Einstart 3D Printer

User Manual

V2.2.1

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DISCLAIMER

This user manual is an instruction for installation, operation, and maintenance, but not product warranty. All efforts have been made to ensure the accuracy and completeness of the information in this manual. However, Shining3D Tech Co., Ltd. accepts no responsibility for any errors or omissions contained in the documentation and reserves the right to explain and revise the publishing and fault of this manual. The information in this manual is subject to change without notice.

TABLE OF CONTENTS

1. Introduction 5
1.1. How to use this manual 5
1.2. Precautions 5
1.2.1. Safety 5
1.2.2. Protection 5
2. Overview 6
2.1. Appearance 6
2.2. Axes 6
3. Installation 8
3.1. Install printer 8
3.1.1. Connect power adapter and USB cable 8
3.1.2 Set Platform 9
3.1.3 Spread glue 10
3.1.4. Install filament 10
3.1.5 Print the model 11
3.2.Windows OS Software installation 14
3.2.1. Software Installation 15
3.2.2 Program registration 20
3.3. Mac OS software installation 22
3.3.1.Drive installation 22
3.3.2. Program registration 25
4. Print Steps 27
5. The Basic Functions of Software 33
5.1. Menu 33
5.2. Short guide area 34
5.3. Setting and status area 34
5.4. Edit area 34
6. Print setting references 36
6.1. Path generator setting 36
6.2. Extruder control 38
6.3. Pause/restart printing 40
6.4. Set Z axis Height 40
6.5. Level platform 43
6.6.Firmware Update 46
7. Maintenance 48

7.1. Changing the Material....48
7.2. Cleaning the Nozzle....48
7.3. Accessories....48
7.4. Packing list....48
7.5. Specification....49
8 FAQ....50
9. Contact Us....53

1. Introduction

1.1. How to use this manual

This User Manual is divided into five sections which covers the Introduction, Overview, Installation, Operation, and Troubleshooting. Please study this manual carefully before installation, and use the printer according to these instructions. Keep this manual handy and refer to it when necessary.

1.2. Precautions

Please read this section carefully before using the printer.

1.2.1. Safety

The printer can only be used with the power adapters supplied by this company, or the product may be damaged, with a risk of fire. To avoid burning, or model deformation, do not touch the model, nozzle, or the platform by hand,or any other part of the body, while the printer is working or immediately after it has finished printing.

Protective glasses should always be worn when removing support material. There is a slight smell from filament material when it is being extruded. The smell is, however, not too unpleasant. Operate in a well ventilated room but draught free, as draught will cause warping.

1.2.2. Protection

•The printer must not be exposed to water or rain to avoid damage.

•Do not shut down the printer or pull out the USB cable when loading a digital model or the model data may be lost.

•The printer is designed to work properly at an ambient temperature of between 15°C and 30°C and humidity of between 20% and 50%. Operating outside these limits may result in low quality model.

• Please turn off the printer when SD card needs to be inserted or pulled out.

• We are not responsible for any damage caused by filament material from outside which not authorized by our company。

2. Overview

Thank you for choosing Einstart 3D Printer. It is designed with ultimate portability and simplicity in mind. The system and software allows you to print great models with only a few keystrokes, even if you have never used a 3D printer before. The system uses a nozzle to deposit molten plastic to make a solid object layer by layer, so printed parts are strong and durable.

2.1. Appearance

Figure 2.1 is the front view and side view of printer.

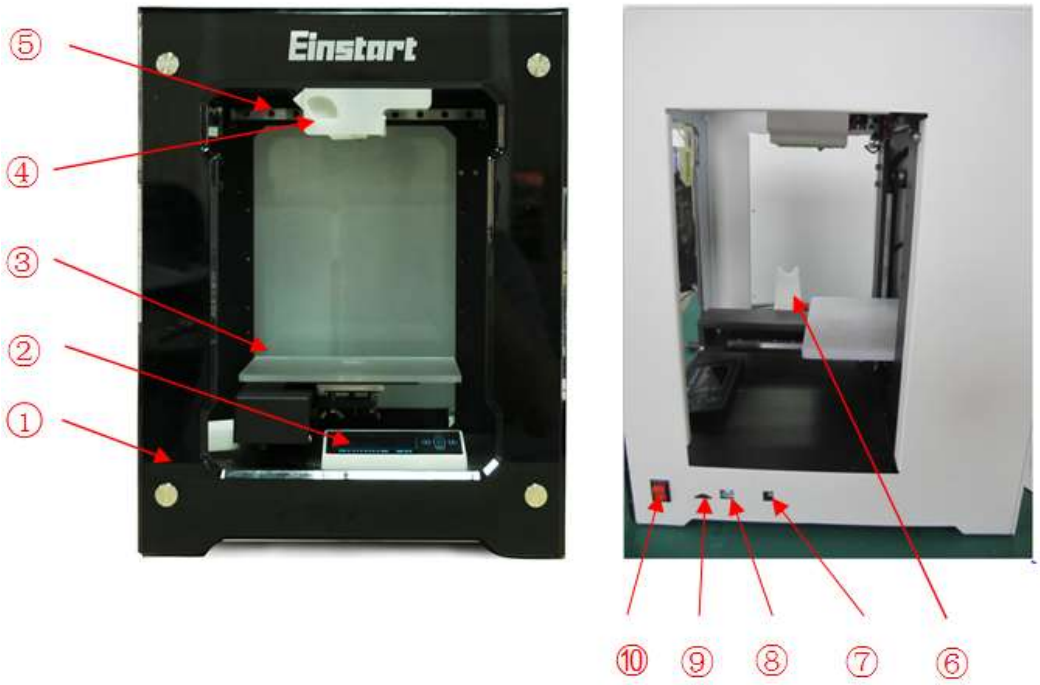


Figure 2.1

① Framework ② OLED Screen ③ Platform
④ Extruder Nozzle ⑤ Tube Fan ⑥ Spool Holder
⑦ Power ⑧ USB ⑨ SD card
⑩ Switch

2.2. Axes

In the figure 2.2, the direction of arrow is the forward direction of the axes.

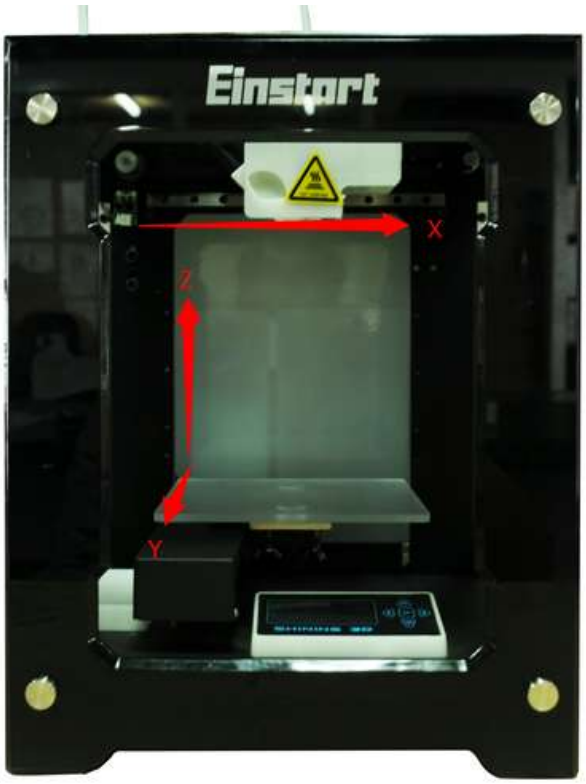


Figure 2.2

3. Installation

3.1. Install printer

The printer was tied up to avoid damage during transportation. Please remove these protective parts before use the printer .

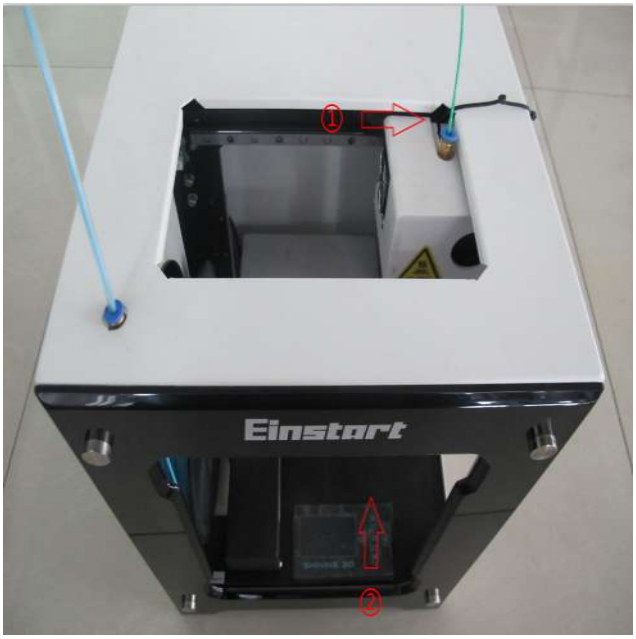


Figure 3.1

① Rope

② Sponge Mat

3.1.1. Connect power adapter and USB cable

As figure 3.1.1 shown, there are USB connection and power interface on the side of the printer, please connect the printer and computer via a USB cable and connect the power adapter.

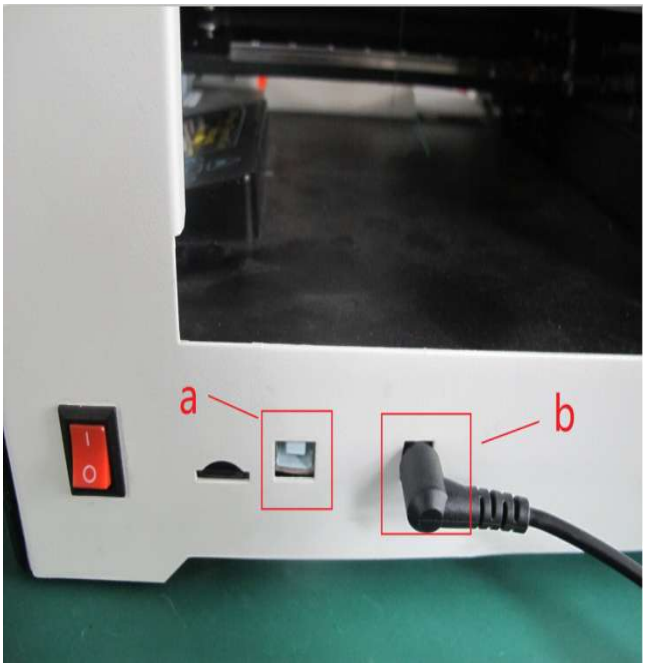


Figure 3.1.1

a: connect USB

b: connect Power adapter

3.1.2 Set Platform

As figure 3.1.2 show, placing three outstanding magnetic point into slot to set stably the printing platform.

Figure 3.1.2

3.1.3 Spread glue

First step: spread glue on the build platform.

Second step: make the glue joint the platform evenly.

Third step: ensure the glue shape is fit properly.

Fourth step: place the platform in right place.

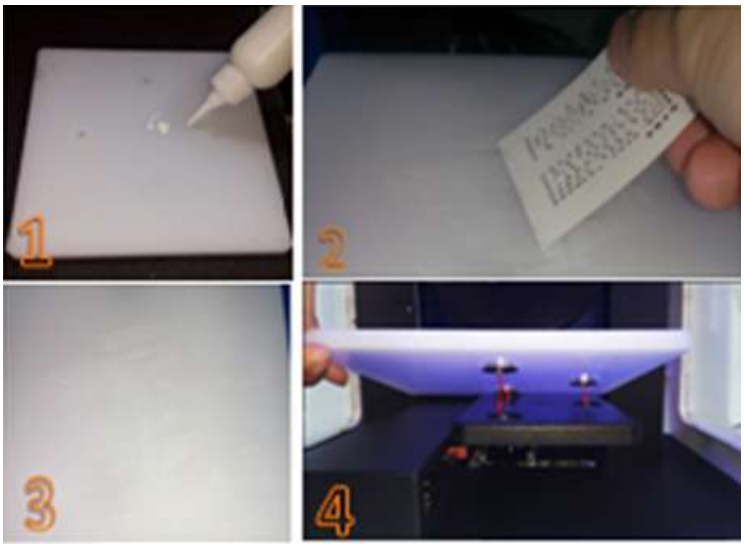


Figure 3.1.3

3.1.4. Install filament

First step: make sure the head of filament is neat.

Second step：set up the filament through the hole inside the printer.

Third step：insert filament tube to the top hole.

Fourth step：put filament on the tray.

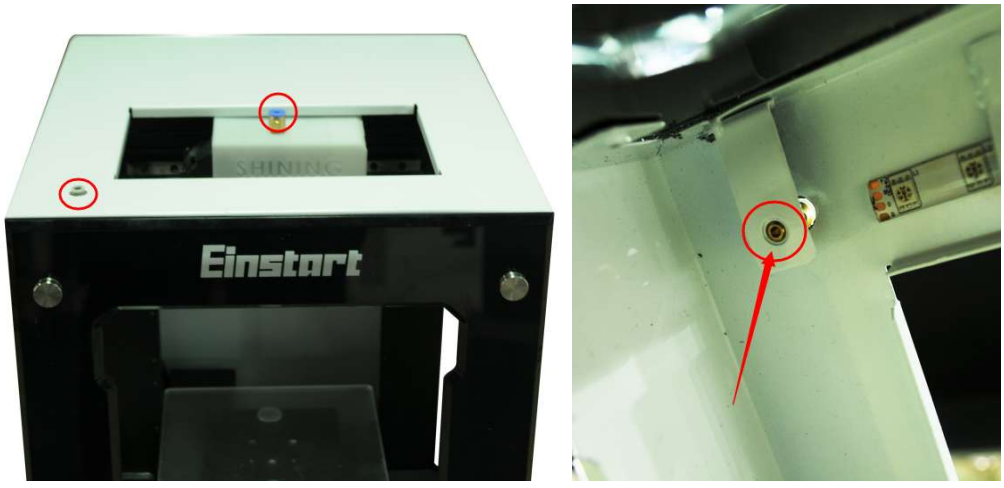


Figure 3.1.4.1

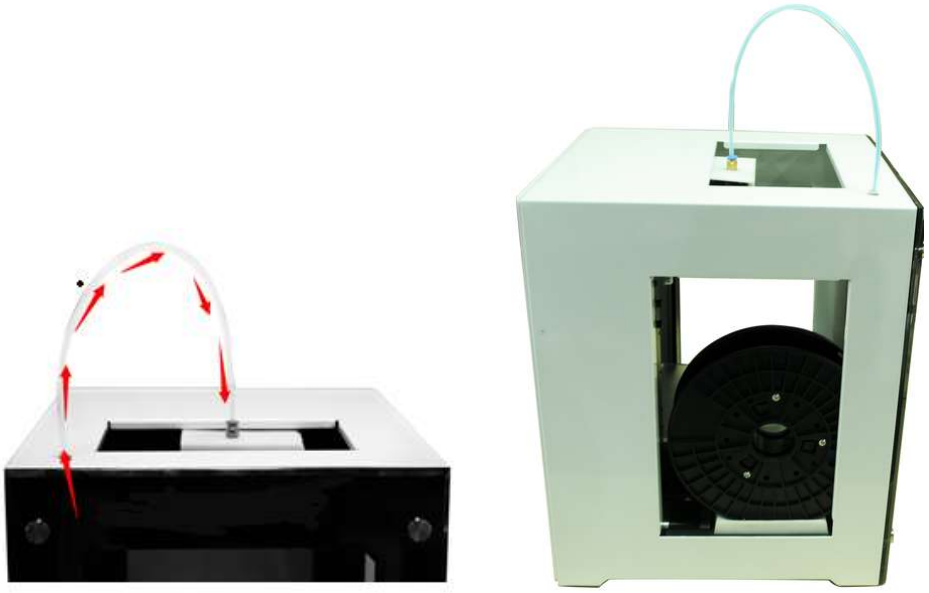


Figure 3.1.4.2

3.1.5 Print the model

1）Start up:power on, and press the“ ” button for 3 seconds.

2）Menu:press the“ ” button to choose “Fast operation”.

Figure 3.1.5.1

3）Load filament：press the“ ” button to load filament, put the filament in the hole and wait for the temperature rise.

Figure 3.1.5.2

4）Return：press the“ ”or“ ” button to exit when the filament is extruded from the nozzle.

Figure 3.1.5.3

Figure 3.1.5.4

5) Build:get back to the “Fast Operation” and press the “ ” button to choose model.

Figure 3.1.5.5

6) Select:press“ ”“ ” to choose model ,and press“ ”to print the model you want.

Figure 3.1.5.6

7)Pause:If you wanna pause, press“ ”to exit， and press“ ”to confirm it.

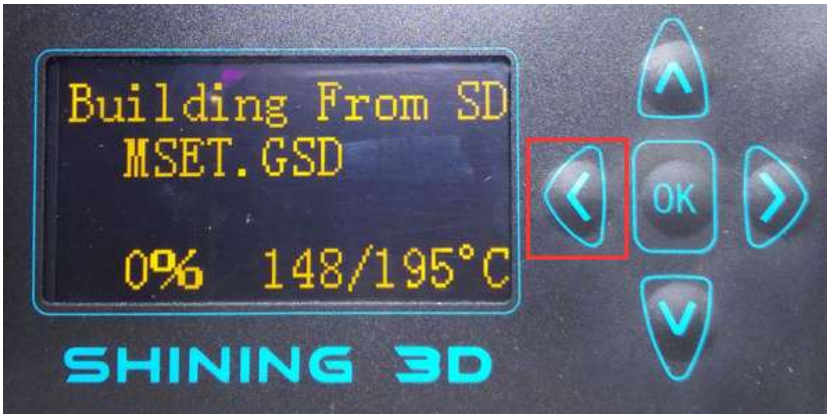


Figure 3.1.5.7

Figure 3.1.5.8

8)Resume: used for change filament,see figure 3.1.5.9.

Figure 3.1.5.9

9) “Save-Shut Down”: it will save the model file, you can resume printing the model after reboot the machine.“Stop”: just cancel the printing.

Figure 3.1.5.10

3.2.Windows OS Software installation

3dStar supports the operating system Win7 32/64bit, Win8.1 and Mac OS X. Please refer to “Read Me file” before setting up the software.There are printing software 3dStar, driver, and STL models in the SD Card.

3.2.1. Software Installation

For install all drivers successfully, please insert SD card into your PC with USB to SD card converter. If you system is windows, find “Windows” folder, open “3dStar” folder, then click xxx_*setup.exe* file, entering the program installation interface as the picture shown below.

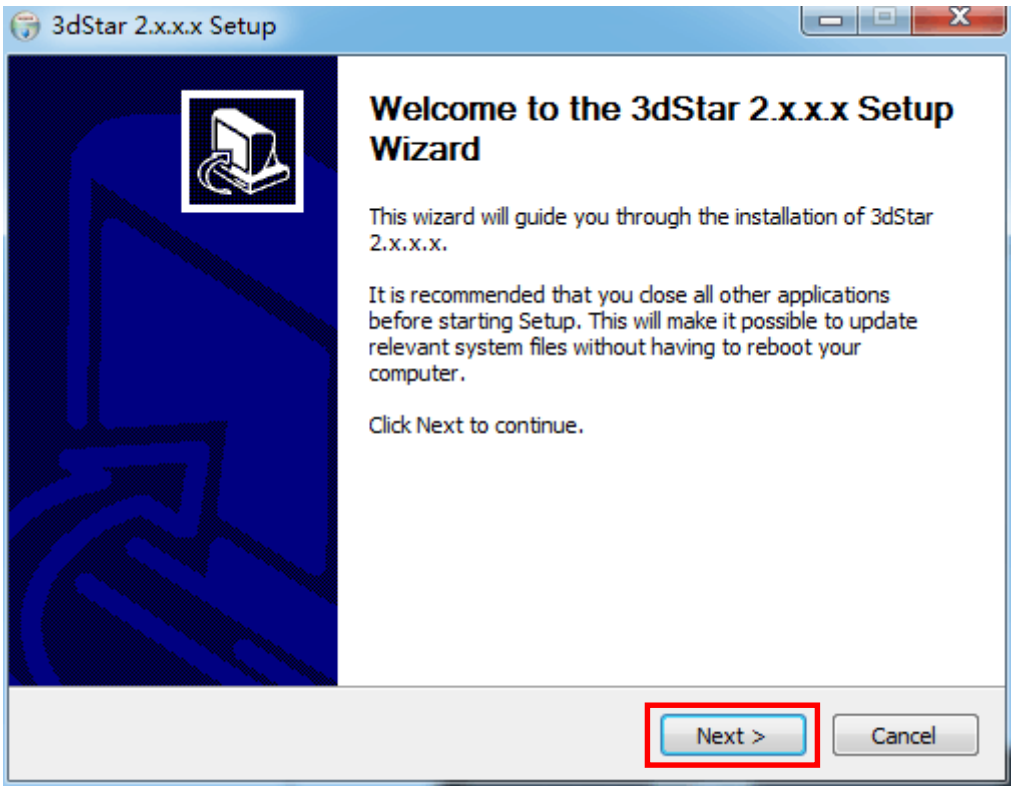


Figure 3.2.1.1

1. Click “next”, and select “ I Agree” to continue next step.

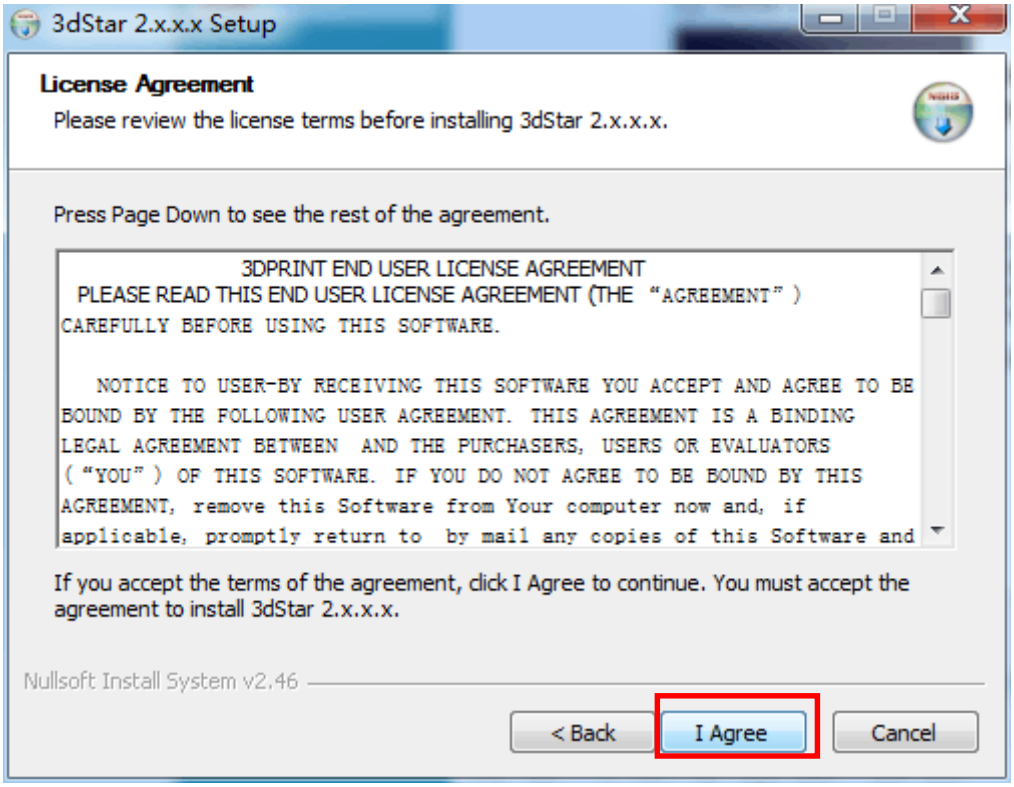


Figure 3.2.1.2

2. Select the installation directory, and Click "Install" to start the SETUP WIZARD

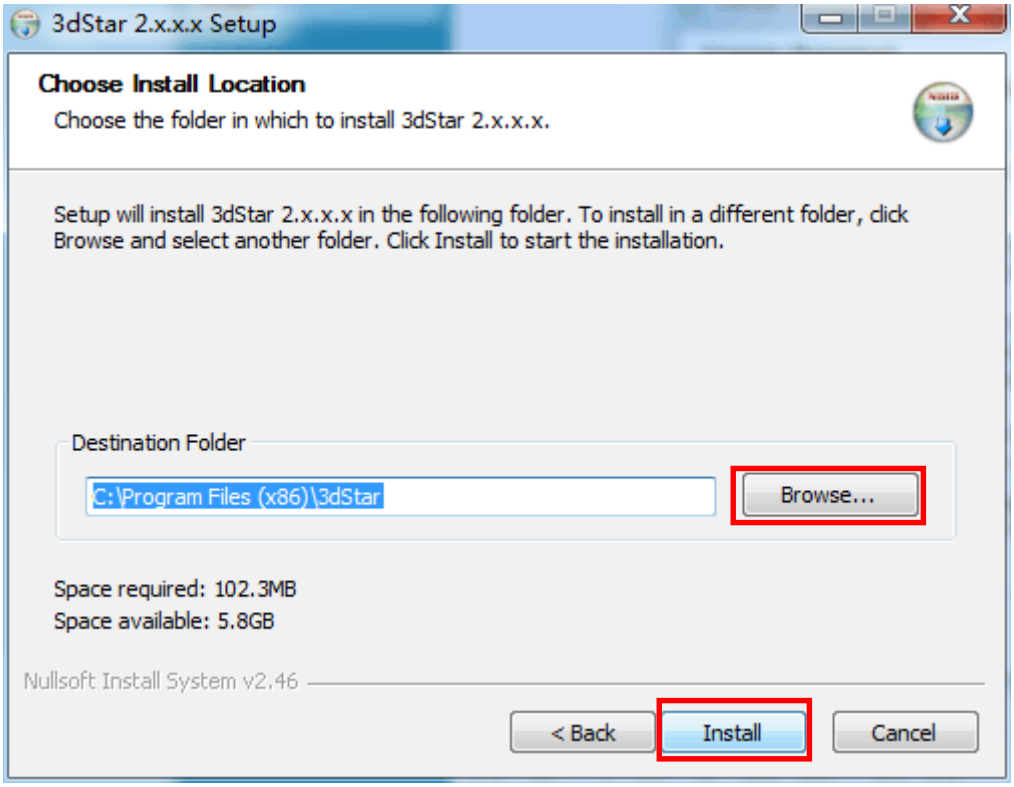


Figure 3.2.1.3

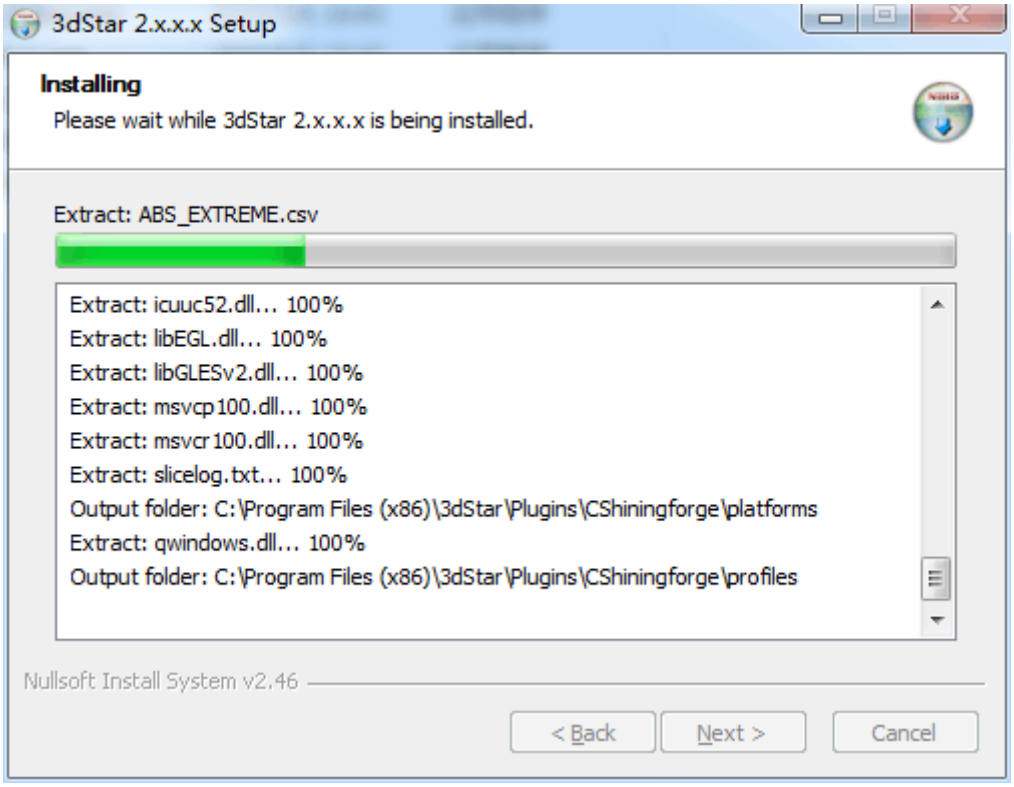


Figure 3.2.1.4

3. In a while, the following interface will appear, please select ““I have read and accept the license terms ”, and click “install”.

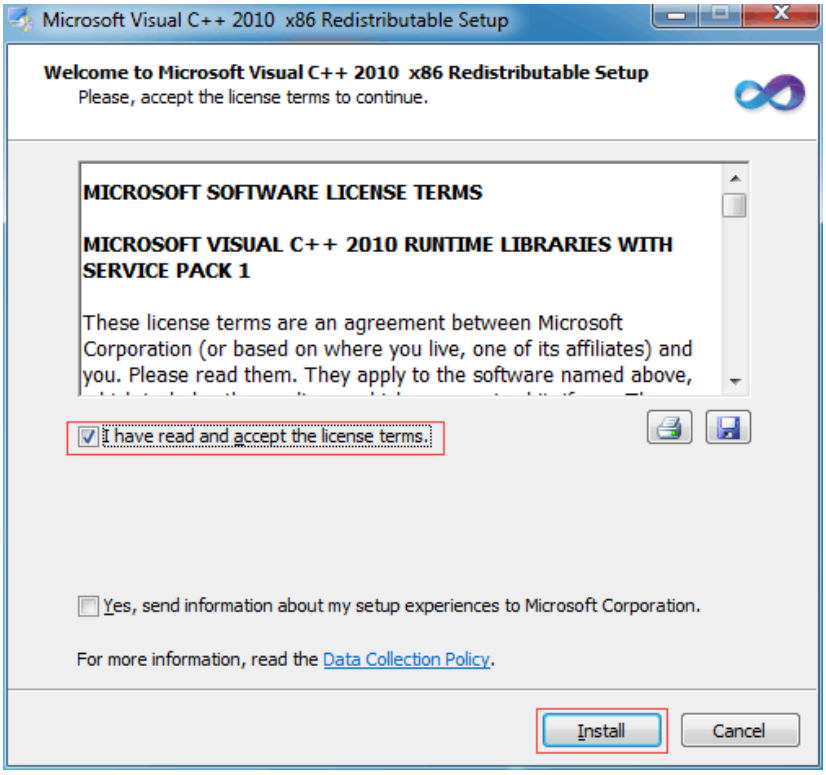


Figure 3.2.1.5

4. Click“Finish” in the pop-up dialog, and the installation is successfully

installed. .

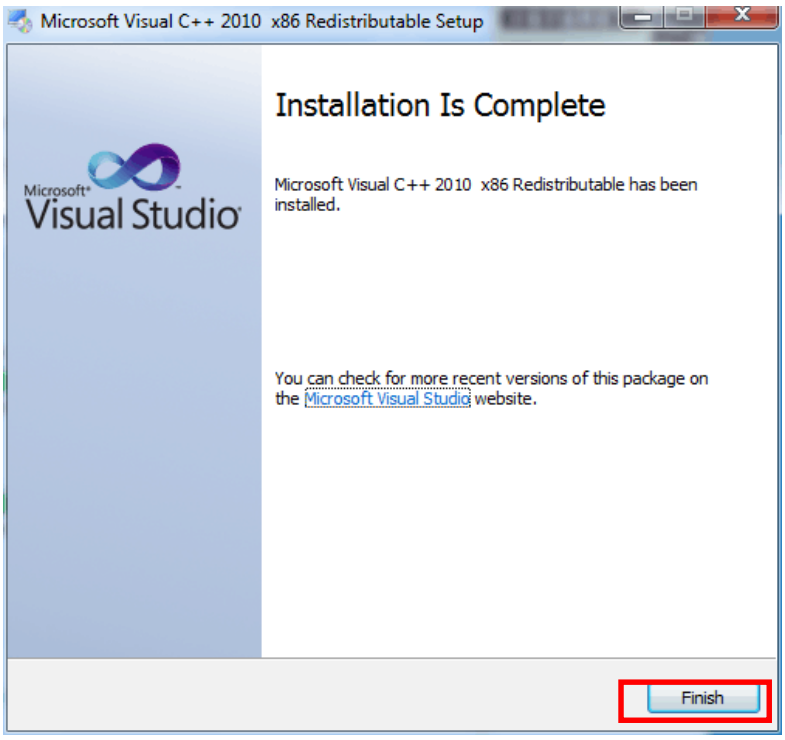


Figure 3.2.1.6

Notice: if either of the below two interface appears, it means that the latest version of Microsoft Visual C++ 2010 x86 Redistributable operation environment has been installed. Click “Cancel” to complete the installation.

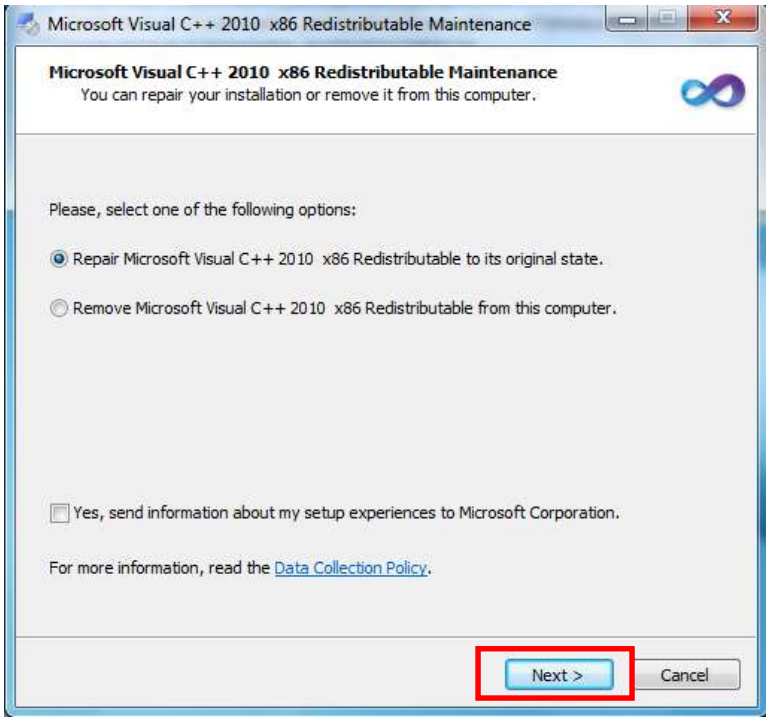


Figure 3.2.1.7

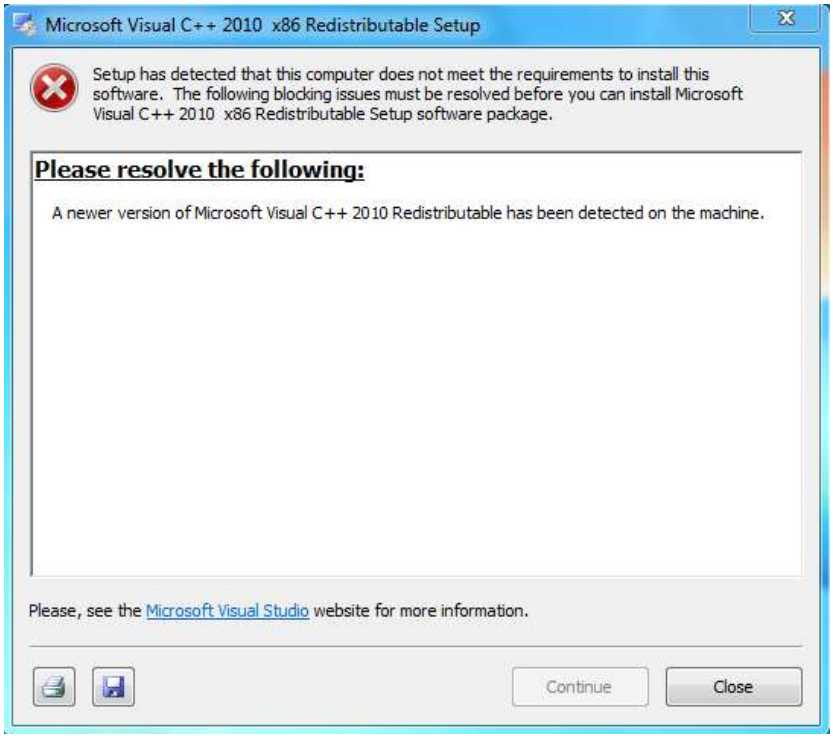


Figure 3.2.1.8

5.Install the driver of USB to serial port.

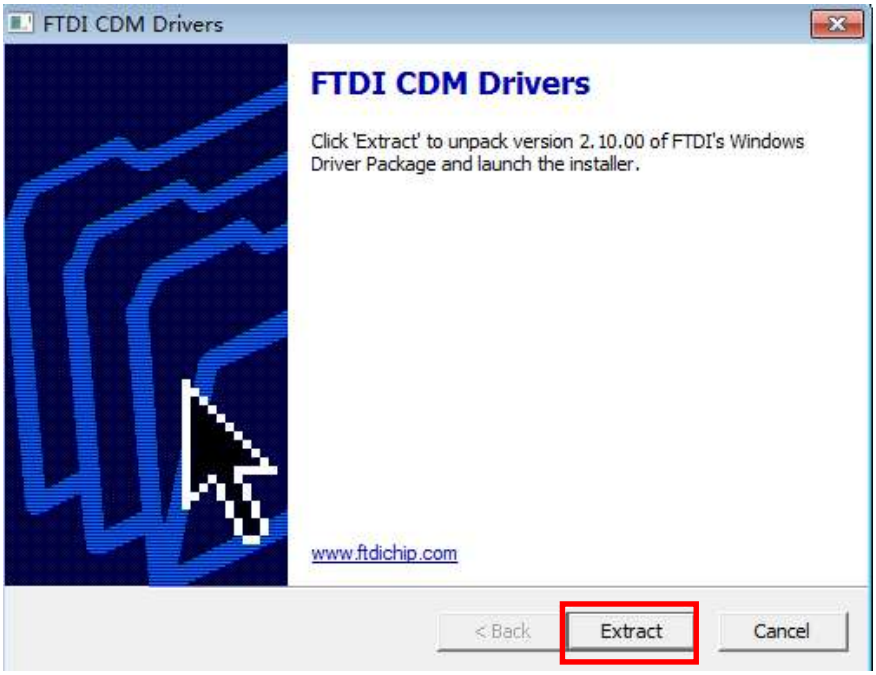


Figure 3.2.1.9

Click ”Extract”，do as the guide shows,see figure 3.2.1.9.

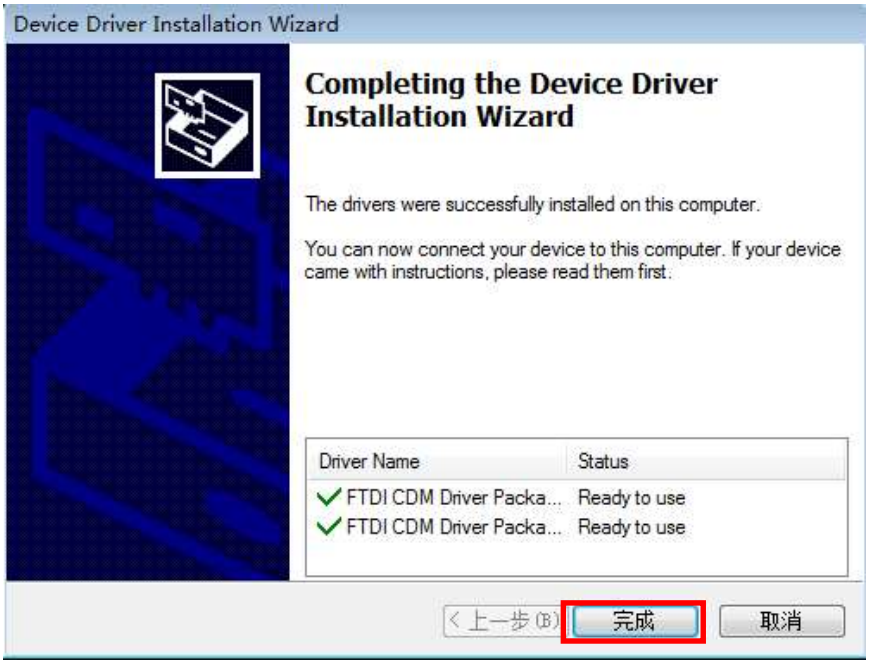


Figure 3.2.1.10

Click ”finish” in the follow dialog to exit the guide, see figure 3.2.1.11.

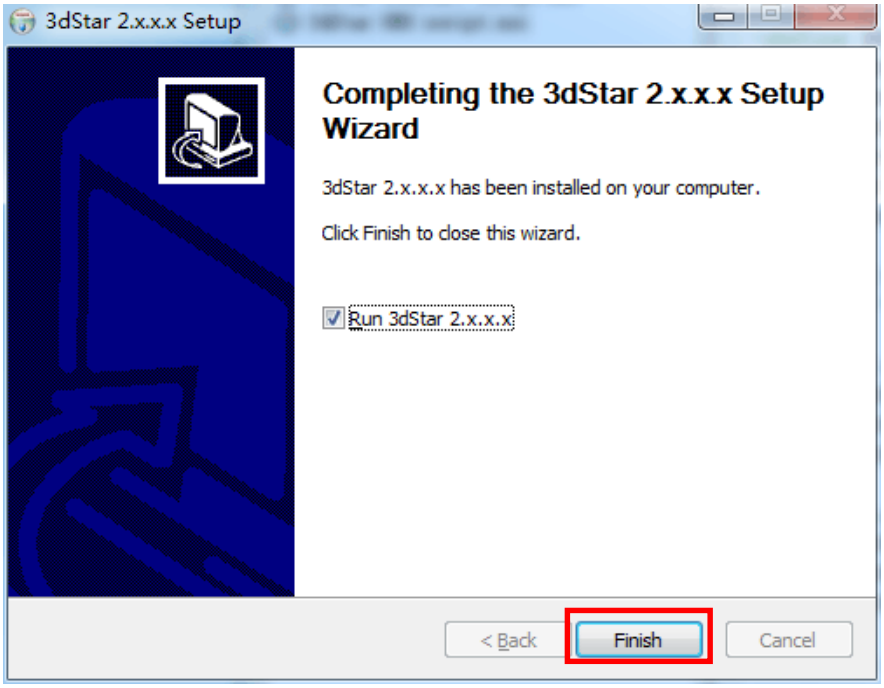


Figure 3.2.1.11

3.2.2 Program registration

Program registration has been done after software setup. If a new key should be registered, do as follows:

1. Open 3dStar folder, double-click “License Install.exe”, see figure 3.2.2.1.

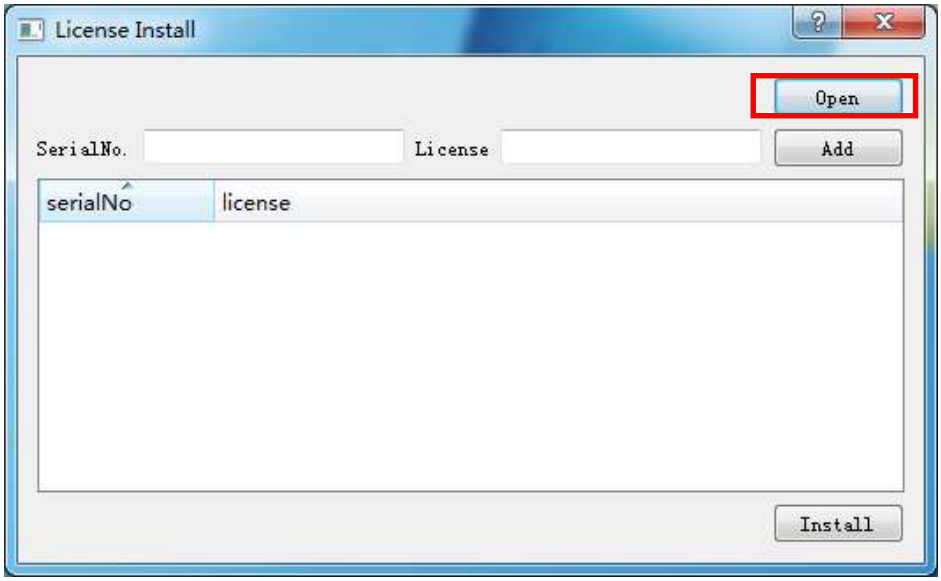


Figure 3.2.2.1

2. Click open, select key file(*.reg or *.lic)

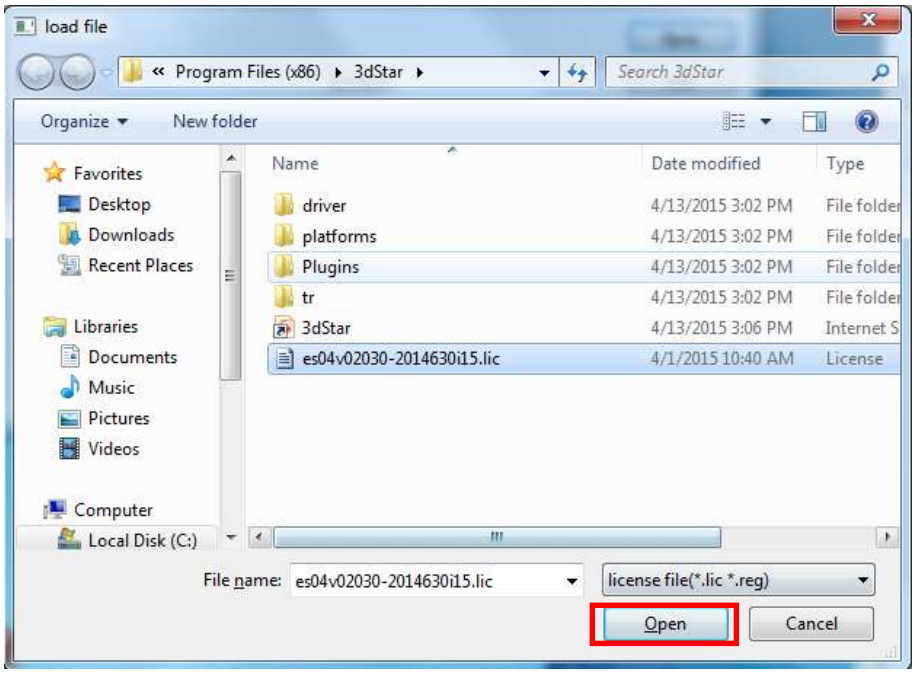


Figure 3.2.2.2

3. click“install” to finish registration.

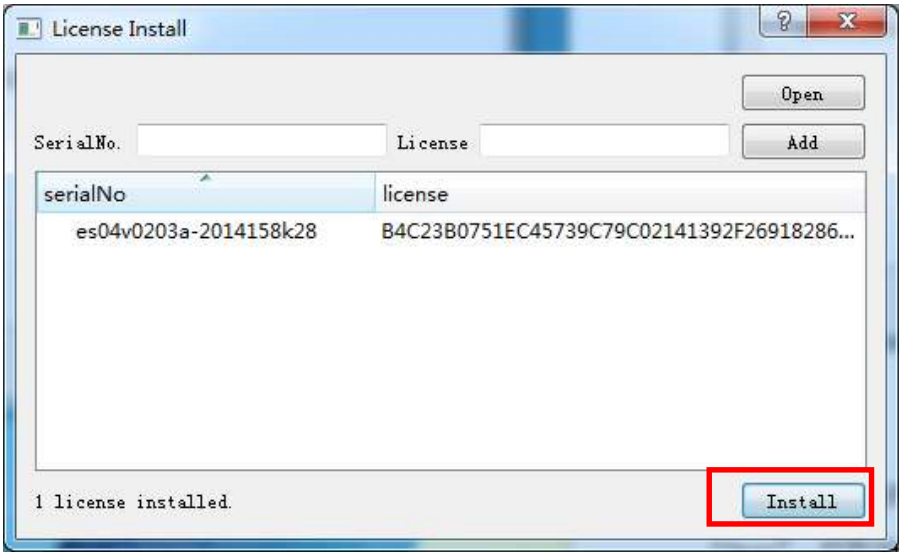


Figure 3.2.2.3

3.3. Mac OS software installation

If your system is Mac OS, choose “Mac” folder. Before setting up the software, you should refer to Read Me file.

3.3.1.Drive installation

1. Double click “3dStar.dmg”, a virtual device is showed on desktop, see figure 3.3.1.1.

Figure 3.3.1.1

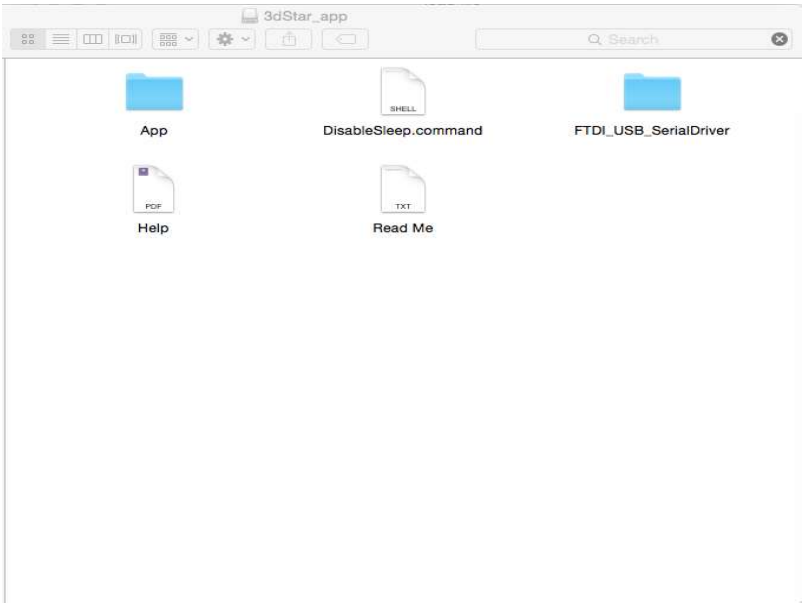


Figure 3.3.1.2

2. Double click “FTDI_USB_Serial Driver”, double click the file, see figure 3.3.1.3.

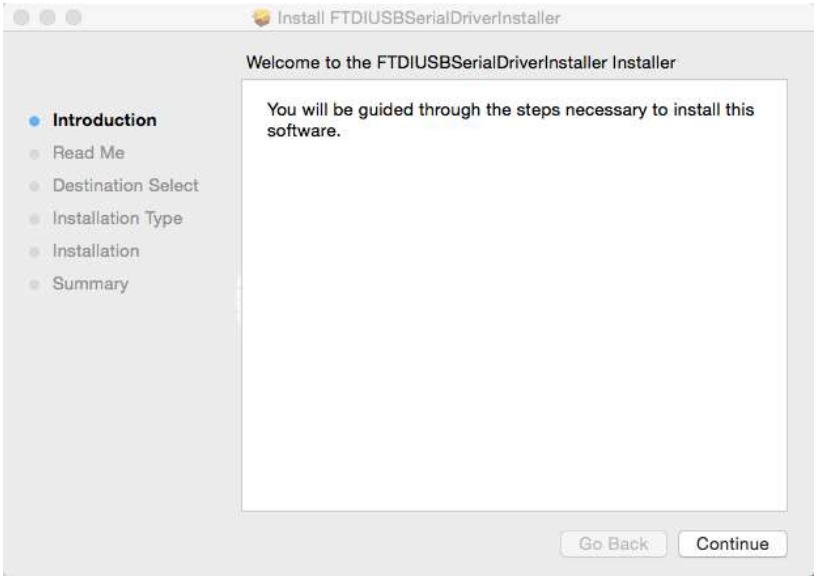


Figure 3.3.1.3

3. Input user name and password, see figures as follows.

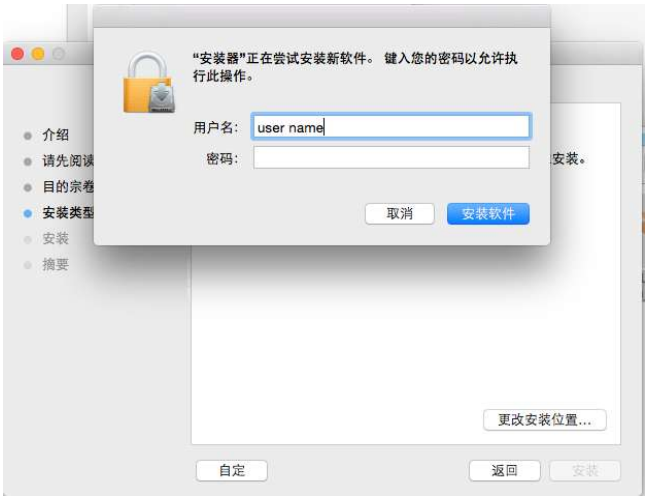


Figure 3.3.1.4

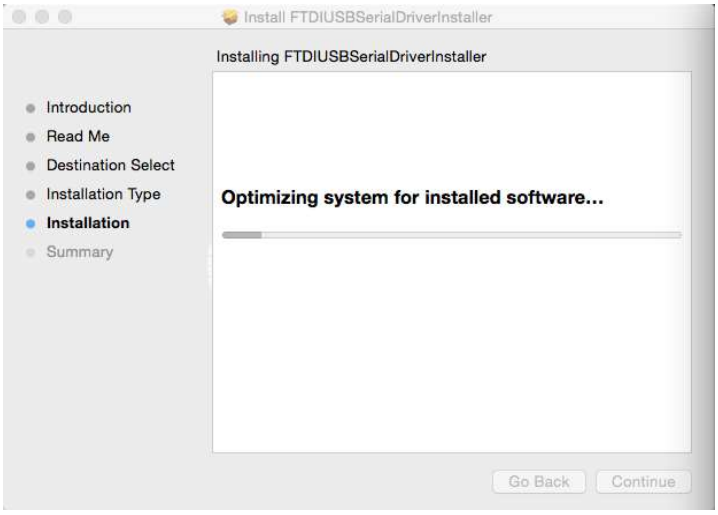


Figure 3.3.1.5

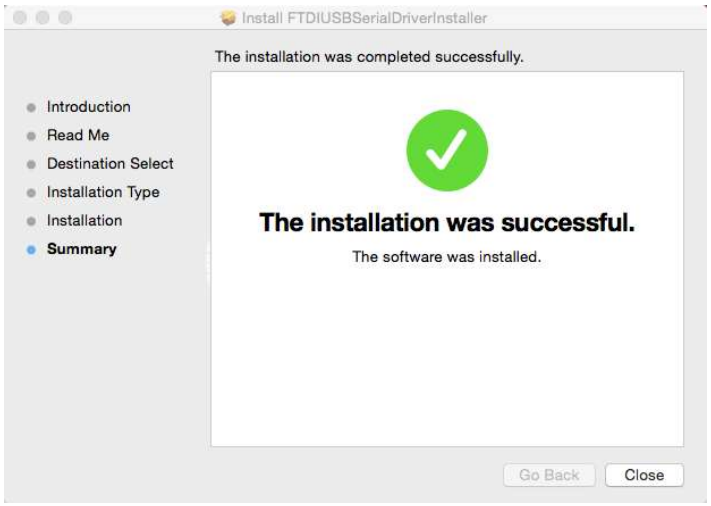


Figure 3.3.1.6

4. Double click script “Disable Sleep.command”.

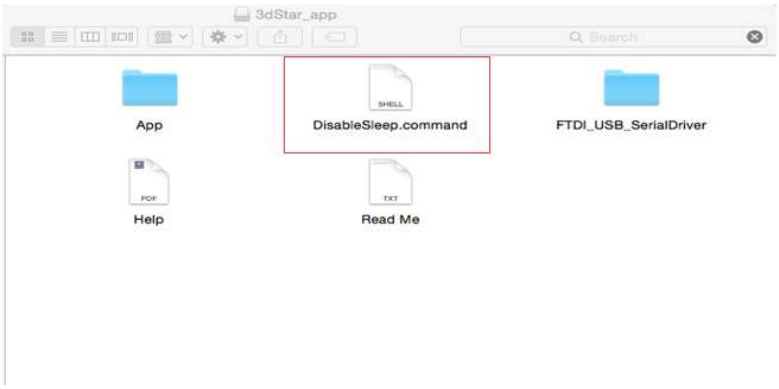


Figure 3.3.1.7

3.3.2. Program registration

1. Go to folder “App”, double click “License Install”.

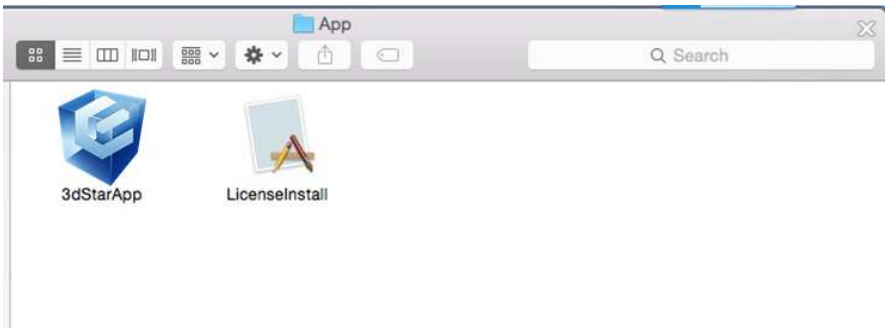


Figure 3.3.2.1

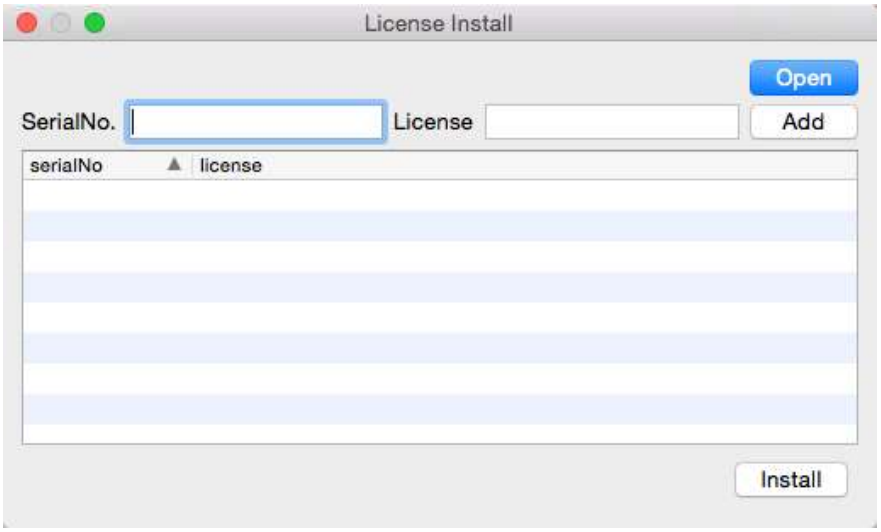


Figure 3.3.2.2

2. Click open, go to folder “SD”->”Mac”, select key file(*.reg or *.lic), install.

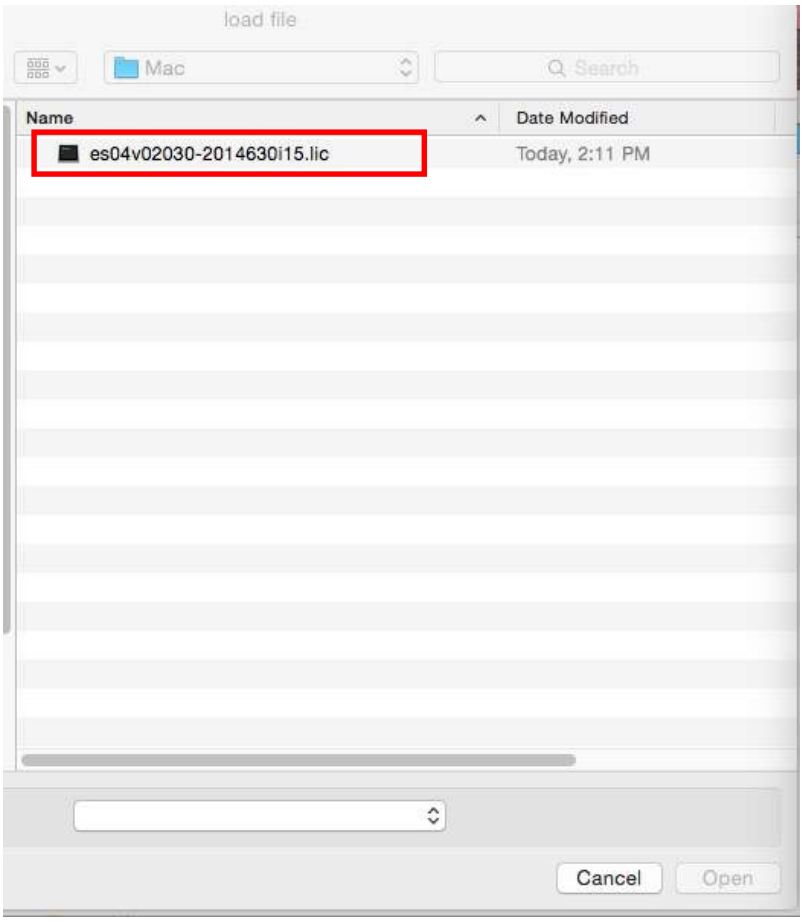


Figure 3.3.2.3

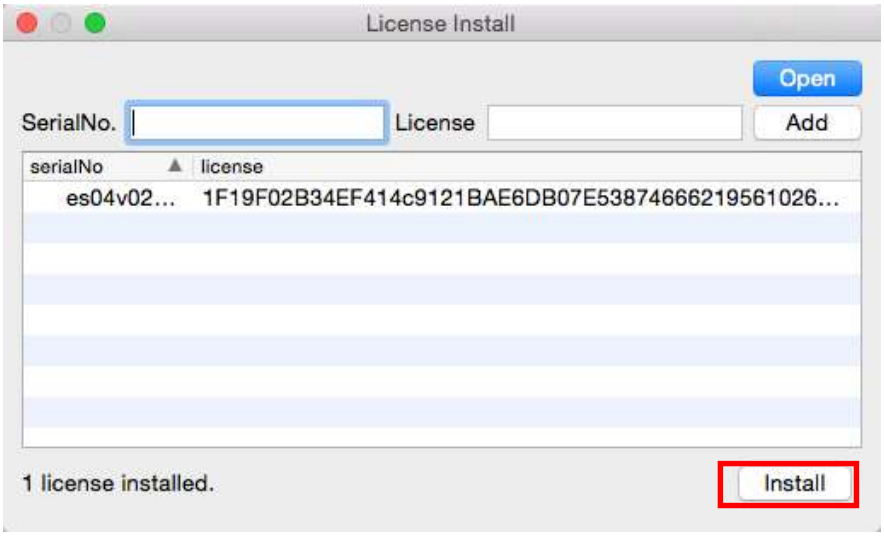


Figure 3.3.2.4

4. Print Steps

1.Connect USB and power cable, and power on the printer.

2.Install the driver and print software according to the wizard, see **software setup**.

(Only need to do once if connect the printer to the same computer.)

3. Open the printer software 3dStar.exe if your system is Windows ,or 3dStarApp if your system is Mac OS.

4.Chose machine type:You can select the machine type by clicking “ ”and application, see figure 4.1.

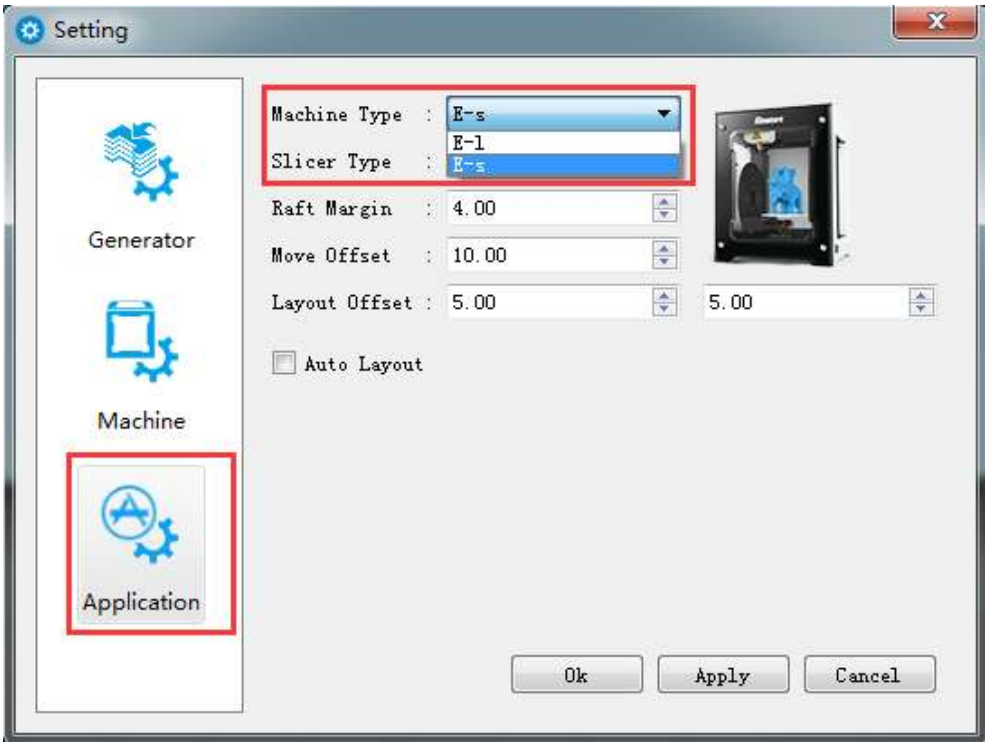


Figure 4.1

5.If status button is gray, choose serial device which is found from menu “Tools”->”select machine”, see figure 4.2and 4.3 for Windows or figure 4.4for Mac OS for serial choose.

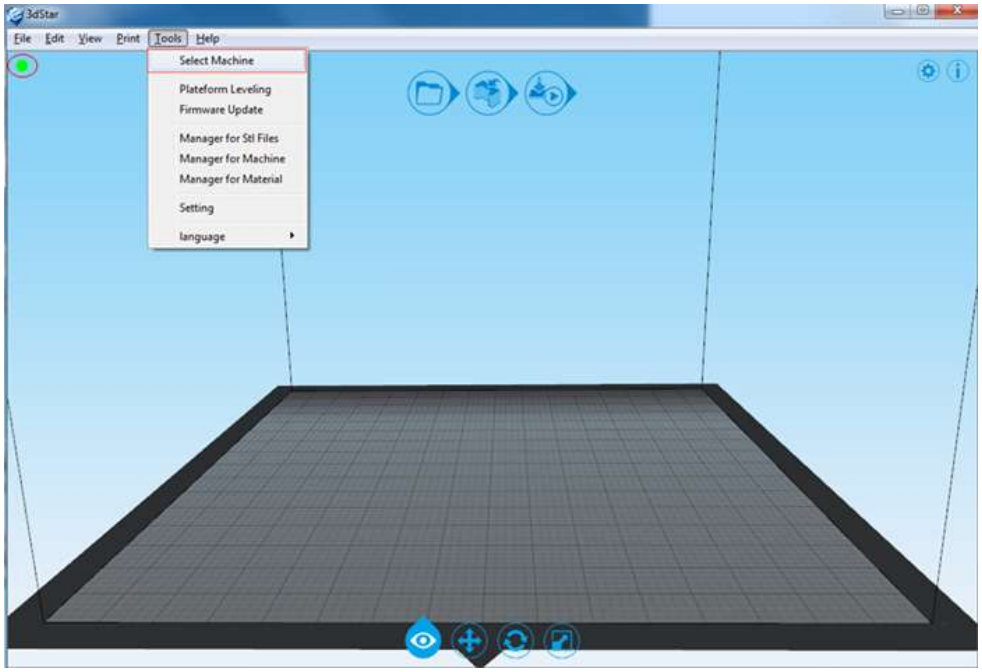


Figure 4.2

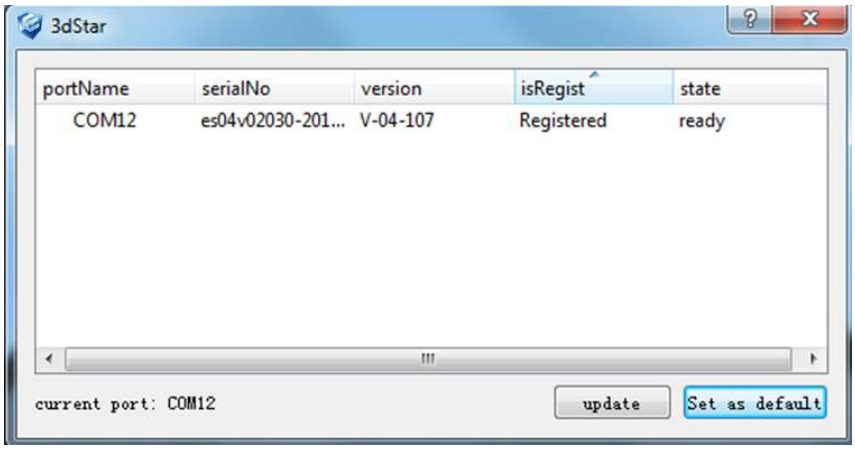


Figure 4.3

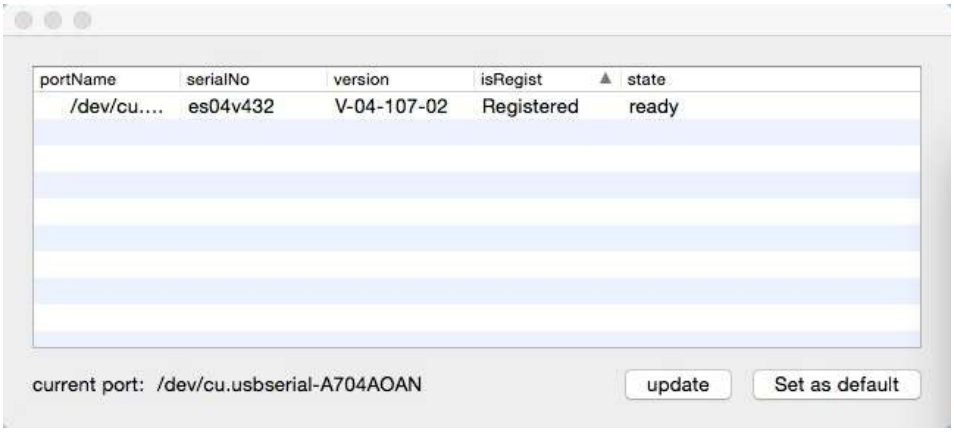


Figure 4.4

6. Check the platform level is horizontal or not. Refer to 7.4 for detail; Make sure the nozzle is clean before printing.

7. Open models, see figure 4.5.

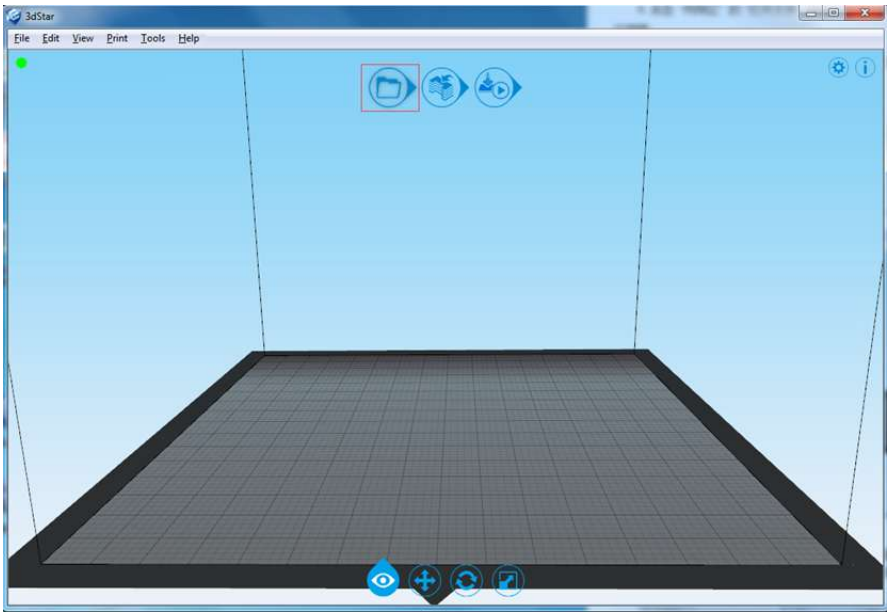


Figure 4.5

8. Make generating path, see figure 4.6 and figure 4.7. You can change the parameter by clicking “ ”, see figure 4.8.

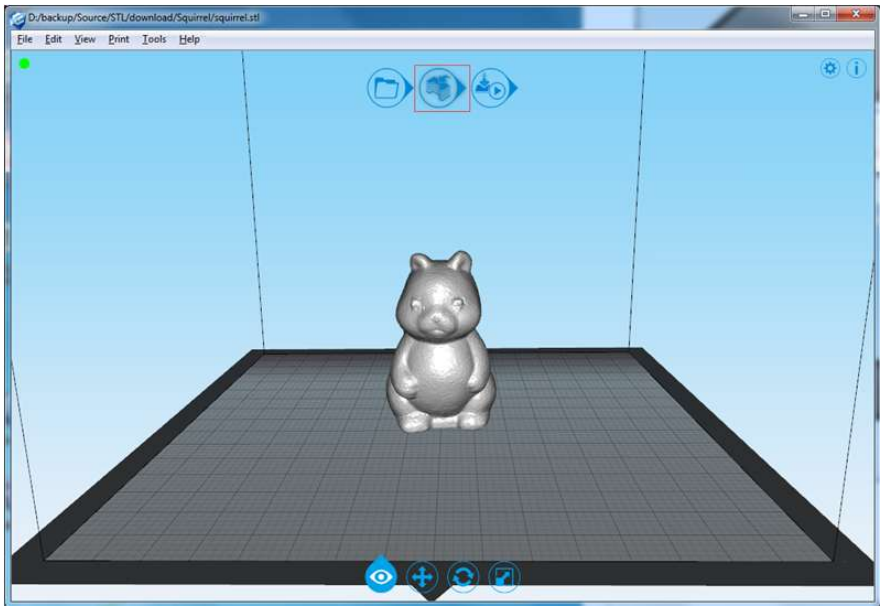


Figure 4.6

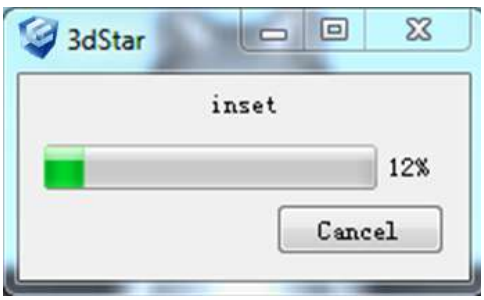


Figure 4.7

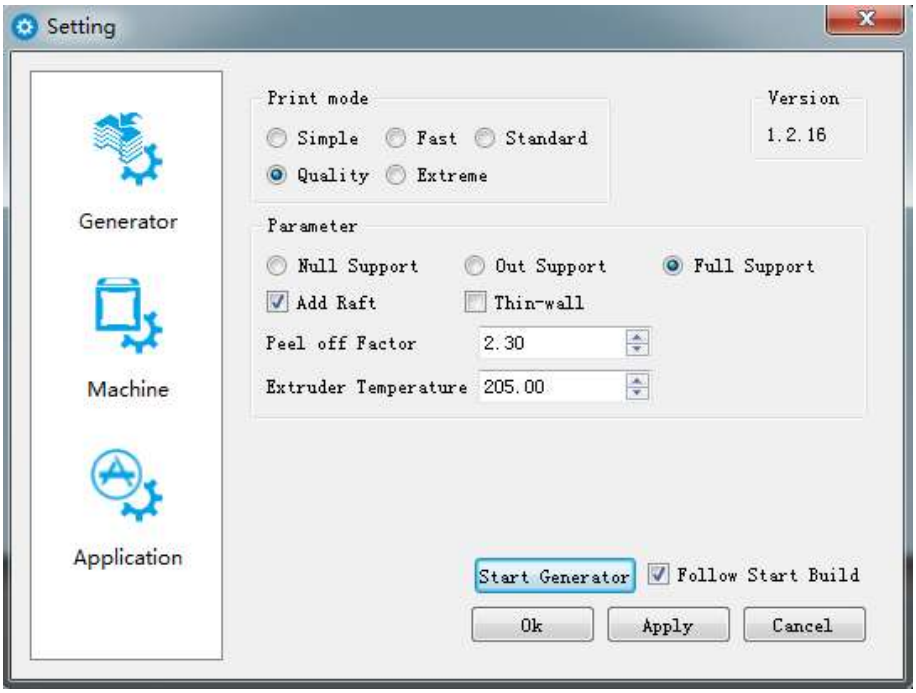


Figure 4.8

Note: If the model had been generated Path, when it generate Path again, it will cover the last generated Path.

8. After Generating and loading Path are finished, click to start to print,see figure 4.9.

: Stop printing

: Pause printing

: You can see the build status, see figure 4.10.

Figure 4.11shows the model printed.

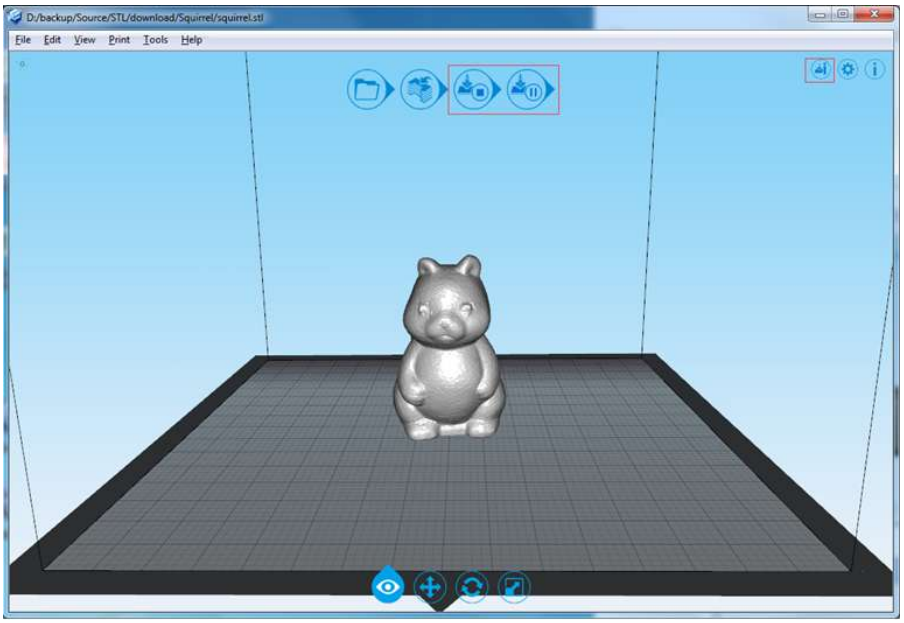


Figure 4.9

Figure 4.10

Figure 4.11

Note：You may click “Tools”--”Path Viewer” and view the Path according the layer you want to see.,see figure 4.12 and 4.13.

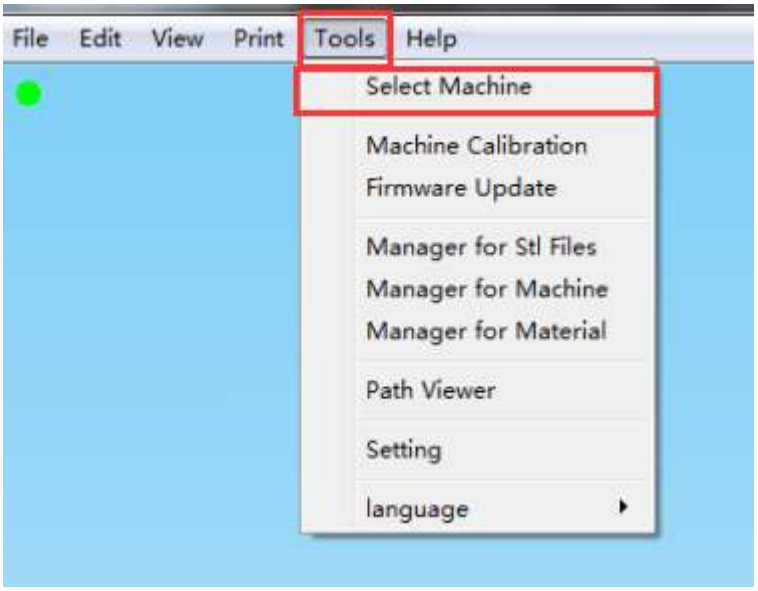


Figure 4.12

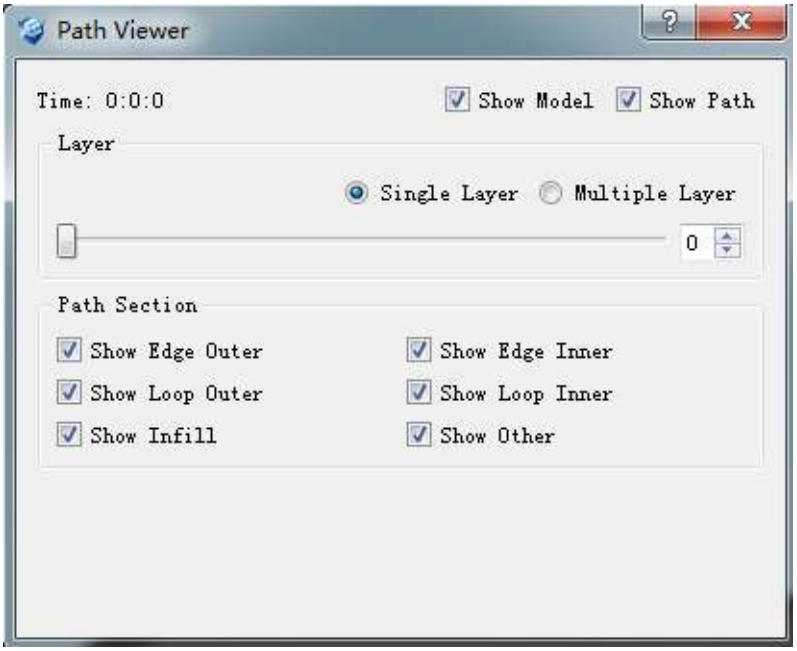


Figure 4.13

5. The Basic Functions of Software

Open the program “3dStar.exe”, the software window show as figure 5. Some basic functions are as the follows:

①Menu ②Short cut guide area ③Setting and status area ④ Edit area

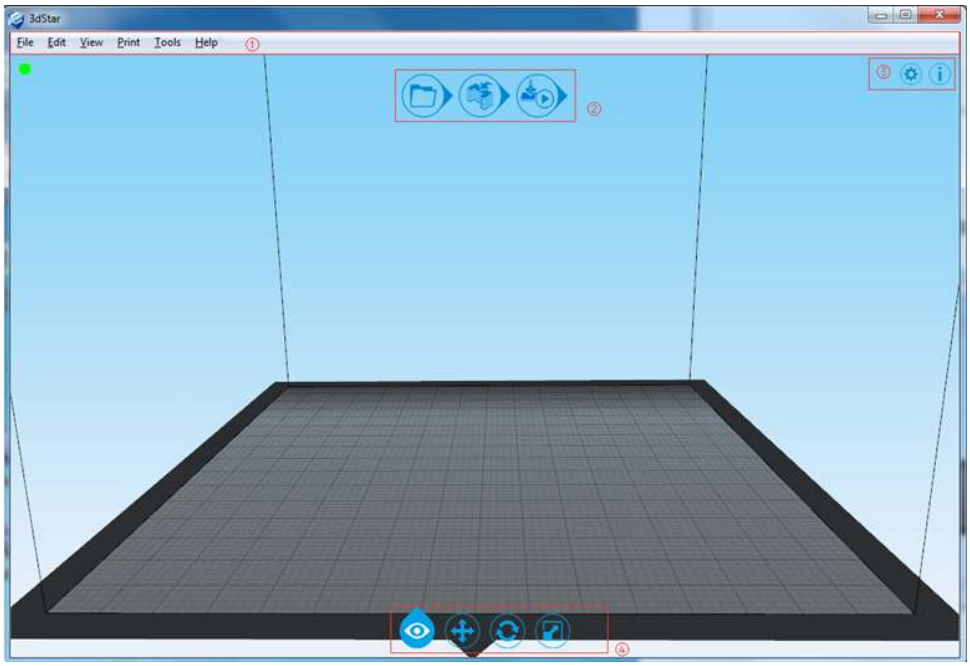


Figure 5

5.1. Menu

All functions can be found in menu.

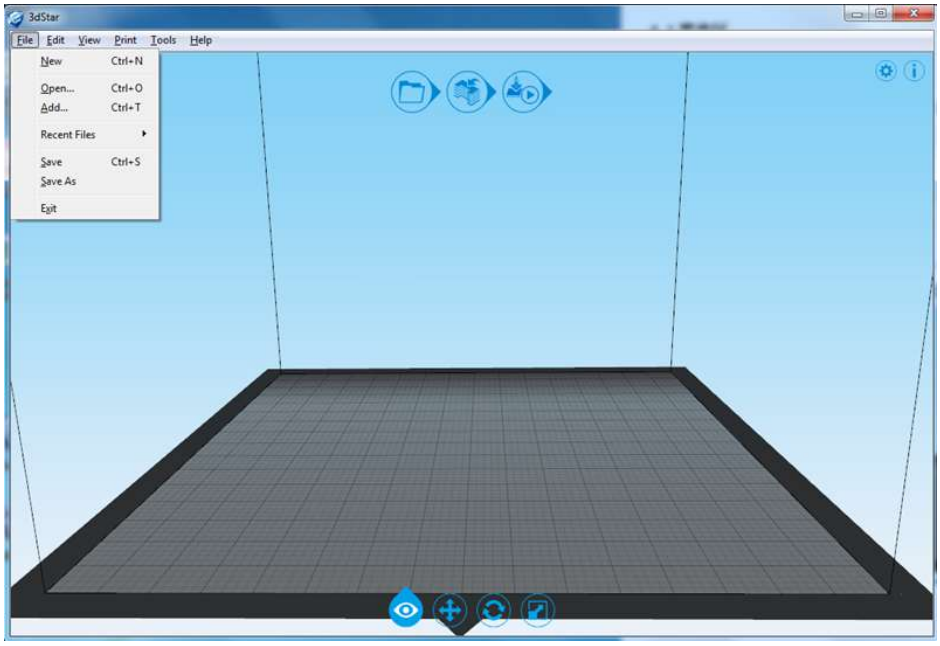


Figure 5.1

5.2. Short guide area

This area contains three button for opening files, path generation and start/stop printing. It's easy to get to print a model.

5.3. Setting and status area

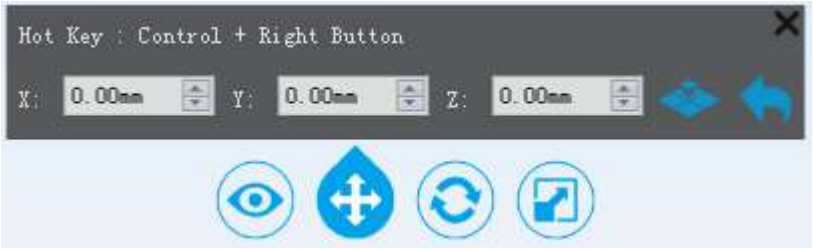
It contains path generation module, device info and control module. You can also see printing status and software info.

5.4. Edit area

It contains model view, move, rotate and scale function. The model should be selected before any edit action. You can click to go back to the origin model.

- " ": View.

- " ": Move.



" ":Move the model to the center.

- " ": Rotate.

" "The model will be rotated automatically according to the surface clicked by the mouse.

- " ":Scale.

" ":Enlarge the model to the max print size.

Raft Margin：after changing the number of raft margin ,you may adjusting the distance between model and raft, see figure 5.4.

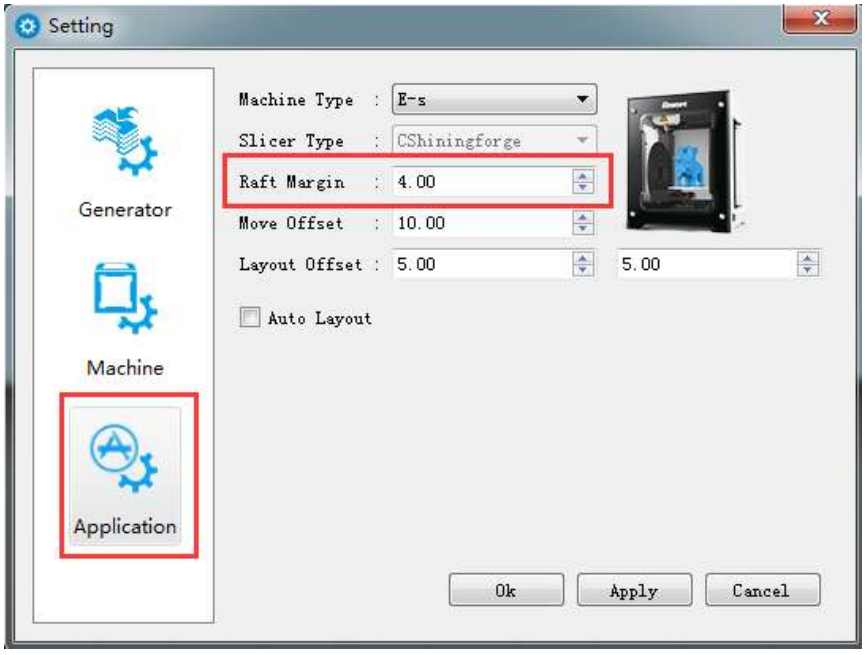


Figure 5.4.

6. Print setting references

6.1. Path generator setting

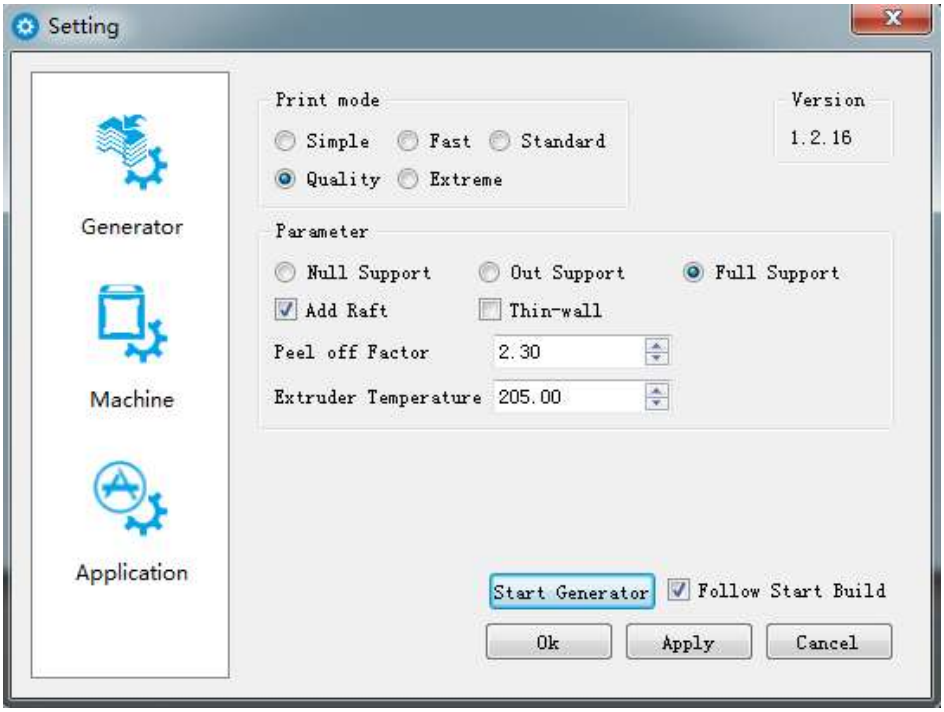
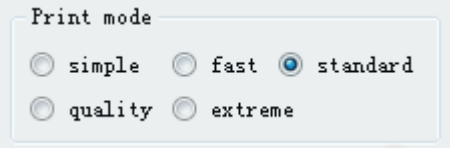


Figure 6.1.1

Usually, only “Print mode” needs to be adjusted. It is best to use the defaulted setting to print, or the extruder might be blocked.

There are 5 options to set the print accuracy between 0.1mm to 0.4mm per layer. The finer the layer, the better the quality, the stronger the printed part and the longer it takes to print.



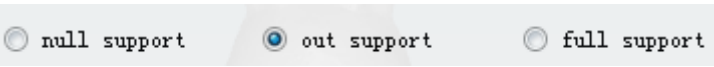
MODE_Simple:0.4mm layer thickness；

MODE_Fast:0.3mm layer thickness；

MODE_standard:0.2mm layer thickness；

MODE-Quality:0.15mm layer thickness；

MODE-Extreme:0.1mm layer thickness；

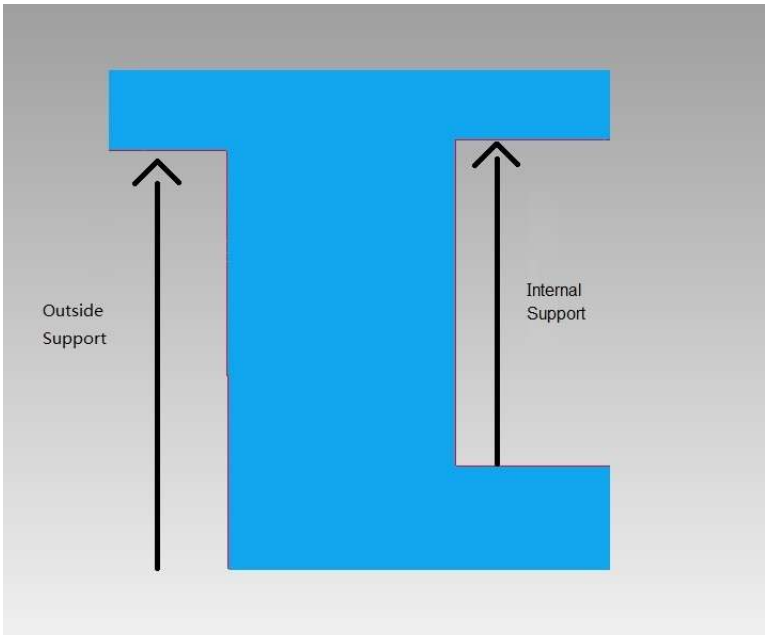


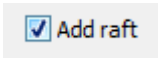
Support Mode:

None support:There is no support generated.

Outside support:The support will be generated outside on the raft

Full support:There will be outside and internal support generated.





Select" add raft" will generate a model base which helps to printing stability.

"Peel off Factor" reflects the height between model and raft. If the layer thickness is 0.2mm and the strip rate is 2.3, which means the height between model and raft is 0.46mm. So lower number means the more tighten that model stick to raft.

Select "Thin-wall" means only external shell except top surface will be created without any internal support.

Set the nozzle heating temperature.

Select "Follow Start Build" to start printing automatically after generating Path file.

Raft Margin：Select application and adjust the numerical value of raft margin,you may change the distance between solid model and base.

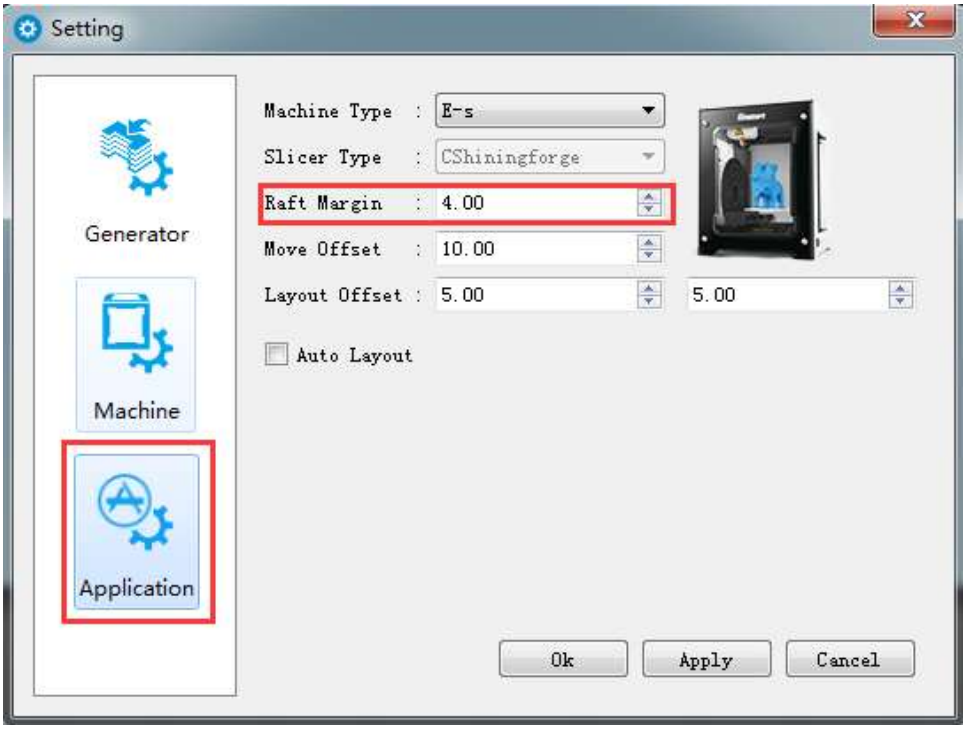


Figure 6.1.2

6.2. Extruder control

Click menu ->"Tools"->"Manager for material", choose "Material In", then click "next", see figure 6.2.1.

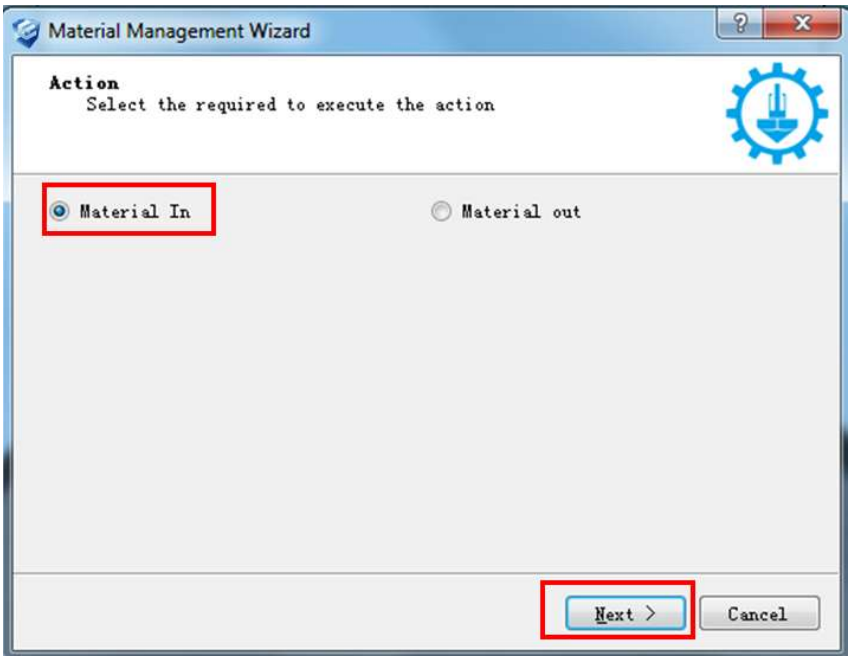


Figure 6.2.1

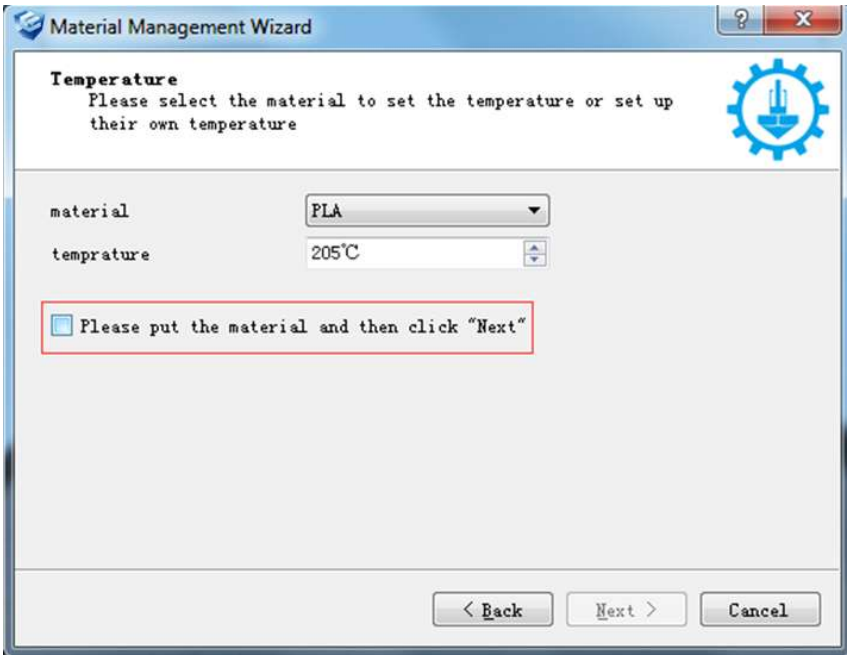


Figure 6.2.2

When the temperature up to the preset number, the printer will load filament automatically.

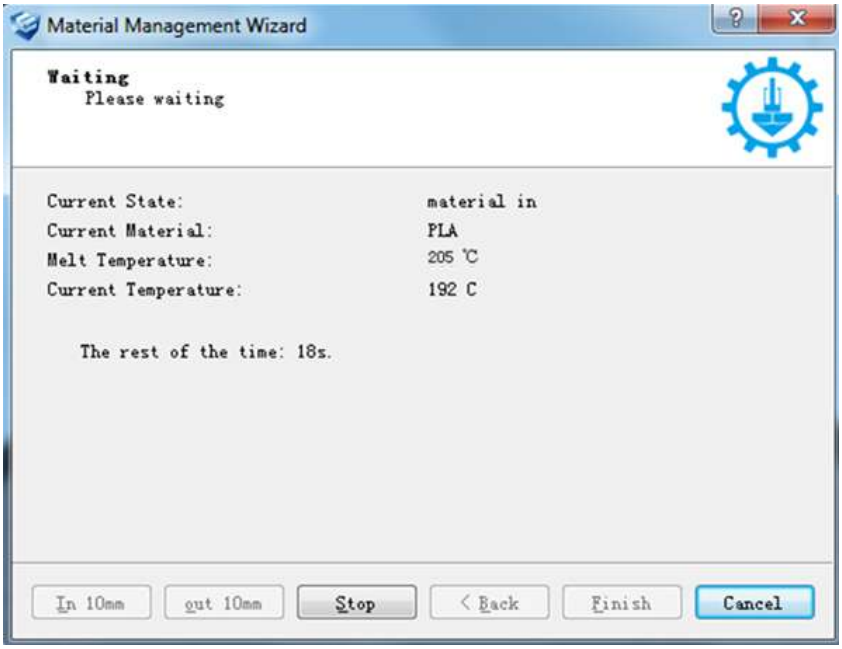


Figure 6.2.3

6.3. Pause/restart printing

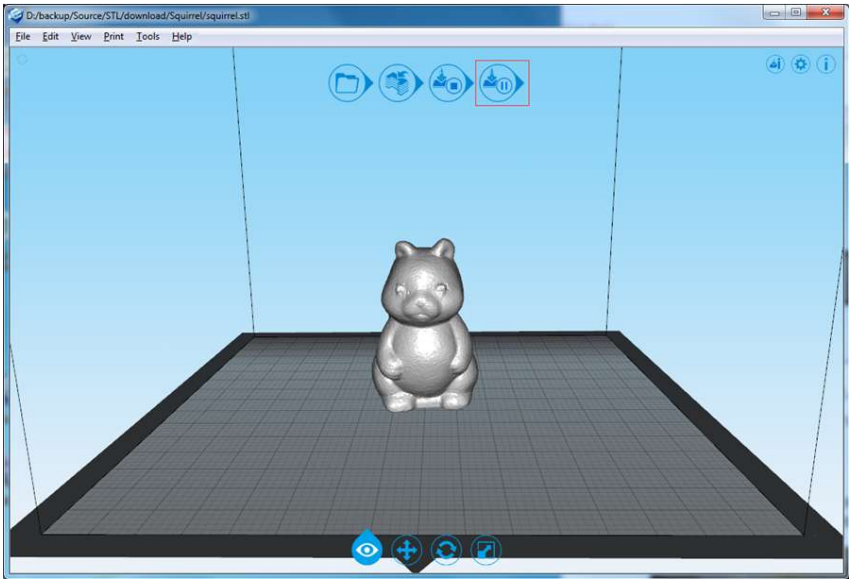


Figure 6.3.1

Click PAUSE, the platform will move to a secure position, and extruder control dialog will pop up. You can operate on Material-IN, Material-Out or Material-Change. Figure 6.3.2 shows the colorful model.

Figure 6.3.2

6.4. Set Z axis Height

Notice:this function can be only operated when the printer is online.

1. Click ,then choose machine “E-S”.

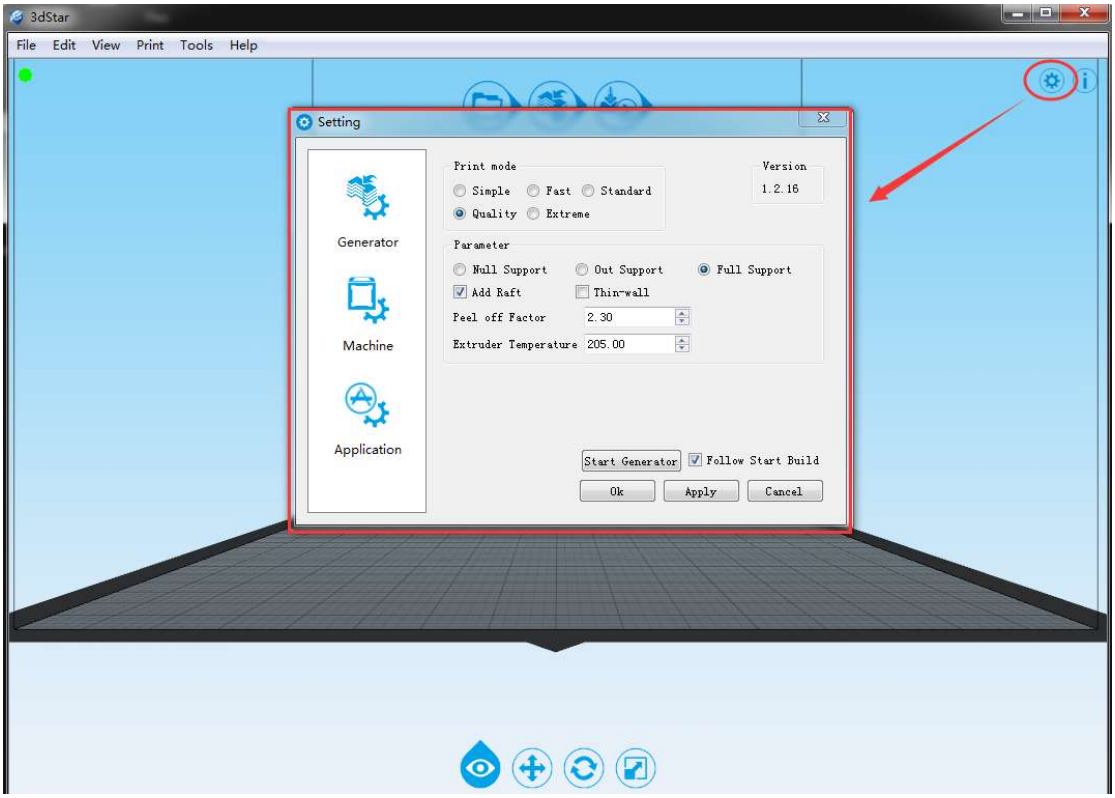


Figure 6.4.1

2. Click " Machine Calibration", see figure 6.4.2.

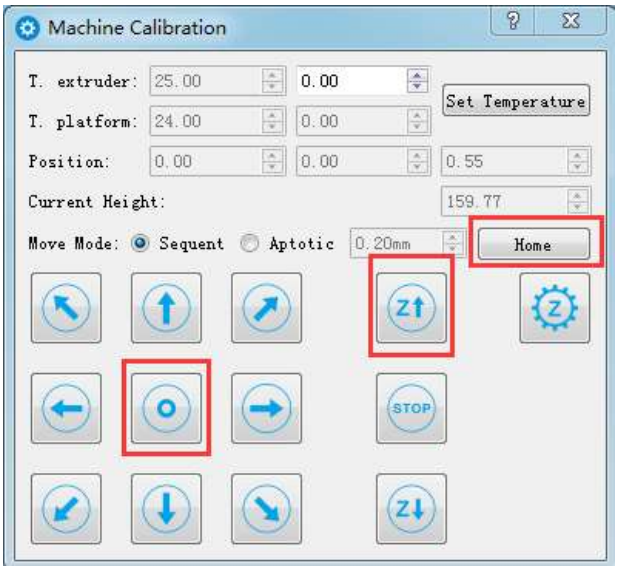


Figure 6.4.2

3. Click "Home" to move z axis to home position.

4. Click " " to move the extrude nozzle to the platform center.

5. Click" " to lift the platform until it close to the nozzle. Move mode can be chose

either Sequent or Aptotic. Please input a proper number in entry field when use Aptotic, avoiding the number too large to hit the platform. This step should be operated carefully. See figure 6.4.3

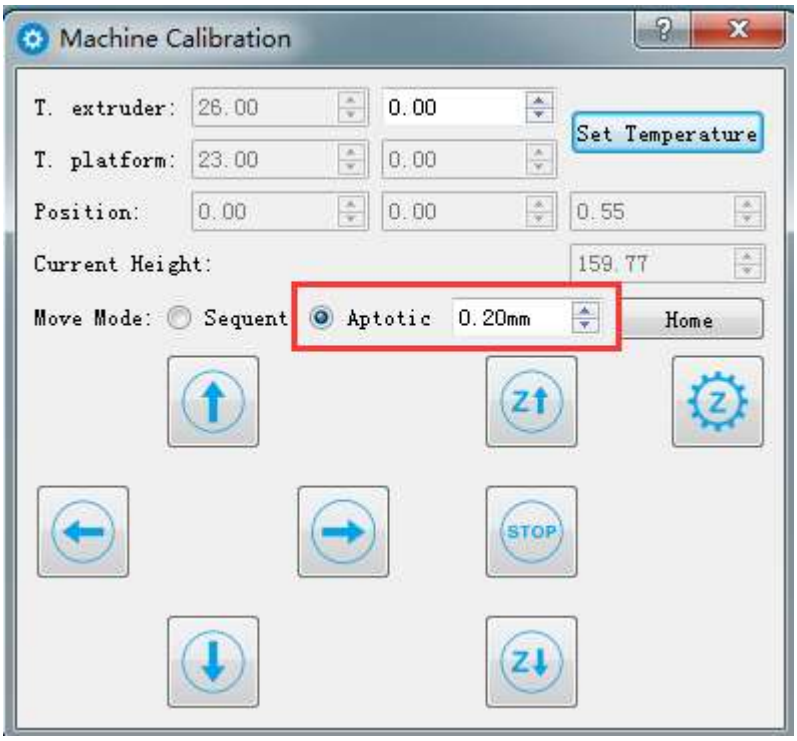


Figure 6.4.3

6. When the distance between the nozzle and platform adjust properly (about 0.2mm), click “ ” to set the offset, see figure 6.4.4.Make a note that the value may be negative.

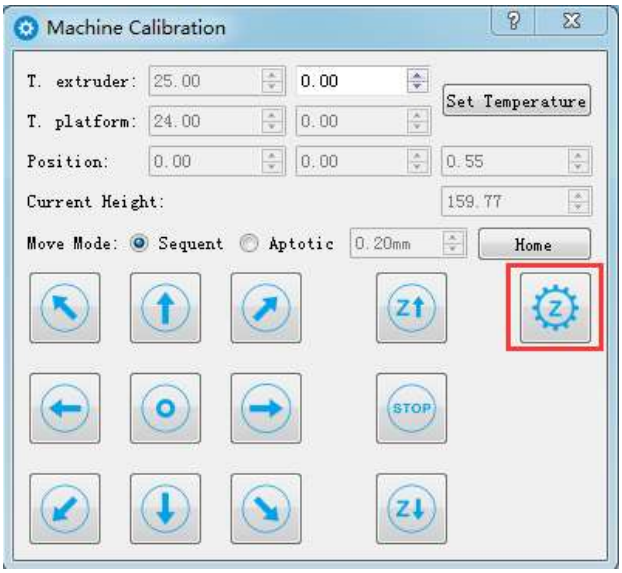


Figure 6.4.4

TIP :You may need to set Z height when models are not adhering to the platform properly or are distorted.

6.5. Level platform

Before the operation, you should know the ways to fix the print platform and adjust the distance between platform and nozzle well. Figure 6.5.1 shows the platform set.

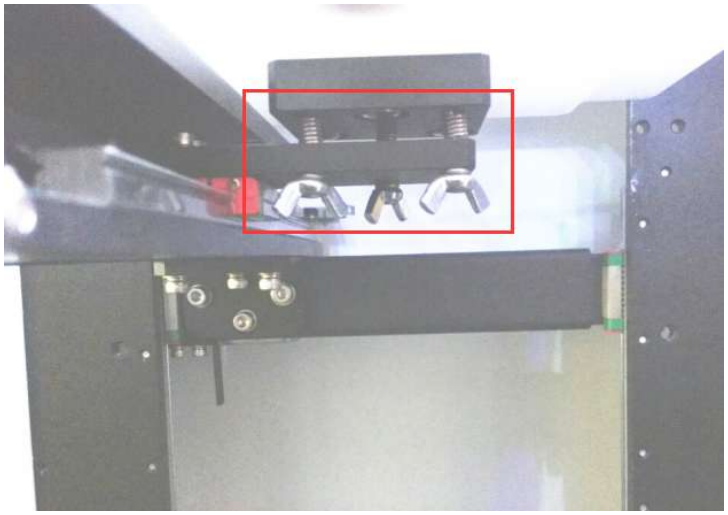


Figure 6.5.1

① Using 3 screws and 3 pressure springs to fix the print platform. Shown as the figure 6.5.2.

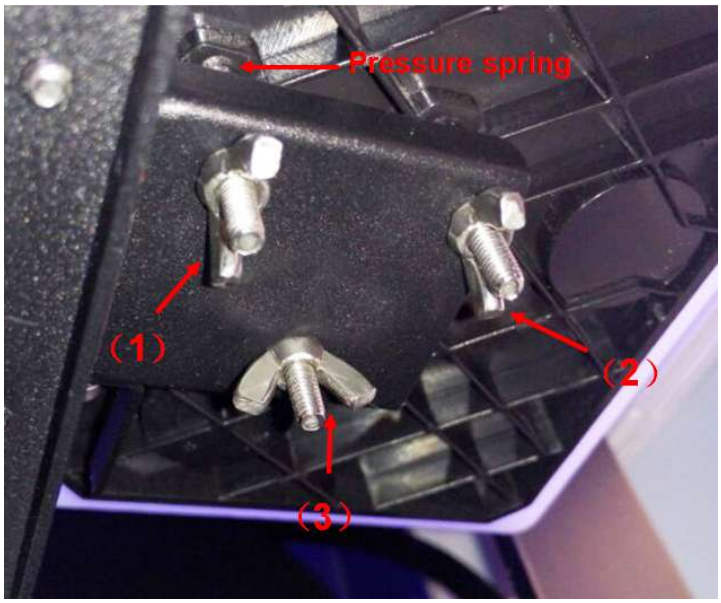


Figure 6.5.2

② The platform will move down if tighten the screws; The platform will move up when loosen the screws. Shown as Figure 6.5.3.

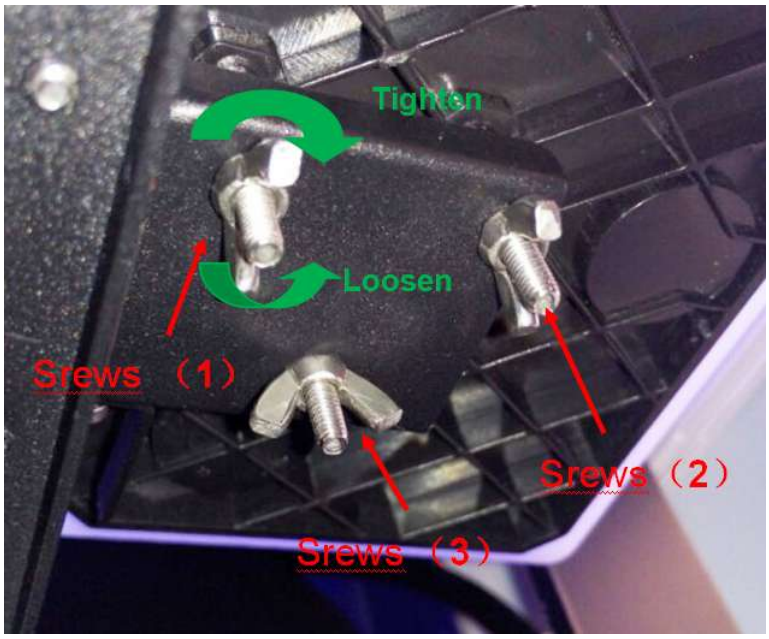


Figure 6.5.3

③ Set the nozzle temperature and platform temperature in the “Tools”->”Manager for Machine”, then click “Set Temperature” to start heating. Set the nozzle temperature as 180.0~200.0℃(PLA) . If there is material on the print head, please clean it at first.

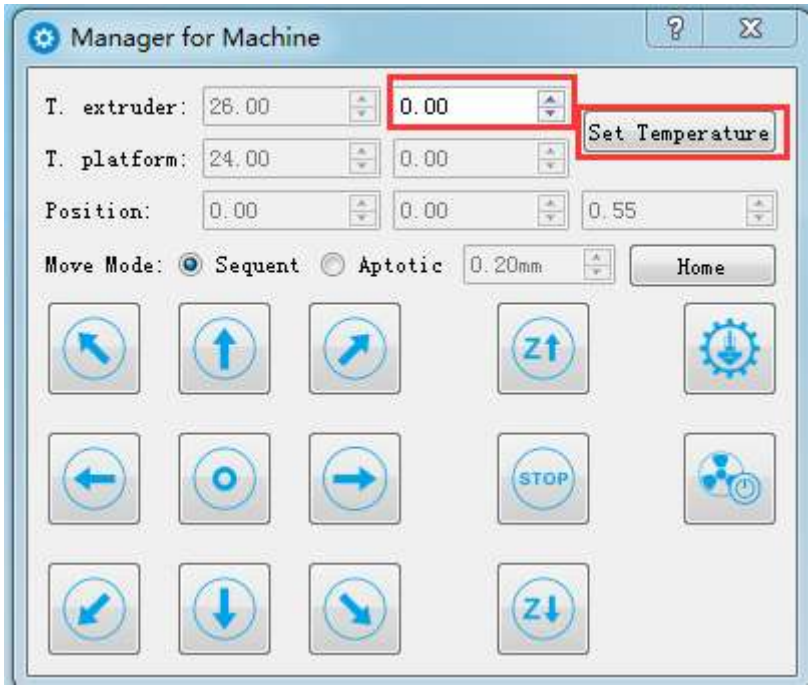


Figure 6.5.4

④ Please set the temperature to be “0” after cleaning the nozzle, and make sure the rest filament does not affect on adjusting leveling.

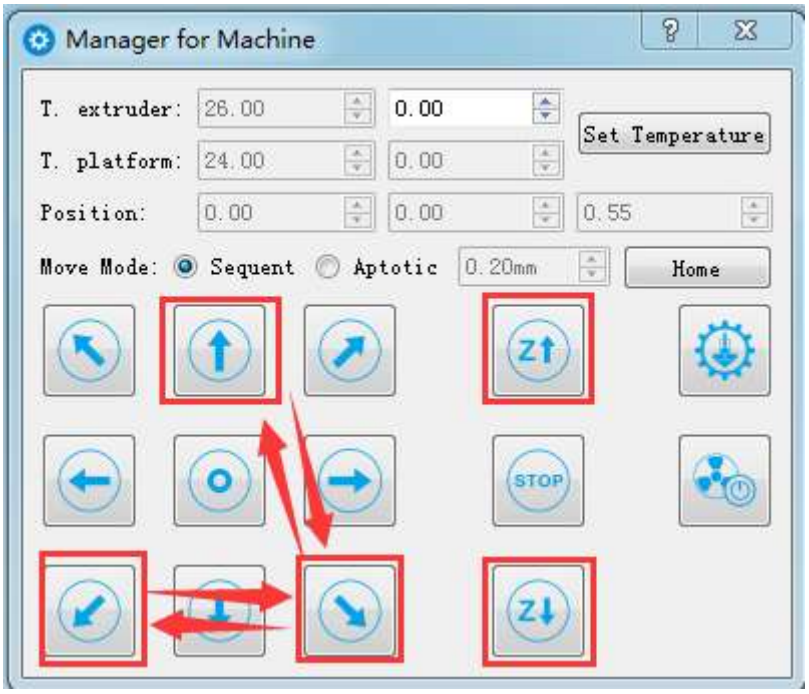


Figure 6.5.5

⑤ Click “ ”from “Manager for Machine” dialog box, and move the platform to the corner (“bottom left” corner) which corresponds to screw “（a）”

⑥ Click “ ”from “Manager for Machine” dialog box to rise the platform to highest point. If platform is near nozzle, please adjust a little from “Control Panel”. If the platform is far from nozzle, don’t need to adjust, you can set the Z axis height after the platform leveling.

⑦ Click “ ”from “Manager for Machine” dialog box and move the platform to the corner (“bottom right ”corner) which corresponds to screw “(b)”. Then compare the height of “bottom left” corner (the height between nozzle and worktable, similarly hereinafter) , and adjust screw “(b)” to make sure the height is the same as “ bottom left corner”. Click “ ” and “ ” to check the height difference and adjust to the same height as nozzle. Don’t move this two screws any more after operation finished.

⑧ Click “ ”from “Manager for Machine” dialog box and move the platform to the “center of Y axis” position and check the height to adjust screw “(c)” to make sure the height is the same as we did in last step. Click “ ” and “ ” to check the height difference and adjust screw “(c)” to the same height as nozzle height(during the adjusting, maybe there is some space between worktable and nozzle, and it can be

adjusted a little the height of worktable and nozzle using “Control Panel”).

⑨ Click “ ” to check the platform is level or not. If not, please do from step 3.

6.6.Firmware Update

1. Click “Tools”->”Firmware Update”, see figure 6.6.1.

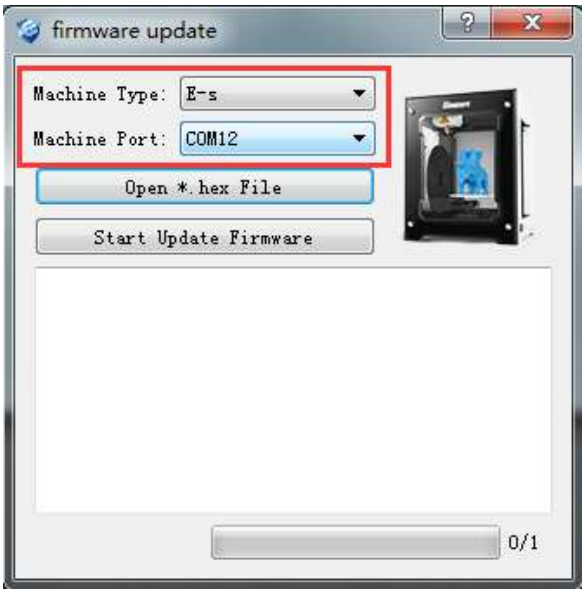


Figure 6.6.1

2. Select serial device, see figure 6.6.2 for Windows and figure 6.6.3 for Mac.

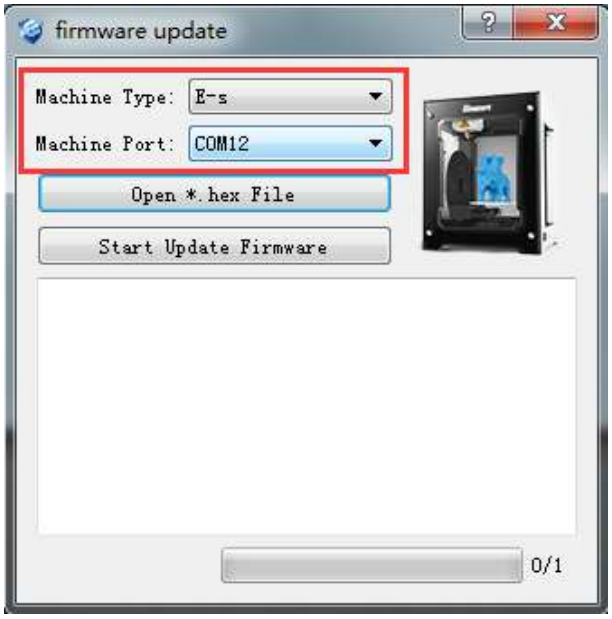


Figure 6.6.2

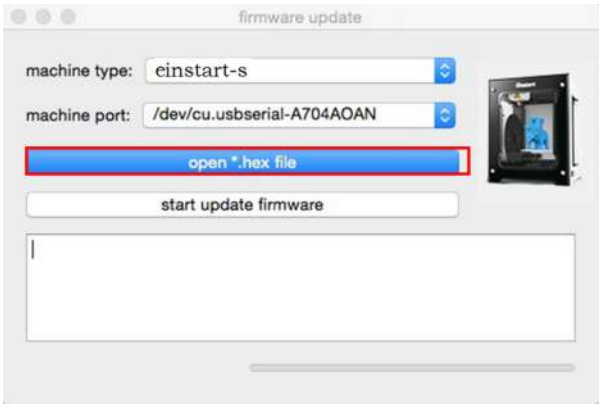


Figure 6.6.3

3. Click “open *.hex file”, choose hex file.

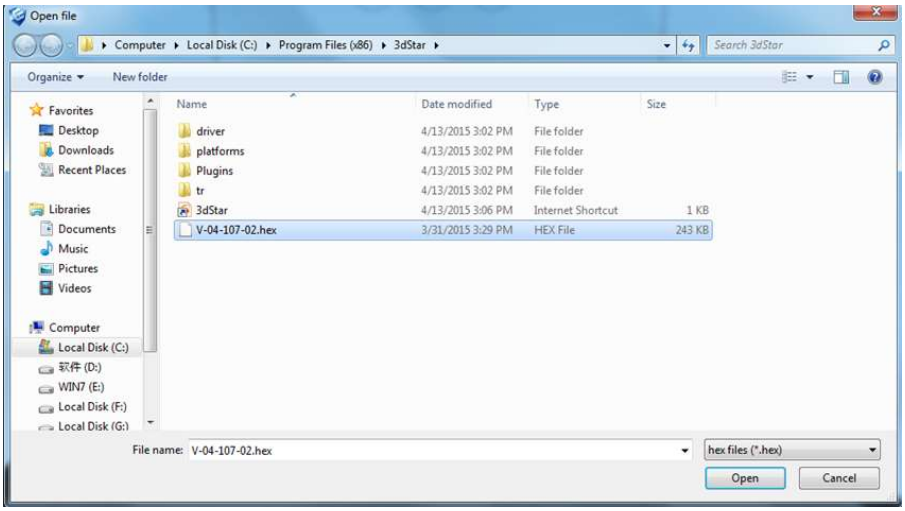


Figure 6.6.4

4. Click “start update firmware”, follow the guide to finish.

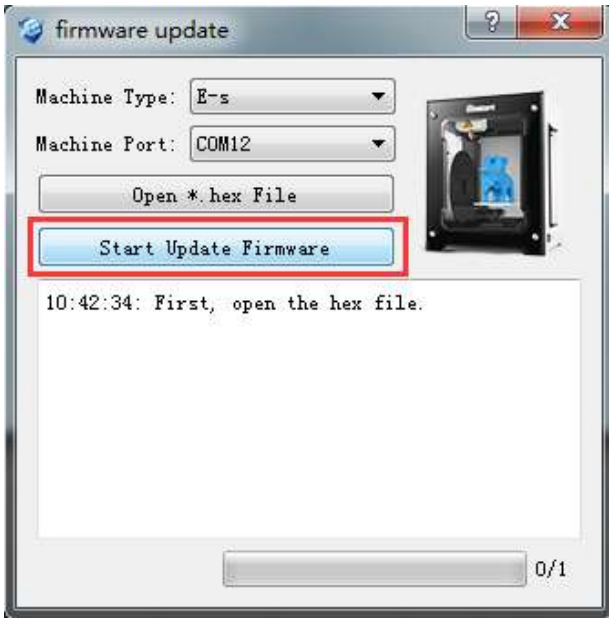


Figure 6.6.5

7. Maintenance

7.1. Changing the Material

Loading, withdraw and change the filament by “Tools”->”Manager for Material”

Note: the nozzle and print head is quite hot, so please wear the gloves during the operation.

7.2. Cleaning the Nozzle

After being used for several times, the nozzle will be covered with a layer of oxide material. When printing, the oxide filament may be melted and fall, and cause the model surface to change the color, so you need to clean the nozzle regularly.

At first, preheat the nozzle and set the temperature as 240℃ （ABS）, 195℃(PLA), then wait it heat up. Then use the heat-stable material such as pure cotton cloth or wadding to clean the nozzle.

NOTE ： Nozzle is the wearing part, which are outside the scope of one year machine warranty. Please clean it regularly, make sure the material is clean, don’t change material frequently.

7.3. Accessories

You can print the all plastic accessories of the printer by yourself. Because there are some 3D model in the file “3DModel”, containing tray holder, tube mounting bracket, Extruder guard and so on. If these parts are damaged, you can print them by yourself.

7.4. Packing list

3D printer mainframe	1 set	
Power supply and cable （out24V/3.75A）	1 piece	
USB cable	1 piece	
Filament tube	1 piece	
Filament	1 spool	
Hex wrench	1 set	
Cutter	1 piece	

Spatula	1 piece	
Tweezer	1 piece	
Pen knives	1 piece	
SD card	1 piece	
SD card reader	1 piece	
Glue	1 bottle	

7.5. Specification

Print Envelope	160*160*160mm
Layer thickness	0.1, 0.15,0.2, 0.3, 0.4mm
Nozzle diameter	0.4mm
Move speed	60mm/s
Vertical print speed	about 30cm³/hour
Positional accuracy	±0.1mm
Consumable Materials	PLA
Connectivity	USB, SD card
Nozzle	1

8 FAQ

8.1. The filament is blocked

Phenomenon: Make a sound when printing or load filament.

Solution: At first, unload filament and shear it evenly .If do this can't solve the problem. (Refer to the video or document instruction named"Deal with the blocked filament".)

Reason: Poor quality filament, or forget change filament before it exhausted.

8.2. The platform is not plain

Phenomenon: (1)The first layer of model raft is not plain.

(2) The platform base is not plain.There are friction and white powder on Y axis which is cause by the friction between inclined platform and Y axis

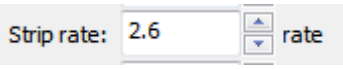
Solution：Use "3dStar" software to adjust platform and reset the height of Z axis.(Refer to user manual page 50-52).

Reason：Long time use may cause the screws on platform base is loosen. It is better to adjust the platform in every 2-3 weeks.

8.3. Model can't adhere to platform.

Phenomenon: The model edge warp or totally out of the platform.

Solution:：Put glue evenly on the platform, reduce strip rate or raise nozzle temperature when generate print path.



Strip rate range from 1.8 to 2.6, lower rate number be set, more tight become.

Nozzle temperature range from 195℃ to 230℃, higher temperature, more tight become.

Reason：(1) New platform is too smooth to adhere the model；

(2)The model is too big;

(3)It is also relevant with the shrink rate of filament.

8.4. Nozzle is surrounded by filament

Phenomenon: The filament is clump up around the nozzle

Solution: Take off the extrude cover and press the button of load filament to heat the printer head. Remove the cooling protective cover when the filament is

soften. At last, clean filament by tweezers (Please refer to the video or document instruction named“Clean nozzle”.)

Reason: The filament is not adhered on the model, but turn round the nozzle.

8.5. 3dStar software can’t connect to 3D printer or control it.

Phenomenon:It can’t find serial NO. in 3dStar software.

Solution: Re-install the drive of printer and register the serial NO.

Reason: (1) The drive path didn’t install correctly.

(2) Forget register serial NO.

8.6. 3D printer can’t read the data in SD card.

Phenomenon: The 3d printer screen show “ no SD card”.

Solution: (1) Use English and Arabic numerals name the .gsd file.

(2) Pull out or plug in SD card when the printer power off.

Reason: (1) Einstart DP 3D printer can’t read the .gsd file named by Chinese word,and it only show 6 characters add number if the name above 8 characters.

(2) Pull out or plug in SD card when the power on will cause the 3d printer can’t identify the SD card.

8.7. The extruder is blocked or forming cottony filament during printing the model, or the model is dislocated.

Solution: (1) Clean the filament and check whether the nozzle is blocked.

(2) load filament again.

(3)shut down the printer and check whether the X axis and Y axis an move normally.

(4) Print model again to to determine the exact problem.

Reason: (1) the poor quality filament will cause the extruder blocked.

(2)The nozzle run into the model cause the printing dislocated.

(3)The nozzle is blocked.

(4) The temperature sensor is broken.

(5)The cooling fan can’t move.

8.8. Limit switch broken

Phenomenon: it starts to make loudknocking noise after open the printer for some springs on limit switch is broken.

Solution: Change limit switch (Refer to the video and document).

Reason: The limit switch was broken by mistake when clean the remaining filament or damaged during transport.

8.9. The wire of power is poor connect

Phenomenon: The light of power adapter isn't work after applied power, or the power is shut down for the plug is touched lightly.

Solution: Try to update firmware again or change power adapter(24V/80W).

Reason: Update firmware failure, or the wire of power is poor connect.

8.10 Turbo fan start and stop

Phenomenon: Turbo fan start and stop automatically

Reason: Turbo fan is used for cooling the model, so the system of printer will start and stop turbo fan base on different printing stage.

9. Contact Us

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