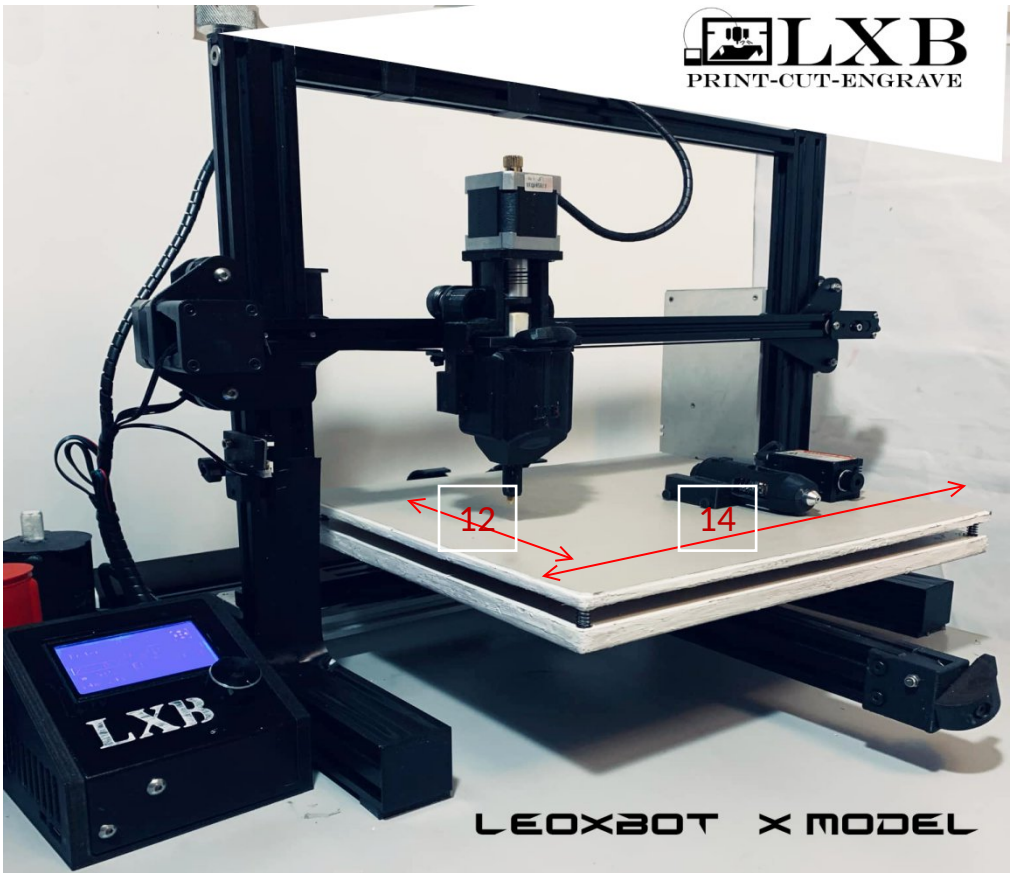

PRINT- CUT- ENGRAVE

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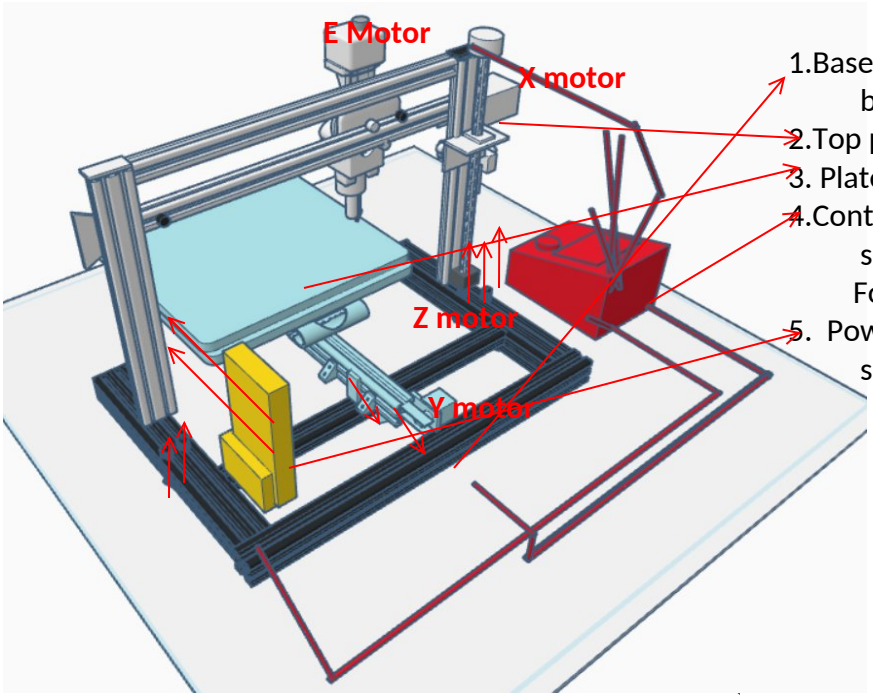
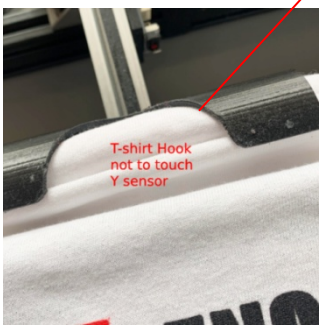
If you receive the Machine disassemble – Just follow the image how to assemble .
There are only 5 parts . Base- Top – Plate- Control Box-Power Supply.



1.Base –connect to TOP – 2 screw for both side
2.Top part
3. Plate –Connect to base by drop nut
4.Control Box- Connect to Motors and sensor
Follow label X_Y_Z_E
5. Power Supply- connect to top (2 screw)

Always hook the t-shirt



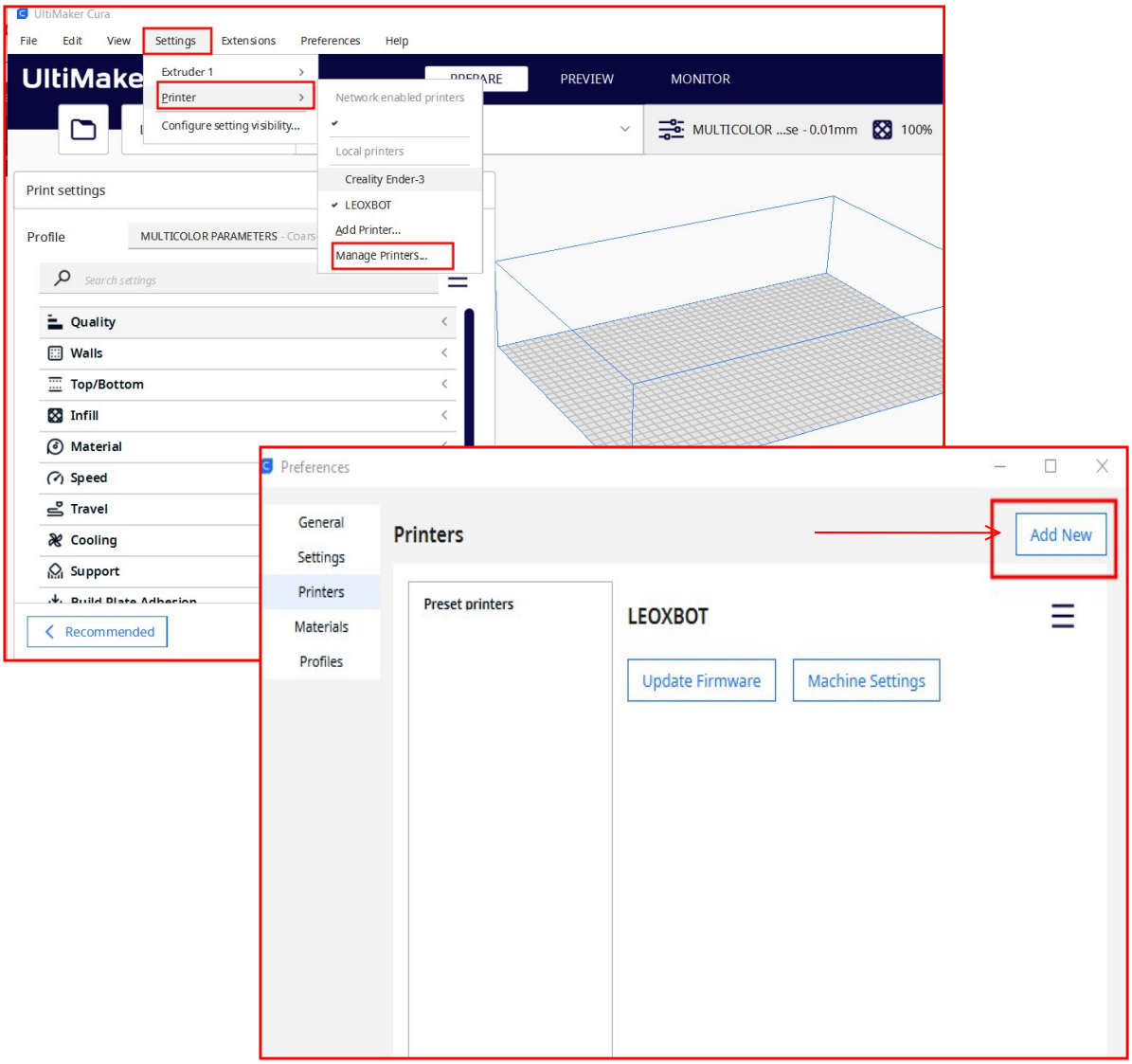
Make sure fabric spray hold the Shirt properly.

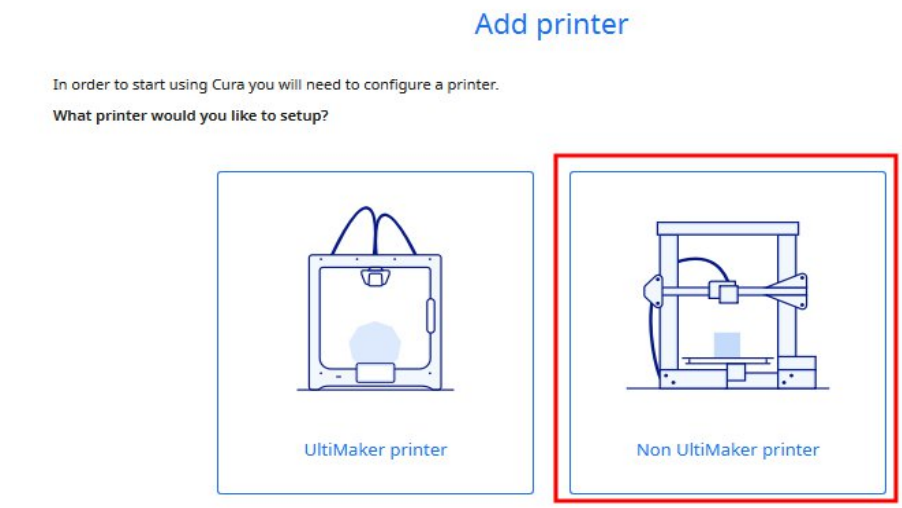
INSTALL AND CONFIGURE ULTIMAKER CURA SLICER

Ultimaker Cura is free and the most advance and most popular 3D slicer .

Download and install it in your computer.(Check Youtube videos for more info.)
www.ultimaker.com/software/ultimaker-cura/.

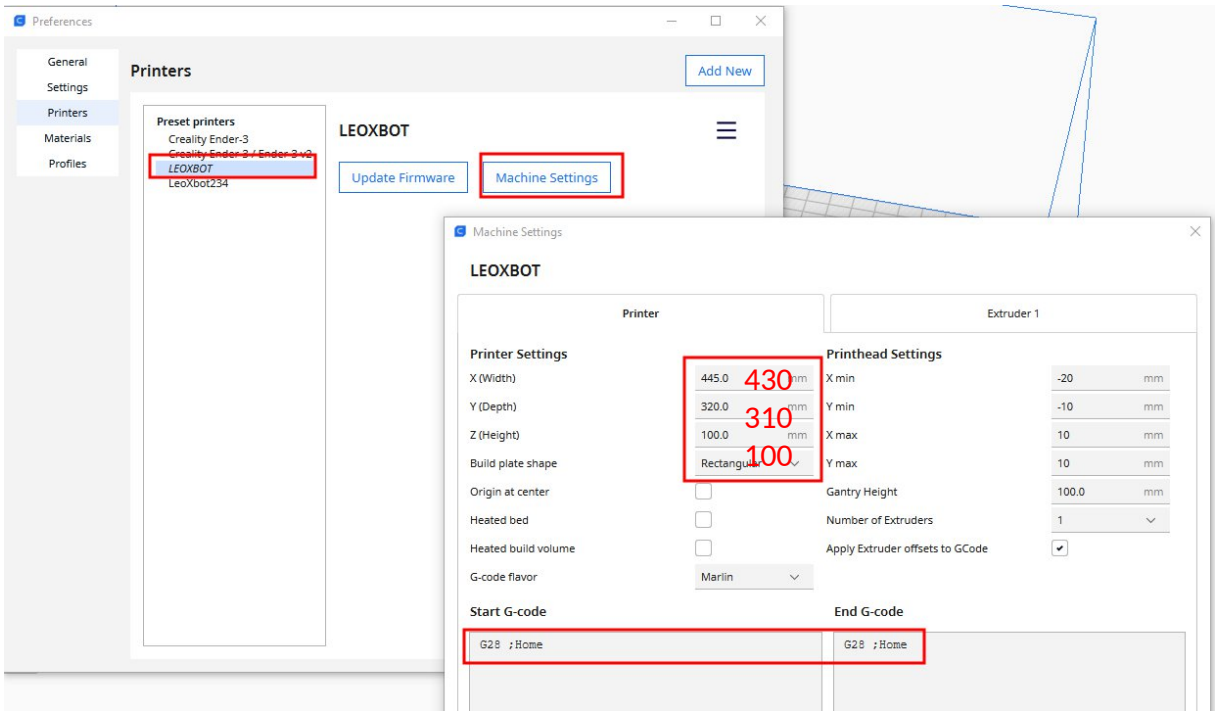
Once you install cura slicer add a custom non network printer .
Name it as you wish Or name it LEOXBOT or LXB.





Now after you install the printer
It's time to configure the settings !!!
The plate is set to 430 x 315 x 100 – Play with this Settings to center the plate .

Start and end G-code is just G28 (home position) .
If you wish to modified it's fine.

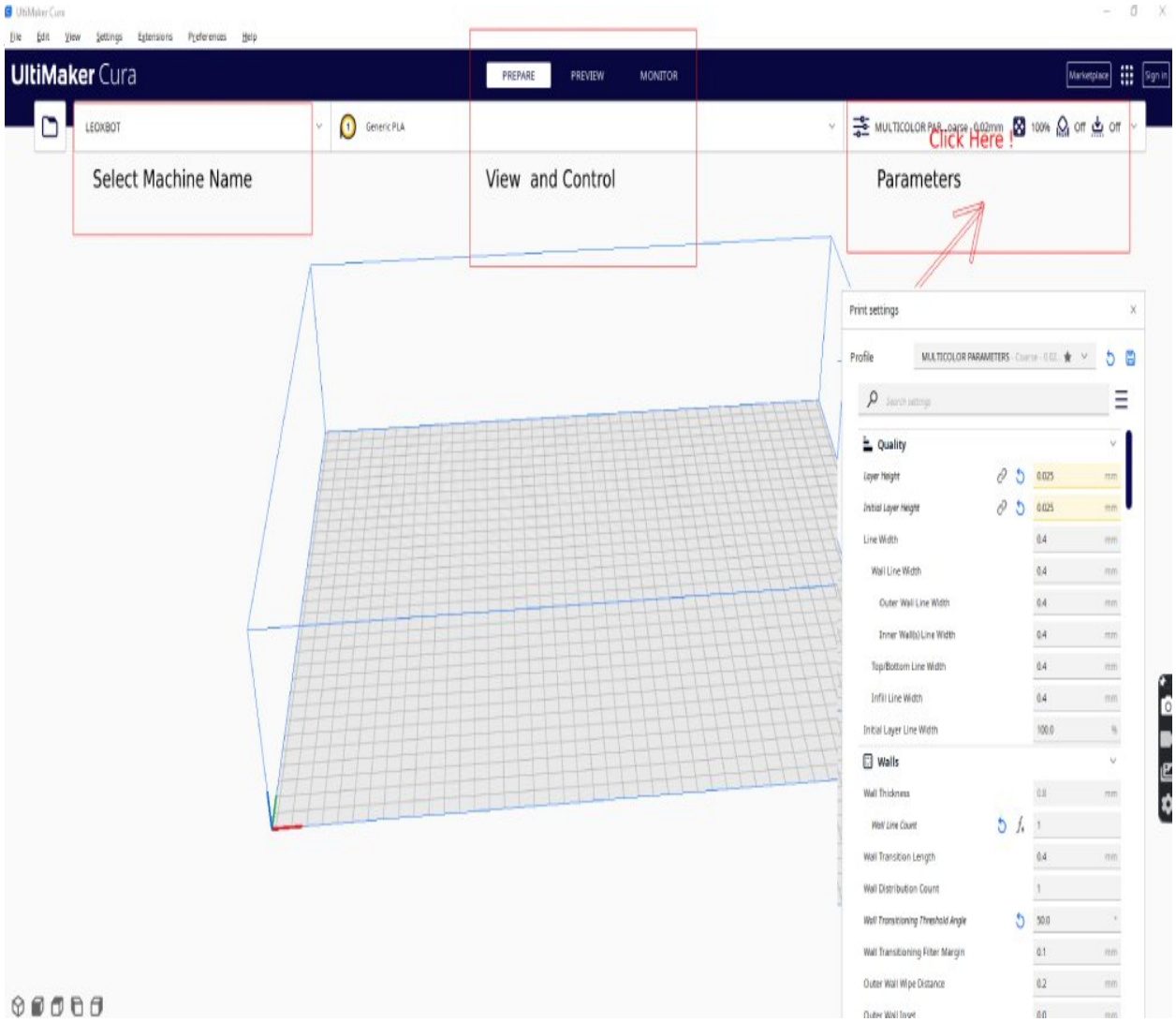


Now not we have Cura and Printer Set-up and configure

It's time to create a **STANDARD CURA PARAMETERS**
In INK PRINTING and Cutting . Laser engraver is using
Creality workshop to generate G-code .

Open Cura and Click on the right upper side and a
Parameter window will pop out.
Set the parameters as shown – this parameters was tested to work in
LEOXBOT.

(



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PRINT-CUT-ENGRAVE

Quality

Layer Height	0.025	mm
Initial Layer Height	0.025	mm
Line Width	0.4	mm
Wall Line Width	0.4	mm
Outer Wall Line Width	0.4	mm
Inner Wall(s) Line Width	0.4	mm
Top/Bottom Line Width	0.4	mm
Infill Line Width	0.4	mm
Initial Layer Line Width	100.0	%

Top/Bottom

Top/Bottom Thickness	0.8	mm
Top Thickness	0.8	mm
Top Layers	0	
Bottom Thickness	0.8	mm
Bottom Layers	99999	
Initial Bottom Layers	99999	
Top/Bottom Pattern	Lines	
Bottom Pattern Initial Layer	Lines	
Monotonic Top/Bottom Order	☐	
Top/Bottom Line Directions	[]	
No Skin in Z Gaps	☐	
Extra Skin Wall Count	1	
Enable Ironing	☐	
Skin Overlap Percentage	100.0	%
Skin Overlap	0.4	mm
Skin Removal Width	0.8	mm
Top Skin Removal Width	0.8	mm
Bottom Skin Removal Width	0.8	mm
Skin Expand Distance	0.8	mm
Top Skin Expand Distance	0.8	mm
Bottom Skin Expand Distance	0.8	mm
Maximum Skin Angle for Expans	90.0	°
Minimum Skin Width for Expai	0.0	mm

Walls

Wall Thickness	0.8	mm
Wall Line Count	2	
Wall Transition Length	0.4	mm
Wall Distribution Count	1	
Wall Transitioning Threshold Angle	10.0	°
Wall Transitioning Filter Margin	0.1	mm
Outer Wall Wipe Distance	0.2	mm
Outer Wall Inset	0.0	mm
Optimize Wall Printing Order	☐	
Wall Ordering	Inside To Outside	
Alternate Extra Wall	☐	

Wall Ordering	Inside To Outside	
Alternate Extra Wall	☐	
Minimum Wall Line Width	0.34	mm
Minimum Even Wall Line Width	0.34	mm
Minimum Odd Wall Line Width	0.34	mm
Print Thin Walls	✔	
Minimum Feature Size	0.1	mm
Minimum Thin Wall Line Width	0.34	mm
Horizontal Expansion	0.0	mm
Initial Layer Horizontal Expansion	0.0	mm
Hole Horizontal Expansion	0.0	mm
Z Seam Alignment	Sharpest Corner	
Seam Corner Preference	Hide Seam	

Infill

Infill Density	100.0	%
Infill Line Distance	0.4	mm
Infill Pattern	Lines	
Connect Infill Lines	☐	
Infill Line Directions	[]	
Infill X Offset	0.0	mm
Infill Y Offset	0.0	mm
Randomize Infill Start	☐	
Infill Line Multiplier	1	
Extra Infill Wall Count	0	
Infill Overlap Percentage	0.0	%
Infill Overlap	0.0	mm

Infill Line Multiplier	1	
Extra Infill Wall Count	0	
Infill Overlap Percentage	0.0	%
Infill Overlap	0.0	mm
Infill Wipe Distance	0.1	mm
Infill Layer Thickness	0.025	mm
Gradual Infill Steps	0	
Infill Before Walls	✔	
Minimum Infill Area	0.0	mm²
Infill Support	☐	
Skin Edge Support Thickness	0.0	mm
Skin Edge Support Layers	0	

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Material

Printing Temperature	0.0	°C
Printing Temperature Initial Layer	0.0	°C
Initial Printing Temperature	-10.0	°C
Final Printing Temperature	-15.0	°C
Scaling Factor Shrinkage Compensation	100.0	%
Horizontal Scaling Factor Shrinkage Compensation	100.0	%
Vertical Scaling Factor Shrinkage Compensation	100.0	%
Flow	300.0	%
Wall Flow	300.0	%
Outer Wall Flow	300.0	%
Inner Wall(s) Flow	300.0	%
Inner Wall(s) Flow	300.0	%
Top/Bottom Flow	300.0	%
Infill Flow	300.0	%
Prime Tower Flow	300.0	%
Initial Layer Flow	300.0	%
Initial Layer Inner Wall Flow	300.0	%
Initial Layer Outer Wall Flow	300.0	%
Initial Layer Bottom Flow	300.0	%

Speed

Print Speed	300.0	mm/s
Infill Speed	300.0	mm/s
Wall Speed	200.0	mm/s
Outer Wall Speed	200.0	mm/s
Inner Wall Speed	200.0	mm/s
Top/Bottom Speed	200.0	mm/s
Travel Speed	300.0	mm/s
Z Hop Speed	10.0	mm/s
Number of Slower Layers	0	
Flow Equalization Ratio	100.0	%
Enable Acceleration Control	☐	
Enable Jerk Control	☐	

Travel

Enable Retraction	☑	
Retract at Layer Change	☑	
Retraction Distance	0.5	mm
Retraction Speed	5.0	mm/s
Retraction Retract Speed	5.0	mm/s
Retraction Prime Speed	5.0	mm/s
Retraction Extra Prime Amount	0.0	mm³
Retraction Minimum Travel	2.0	mm
Maximum Retraction Count	90	
Minimum Extrusion Distance Window	1.0	mm
Combing Mode	Off	
Retract Before Outer Wall	☐	
Layer Start X	0.0	mm
Layer Start Y	0.0	mm
Z Hop When Retracted	☑	
Z Hop Only Over Printed Parts	☐	
Z Hop Height	2.0	mm

Cooling

Enable Print Cooling	☑	
Fan Speed	100.0	%
Regular Fan Speed	100.0	%
Maximum Fan Speed	100.0	%
Regular/Maximum Fan Speed Threshold	10.0	s
Initial Fan Speed	0.0	%
Regular Fan Speed at Height	0.025	mm
Regular Fan Speed at Layer	2	
Minimum Layer Time	5.0	s
Minimum Speed	10.0	mm/s
Lift Head	☐	
Small Layer Printing Temperature	0.0	°C

Support

Generate Support	☐

Build Plate Adhesion

Build Plate Adhesion Type	None

Mesh Fixes

Union Overlapping Volumes	☑	
Remove All Holes	☐	
Extensive Stitching	☐	
Keep Disconnected Faces	☐	
Merged Meshes Overlap	0.15	mm
Remove Mesh Intersection	☐	
Remove Empty First Layers	☑	
Maximum Resolution	0.5	mm
Maximum Travel Resolution	0.5	mm
Maximum Deviation	0.025	mm
Maximum Extrusion Area Deviation	50000.0	µm²

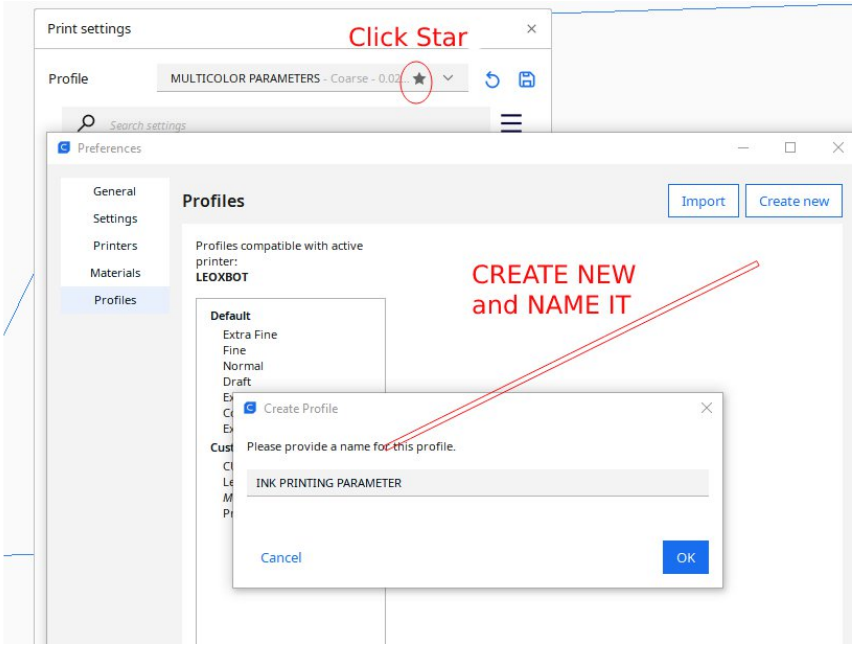
Experimental

Slicing Tolerance	Middle	
Minimum Polygon Circumference	1.0	mm
Enable Draft Shield	☐	
Make Overhang Printable	☐	
Enable Coasting	☐	
Fuzzy Skin		
Flow Rate Compensation Max Extrusion Offset	0.0	mm
Flow Rate Compensation Factor	100.0	%
Wire Printing	☐	
Use Adaptive Layers	☐	
Overhanging Wall Angle	90.0	°
Overhanging Wall Speed	100.0	%
Enable Bridge Settings	☐	

Special Modes

Print Sequence	All at Once	
Mold	☐	
Surface Mode	Normal	Surface mode for Vinyl Cutting
Spiralize Outer Contour	☐	
Relative Extrusion	☐	

Now that you have created the STANDARD PARAMETERS
It's time to save it !!!



Now that The STANDARD PARAMETERS IS SET …

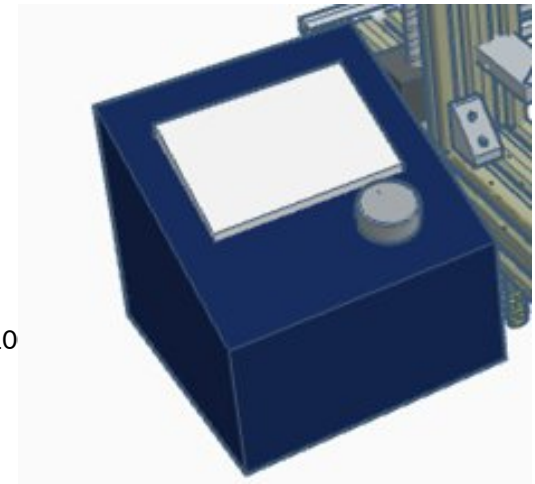
Note: Control box parameters is already configure.

Important parameters: Follow the parameters as shown.
Acceleration Z (20,000) E (60,000)
And steps per minute : Z steps (1000) E steps (1000) .

The most common parameters to changed are:
Configuration >>Speed - how fast -default - 100
Configuration >> Flow – the amount of Extruded ink –default 10

Configuration >>Acceleration – same like speed
X- 500
Y-500
Z-20000 – faster acceleration
E-60000 – faster extrude

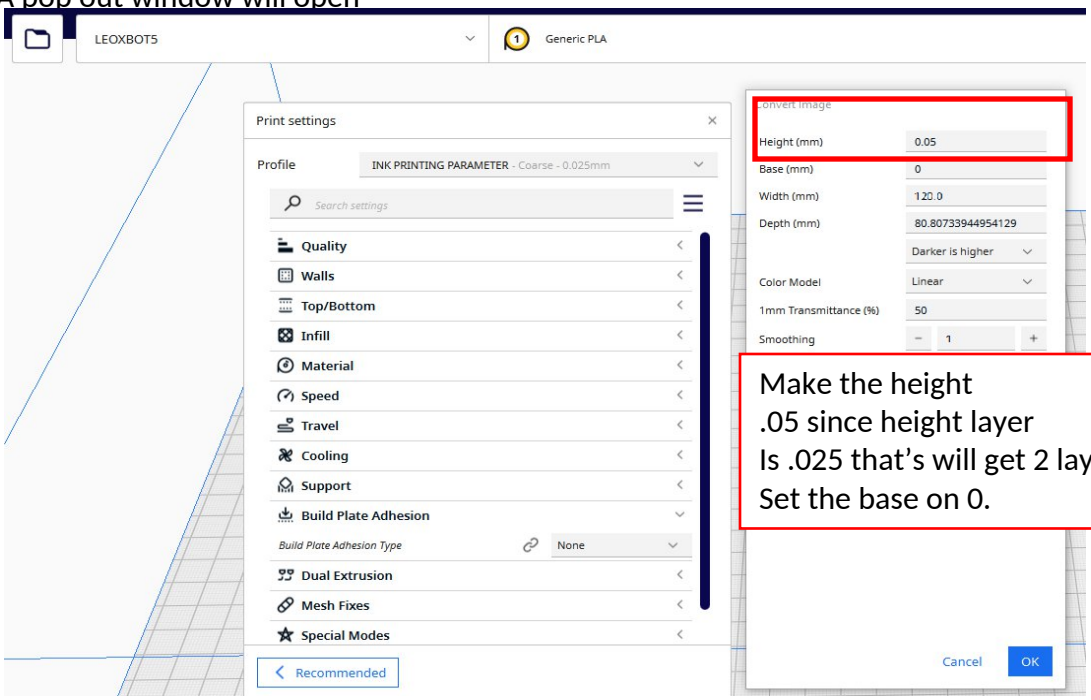
Configuration Steps/mm – this is the motor step per minute
X-80
Y-80
Z- 1000 – faster up and down
E- 1000 – faster extrude



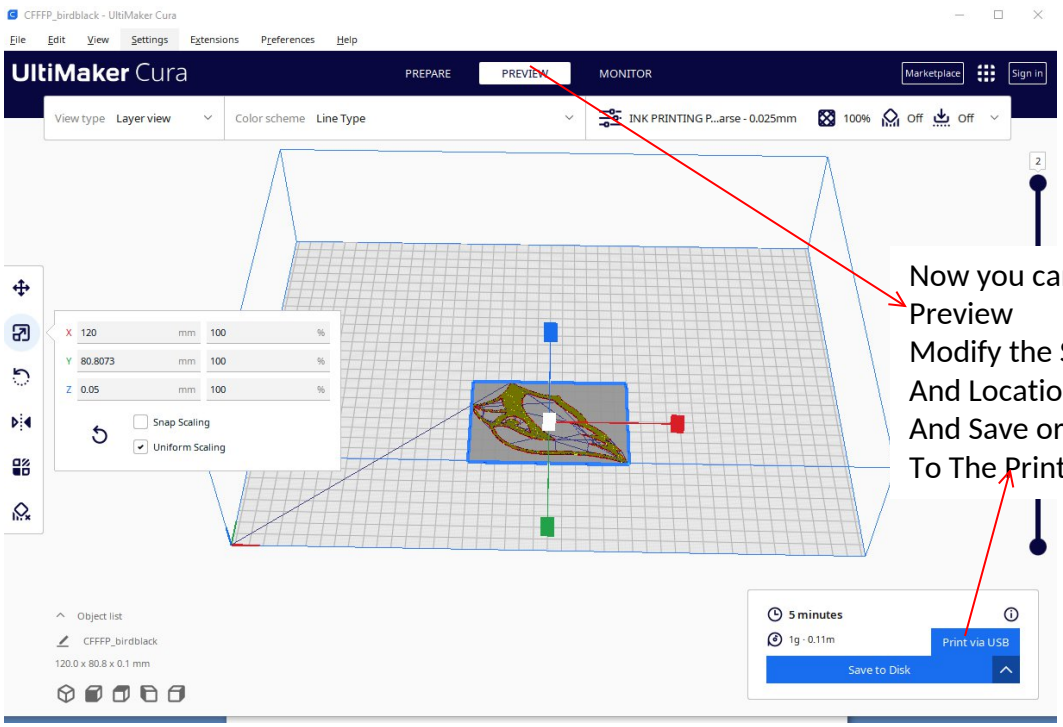
Note:
Usually When Machine stop
Stepper motors are still at hold
In order to release
Go to Motion
Disable Steppers

SIMPLE ONE COLOR PRINTING

1. Open Cura and set Parameters to INK PARAMETERS
2. Open File and select a Jpeg/Png/SVG/STL/Gcode. To sharpen images – you have to convert it to SVG then STL file. Try online converter like convertio and anycov or edit at online at Photopea.
3. A pop out window will open



Make the height
.05 since height layer
Is .025 that's will get 2 layers.
Set the base on 0.

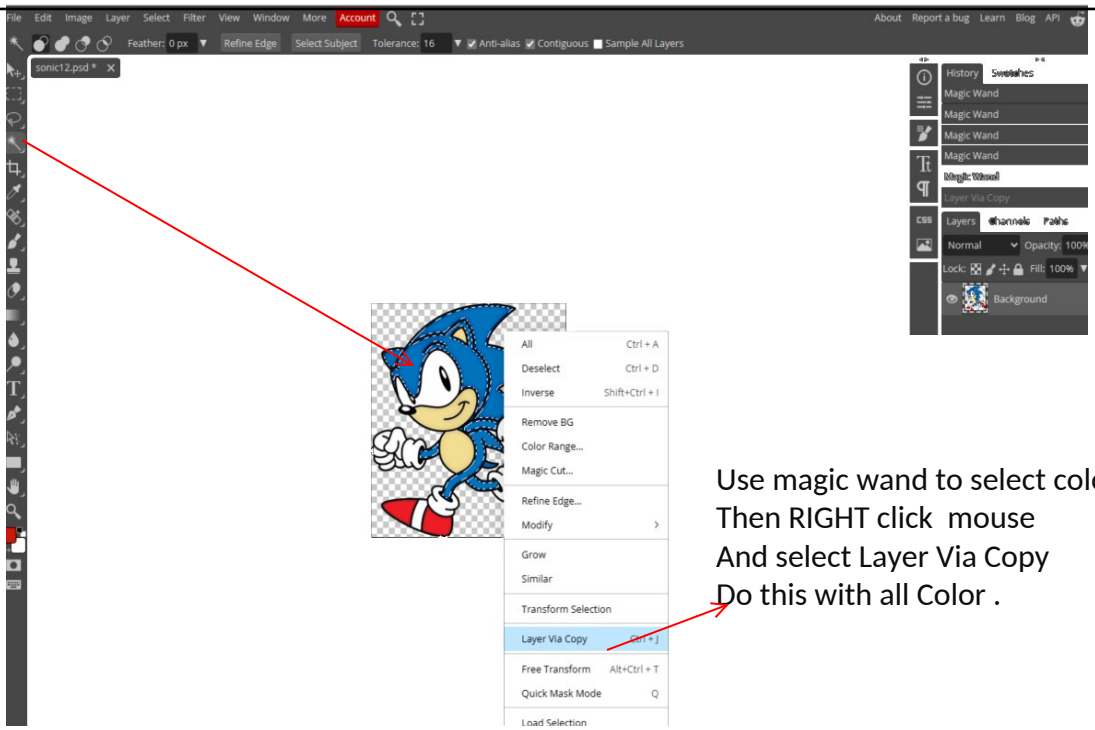


Now you can
Preview
Modify the Size
And Location
And Save or Print Direct
To The Printer

Now that we know how to print Single color

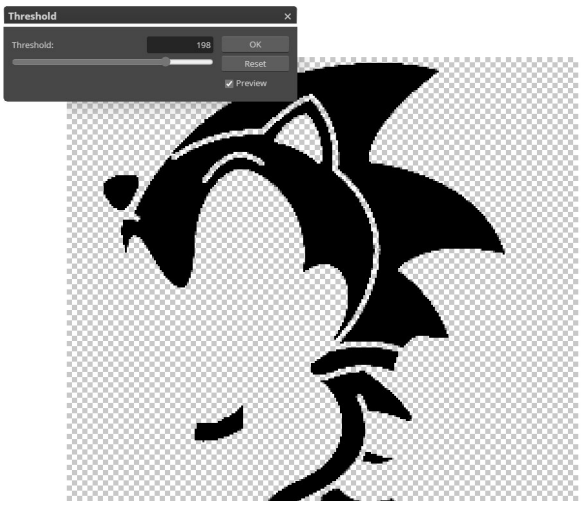
It's time to have fun MULTICOLOR

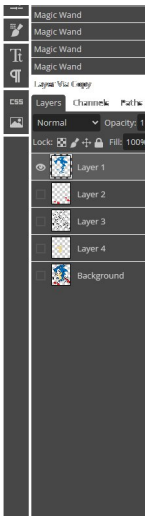
1. Edit you multicolor image by Separating the color and making it a single solid image .
Open Photopea (online free editor) or your any image editor and open your file .



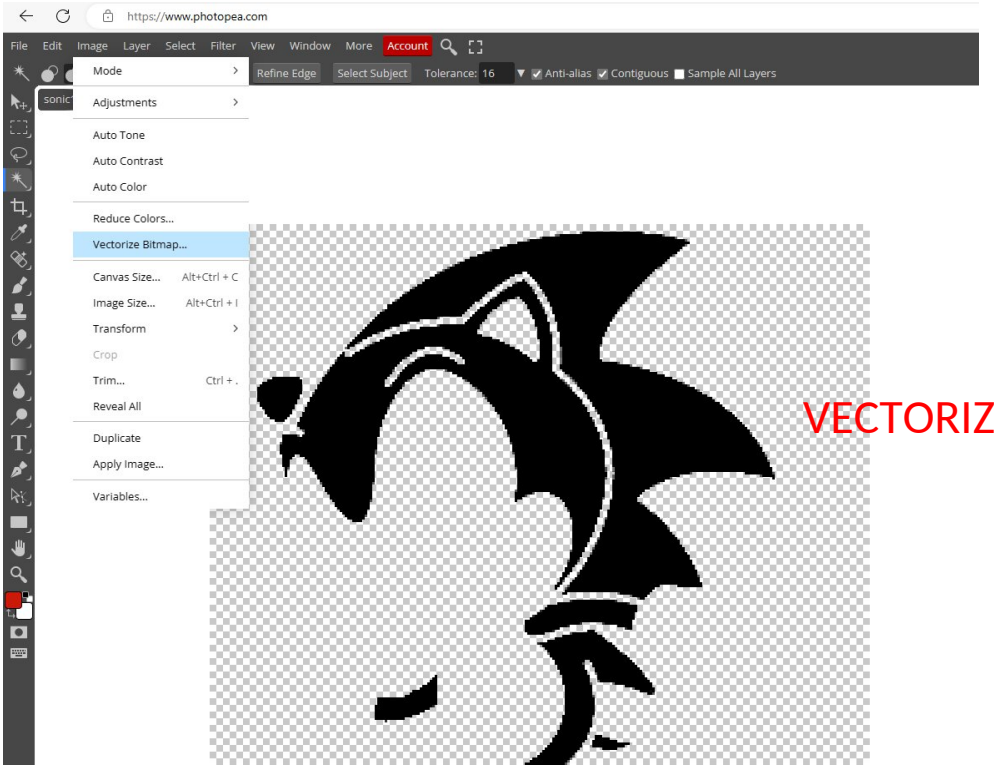
Use magic wand to select color
Then RIGHT click mouse
And select Layer Via Copy
Do this with all Color .

Now you have all image color.
Make all image a solid black image By making threshold Higher .
Do this to all images.



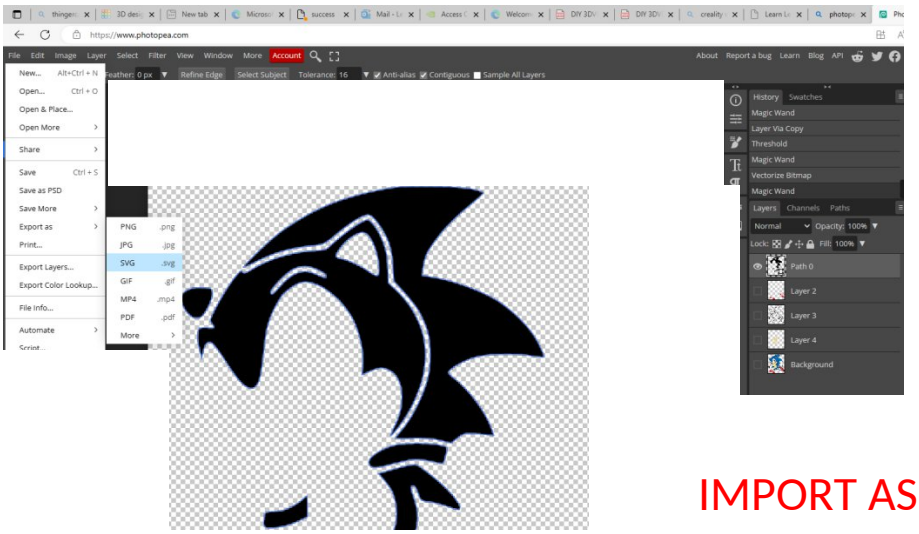


Not that you have the images make them Vectorise Bitmap.



VECTORIZE BITMAP

Then Export them as SVG file . Make sure you name it what color you like.



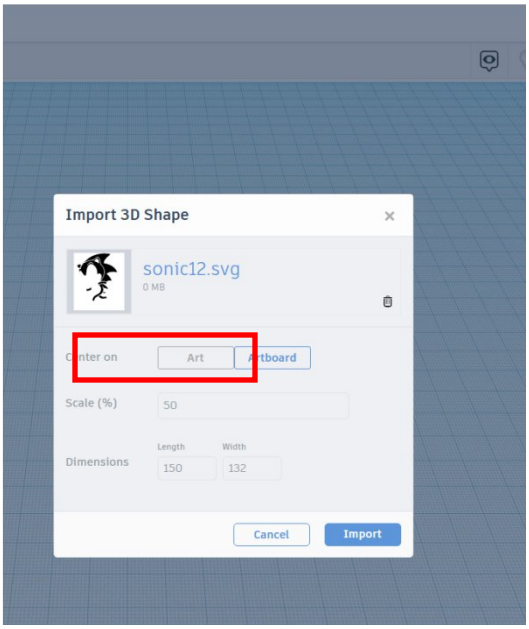
IMPORT AS SVG FILE

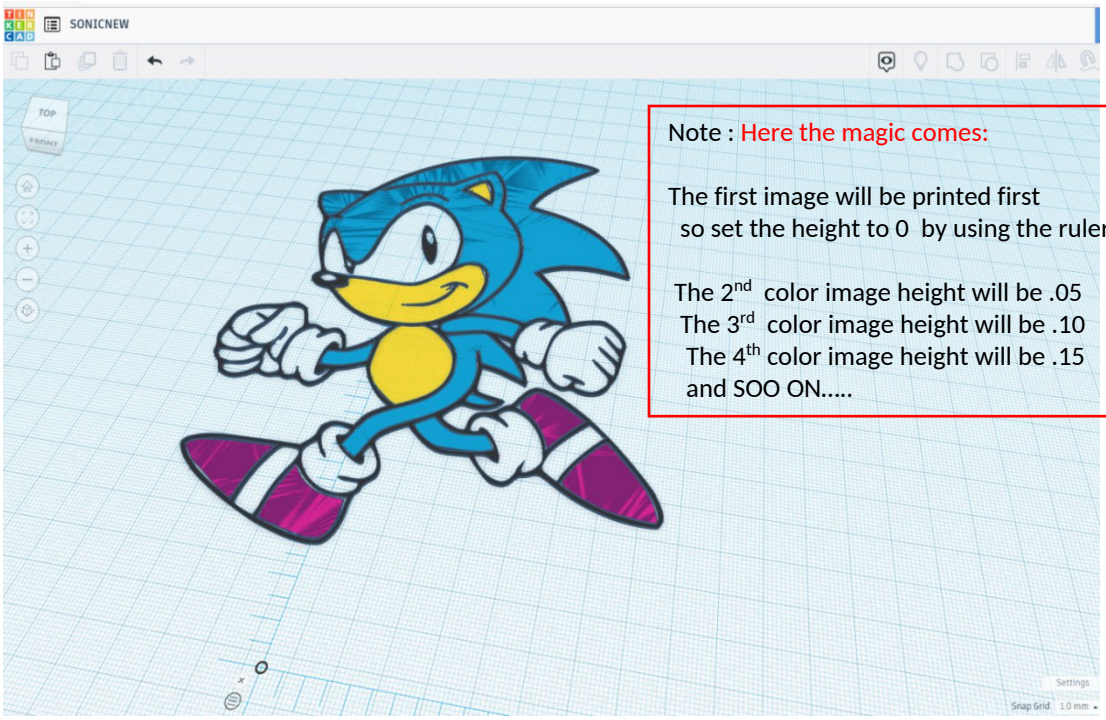
Do this to all image colors.

Not that you have the SVG image color

Let's convert it to STL file which the machine can red.

1. Open Thingkercad (online 3D modeler)
2. Import the SVG file you have created to the Thingkercad. Make it 50% scale and height will be same " .05 ". This is the height of 2 layer print coz cura height parameter t is 0.025 every layer as set .



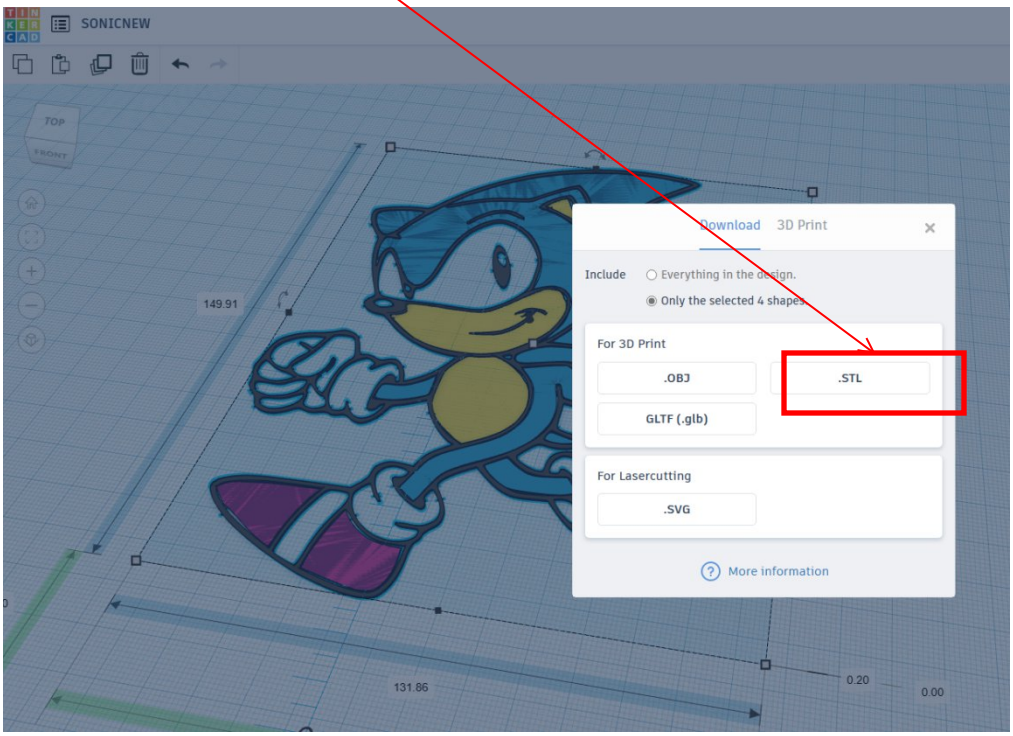


Note : Here the magic comes:

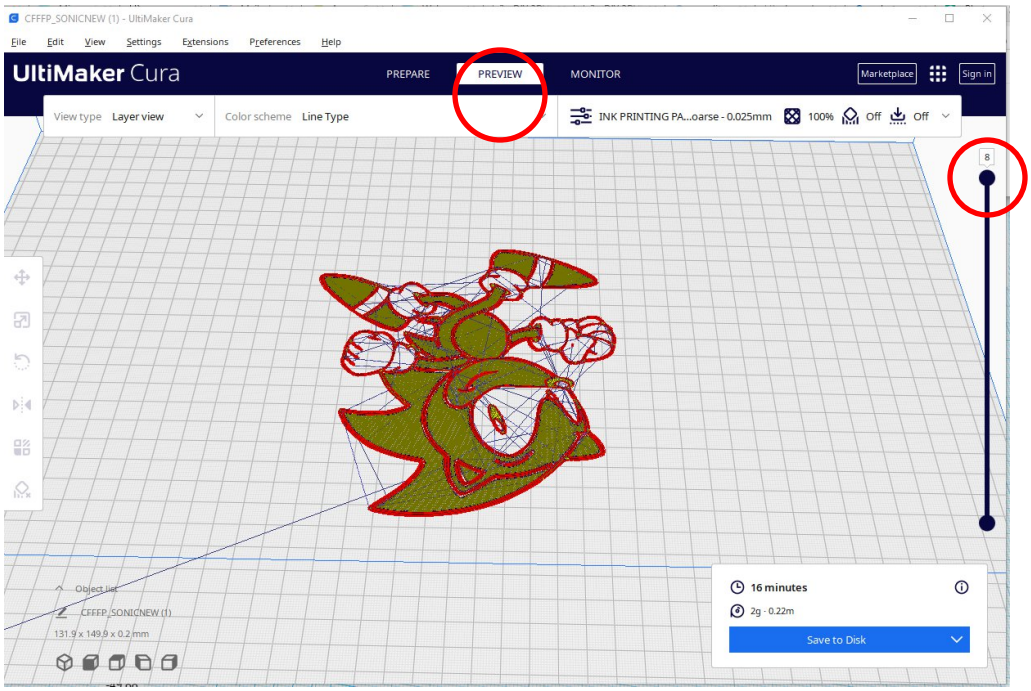
The first image will be printed first so set the height to 0 by using the ruler.

The 2nd color image height will be .05
The 3rd color image height will be .10
The 4th color image height will be .15
and SOO ON.....

When your file is done
Export it as a STL file



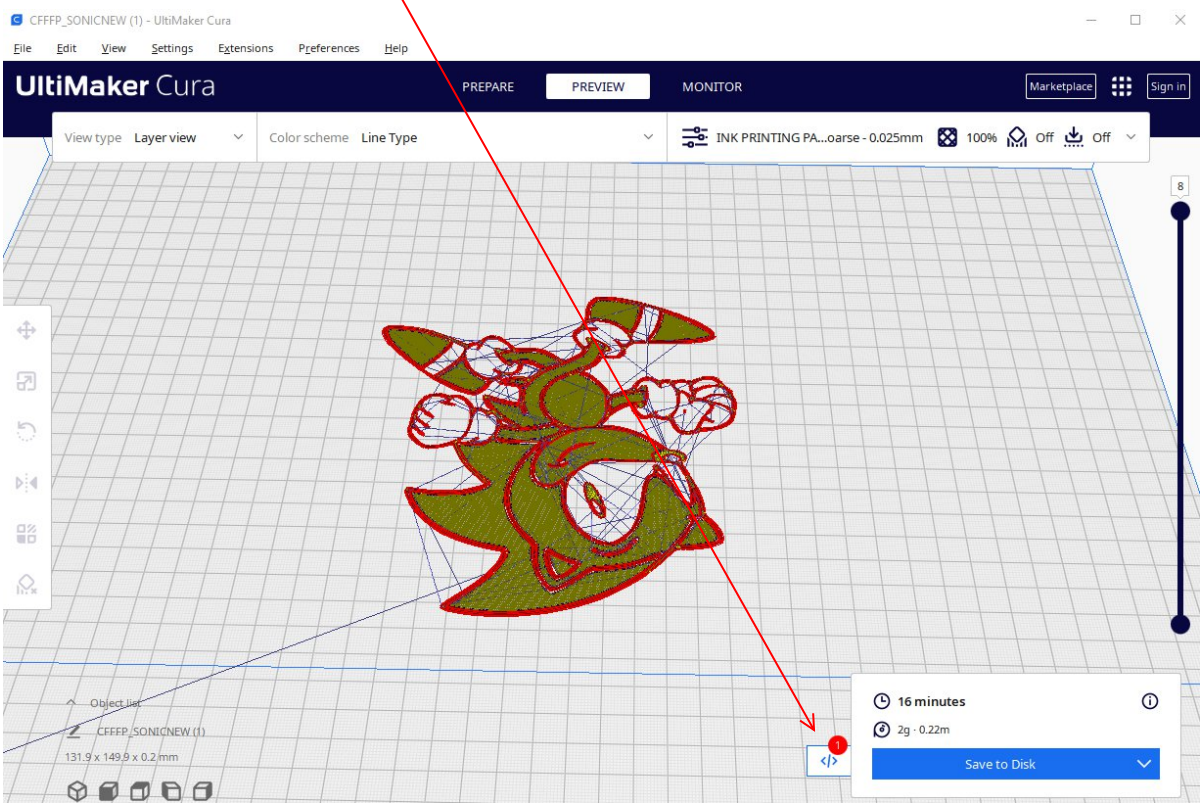
Open Cura and load the file your created.
Now make sure you have 8 layers coz I have 4 color x 2 layers .



Next is to add a code to stop every 2 layer

to change the Syringe Cartridge with different Color.

Once you set the post at height parameter
You can see a small red dot below . You can access that
To review or modify the code.



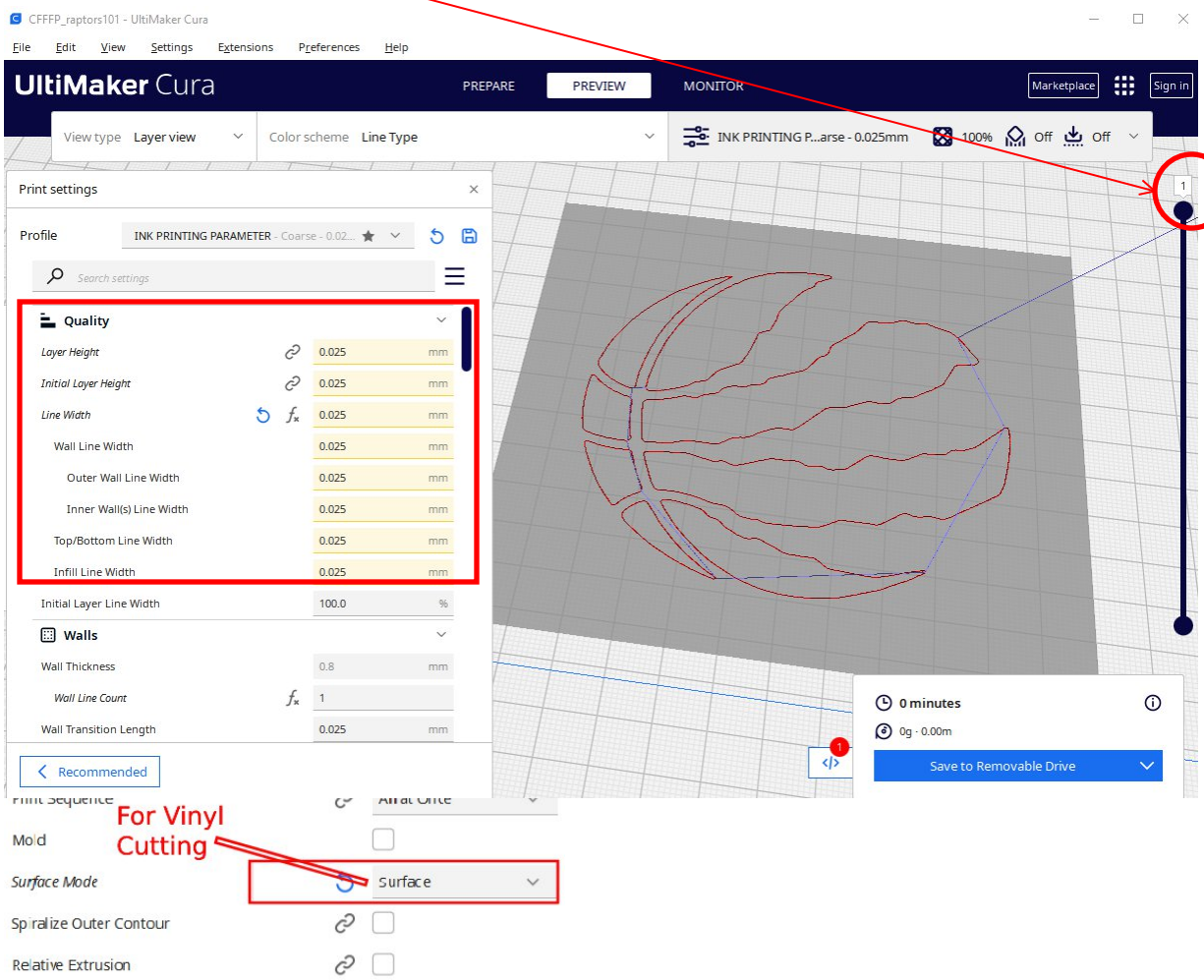
Now your image is ready to print :
Save it to SD card .
*Printing direct from the computer
Is not advisable .

And make sure :
Test your print– OK
Is the Shirt Stick properly to plate - OK
Is all parameters right ?- OK
Is it position properly .- OK
Do I have enough ink . –OK

CONGRATULATION FOR YOUR FIRST COLOR PRINT !!!!

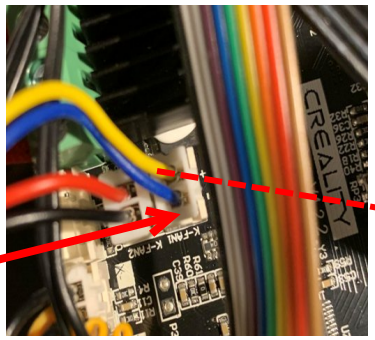
VINYL CUTTING

1.Replace the Ink cartridge with Vinyl cutter .
2. Place a cardboard on top of working plate to protect from cut.
3.Test your cutter if cutting perfectly in vinyl.
Set the height of the cutter above the plate.
4. Slice image and set line width to same height .025
Surface Mode parameter. Make sure you have only
1 layer slice



LASER ENGRAVER

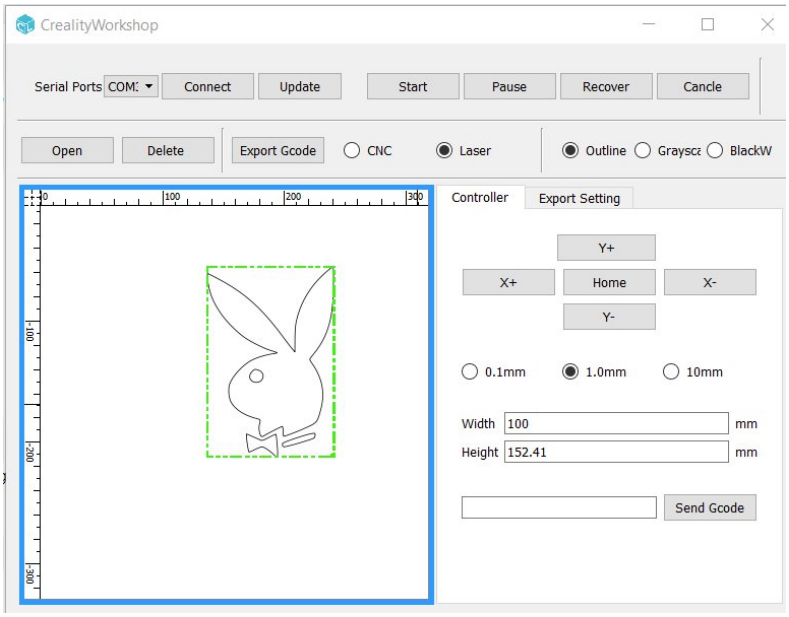
Warning ! Risky , use safety eye protection. High rate of laser Module Failure if laser is not supported by Ender 3 machine

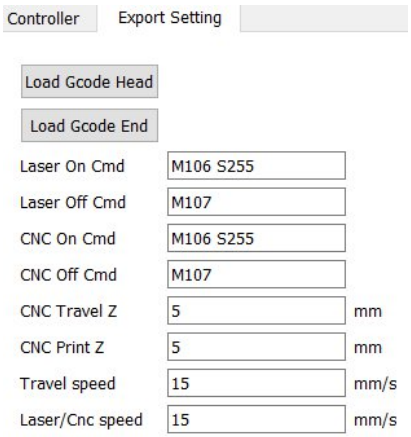


Laser engraver is connected on board ***KF1 Fan***

Used the Creality Workshop
Free download Download @
Leoxbot.com or find the latest
Version at Creality.com

1. Select – Outline – Grayscale –BlackWhite
2. Set
3. Open File / Image _jpeg
4. Set Image SIZE
5. Center image – X- 215 Y- 160
6. Export G-CODE to sd card .





Note: Please refer to creality Ender 3 how to set-up Laser for additional info.
https://www.youtube.com/watch?v=UEBU5IQSqak

Instruction after Finished Printing .

1.Multicolor printing. Every color you might need to **clean** **(Press gently with cloth or paper to absurd excess ink) and dry (use heat gun to dry)** it before printing the next color so it will not mess with other color.



2. After complete printing you have to heat up the shirt Using heat gun, Heat presses or even iron to dry good .

Usually -
Plastisol ink = (1 min) 60-70 second – 270-330 degrees Fahrenheit
Waterbase Ink = (3 min) 180 second – 320-330 degrees Fahrenheit

<u>Please check you ink information .</u>


3. You can used WD40 for cleaning ink mess.

Machine Maintenance

Maintenance is very important way to prolong your machine life and accuracy.
Listed are some problems that I have encounter throughout my printing experience.

1. VSLOT roller bearings becomes lose.

You might notice your working plate is lose due to this issue.
Your bearing might be worn-out or you need to tighten the eccentric nut.
This affect the working plate and extruder assembly.

2.Lose timing belt.

Lose timing belt make the location of print misalign.
Lose screw tension then stretch the timing belt.

3.Lose wires.

Wires need to be connected properly to the motor, sensor and other.
Lose wire interrupts current flow.
If you experience motor freeze, or printing is stopping or
freezing you might have a wire connection problem.
Check all connection and make sure they have to cuts or burt.

4.Common Problems Encountered:

1. Machine stop printing ... Please check PC might have been in sleep mode .(direct usb printing)

2. **Not extruding ink** ... please check coupling connection or pin nozzle to unclog ink or no ink inside. Or Ink might me too hard . Add a thinner additive to the ink .

3**. Printing is wobbly** ... Adjust eccentric nuts or belt tension .
Printing t-shirt needs fabric spray to make sure T-shirt will not move while in printing .
Using fabric spray it with W40 or sticky remover then wipe the sticky machine

4. Machine not homing or not moving . Check motor wire connectors or motor interfering the travel.

5. Other problem please . Send email at info@leoxbot.com

For more info : visit www.leoxbot.com

Updated: Dec 31 , 2024