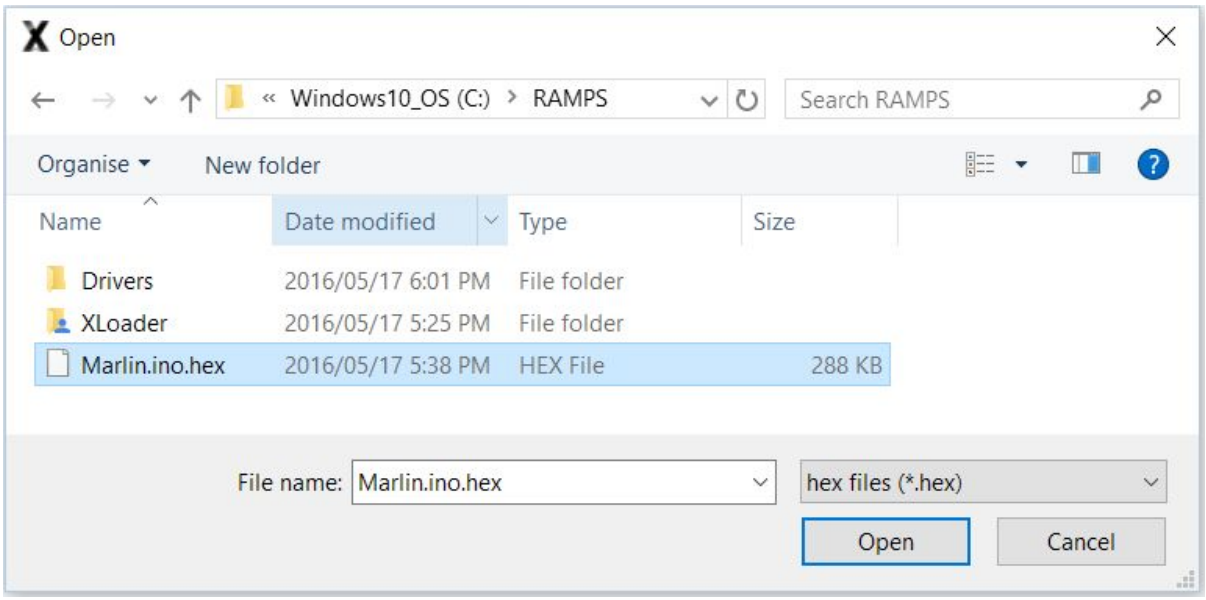
- Open the XLoader in the XLoader folder program:



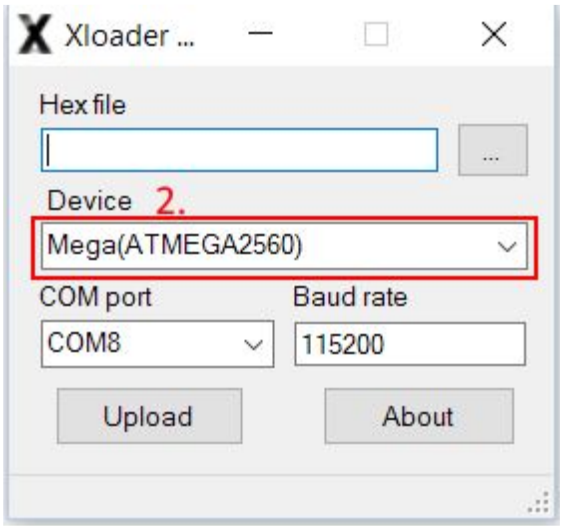
- Click the browse button:



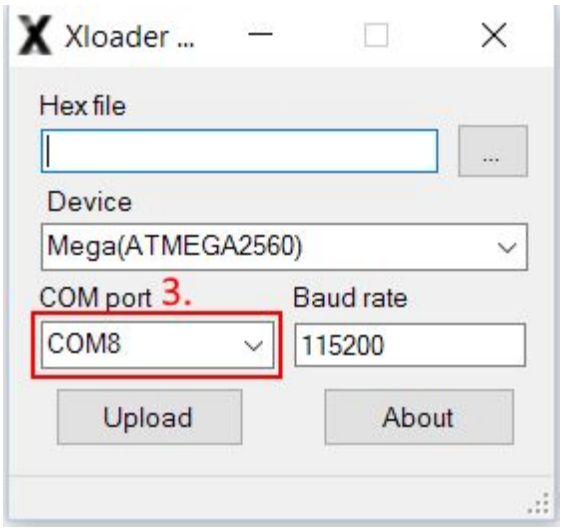
And select the relevant **.hex** firmware file downloaded earlier:



- Next ensure the ATMEGA2560 device is selected:

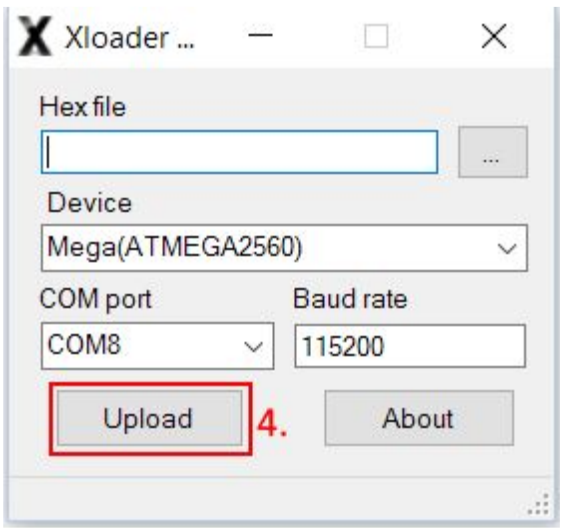


- Now select the correct COM port for your Arduino (It may be different than COM8)
  N.B. If there are no COM ports available then you either have a driver issue (see step 1.) or a problem with your Arduino board (contact us: support@diyelectronics.co.za)



Leave the Baud Rate at 115200

- Finally click the ‘Upload’ button.



<u>You are now done if this completes successfully! :D</u>

Appendix A: CH340 Mega 2560

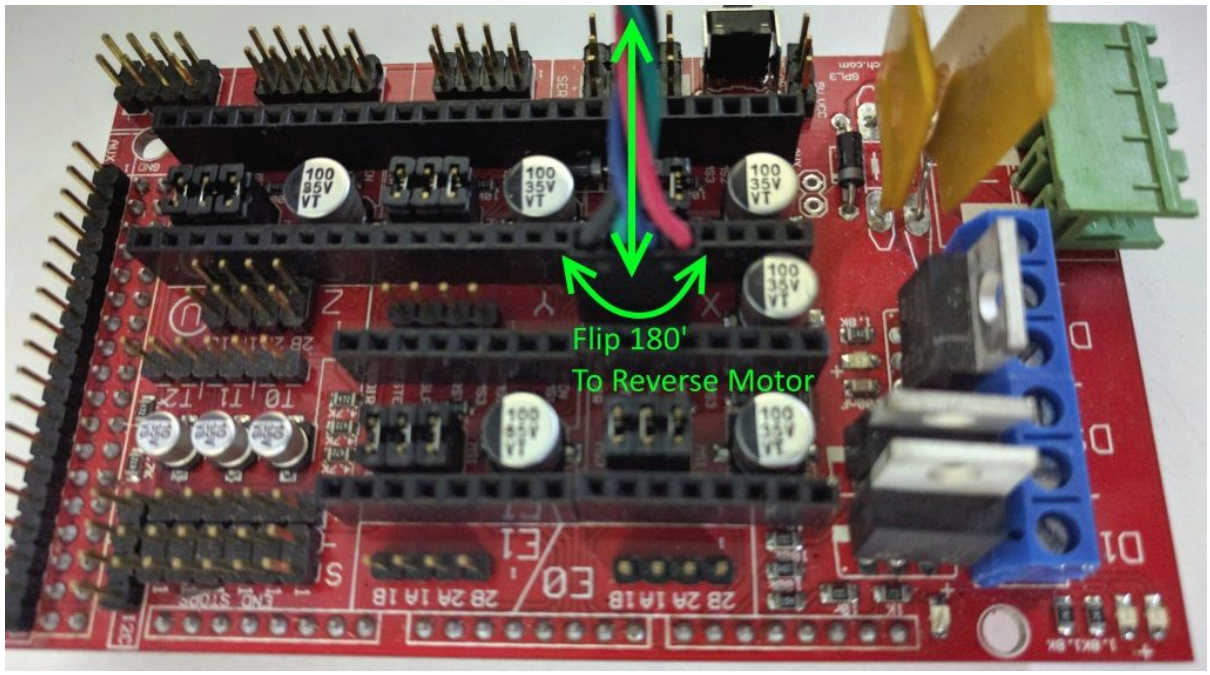
- If you have a Type B board with a CH340 or CH341 chip then it will look like this near the USB connector:

Download the CH340 driver, extract and install:
http://www.diyelectronics.co.za/firmware/Software/Drivers/CH340%20Driver.zip
NB if you have a CH340 chip and use Mac OS then please follow this guide.

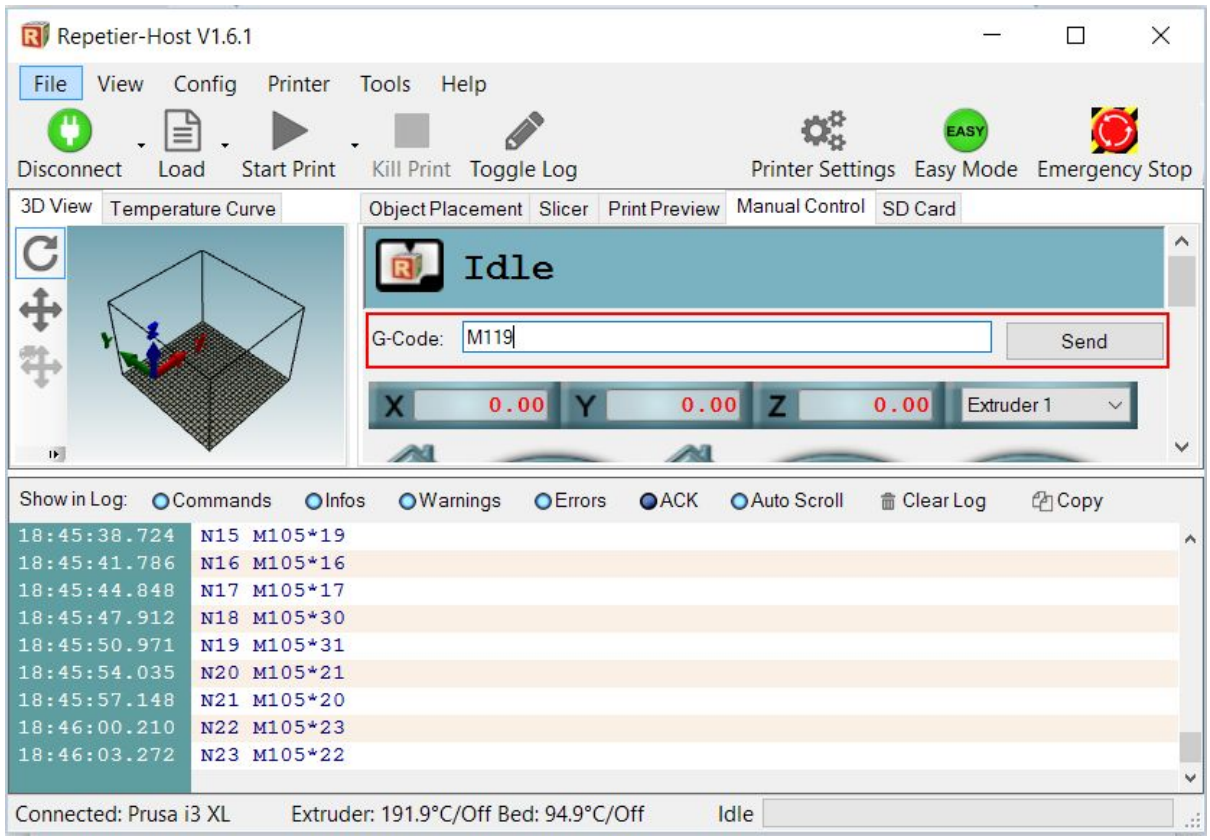
- If you have trouble with installing the drivers then please see the guide at the following link to manually install the driver from device manager in Windows:
http://www.arduined.eu/ch340-windows-8-driver-download/

Troubleshooting:

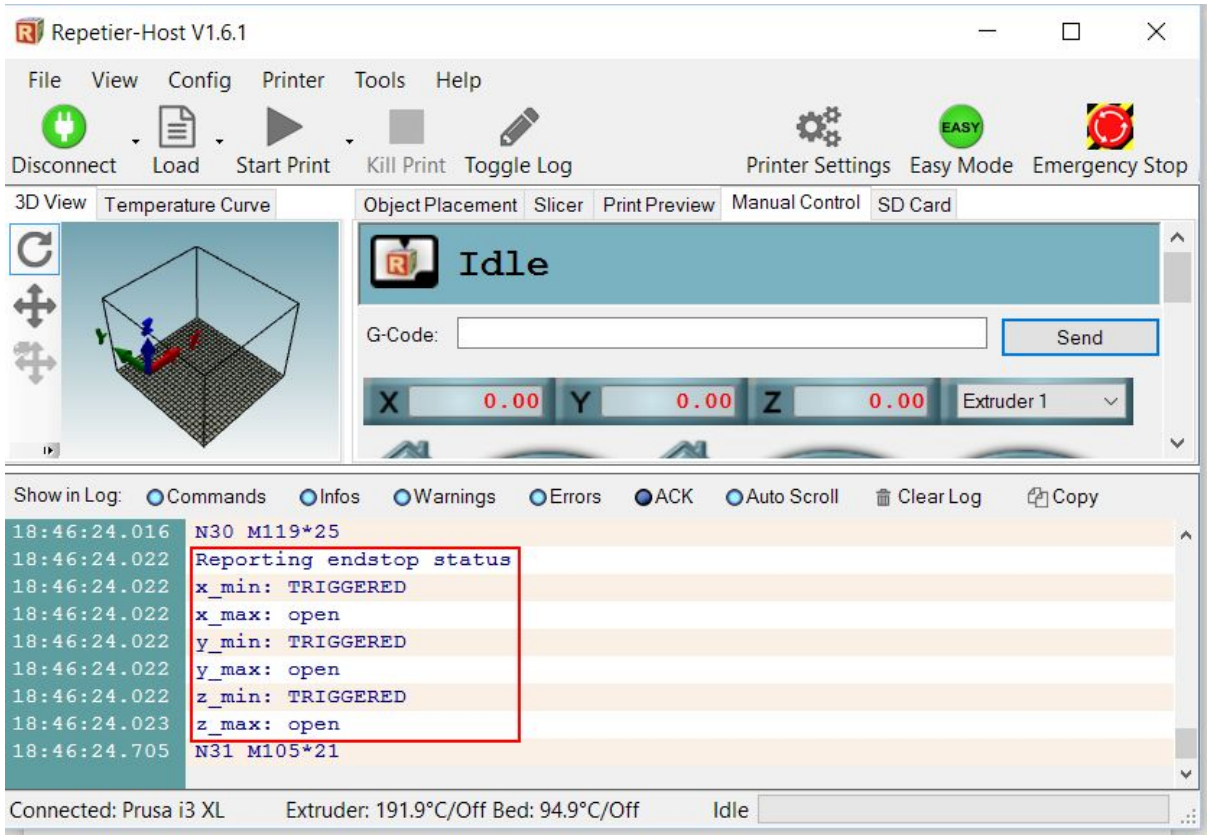
- **X / Y / Z / Extruder moves in the wrong direction:**
  The motor axis is reversed, the easiest way to solve this issue is (with everything powered down) to flip the motor plug on the RAMPS board 180 degrees. This will reverse the axis in question:



- **Endstops do not work correctly:**
  First make sure the axis are all moving in the correct direction as per above.
  Next in *Repetier Host* send the M119 command in the G-Code command line.



Note the response in the text log:



When the endstops are **not** pressed they should read as *Open*

You can hold an endstop down and then send M119, it should then read *Triggered* if it is working properly. If you do not have this response then check that the endstop is plugged into the correct port and that the wiring is not damaged.
Ignore the Max endstops, we only use the Min endstops.
Also check that the X endstop relates to x_min and the same for Y and Z with the M119 command. If not then they are connected to the wrong locations.