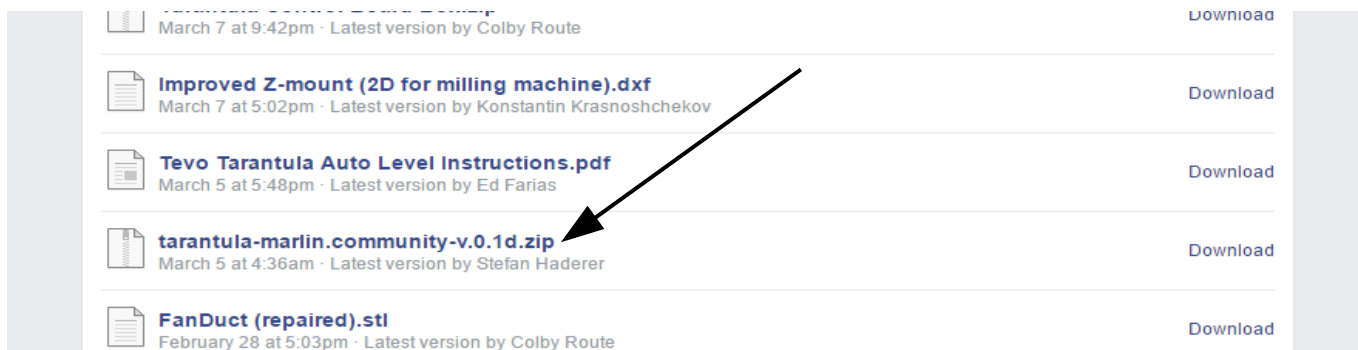# Here is how to change the pins in Marlin firmware to use a specific stepper motor in a plug that was meant for another. Enjoy!
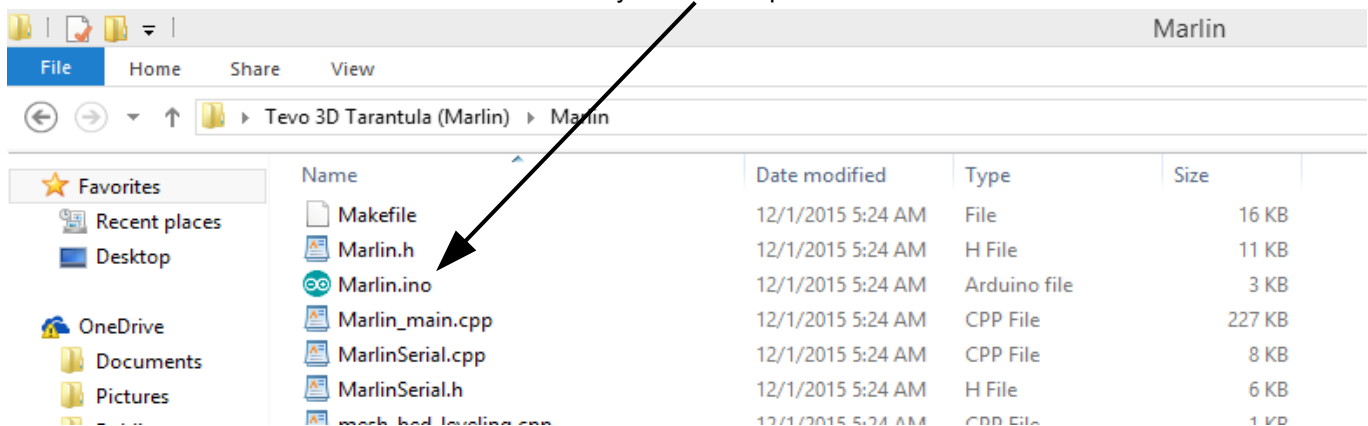
Step 1: Download the latest community firmware (Rev D as of 4/25/16)

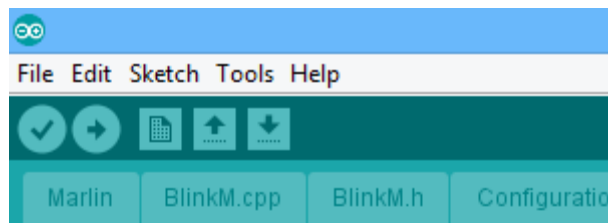Tevo Tarantula Prusa i3 Owners Group >> Files Tab >> tarantula-marlin.community

Step 2: Extract the files and open "Marlin.ino" from the firmware you just downloaded.

Click here – make sure you have Arduino installed on your PC/computer

Step 3: Go to the "pins.h" tab in Arduino – Scroll down till you get to about line 600 – you will see this:

```
#define SDPOWER        -1
#define SDSS           25//53
#define LED_PIN        13

#define BEEPER         33

#else

#define X_STEP_PIN     54
#define X_DIR_PIN      55
#define X_ENABLE_PIN   38
#define X_MIN_PIN      3
#define X_MAX_PIN      2

#define Y_STEP_PIN     60
#define Y_DIR_PIN      61
#define Y_ENABLE_PIN   56
#define Y_MIN_PIN      14
#define Y_MAX_PIN      15

#define Z_STEP_PIN     46
#define Z_DIR_PIN      48
#define Z_ENABLE_PIN   62
#define Z_MIN_PIN      18
#define Z_MAX_PIN      19
```

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There are sets of #define values for each axis. Please ignore the X2, Y2, Z2, E02, and E12 values, as they are not used in on our printer.

Now, switch the numbers of the pins of the desired motors you wish to switch. (ie. I had to switch E1 and Z so my Z axis motor could be used on E1) E1 is meant for a second extruder.

So, change from this:

```
#define Z_STEP_PIN     46
#define Z_DIR_PIN      48
#define Z_ENABLE_PIN   62
#define Z_MIN_PIN      18
#define Z_MAX_PIN      19

#define E1_STEP_PIN    36
#define E1_DIR_PIN     34
#define E1_ENABLE_PIN  30
```
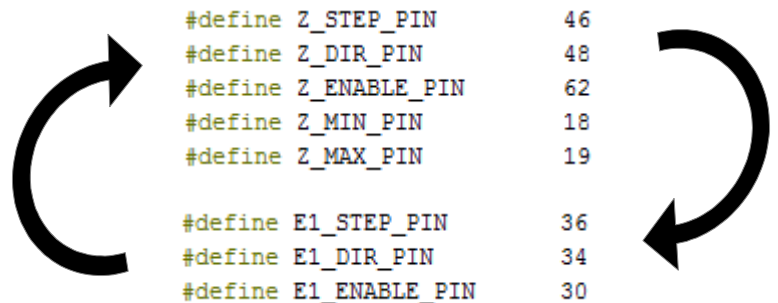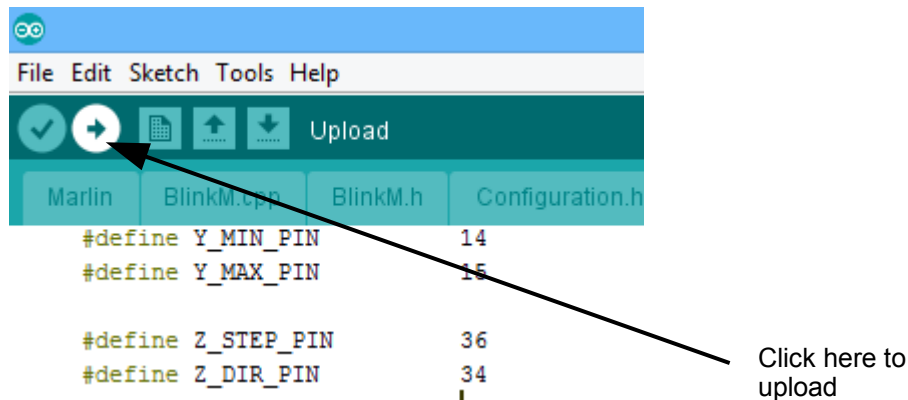
To this:

```
#define Z_STEP_PIN     36
#define Z_DIR_PIN      34
#define Z_ENABLE_PIN   30
#define Z_MIN_PIN      18
#define Z_MAX_PIN      19

#define E1_STEP_PIN    46
#define E1_DIR_PIN     48
#define E1_ENABLE_PIN  62
```

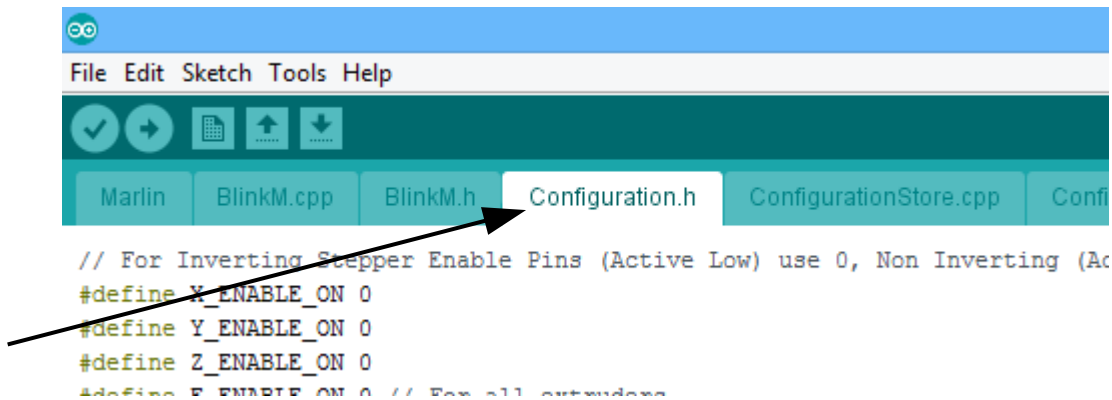Please notice that the Z_MAX_PIN and Z_MIN_PIN values stayed the same

Step 4: Upload to board (MKS) – Simply select Arduino Mega 2560 from the tools menu at the top left of the screen and select Atmega2560 under the processor tab in the tools menu, then plug your board in and click "upload" (be sure to have the right COM port selected or it won't work) this can take a few minutes.

File Edit Sketch Tools Help

Upload

| Marlin | BlinkM.cpp | BlinkM.h | Configuration.h |

```
#define Y_MIN_PIN        14
#define Y_MAX_PIN        15

#define Z_STEP_PIN       36
#define Z_DIR_PIN        34
```

Click here to upload

Have a Great Day!

If any axes move the wrong way—keep reading :)

Step 5: If axes move opposing diretion—easy fix—Go to "configuration.h" under the Marlin firmware you just got done editing.

File Edit Sketch Tools Help

| Marlin | BlinkM.cpp | BlinkM.h | Configuration.h | ConfigurationStore.cpp | Confi |

```
// For Inverting Stepper Enable Pins (Active Low) use 0, Non Inverting (Ac
#define X_ENABLE_ON 0
#define Y_ENABLE_ON 0
#define Z_ENABLE_ON 0
#define E_ENABLE ON 0 // For all extruders
```

Go to about line 310 in the code (the code line # is seen in the bottom left corner of the Arduino interface)

```
// Sets direction of endstops when homing; 1=MAX, -1=MIN
#define X_HOME_DIR -1
#define Y_HOME_DIR -1
#define Z_HOME_DIR -1
```

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You will see this:
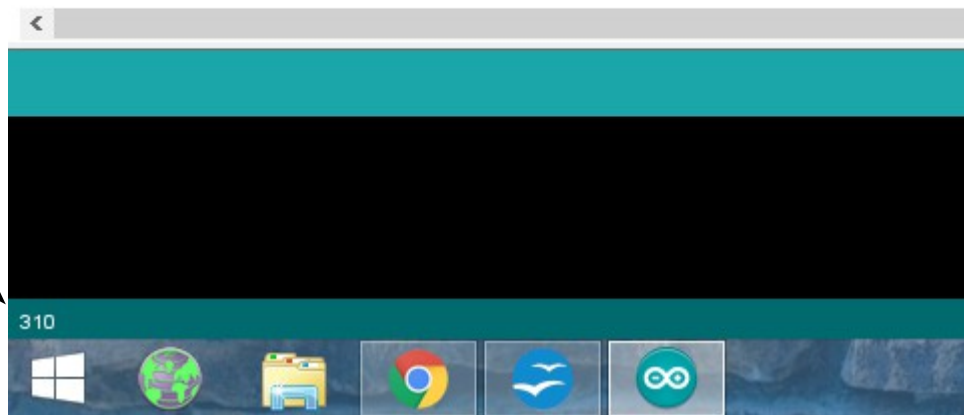
These are the parameters for the axes directions

```
#define DISABLE_E false // For all extruders
#define DISABLE_INACTIVE_EXTRUDER true //disable only inactive extruders and keep ac

#define INVERT_X_DIR true    // for Mendel set to false, for Orca set to true
#define INVERT_Y_DIR false    // for Mendel set to true, for Orca set to false
#define INVERT_Z_DIR true    // for Mendel set to false, for Orca set to true
#define INVERT_E0_DIR false   // for direct drive extruder v9 set to true, for geare
#define INVERT_E1_DIR false   // for direct drive extruder v9 set to true, for gear
#define INVERT_E2_DIR false   // for direct drive extruder v9 set to true, for geare

// ENDSTOP SETTINGS:
// Sets direction of endstops when homing; 1=MAX, -1=MIN
#define X_HOME_DIR -1
```

If any motor is moving the wrong way, change "false" or "true" to the opposite word. For example, if I change the "INVERT_X_DIR true" to "INVERT_X_DIR false," my x axis will move the opposite direction.

Step 5 (cont): Now just upload the firmware to the board as explained above. Hope this helps!

Step 5 (cont): Now just upload the firmware to the board as explained above. Hope this helps!