SKYNET 3D V2

https://www.facebook.com/skynet3ddevelopment

https://www.facebook.com/groups/533574710164428

skynet3ddevelopment@gmail.com

Hi and Welcome to SKYNET 3D V2 autolevel firmware for the Anet Chinese 3d printers. Hopefully this guide will cover everything needed to get up and running and printing perfect in no time! Enjoy!

Please note this firmware is set up ready for use on the **Anet A8 3d printer only **

However… it does include **full** support for the anet a8 printer with my frame mod and the **ANET BRAND** full graphics lcd12864 upgrade

This added lcd support does mean that those with an anet A6 and A2 printers will now be able to use the firmware and enjoy all those lovely autolevel features and be able to keep their display working… but because I personally don't own an A6 or and A2 printer I have not been able to include a configuration.h file for easy install. This means that you may have to turn to the community on the Anet facbook group for help getting the print center dialed in etc.... All other functions will work fine though and I suspect it wont take long at all to get these files .

As soon as the community release this configuration.h file to me for the A6 and also the A2 then I will re-release this firmware as V2.1 to keep everything tidy! ☺

Credits go to ;

Mark Hannappel – for being a whizz kid coder bad ass – He is responsible for any a6/a2/lcd12864 . Thanks dude you have made skynet v2 possible in a much shorter time than I anticipated. ☺

Steve wilson- for creating the support network with the facebook group and for creating documents and guides!

Steve Smith – For innitially helping me with my wiring – and putting me on the right track for repairing my anet v1.0 board! you do things with electonics that I could only dream of ☺

John lannigan AKA john il sung – he owns the fascist dictatorship run forum which bannishes all those that believe in open source and progression. This made all us rational people get together and do some wonderful things. Also he has a PHD!!

And … last but not least

YOU GUYS – the users! Your kind words , kind donations and the help you give each other in the community has spured me on to get this shit done! So I hope you enjoy this release.

Please feel free to check out my facebook page http://www.facebook.com/skynet3ddevelopment

here you will find links to the latest firmware , links to my ebay page (where you can purchace some of my 3d printer modifications and autolevel sensors etc) and also my donation button. All sales and donations no matter how small really do help get development done. They helped me provide and pay for hardware for the programmer which ultimately brought about support for the a6 and a2 printers. And I appreciate everything that comes in. thank you… scou!

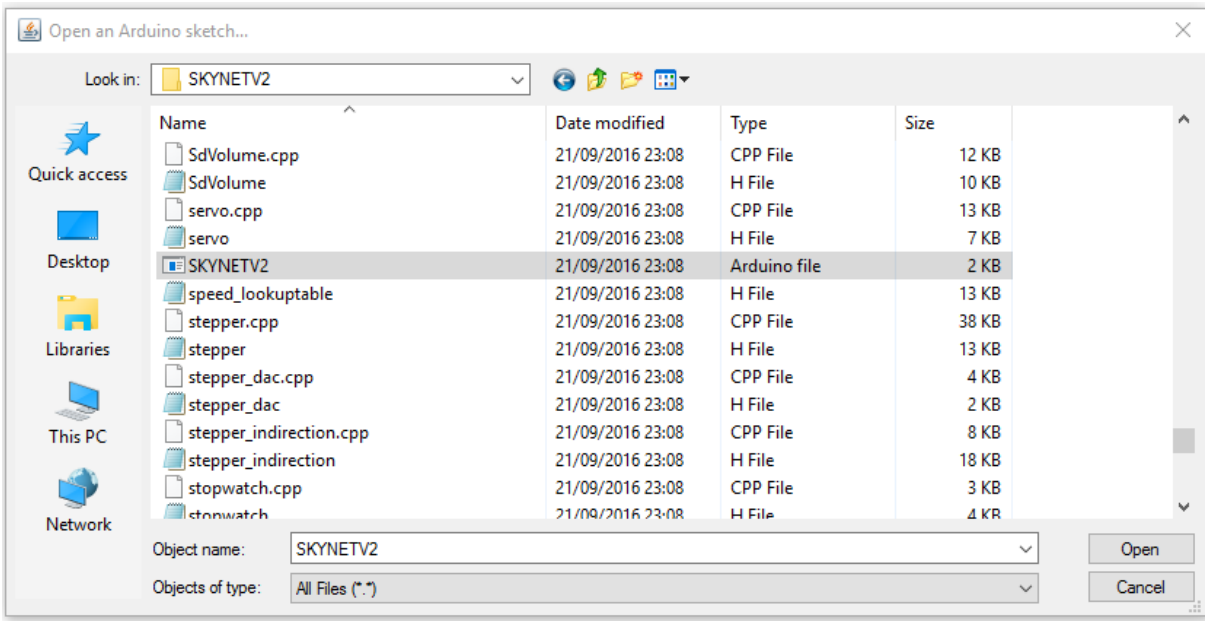
RIGHT!! LETS GET INTO IT! HAHA

disclaimer this guide will only deal with the firmware aspect of the install process. If you need help with wiring your sensor please see the wiring folder within the skynet download. Here you will find diagrams and information on how the sensor is wired up. If you need anymore help – head over to the facebook group (2nd link at the top of this page). Also check out the skynet page for the latest links to my ebay shop where I offer plug and play autolevel sensors for the anet printers .

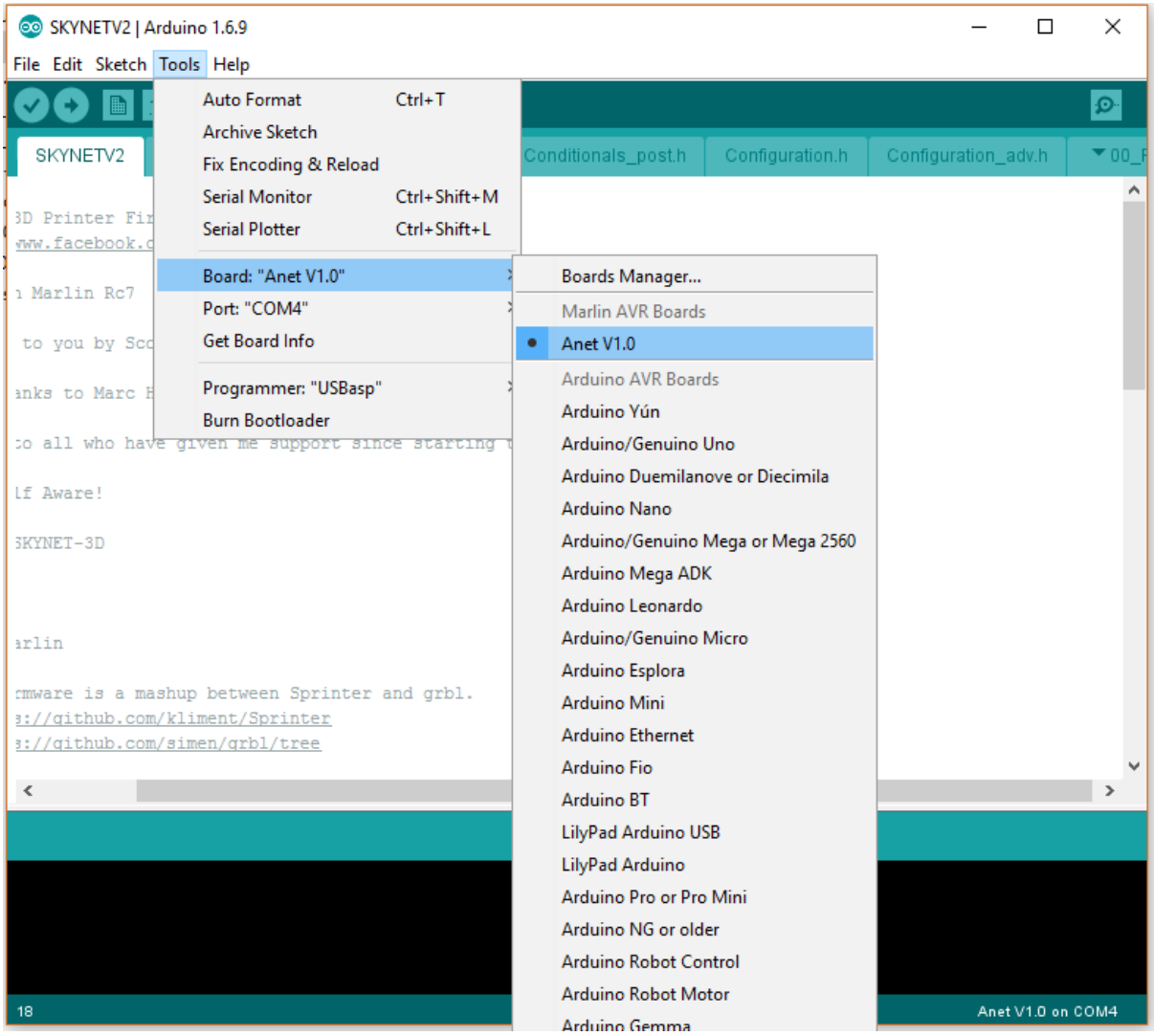
This guide also assumes that you have already had your printer set up with the default anet firmware prior to installation.

First were going to assume that you have already downloaded the firmware package. So drag this to your desktop to make the process easier and unzip the entire contents into their respective folders.

- Open Arduino 1.6.9 folder and then open “arduino.exe”
- Go to “File” “Open”
- Browse to the firmware folder and open “SKYNETV2.ino”

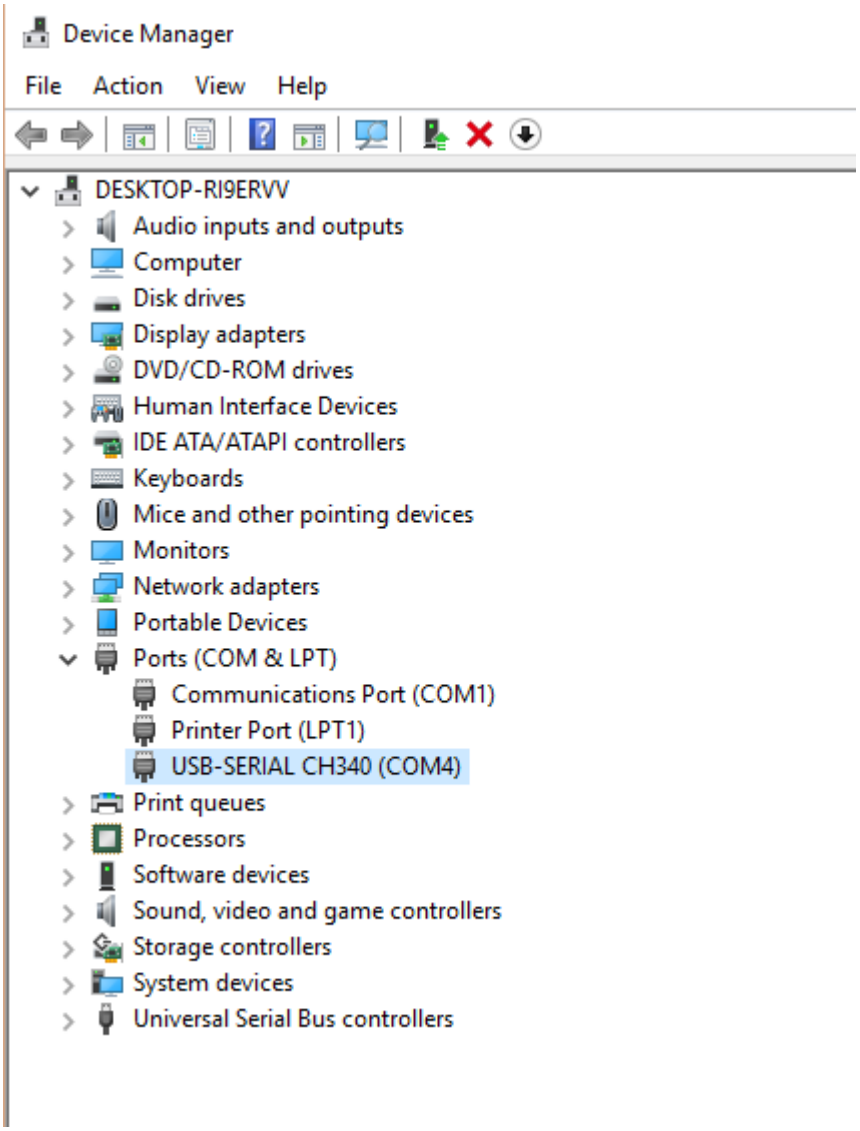


- Go to “Tools” “Board” and select “Anet V1.0”



- Go to “Tools” “Port” and Select the relavent com port for your printer, mine is com4

But you can check this if you go to “device manager” and under “Ports (COM &LPT) you should have “ USB-SERIAL CH340” as shown below

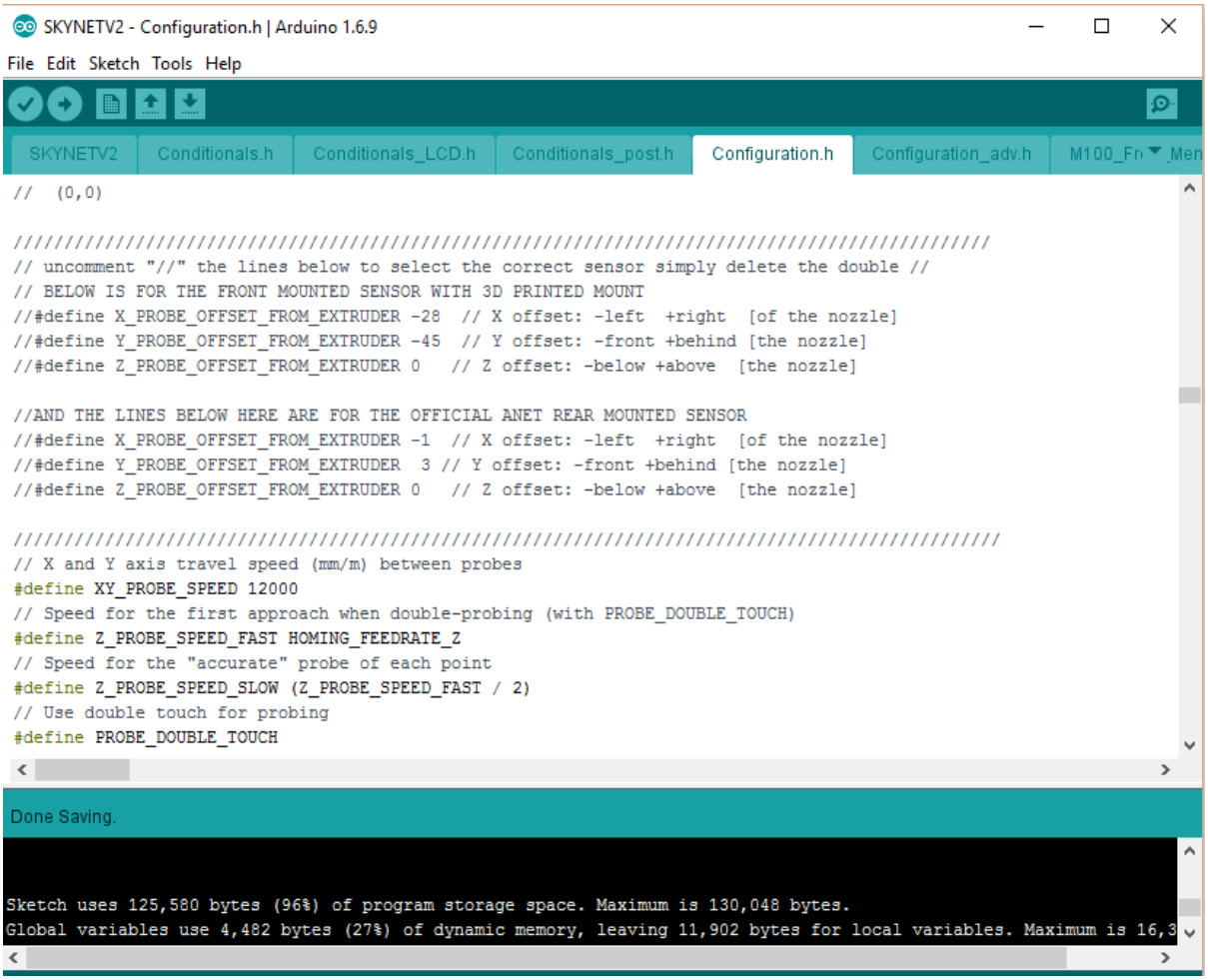


- Now in arduino – go to “Tools” “Programmer” and select “AVRISP mkII”

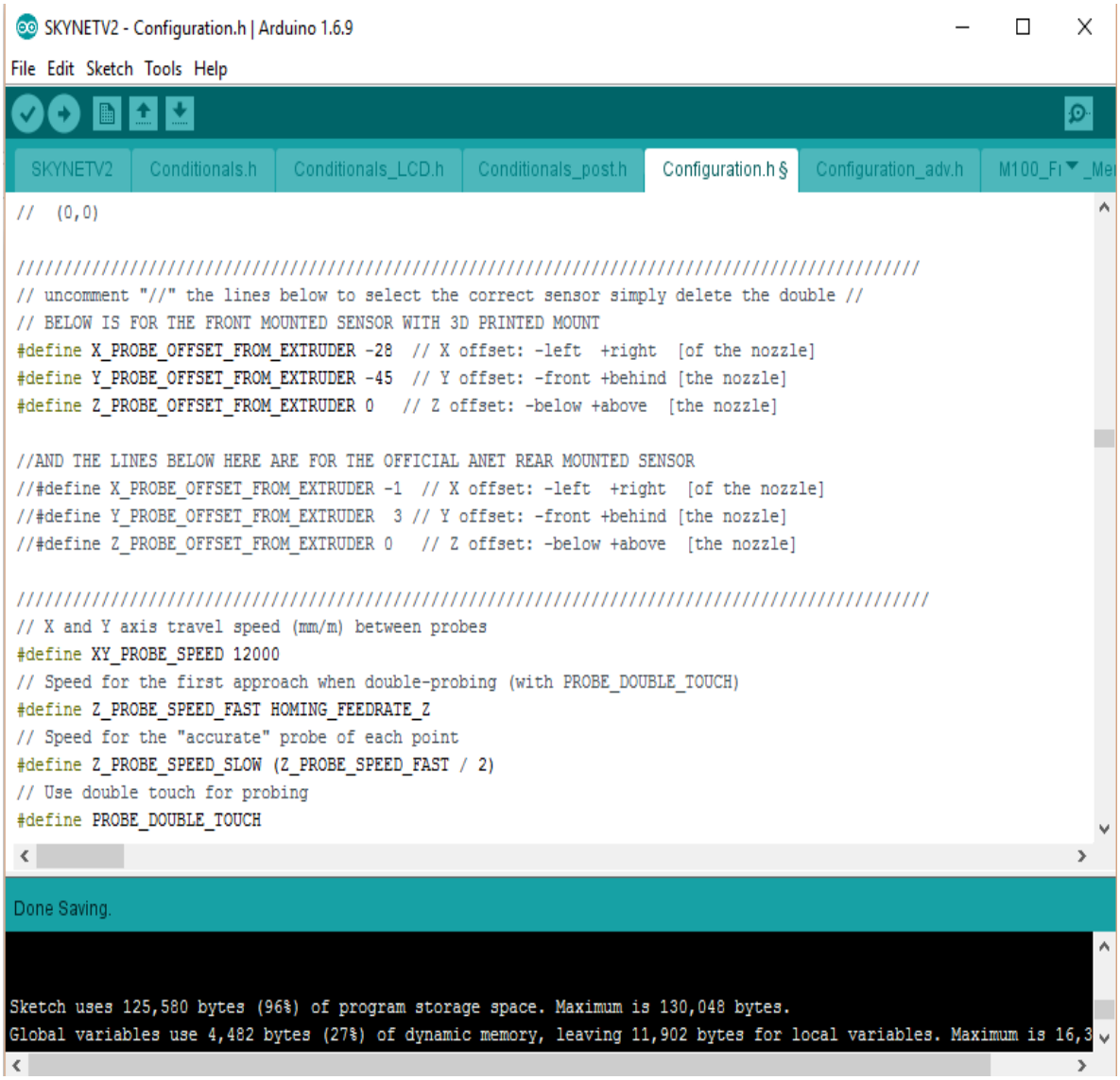
The next steps are very important. If you miss them, then the firmware will not compile or upload!

Choosing the correct sensor

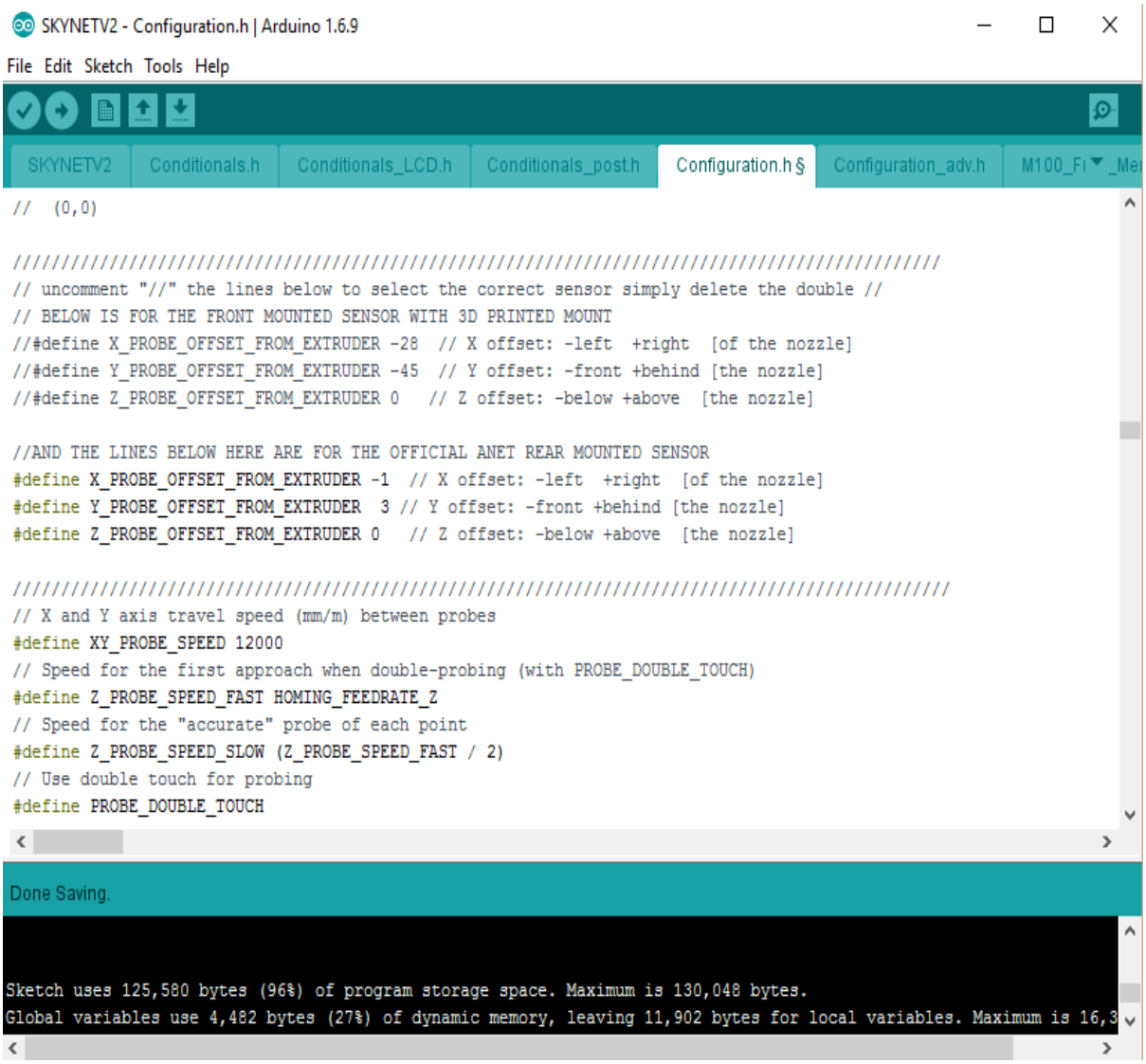
- Go to the “Configuration.h” tab
- Hit “ctrl+f” to bring up the find menu
- Copy this line into the “find” section
  #define X_PROBE_OFFSET_FROM_EXTRUDER
  …and click “Find”


SKYNETV2 - Configuration.h | Arduino 1.6.9
File Edit Sketch Tools Help
SKYNETV2
Conditionals.h
Conditionals_LCD.h
Conditionals_post.h
Configuration.h
Configuration_adv.h
// (0,0)
//
// uncomment "//" the lines below to select the correct sensor simply delete the double //
// BELOW IS FOR THE FRONT MOUNTED SENSOR WITH 3D PRINTED MOUNT
//#define X_PROBE_OFFSET_FROM_EXTRUDER -28 // X offset: -left +right [of the nozzle]
//#define Y_PROBE_OFFSET_FROM_EXTRUDER -45 // Y offset: -front +behind [the nozzle]
//#define Z_PROBE_OFFSET_FROM_EXTRUDER 0   // Z offset: -below +above [the nozzle]
//AND THE LINES BELOW HERE ARE FOR THE OFFICIAL ANET REAR MOUNTED SENSOR
//#define X_PROBE_OFFSET_FROM_EXTRUDER -1 // X offset: -left +right [of the nozzle]
//#define Y_PROBE_OFFSET_FROM_EXTRUDER 3 // Y offset: -front +behind [the nozzle]
//#define Z_PROBE_OFFSET_FROM_EXTRUDER 0   // Z offset: -below +above [the nozzle]
//
// X and Y axis travel speed (mm/m) between probes
#define XY_PROBE_SPEED 12000
// Speed for the first approach when double-probing (with PROBE_DOUBLE_TOUCH)
#define Z_PROBE_SPEED_FAST HOMING_FEEDRATE_Z
// Speed for the "accurate" probe of each point
#define Z_PROBE_SPEED_SLOW (Z_PROBE_SPEED_FAST / 2)
// Use double touch for probing
#define PROBE_DOUBLE_TOUCH
Done Saving.
Sketch uses 125,580 bytes (96%) of program storage space. Maximum is 130,048 bytes.
Global variables use 4,482 bytes (27%) of dynamic memory, leaving 11,902 bytes for local variables. Maximum is 16,3

If you have the front mounted sensor with the 3d printed mount make sure those lines above now look like this.



If you have the OFFICIAL ANET REAR MOUNTED SENSOR make sure those lines look like this



And that's it .. you've chosen your sensor – you are now ready to choose your lcd!
Stay within the Configuration.h tab for the next part

Choosing you lcd – choose one option out of the two below

1: for those who own an Anet A8 with the stock lcd2004 and 5 button keypad do the following.

- Ctrl+F (find menu pops up)
- Copy this line exactly as it appears into the find menu .
  //#define ANET_KEYPAD_LCD

- Click **Find**
  Uncomment that line (delete //) so it reads

```
#define ANET_KEYPAD_LCD
//#define ANET_FULL_GRAPHICS_LCD
```

2: For those who own an A6 /A2 / A8 with upgraded frame mod from me- do the following.

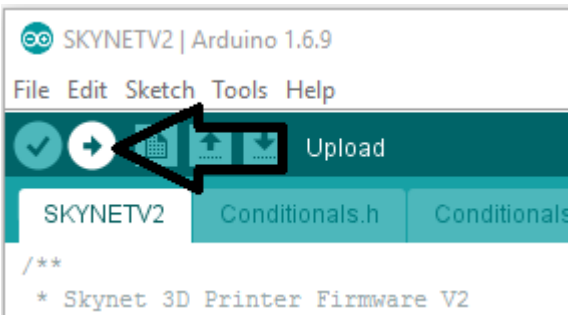
- Ctrl+F (find menu pops up)
- Copy this line exactly as it appears into the find menu .
  //#define ANET_FULL_GRAPHICS_LCD

- Click **Find**
  Uncomment that line (delete //) so it reads

```
//#define ANET_KEYPAD_LCD
#define ANET_FULL_GRAPHICS_LCD
```

That's it.. now that you have selected the autolevel sensor placement and your lcd then you are ready to upload!

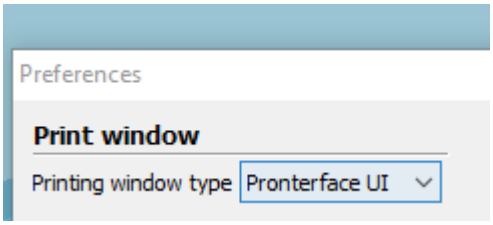
- Click the "upload" Button in arduino and wait for Skynet to compile and upload to your printer



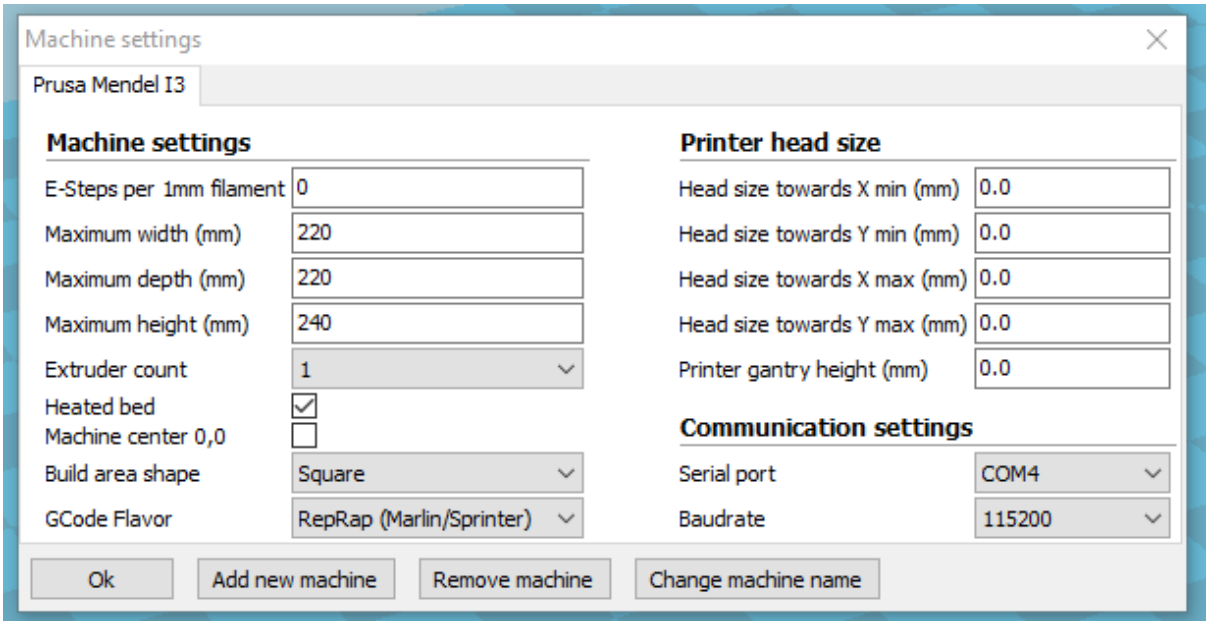
And that's it!! Once Arduino says "done uploading" and you have the Marlin logo on your printers screen youre done! Well youre done installing you need to carry on to set your z-offset.

Now we configure youre z offset – this is the distance the printer has to travel below zero in order to print because with induction sensors you will home to z and your nozzle will be no where near the bed

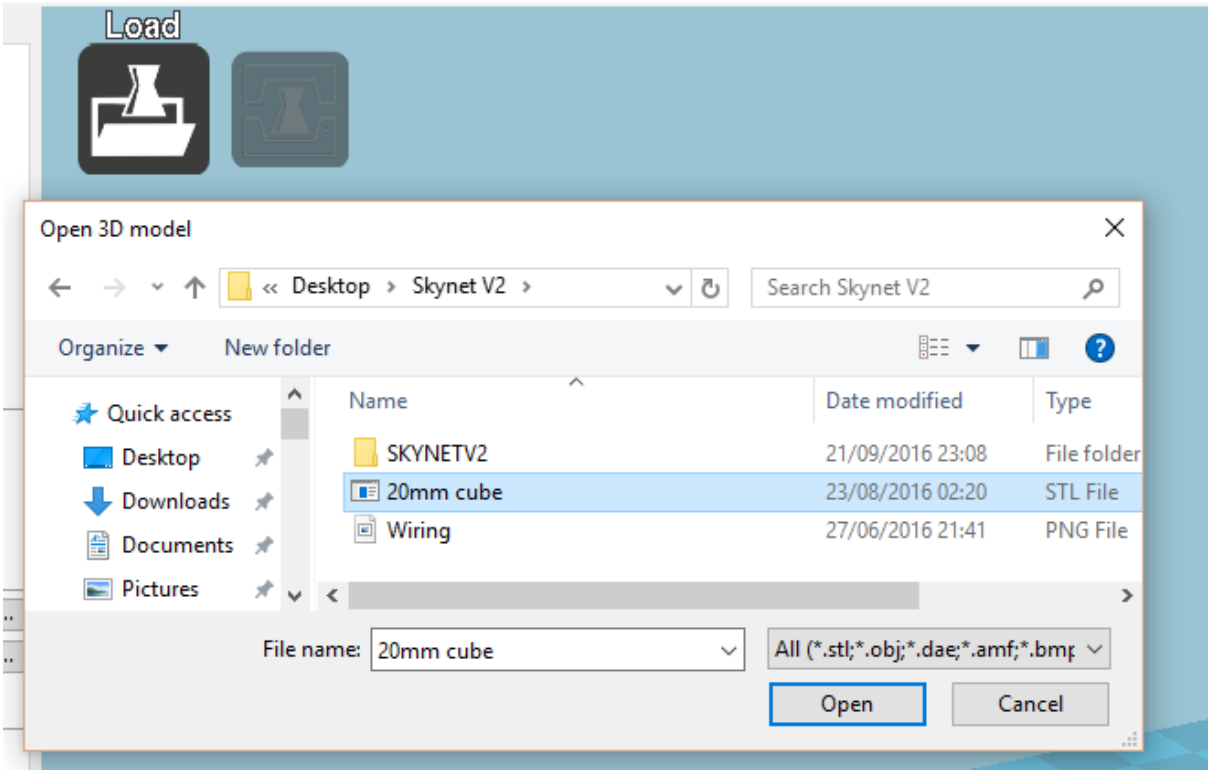
- In the Skynetv2 download folder- unzip and install Cura 15.04.6- once installation is complete open it.
- Go to "file" "preferences"
- make sure the "printing window type" is set to "Pronterface UI"



- Go to "Machine" "Machine settings" and copy the setting exatly as below apart from "serial port" which you would set to the same as the previous steps (mine Com4)

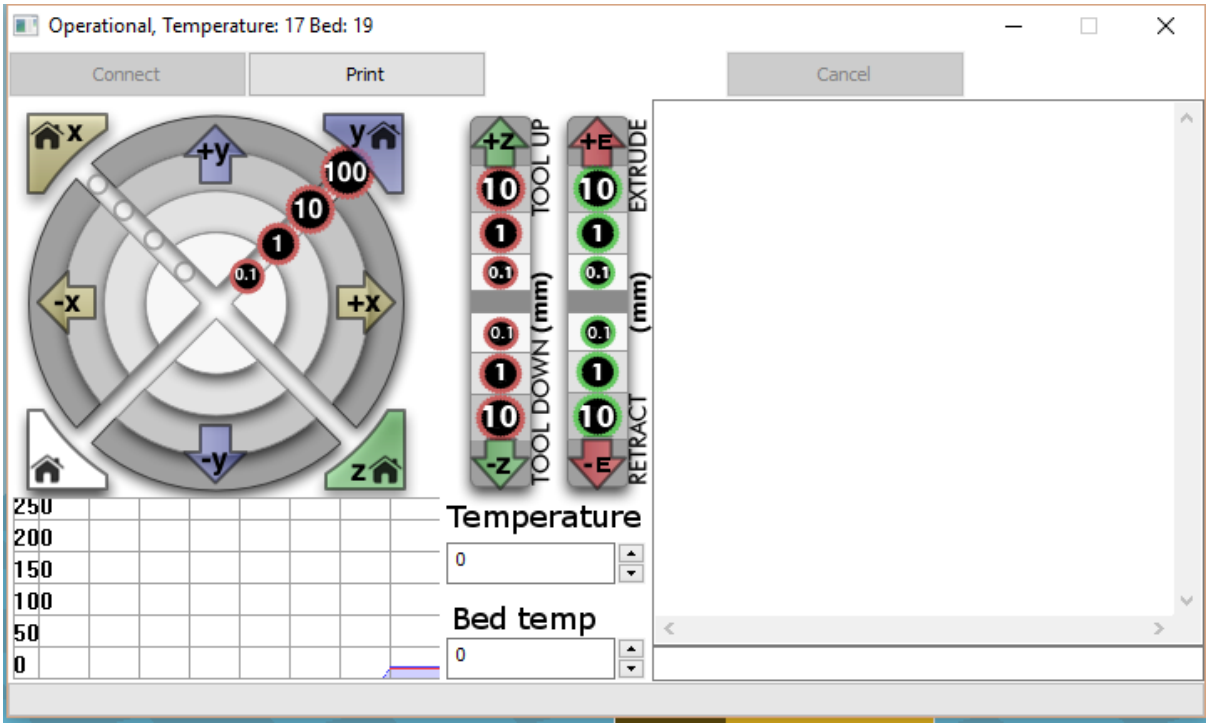


- Now Click on the “load” button and load the “20mm cube.stl”



Now you want to set your settings for your chosen material on the left side of cura (printing temps / speed/ infil etc…)

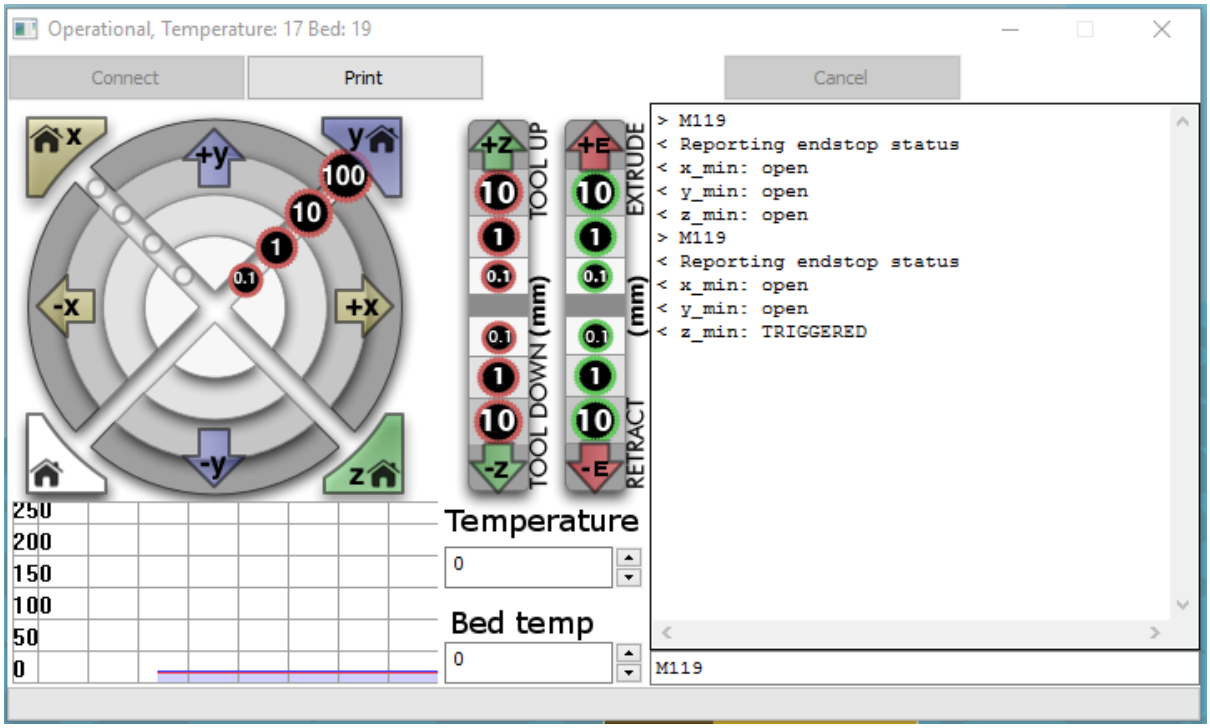
- Click the “Print” button next to “load” and youll get the “Pronterface UI” window



If you don’t have “operational” in this window then you may have set the wrong baudrate or comport in the “machine settings” – just go double check they are right.

- From the pronterface window you can now start controlling your printer via usb!

In the command window type M119 and hit “enter” on your keyboard to check if your Zprobe is “Triggered” below you can see I ran that comand twice – first without a metal object below the sensor and secondly with a metal object below the sensor

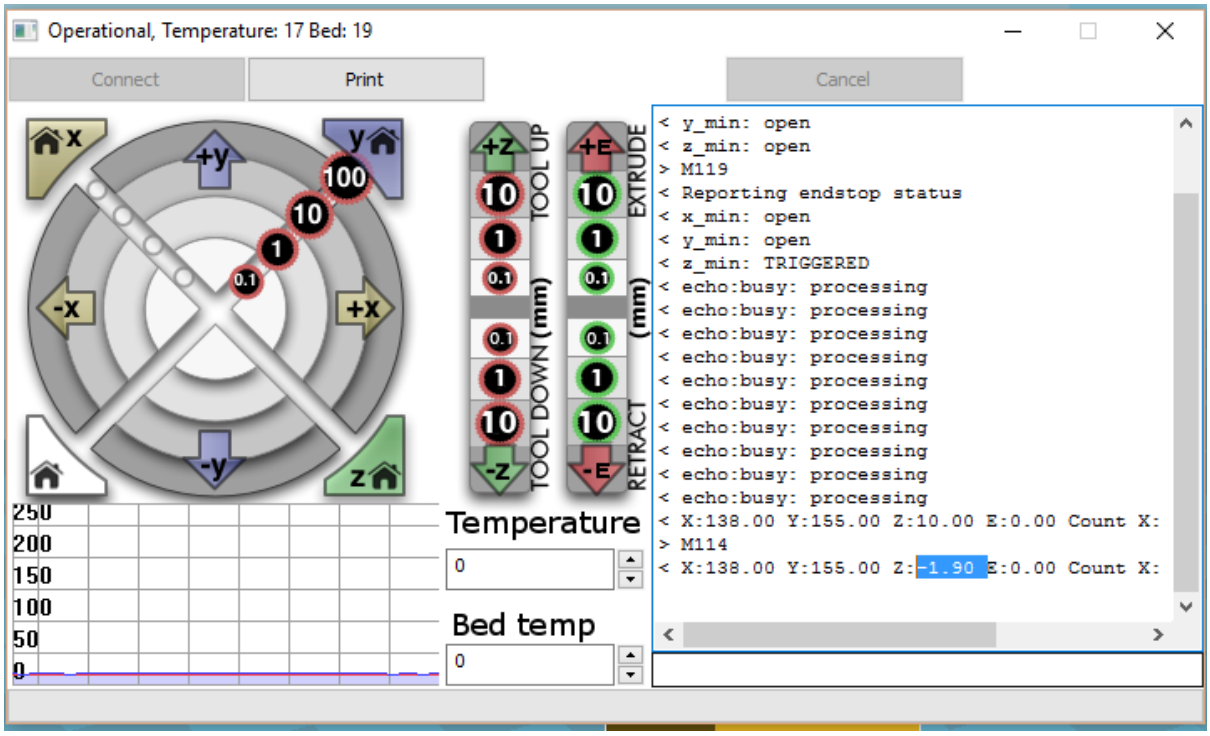


- Now hit the white “home” button to home all axis. 

You will notice that the printer will home X and Y and then move the sensor to the center of the bed and lower itself until it is triggered then it will raise to z10..

- No hit the “-z 10” button to bring the nozzle down to Z0 
- Place a sheet of a4 copy paper between the bed and the nozzle and lower the z axis in 0.1 incraments using the button until there is just a little bit of friction when moving the paper around.

- Now run an M114 command in Pronterface UI



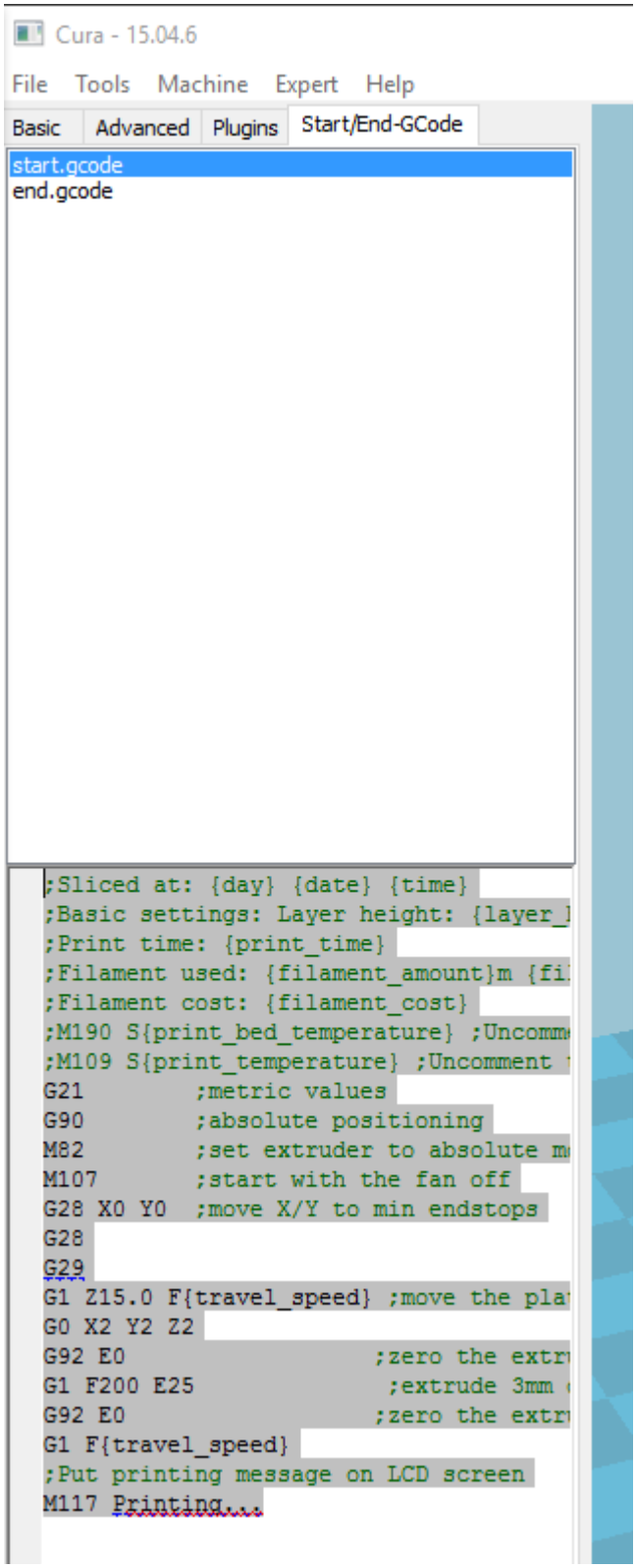
You have now found your offset value – as you can see mine is z: -1.90

- On your printer input pannel press the center button (Select/menu button)
- Go down to “control” -select “motion” -select “Z offset : 0.00” -select and then in the z offset menu press the down button (or scroll wheel CCW) until it reads the desired offset value (mine is -1.90) and press select.
- Then go to “menu” “control” “store memory”

Congratulations – you have now set your z offset value and you are now ready to print!

- Go to the “Start/End-Gcode” tab in cura and copy this gcode (the G29 is the autolevel)

```
;Sliced at: {day} {date} {time}
;Basic settings: Layer height: {layer_height} Walls: {wall_thickness} Fill: {fill_density}
;Print time: {print_time}
;Filament used: {filament_amount}m {filament_weight}g
;Filament cost: {filament_cost}
;M190 S{print_bed_temperature} ;Uncomment to add your own bed temperature line
;M109 S{print_temperature} ;Uncomment to add your own temperature line
G21        ;metric values
G90        ;absolute positioning
M82        ;set extruder to absolute mode
M107       ;start with the fan off
G28 X0 Y0  ;move X/Y to min endstops
G28
G29
G1 Z15.0 F{travel_speed} ;move the platform down 15mm
G92 E0                   ;zero the extruded length
G1 F200 E3               ;extrude 3mm of feed stock
G92 E0                   ;zero the extruded length again
G1 F{travel_speed}
;Put printing message on LCD screen
M117 Printing...
```

- 

Go back to pronterface and hit “print” – allow your hotend and heatbed to get to temperature and watch in awe as you never have to touch those god forsaken bed screws ever again!!

If you are still not getting the desired first layer go back to the z offset menu in the printer and adjust accordingly until you achieve the desired “squish” – just remember to go back and “store memory” so that your printer remembers your new offset

I hope all that was easy enough to follow.

Thanks again to all of you who use and support skynet.

Happy printing

Scou @SkyNet3D