MagicMaker

SLUBAN 3Dprint

user 's manual

Chongqing magic Nuclear Technology Co., Ltd

Need to know

Please complete the assembly according to the assembly tutorial.

Please read this manual carefully before using xiaoluban. More understanding of the use of this machine, in order to give you the best quality printing experience.

Safety precautions

Proper placement

1. When moving the machine, handle it with care
2. It is suitable to be placed in a well ventilated, cool, dry and dust free environment
3. Pay attention to the heat dissipation around the printer
4. Do not place near inflammable and explosive materials or high heat source
5. Do not place in vibration or other unstable environment
6. Do not stack heavy objects on the machine

Power supply specification

1. The input voltage of the 220 V version is 220 V, the input voltage of the wide voltage version is 100-240 V, the output voltage of the adapter is 12 V10 a, and the normal power is about 100 W
2. Do not plug in or out the power supply with wet hands
3. Please do not pull or press the power cord to prevent short circuit
4. After power on, do not touch the internal wires and motherboard

Be careful of the high temperature

The working temperature of the nozzle is 180-250 ℃, The working temperature of hot bed is 50-100 ℃

Do not touch the nozzle directly during heating and printing to avoid scalding

Catalog

一. Summary

Chongqing magic Nuclear Technology Co., Ltd. is a professional R & D and production of fdm3d printer technology company, founded the 3D printer brand magicmaker, carefully create high-performance, cost-effective products, for the majority of makers, designers, fans to provide high-quality 3D printing experience.

FDM is the most ideal process for desktop printing. It can be used for various shapes and colors, and can be used quickly. 3D printer in your hands full of creativity is a magic box that can generate everything.

Sluban has a mini body, 120 * 120 * 160mm printing space, simple structure design, stable short-range extrusion, convenient deformation frame. Stability and accuracy, excellent performance.

Technical Parameter			
Technology:	FDM(Fused deposition modeling)	Build size:	120*120*160mm
Print material:	PLA, ABS, TPU, PETG	Nozzle diameter:	0.4mm
Slicer software:	CURA, Smplify3D, Repetier-HOST	Filament diameter:	1.75mm
Input formats:	STL, OBJ, AMF	Printing accuracy:	0.05mm
Output formats:	Gcode	Layer resolition:	0.05-0.3mm
Operating language:	EN	Printing speed:	30-100mm/s
Connecivity:	TF Card; Data cable (expert users only)	Extruder temperature:	MAX 250℃
Operating system:	winds, mac, linux	Hot bed temperature:	MAX 100℃
Net weight:	2.7KG	power parameter:	100-240V 100W
Printer dimensions:	280*260*335mm	Output voltage:	12V

Packaging parameters	
Package weight:	3.65KG
PACkage size:	360*260*160mm

Thank you for your support of magicmaker products. Have a good time

Information link: https://github.com/magicmaker3/magicmaker

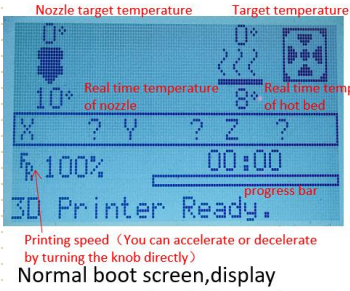
二. Preparing the printer

2.1 Kit assembly

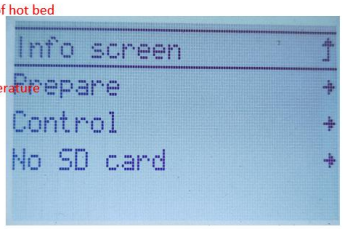
Please see the installation tutorial for details

2.2 Understanding of operation interface

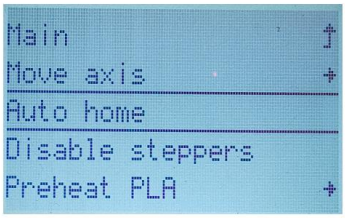
Knob operation, rotation = select command, press down = confirm



Normal boot screen,display temperature should be similar to room temperature (Temperature display - 14 indicates that the thermal sensor is not connected properly)



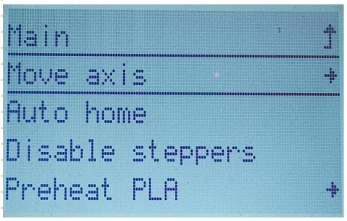
Click to enter the first-level menu, no card inserted or poor card quality will show no card (rate above class 4), after plugging qualified card, you can enter the menu and select the file for printing



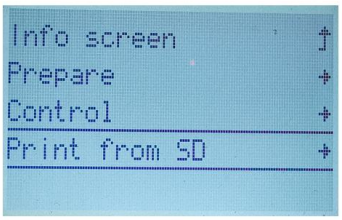
Click prepare enter the secondary menu

Click "Auto home" to check whether the motor and limit are normal, and then the leveling can be carried out

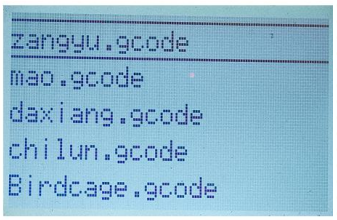
To heat the nozzle separately, click "preheat PLA"



Click "move axis" to move each axis independently, and the movement amount can only be within the coordinate range



After inserting the card, click "Print from SD" to select file printing



The file name can only be English letters and Arabic numerals
The suffix is .gcode

三. Print operation

3.1 Leveling (this step must be done)

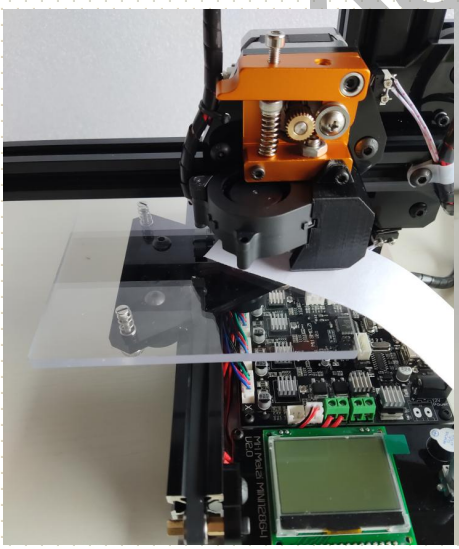
Leveling Description: leveling platform is adjusted so that the same nozzle and the distance of each platform location, if not leveled, it will cause the nozzle blown platform, thereby damaging the nozzle.

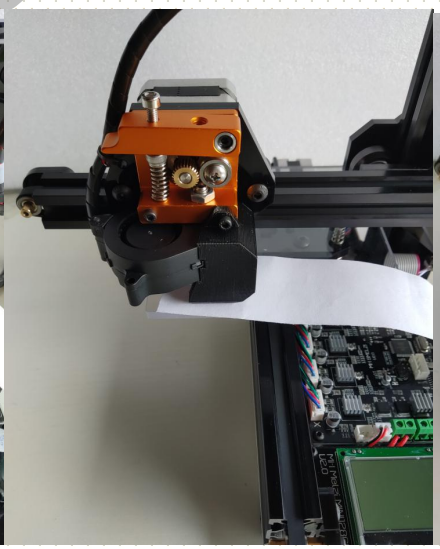
following leveling course, very simple, sure to operate patiently

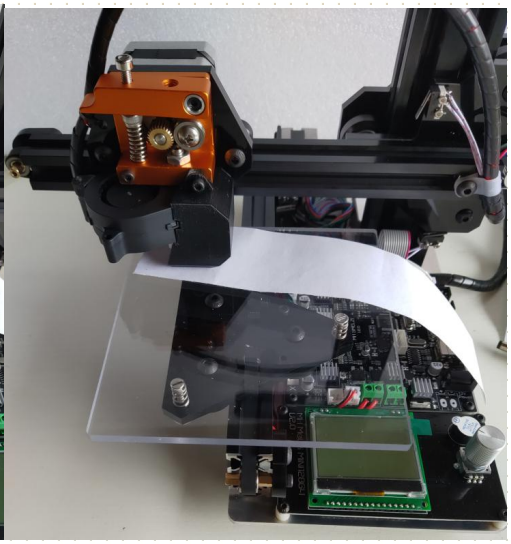
Step1 Tighten the three adjusting nuts to the end first, And then go back to the origin and zero the three axes

Step2 Power off, Place a sheet of A4 paper between the nozzle and the platform, Then fine tune the three nuts under the platform, Adjust the distance between the nozzle and the platform to the thickness of A4 paper

Step3 Adjust the nut while dragging the A4 paper, The paper can be dragged and some scraping is appropriate, Move the nozzle to three corners of the platform in turn, The spacing of the three corners is adjusted and it is finished, Cycle at least twice.

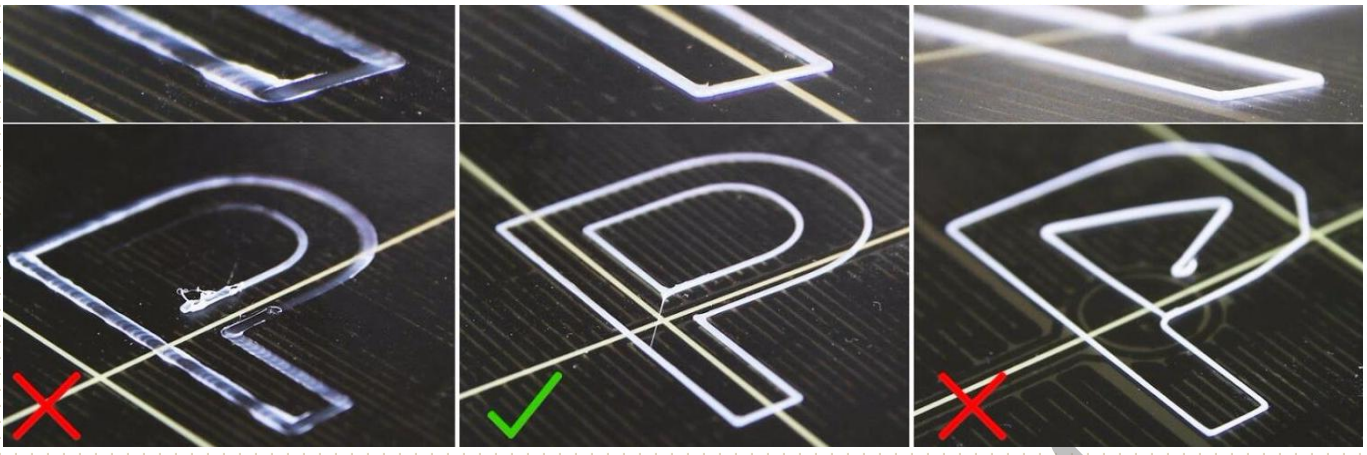






The first time you print, it need someone to watch, Avoid accidents.

As shown in the normal state



Small space, extruding thin, scraping platform Proper spacing Large spacing and unstable adhesion

Advanced leveling

The same process above, without using A4 paper, directly observe the distance between the nozzle and the platform on the side of the screw on the 3 sides, just adjust the nozzle to leave the platform, you can see that there are seams.

Reference operation demonstration videohttps://www.bilibili.com/video/BV1Fz411i7m6/

After leveling, observe under the hot bed. The hot bed cannot be supported by anything other than the spring. The hot bed will be bent.

Solution: move the Z limit up a little, and then level it again

3.2 Loading and unloading materials

Loading materials: The middle finger or index finger drags the fan frame, press the extruding arm with the thumb, and insert the filament directly. It is best to straighten the filament before inserting. If it cannot be inserted normally, please adjust the insertion direction and insert it along the groove of the
bearing.

Replace material: If you finish printing normally before, and the nozzle has cooled down (below 50 degrees), there is a high chance that you can pull it out gently. If it doesn't work or it's struggling, follow the normal procedure.

Turn on first, then operate on the operation panel to warm up

Point preparation---preheating---preheating PLA---sprinkler

After the nozzle is up 180 degrees, press and hold the extruder arm, and continue to insert the original wire in to see if there is any wire from the nozzle below. After the wire is drawn, insert about 2cm, then quickly pull it out, and then replace the new wire, Just insert it to the end.

It looks very complicated, if you can understand it, it is very simple. It will be completed in a few seconds after preheating. Follow the procedure to greatly reduce the chance of jamming.

Change material during printing:Tentatively print, wait for the machine to stop, press the extruder arm, pull it out directly, and then insert the new material directly, and then click to continue printing. The new material is prepared first. This process is as fast as possible, so that the model will be less affected.

3.3 Print test

Download the cut test model in the official group, import the memory card, and then insert the memory card into the printer, select the cut file ***.gcode to print, and the machine will first preheat the print head to the printing temperature.Start printing, observe whether there is a scraping platform on the first layer of nozzles, and whether there is a sticky platform on the exit wire, and the first layer of printing can leave the machine without any problems

In the later stage, if the nozzle, platform has been adjusted or large-scale movement to make the platform uneven, you need to re-level it

It is recommended to print a larger model and observe carefully in the early stage of printing, whether the nozzle is scratched or not sticky, stop in time if this situation occurs, and then level again

sliced(Convert the STL model file into a machine-recognizable code file)

Download the slice software and tutorial, follow the slice tutorial operation, video tutorial link: https://www.bilibili.com/video/BV17K4y1t77R/

3.4 Maintain

1.Avoid using in dusty environment and hot sun

2.If there is lubricating oil, it can be applied on the screw rod (Pay attention not to drop oil on the platform. If there is oil on the platform, it will not stick to the model)

3.If the nozzle is blocked,It can be preheated first and then dredged with a needle with a diameter of 0.3-0.4mm。The nozzle is not blocked, but the wire is difficult, Maybe the Teflon pipe has been worn, so the pipe or nozzle needs to be changed

四. Slicing software

4.1 brief introduction

Slicing software is the software that converts '.STL' format model files into '. Goced' format '.STL' is a three-dimensional model, which can be designed with three-dimensional modeling software or downloaded from the Internet. '. Goced' is the code file converted from '.STL' file by slicing software

The designed model needs to export '.STL', and the downloaded model also needs to be. Imported into the machine, the machine can execute the file is '. Goced'.

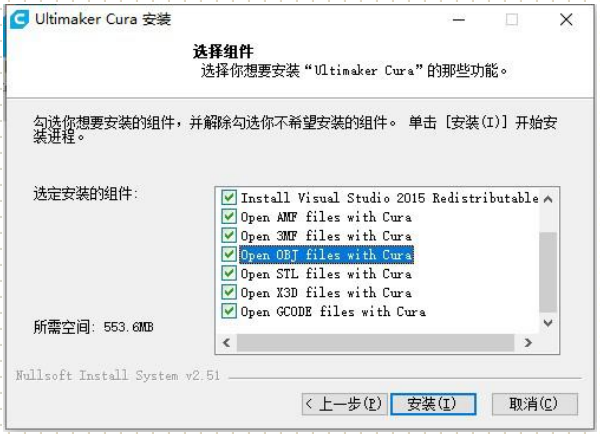
4.2 CURA Configuration tutorial

Cura is one of the earliest open source slicing software, slicing speed is fast, user-defined parameters are rich, strong development, here only teach basic operation, if you want to know more, please study by yourself.

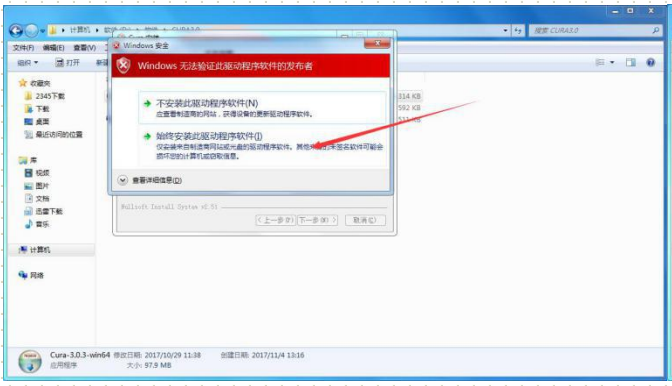
First download the software and configuration file, please install and configure according to the tutorial.

1Install Cura first

Associated format, Check all the options

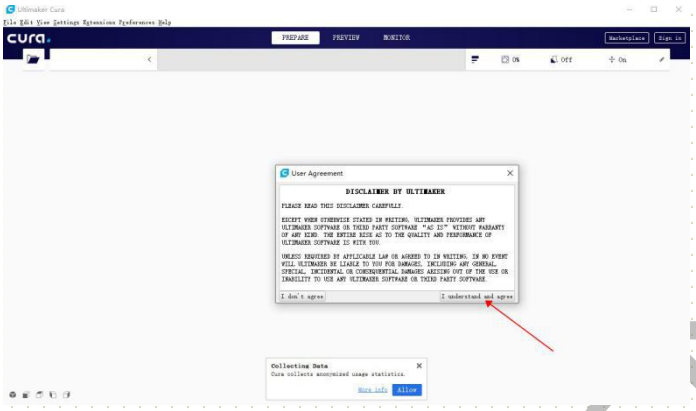


Prompt for driver installation, Select always install

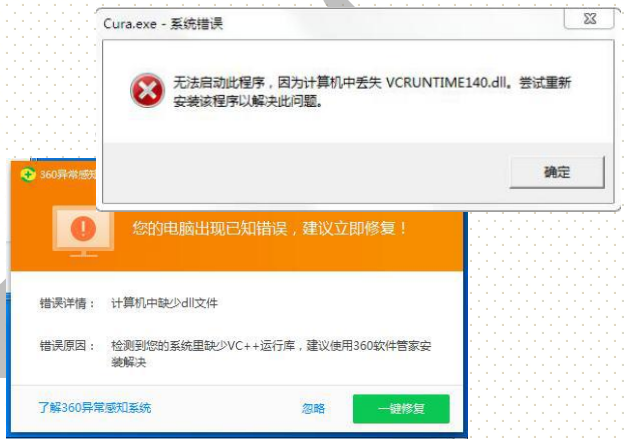


Open after installation, If no shortcut icon is generated, find it in the installation directory

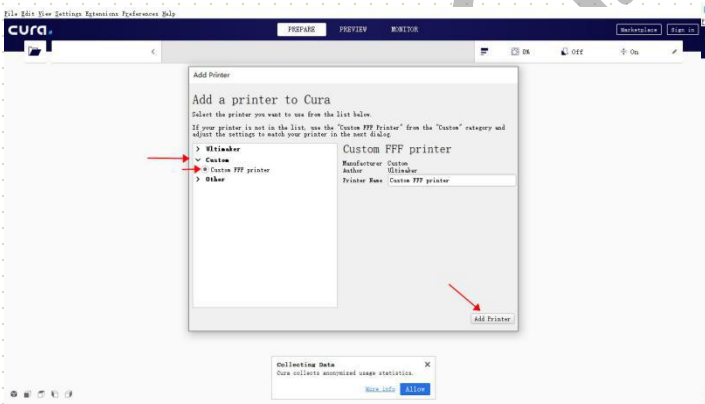
Pop up the dialog box and click "agree"

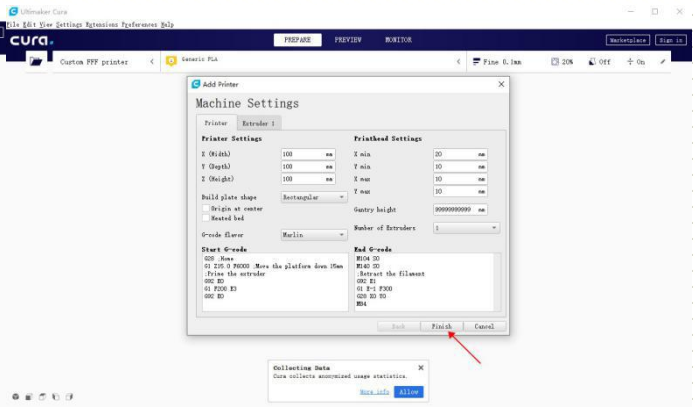


If this prompt appears, install the corresponding runtime

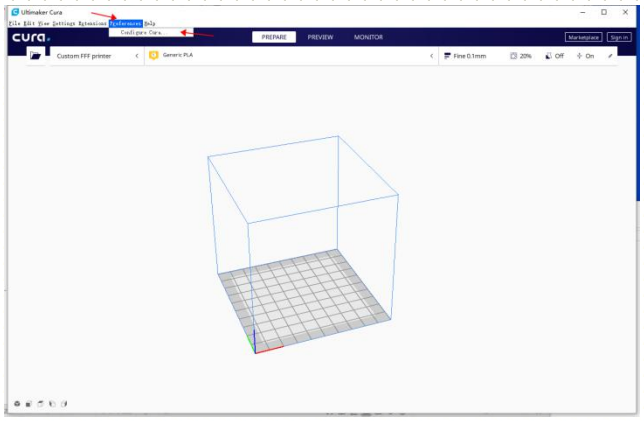


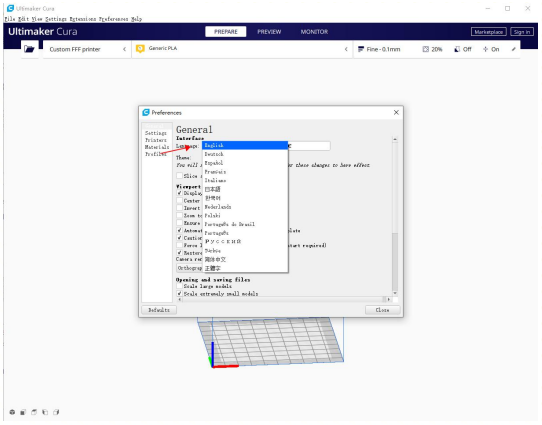
2 Configure the model and select the middle custom FFF





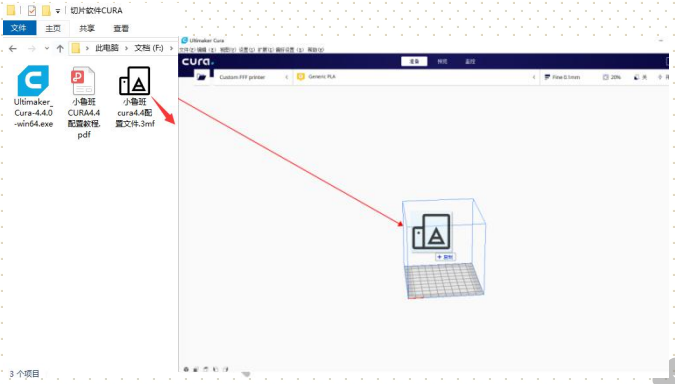
Choose the language, choose the language you want, go back to the interface, turn off the software and restart

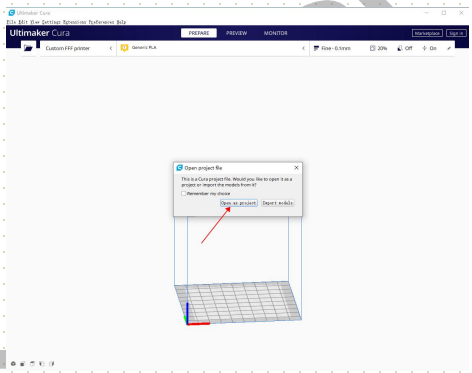




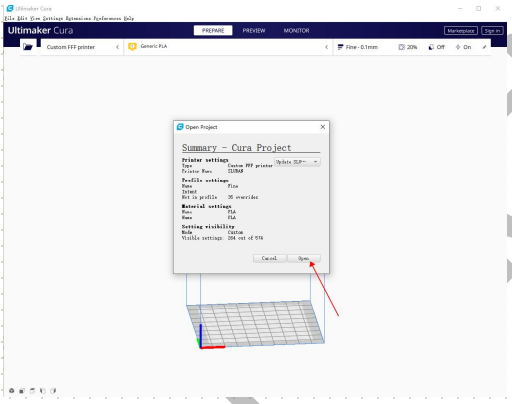
3 configuration parameter

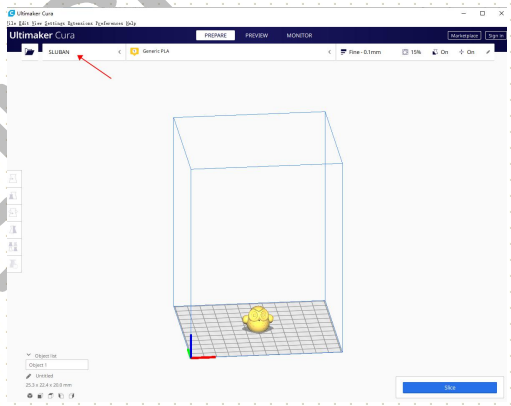
Drag the configuration file of the folder (suffix. 3mf) directly into the software Open as project





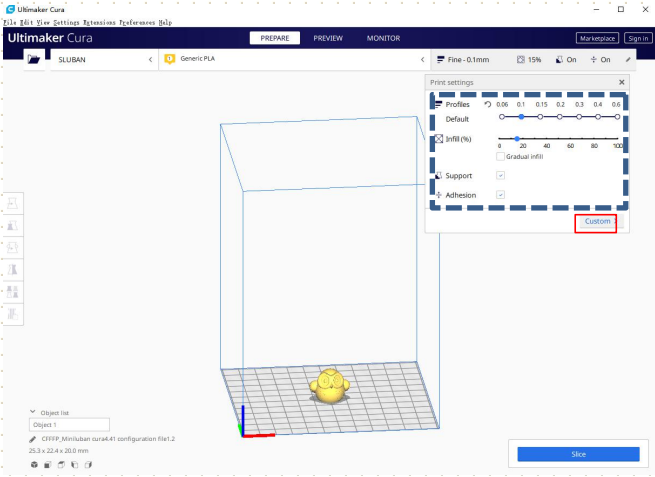
Open If the machine name shows "SLUBAN", it means the configuration is ready

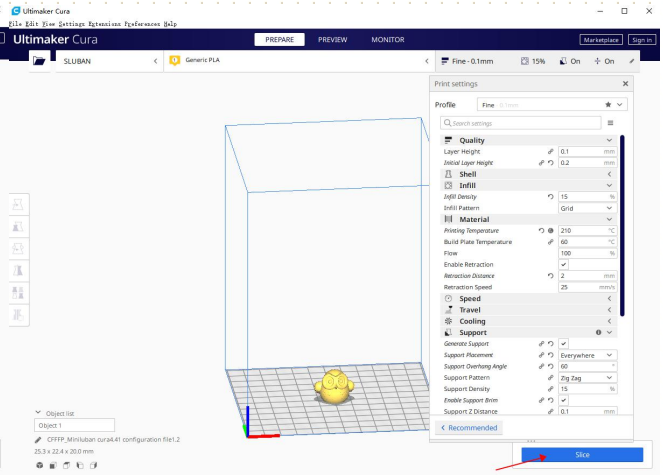




4 Basic parameter setting

Click on the upper left status bar, (Don't change the settings in the dotted box), Click "custom" directly, You can modify various parameters, There are comments on the parameters





Common parameters

Quality-Layer Height It refers to the height of each layer printed, Usually 0.2, exquisite 0.1, fast0.3

Infill-Infill Density Usually 10-20% is suitable, 100% is solid

Material-Printing Temperature Generally, PLA uses 190-210℃, Different materials from different manufacturers have different optimal temperature, and they can be tested according to the situation

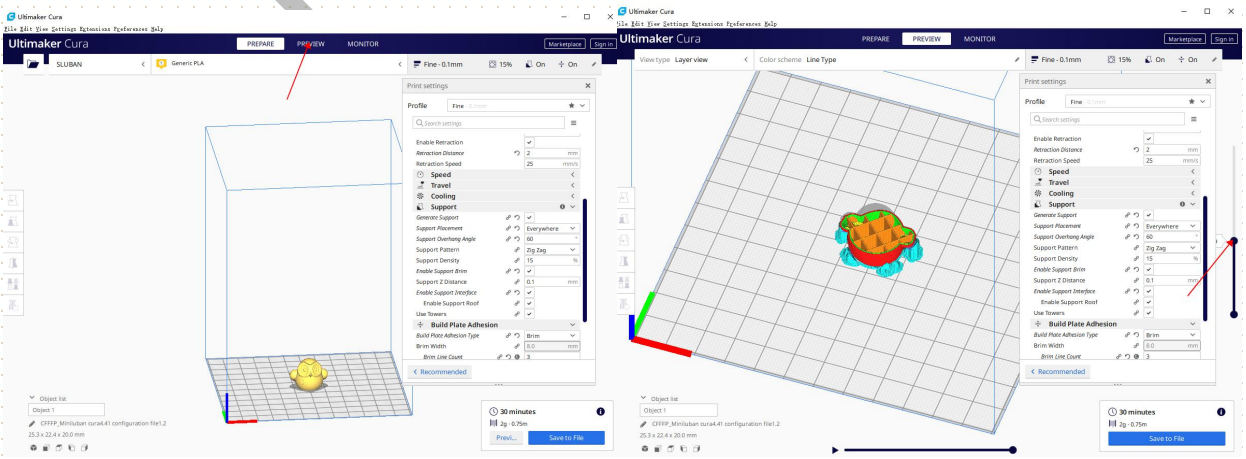
Support After checking, support can be generated automatically, Models with overhanging structure or inclination greater than 45 degrees need to be √

Build Plate Adhesion 'Brim' can increase model adhesion, 'Raft' can generate pedestal

After setting the parameters, it will slice automatically (Or click "Slice" in the lower right corner), After slicing, Click 'Save to file', Then import the saved file into SD card. Printing time and material consumption are shown at the bottom right (The time deviation is about 20%, The deviation of consumables is about 5%)

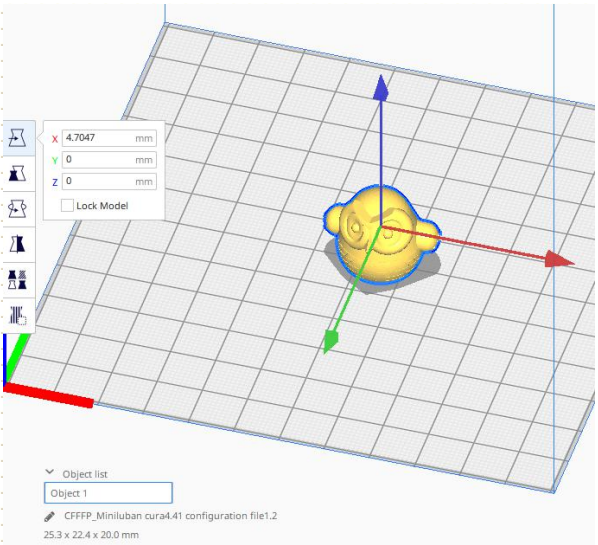
(The file name can only be English letters and Arabic numerals)

5 Slice Preview Pull this point to check each layer of the model. Pull it to the first layer to check whether the model is on the platform. If it is not on the platform, printing will fail

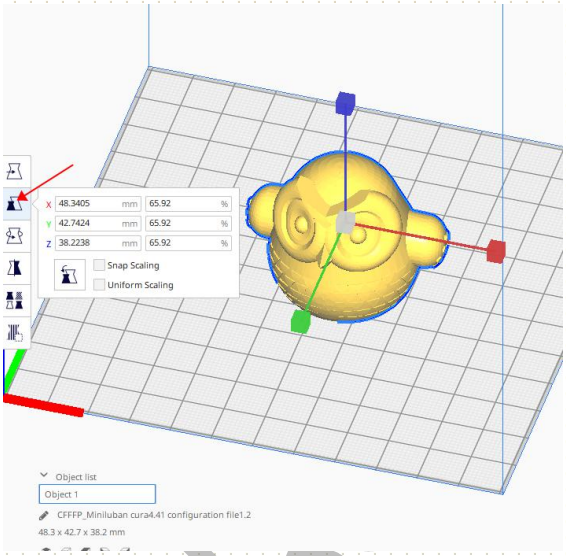


6 Model modification

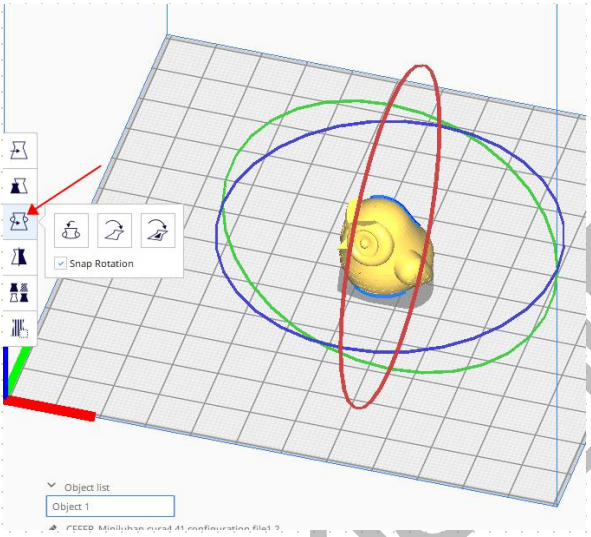
Move, change the position of the model



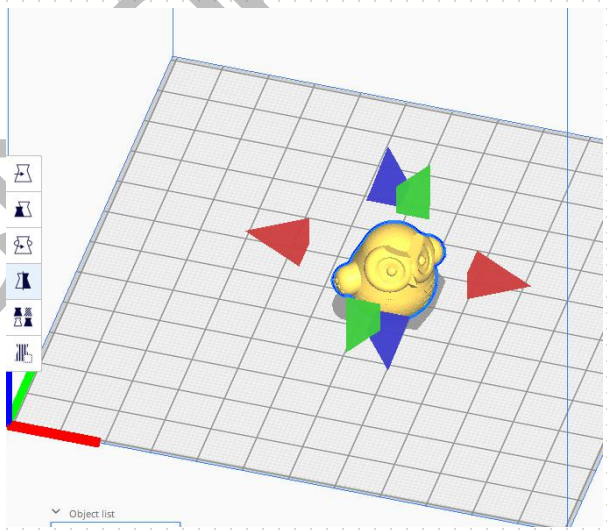
Zoom, change model size



Rotating model

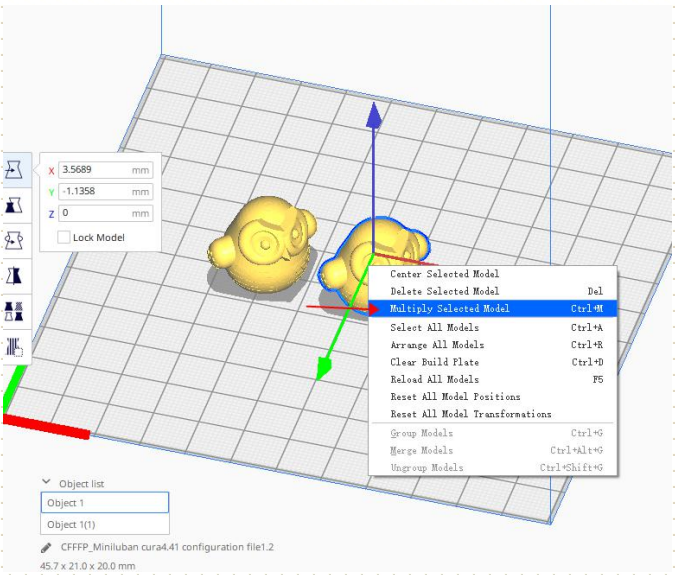


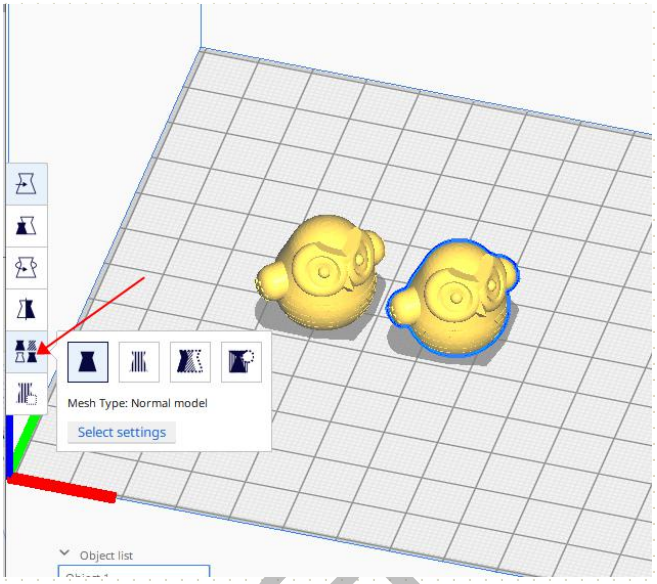
Mirror image, model symmetry transformation



Select the model and right-click to copy it

Parameters are set for different models





Introduction of common parameters

Please adjust the main parameters that affect the printing model according to the demand

Layer Height

The lower the thickness of each layer of the model, the finer the lamination and the longer the printing time, Usually 0.1-0.3mm

Filling density

It is the mesh density inside the model. The higher the density is, the higher the hardness and strength of the model are, the longer the printing time is, and the more consumables are consumed, It is usually set between 5% and 30%, 100% is solid

Printing temperature

Temperature of hot head, Match the temperature setting according to the printing of the material, See the material recommendation for details

PLA Hot head 190-210 Hot bed 60 **TPU** Hot head 210-220 Hot bed 60 (Slow down) **ABS** Hot head 230-240 (The cover of the fan hood needs to be opened) Hot bed 95 (brim 5-10)

Before printing TPU, it is recommended to print "soft material printing auxiliary frame" and install it. Download it in the link below.

https://github.com/magicmaker3/magicmaker/tree/master/MiniLuban/Related%20model%20files

Other materials directly look at the recommended parameters of selling materials, hot head below 245, hot bed below 95, SLuban can printing.

Printing speed

The faster the speed is, the less time is needed, and the printing effect will decline, usually 50mm/s, (After printing, you can accelerate or decelerate by directly turning the knob beside the screen)

Support

Due to gravity, when printing the suspended part of the model, the material will fall off. Setting the support will automatically generate the support to hold the suspended part. After printing, the material will fall off manually

Retraction (Influence on wire drawing)

Because of gravity, the melted material will flow down during printing. When the nozzle prints the model, it will jump directly from one place to another and form wire drawing on the surface of the model

After retraction is set, the machine will return the material when it is idling, so that the material will not flow down. However, the length of retraction will be different according to different idling lengths. Generally, the retraction distance is set to 2mm. The larger retraction distance of the model can be set longer, and the smaller retraction distance of the model can be set smaller. Each model has different optimal parameters, So you don't have to spend too much time debugging, It can be manually processed after printing

Build Plate Adhesion

The first layer adhesion is the core of successful printing. Different adhesion can help different models stick better.

For models with large bottom contact surface, choose 'skirt' (routing, extruding nozzle air), for models with small contact surface, choose 'brim' (Increase bottom area), 'raft' (base, strong fault tolerance)

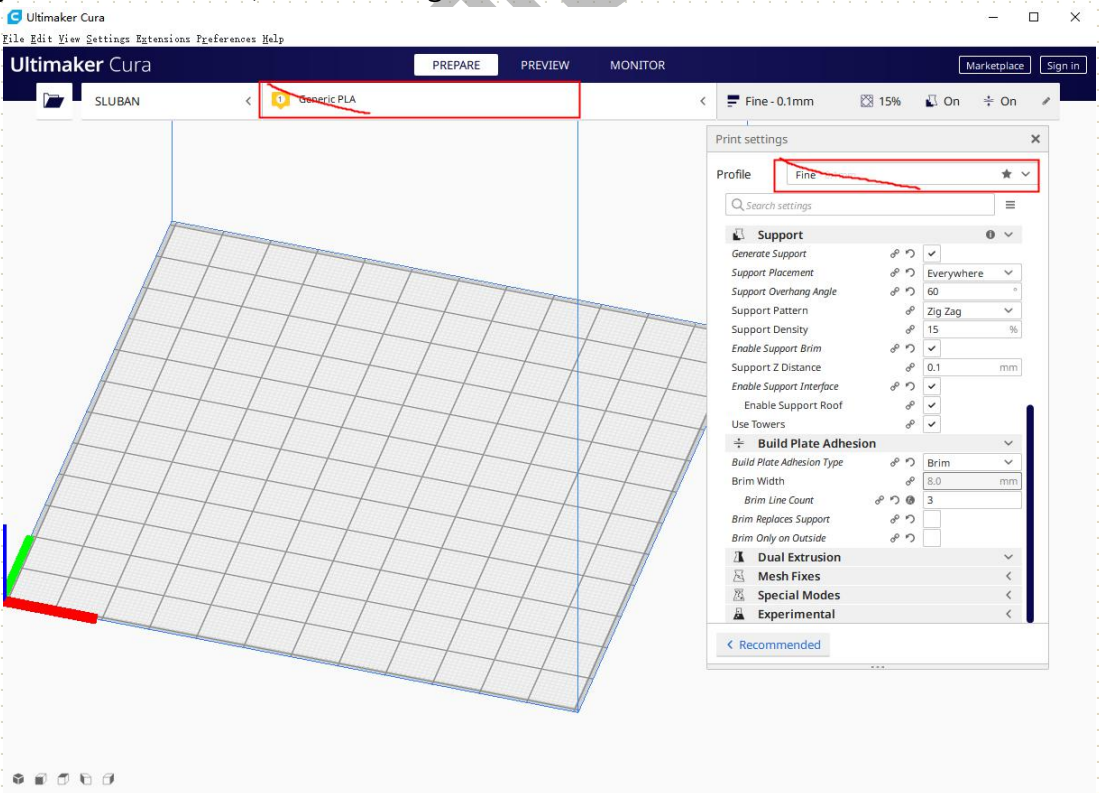
The flat side of the model is facing down to ensure that the platform has a larger contact area, and the printing will stick more firmly

For more parameters, see slicing software, in which each parameter has comments

Particular attention

1 Confirm that the configuration is imported correctly, and check whether the machine name on the left is SLUBAN

2 Don't change the red box. Change the material and change the parameters on the left. If you move the box, the configuration will be disordered and need to be reconfigured



五. Handling of common problems

6.1 Hot head clogging

Reason

1, Nozzle damage, It's caused by the wrong operation of the scraped platform. Change the nozzle

2, Nozzle inner wall carbonization, Usually used more than 1 year nozzle prone to appear, It can be dredged with a needle, or change the nozzle.

3, If there are impurities in the material, you can try to preheat the temperature to 230 to extrude, Then use a needle to dredge it, or change the nozzle.

4, Injury of "Teflon tube" in larynx inside, Too long use time, The temperature should not exceed 250 ℃, Direct replacement

5, The throat is blocked, If the fan doesn't turn, the pipe will be blocked, Check the fan

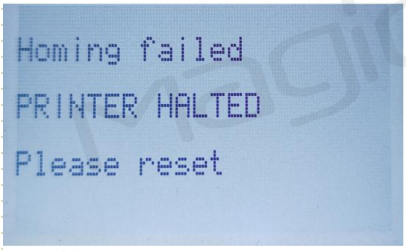
6, Incorrect wire changing operation

6.2 Memory card not recognized

The memory needs good quality, the speed is above 'class4', and the capacity is less than 16g

6.3 Do not frequently and quickly push the motor to generate electricity, it is easy to burn the drive

Error analysis

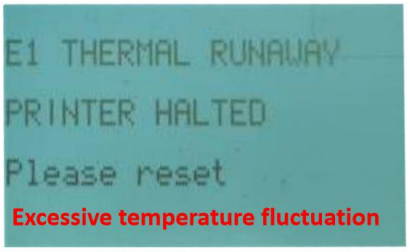


Possible causes:

1. Wrong position of limit switch plug
2. Wrong insertion of motor plug

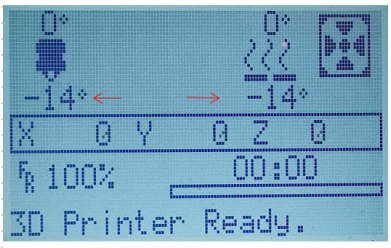
Possible causes:

1. The thermal bead is not stuffed in the middle of the aluminum block
2. The heater wire is connected incorrectly or not securely

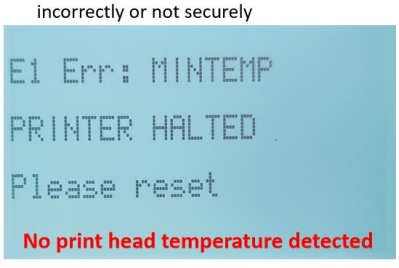


Solution:

1. Check whether the thermal plug is good
2. Open the rear cover of the fan housing



Temperature display -14 means that the thermal sensor is not installed, check the thermal line and thermal plug.
The nozzle on the left, the hot bed on the right



Check the wiring of the temperature probe on the nozzle

Check the wiring of the temperature probe on the hot bed

Statement of responsibility

The manual will be updated or enriched from time to time, and we will not specially inform you at that time. Please pay attention to the official documents. Please read the instructions carefully before use.