

ISUN3D User Manual

isun 3D Printer



Important

Read the manual carefully, It is highly recommended that you read everything from start to finish, unless the document explicitly states that you can ignore.

Visit <http://www.isun3d.com> to get additional support videos and guides.

Warranty Note

If you experience any issues with this product, or it's performance is not what you had expected, please contact us before returning the item to the store. It is likely that we can resolve any problems for you via phone or email.

We can be reached on

Phone: +86-755-26031976(Mon-Sat; 8:30am-6:00pm)

Email: isun3d03@isun3d.com

Safety Instructions

Before you get started, please read these important safety instructions.

CAUTION: The ISUN 3D Printer includes moving parts that can cause injury. Never reach inside of the ISUN 3D Printer while it is in operation, and allow time for the printer to cool down after operation.



Do not leave the ISUN 3D Printer unattended during operation



Always wear the glove while handling resin or printing object.



Always take care when using the Scraper. Never direct the Scraper towards your fingers.

- Do not allow the machine to be opened without authorization
- Keep the printer and all accessories out of reach of children

- The printer must not be exposed to water or rain, or damage will occur.
- Do not expose this device to water or moisture of any kind. Do not place drinks or other containers with moisture on or near the device. If moisture does get in or on the device, immediately unplug it from the power outlet and allow it to fully dry before reapplying power.
- The printer is designed to be used with ambient temperature ranging 15°C - 30°C, and humidity ranging 20% - 50%. Operating outside these limits may result in low quality models.
- In case of emergency, turn off the 3D printer at the power outlet.
- Unplug this device from the power source when not in use.
- It is recommended that you use eye protection when cleaning/sanding printed models to avoid small particles contacting eyes.
- Be careful not to damage the LCD screen on the build plate
- This device is intended for indoor use only
- Avoid eyes looking directly at the printer while printing, the ultraviolet radiation may damage your eyesight.
- Do not reach inside the printer during operation.
- Ensure that the printer is turned off and unplugged from its power source before making repairs or performing service.
- Do not install this device on an unstable surface where it could fall and cause either persona injury or damage to the device and/or other equipment.
- Do not touch the device, the power cord, or any other connected cables with wet hands.
- Use only in a well-ventilated area. Do not use in dose, confined spaces.
- Prior to operation, check the unit and power cord for physical damage. Do not use if physical damage has occurred.
- Before plugging the unit into a power outlet, ensure that the outlet provides the same type and level of power required by the device.
- Take care to prevent damage to the power cord. Do not allow it to become crimped, pinched, walked on, or become tangled with other cords. Ensure that the power cord does not present a tripping hazard.
- Never unplug the unit by pulling on the power cord. Always grasp the connector head or adapter body.

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1. Welcome to the isun 3D

This User manual is designed to help you start your experience with ISUN 3D. Within these pages, we want to show you how simple and easy it is to produce great prints.

You might be familiar with other 3D-printers. It is essential that you read this manual carefully as there are a lot of new procedures with ISUN 3D.

Specification of the isun 3D

Printing

Print technology	LCD photocurable, surface forming
Build volume	120mm*60mm*135mm
curing rate	5s~15s per layer
X/Y Accuracy	0.05mmmm
Z Accuracy	0.02mm, layer thickness
material	Photosensitive resin (405nm wavelength)
LCD resolution	2K (1440*2560)
Connectivity	Ethernet RJ45, WIFI

Physical dimensions

Frame Dimension	210mm*210mm*386mm
Weight	10.kg
Shipping box	325mm*340mm*540mm
Total shipping weight	9.5 kg

Software

Slice software	CreationWorkShop (Only windows)
File types	STL/CWS/SLC
Printing software	Browser (Chrome is the best)

Electrical

AC INPUT	100–240 V ~ 1.5A 50-60HZ
Power Requirements	12V 5A 60W MAX

2. Package contents

What' s in the box:

1. UV Protection lid
2. Printer(including printing platform)
3. Resin tank
4. Power cord

Product overview







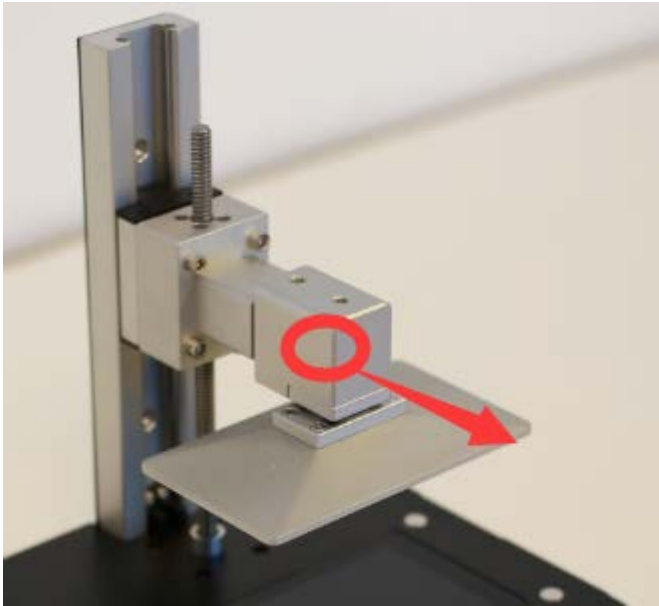






Note :

- The printing platform is fixed on the print head by a magnet and can be slowly pull out along the front of the machine



- The resin tank is fixed on the LCD screen by the magnet, when putting it on, take a little effort, be careful the sudden magnet attraction may damage the screen

Open box video: http://Isun3d.cn/?page_id=480

3. First boot, connect to the printer

The first boot is certainly exciting, in order to ensure the smooth completion of this process, in addition to the content of this chapter, we also deliberately produced a video, address: http://Isun3d.cn/?page_id=520, of course, the following documents are more informative.

The printer has little requirement for computer hardware. The only way to access the printer is by using browsers on PCs, smart phones, iPad or other devices, but because of compatibility issues, we recommend using the latest version of Google Chrome.

Network configuration

Browsers need to use Ethernet or WiFi when connecting to a Isun 3D printer, rather than a USB commonly used by ordinary printers.

When the first boot, plug directly into the power cord, press the front panel switch, you can start. At this point you can see that the inside of the machine lights up, and hear the bottom of the fan running sound, the printer has been turned on.

The first time you connect to a printer, you can only use the Wired Ethernet network. Need a cable, plug it in the back of the printer, and the other end on the computer. The first boot will took about 3 minutes. Open Chrome Browser, enter 169.254.3.3 in the address bar, you can see the printer's task list to indicate that the printer connection was successful.

Network Configuration Repair

If the browser is connected successfully, you can skip here.

If the browser is unable to connect to the printer, we need to reconfigure the network of the computer to get the IP address automatically.

First, we have to make sure the cable is plugged in.

Then, set to get IPv4 address automatically, takes windows as an example :

1. Do one of the following:

- In Windows 10, in the search box on the taskbar, type **View network connections**, and then select **View network connections** at the top of the list.
- In Windows 8.1, select the **Start** button, start typing **View network connections**, and then select **View network connections** in the list.

- In Windows 7, open Network Connections by selecting the **Start** button, and then selecting **Control Panel**. In the search box, type **adapter**, and then, under **Network and Sharing Center**, select **View network connections**.
- 2. Right-click the connection that you want to change, and then select **Properties**. If you're prompted for an administrator password or confirmation, type the password or provide confirmation.
- 3. Select the **Networking** tab. Under **This connection uses the following items**, select **Internet Protocol Version 4 (TCP/IPv4)**, and then select Properties.
- 4. Select **Obtain an IP address automatically**, and then select OK.

Configure the printer to connect to the router

With the wired network connection previously configured, the printer is already working, but it is recommended that you configure the printer to connect to the router or wireless router, and the benefits are:

- Release the computer's network interface: After access to the wired or wireless router, the printer can be placed anywhere can be connected to the router, without having to connect directly with the computer, as long as the computer is also connected to the same router, you can access the printer through the router.
- If it is a wireless router, other devices on the network, such as mobile phones and tablets, can also be connected to the printer via WIFI and can be connected simultaneously.
- If the router can access the Internet, the printer can also enjoy free online upgrades, the software always keep up to date.
- Connection is more reliable, you can configure both WIFI and wired Ethernet, so that in case one of the connection methods of hardware failure, another way can continue to use


If you do not have a router or do not intend to access it, you can skip this chapter. The new user can skip this section for a while and be familiar with the printer before coming back to configure it.

The printer has 2 ways to connect to the router:

- WIFI
- Cable network

Connect to a router via WIFI


First make sure that you have connected to the printer through the network cable, then go to the **Settings** page, select the **Access Point** you want to access in the Drop-down list, enter the password, and then click **Reconfigure** to complete the configuration

 **WIFI Setup**


Connecting built-in WIFI card to router, surfing the Internet while printing


Warning : Configuring WIFI only with network cable plugged in

WIFI Info: SSID : Haihai2011 , IP : 192.168.1.10


 **Access Point**

Select a wifi network

 **Password**

 **Reconfigure**

After about half a minute, refresh the page and you can see the IP address assigned to the printer by the router:

 **WIFI Setup**

Connecting built-in WIFI card to router, surfing the Internet while printing

Warning : Configuring WIFI only with network cable plugged in

WIFI Info: SSID : Haihai2011 , IP : 192.168.1.10

Click on the IP address, you will find that you can use this new address to access the printer, and then you can unplug the network cable, enjoy the convenience of wireless networks.

Note: This IP address is allocated by the router, it will be changed after the router reboot, it is recommended to set a static bindings for the printer' s MAC address and the IP address at the router' s configuration page, so that the IP will always belong to your printer, you can always access your printer through this IP.

In case of an inability to access the printer because of the change of IP address, you can go back to the very beginning, connect the printer and computer with the network cable directly, and then access the printer through URL <http://169.254.3.3>, and finally get the current WiFi IP address on the **Settings** page.

Connect to a router over a network cable

In addition to WIFI, the printer can also be connected to the router through the network cable, the method is very simple, plug one end of the network cable in the back of the printer, unplug the other end from the computer and insert it in the router's LAN port (note that is not the WLAN port). And this connection can coexist with WIFI.

No additional configuration is required, just have to get the IP of the printer from which to connect to the printer.

How to obtain the printer' s IP: Access the router's management interface (typically 192.168.0.1, 192.168.1.1 or 192.168.3.1, refer to the router's user manual or the label behind it), you can see the list of all the devices that are connected, the device name starts with ISUN3D is our printer, or unplug and plug the network cable, the new device is the ISUN printer.

Then you can access the printer by entering the IP you just got in the Chrome browser.

4. Quick guide for first printing

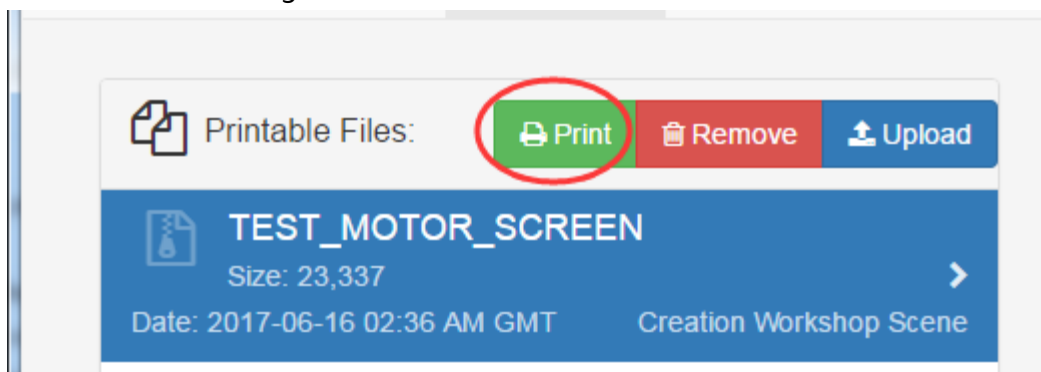
With the previous configuration, we can access the printer through the browser, and now we can start our first printing.

test printing, without resin tank

Before we print the objects, we simply test to see if the printer is working properly.

Make sure the print platform is placed on the platform arm, and the tank is not placed first, as shown in the following figure:

In the browser, switch to **Printables** tab, select **TEST_MOTOR_SCREEN**, click the **Print** button, as shown in the following illustration:



You can see that the printer follows these actions in turn:

1. The platform moves down and eventually fits on the screen
2. The platform rise up
3. The screen is light on (note: A glance is enough, do not look at more than 1 second, have ultraviolet)
4. Screen display "Isun test"
5. Screen light off, test end

At this point, the 3D printer' s hardware, software work properly.

Print test sample

After completing the previous test, this time we will print a simple object. The machine comes with

a simple model file, which can be printed directly.

Preparing before printing

This assumes that the user do the print test for the first time after receive the new machine, if not, please refer to "7.1 Preparing before printing" detailed steps to operate, or may cause damage to the machine.

However, at a minimum, make sure that the platform and resin tank are clean. Slowly place the resin tank over the screen (with a magnet to help locate it automatically), pour the resin (at least cover the entire bottom surface), and cover the lid

Print test sample

Enter **Printables** tab, select file **TEST_ISUN_8040**, and click **Print**, the printing will start immediately.

After about 10 minutes, a small slice that contains "Isun test" is printed out

TODO: image

After printing

After printing is complete, you **MUST** to follow the chapter 7th, "Processing after printing" to operate, or you will damage the machine

5. Adding support for the 3D model

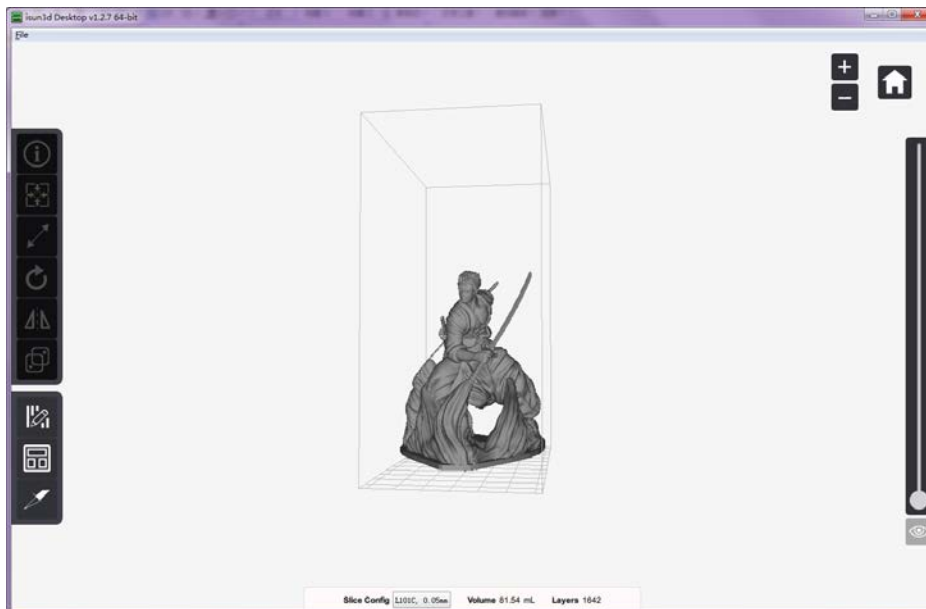
After the quick guides, we can print a test object, but if we want to print our own objects, more is needed to do. After get the STL format model file, we usually need to add support (this chapter), then slice (Next chapter), and then you can print.

Note: Adding support is a key step in printing success, and almost all objects need support before printing

In addition with the addition of support, it is also important to adjust the angle of the object, although the operation is simple, but if we do good, it will make a great help to printing success. The angle adjustment is generally carried out together with the support.

You can use any 3D modeling tool to adjust the angle and add support, which only describes

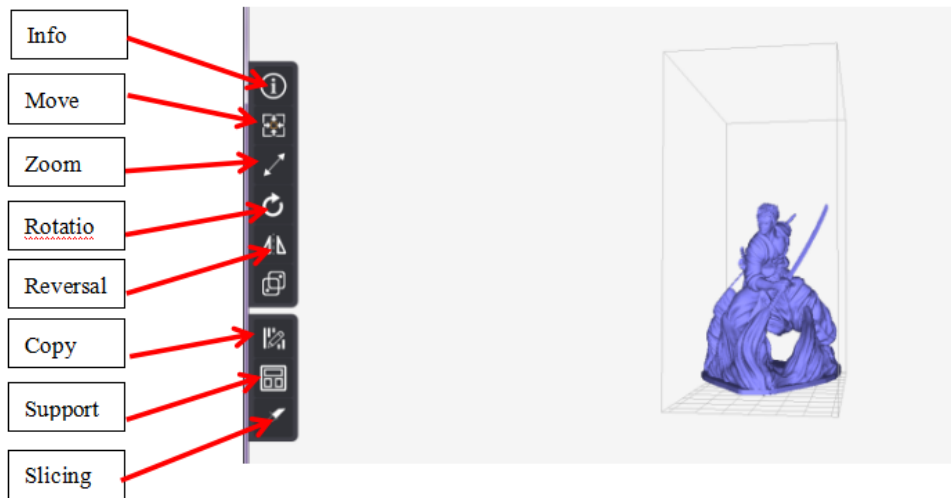
Basic operation of sliced software



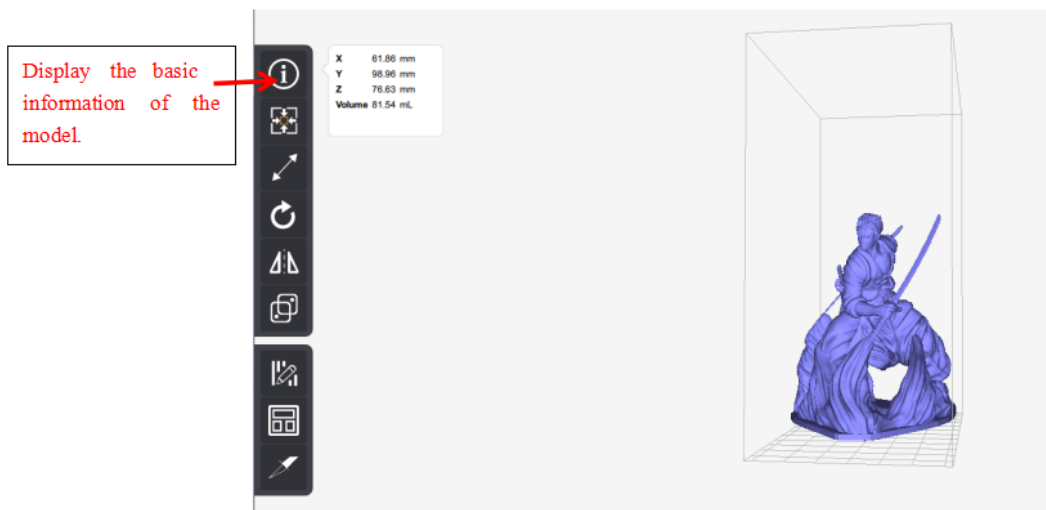
Left Mouse Button: Rotate Camera

Right Mouse Button: Drag

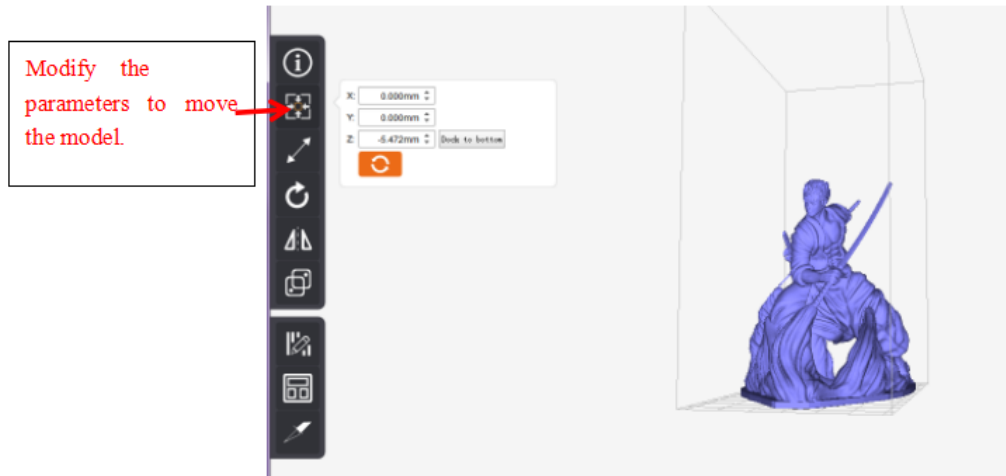
Mouse Wheel: RS



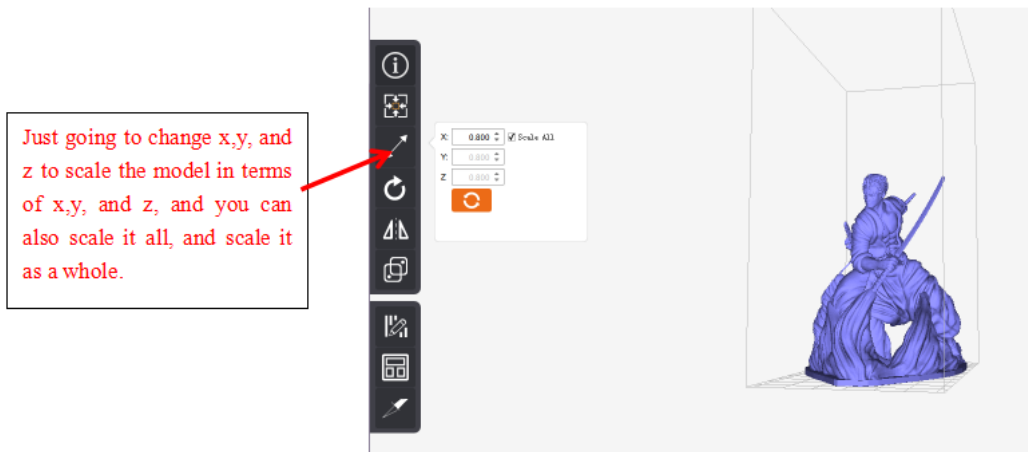
Info: Basic information of the model.



Move: The mobile model is in the location of the software.

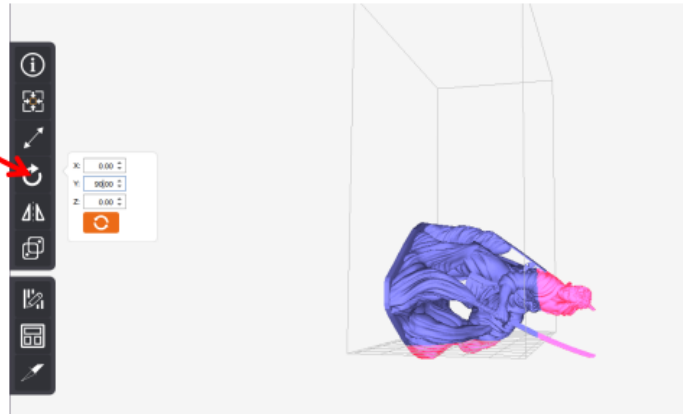


Zoom: The ratio of the model to the software print box, you can choose to scale all, or you can choose to scale one axis separately.



Rotatio

Adjust the value of the xyz triaxial to rotate the model according to the selected axis.



Reversal

Click the xyz button to make the model turn over the selected axis.



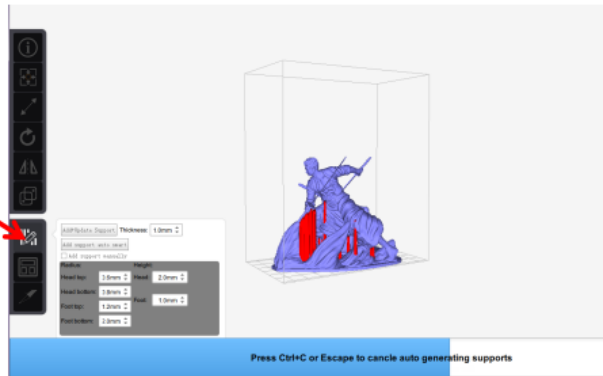
Copy

Model copy only needs to click the copy button, there is no list for selection.



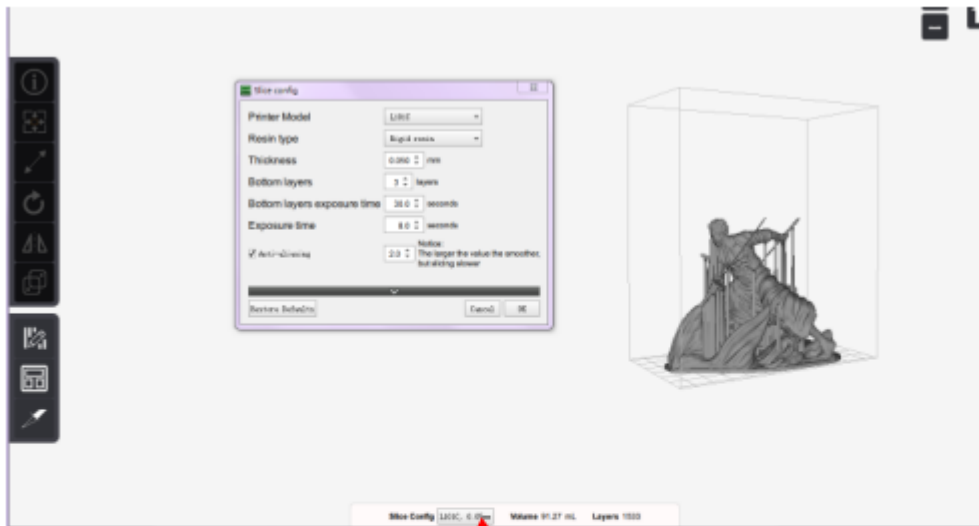
Support

Support options are available temporarily.
-Add the bottom of the support.
-Manual support Dynamic add support please continue to focus on software updates.



Slicing

1. Click the slice Settings button at the bottom of the software.



1. First click the section Settings at the bottom of the software.

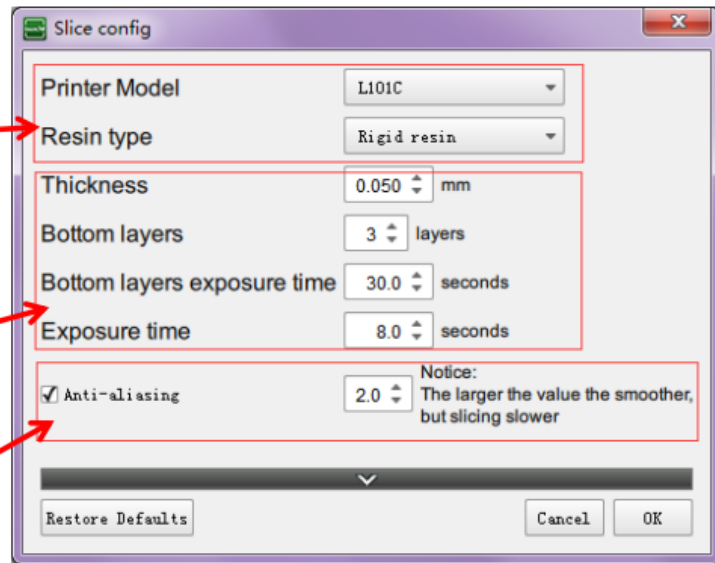
- 2.

2. Modify the print parameters as needed.

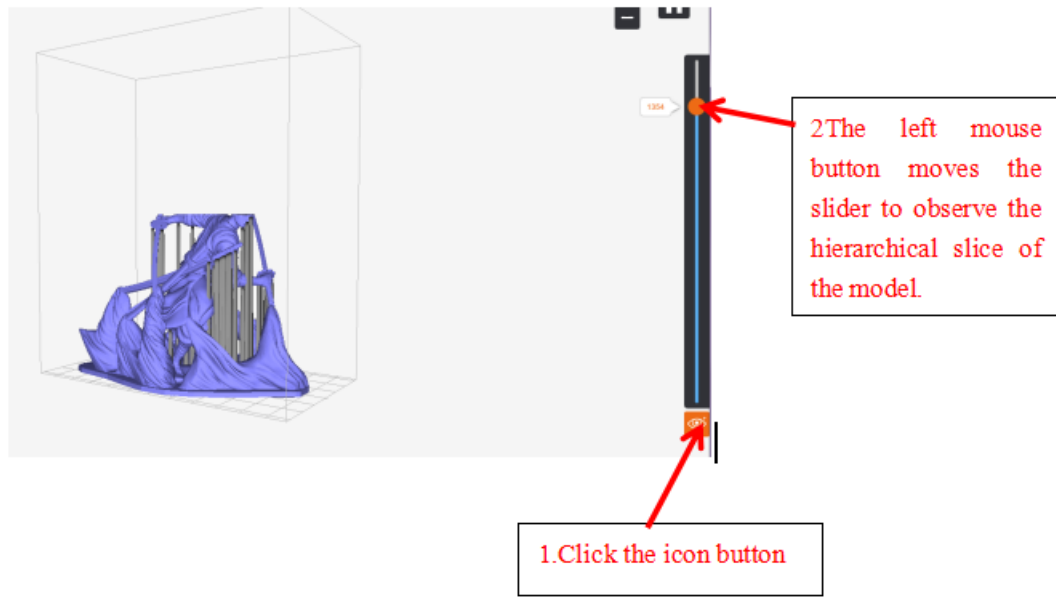
Select machine type and resin type to automatically update printing parameters.

Print parameters can be selected by default, or they can be adjusted by experience.

The larger the anti-aliasing, the smoother the slice will be.

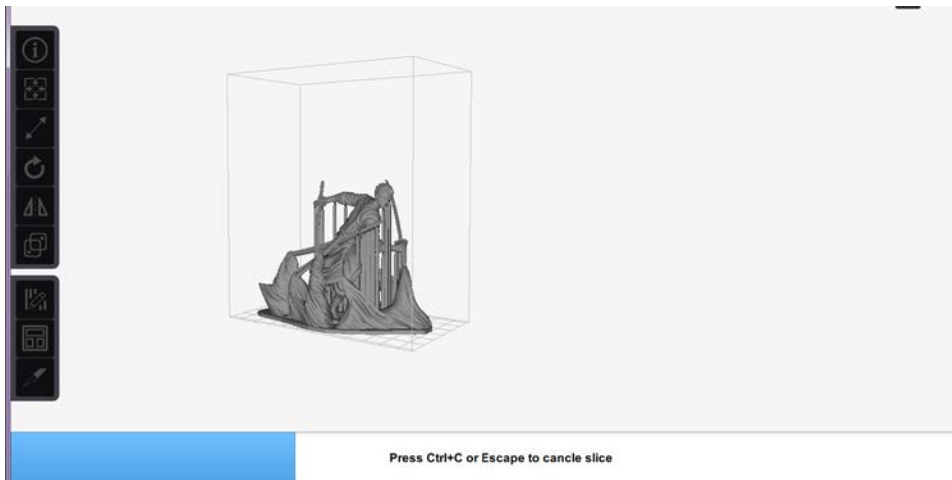


3. Click the slice button

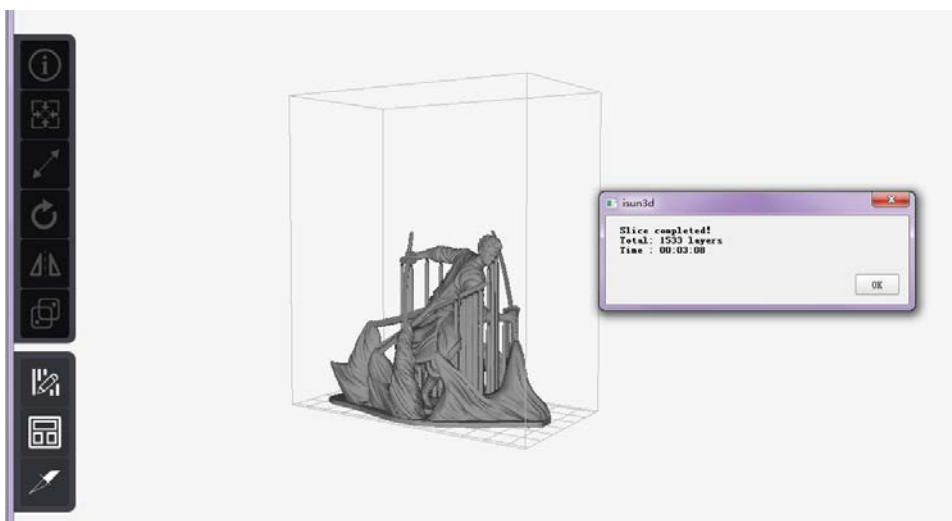


4. Save after the named file.

5. Wait for section completion

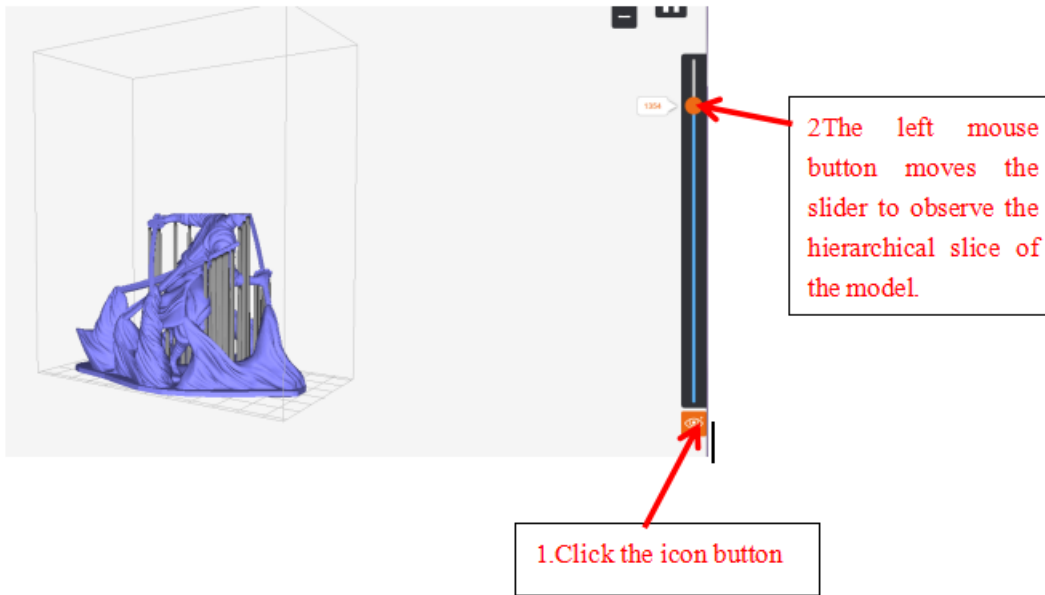


6. Success



Display section diagram

1. Click the icon button in the lower right corner of the software.
2. The left mouse button moves the slider to observe the hierarchical slice of the model.



7. Printing object

After the preparation, the file is ready to print, please follow the section in strict order.

7.1 Preparing before printing

Before printing, you must check the following:

- Printing platform has been leveling, The distance between the print platform and the screen is even, and the gap in the middle is probably only one piece of paper. The new printer has been leveling, after using a period of time, you can level manually, please refer to chapter 8th for the leveling guidelines.
- Resin tank is clean, no curing residue. If there is already resin in it, you can pour it out for easy inspection.
- Printing platform is clean, no residue.
- Printer leveling, can be based on the liquid in the resin tank to simple judgment.

After the above inspection, install the resin tank and printing platform, you can add resin to the resin tank. Used resin may be cured residue, it is recommended to use 200 mesh filter before use. Also ensure that the amount of resin is sufficient, at least to cover the bottom of the resin tank, can

be added during printing process.

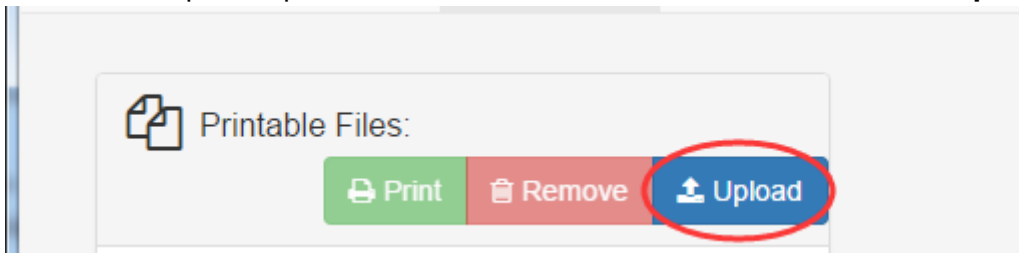
Printable file upload, management

Before printing, you also need to upload the previously prepared slice file to the printer.

Currently supports files in 3 formats:

- CWS file, which is the file that was generated by using the CWS software to slicing.
- STL file, is the original 3D model file, can print directly, but need to add the user's own support, and the maximum size can not exceed 20MB, more than that may fail to print, because the built-in SOC with the CPU, memory and other resources are limited.
- SLC file, generated by the Jewelcad which is comm in Jewellery industry, also requires a good support.

3 file format upload operations are the same, in the "**Printables**" tab, click **upload**



In the pop-up dialog box, first click the "Select File", wait a few seconds in the pop-up dialog box to select a local file, and then click on the top right corner of the "Upload file" to start uploading, after progress reached 100%, click on the top left "Cancel" to finish.



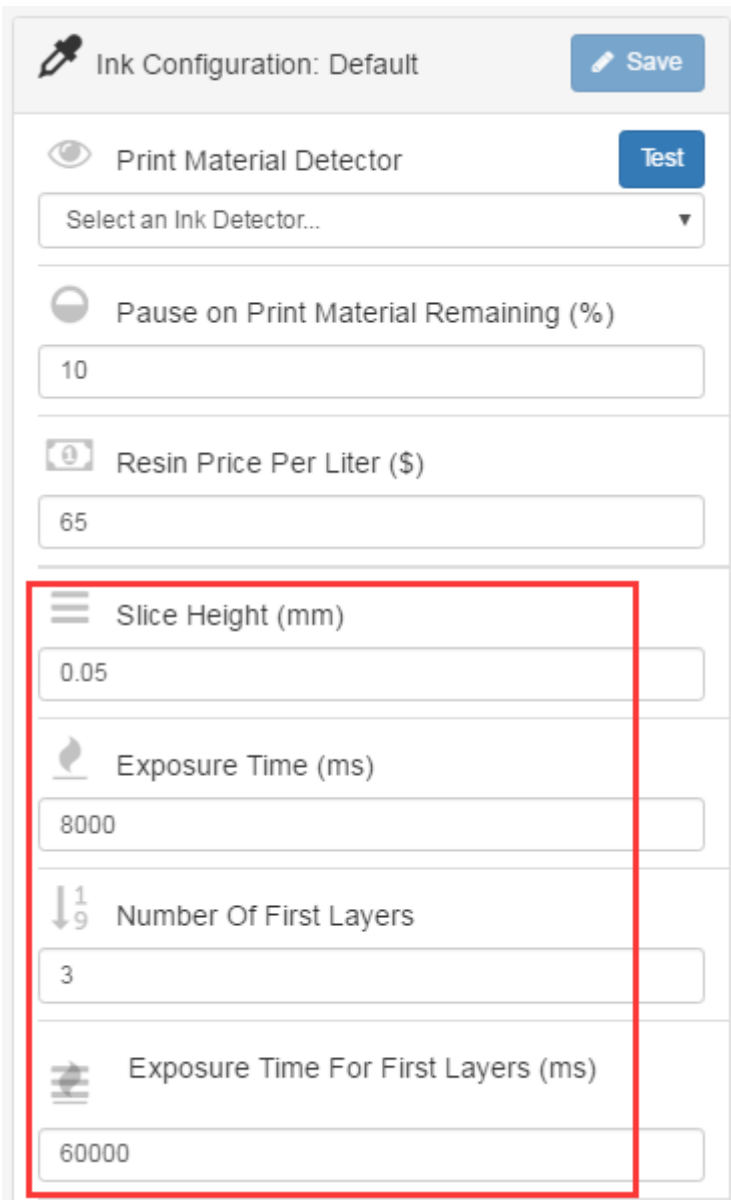
After uploading, you can find the slice file you just uploaded in the **Printables** page (if you don't refresh the page with F5).

stl/slc file configuration

The CWS file can be printed directly, skipping this section.

STL and SLC files, because they do not have slices and exposure information, you need to do a simple configuration on the print interface. Enter the **Printer** page and select Isun3D:

You can see the default slice, exposure-related parameters at the bottom **Ink Configuration** block:



The screenshot shows the 'Ink Configuration: Default' interface. At the top, there is a 'Save' button. Below it, there is a 'Print Material Detector' section with a 'Test' button and a dropdown menu labeled 'Select an Ink Detector...'. The next section is 'Pause on Print Material Remaining (%)' with a value of 10. Below that is 'Resin Price Per Liter (\$)' with a value of 65. The bottom section, highlighted with a red box, contains four parameters: 'Slice Height (mm)' with a value of 0.05, 'Exposure Time (ms)' with a value of 8000, 'Number Of First Layers' with a value of 3, and 'Exposure Time For First Layers (ms)' with a value of 60000.

The stl files are sliced according to these parameters, while exposure printing

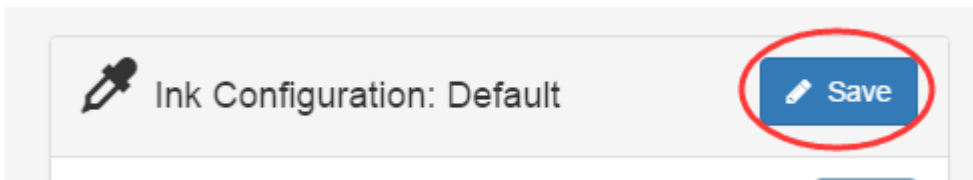
The slc file comes with a fixed thickness, so **Slice Height** is ignored, whichever is the actual slice parameter.

Changing any parameters need the following steps :

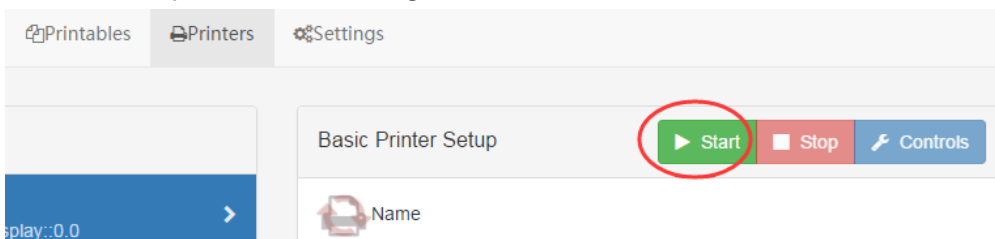
1. Stop the printer, and if there is a file in print, stop printing or wait for the print to complete

2. Modify Parameters

3. Click **Save**



4. Start the printer, the configuration takes effect



Start printing

Select the file, and click Print, so easy.

Check printing process

During the printing process, enter **Print Jobs** page, you can see the process, select the task, you can see the current slice image.

Adjusting exposure parameters in print

When you print a CWS file, you sometimes just want to change the exposure time and it's too much trouble to slice it again. The print software supports modifying the exposure time of the normal layer (bottom exposure time is unaffected) after the print starts, and is only valid for the current print task.

Steps:

1. Start print a cws file.
2. Select Printer, click **Controls**.
3. Under **UV Light Control**, under **Override Exposure Time** input box, input the new exposure time (note that the unit is a millisecond, such as 8 seconds to write 8000 here), and then click **Go** to take effect immediately, printing the next layer will use the new exposure time.

After printing

After printing, clean up in time, otherwise it will affect the next printing, or even damage the printer.

Clean the printing platform and remove the object

After printing, the printing platform will automatically rise, remove the printing platform (magnet fixed, hard to pull out slowly).

Just finished printing the object is still on the print platform, there is a large amount of resin residue, can be placed for half a minute, let the resin naturally shed

Then rinse the print platform with the object with alcohol or water, or wipe it clean with a tissue.

Finally, use the knife to slowly scrape the object down. Just finished printing the work may be more brittle, so be careful.



Clean the resin tank

After printing, theoretically there is only resin left in the resin tank, but there may be some residual resins that are already cured. Therefore, the resin tank must be carefully inspected to ensure that the remaining resin has no solid residue, if any, must be cleaned out, otherwise it may cause the screen to break.

It is best to pour the remaining resin out and clean the resin tank.

When cleaning the resin tank, as far as possible let the resin natural flow clean, rather than cleaning. Due to the use of special materials, no water is need when cleaning, place the resin tank vertical for a few minutes, the resin will flow clean, clean the rest with tissue.



Reuse of residual resins

After printing, the remaining resin can be reused, but it must filter out the possible solid impurities inside, can be filtered with 200 mesh filter before reuse, otherwise the next printing may fail and damage the screen.

Post-processing & twice exposures

Because of the special process of light curing, when the printing is just completed, there are some resin residue on the surface, can be washed off with alcohol. Complex models can be cleaned by ultrasonic cleaning tools.

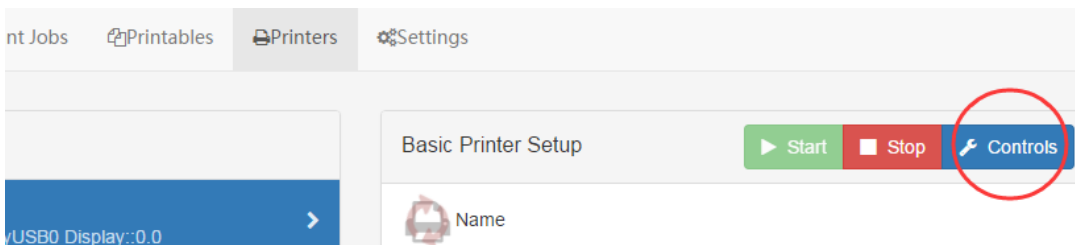
And, when the printing is just finished, the resin is not completely cured, with a little odor, can be irradiated by the sun, or buy a special twice curing ultraviolet lamp to illuminate, so that the resin can be cured thoroughly, and the transparent resin will be bleached.

Other printer operations

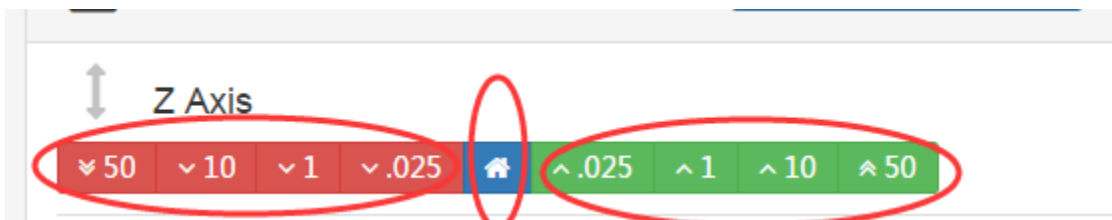
All printer operations are done through the browser.

How to move a print platform up and down

Go to printer Controls page



Click buttons to down, homing, and up, the unit is mm



View machine information, model:

In **Settings** page, you can see all machine information, including WIFI, IP address, model, serial number



Online update

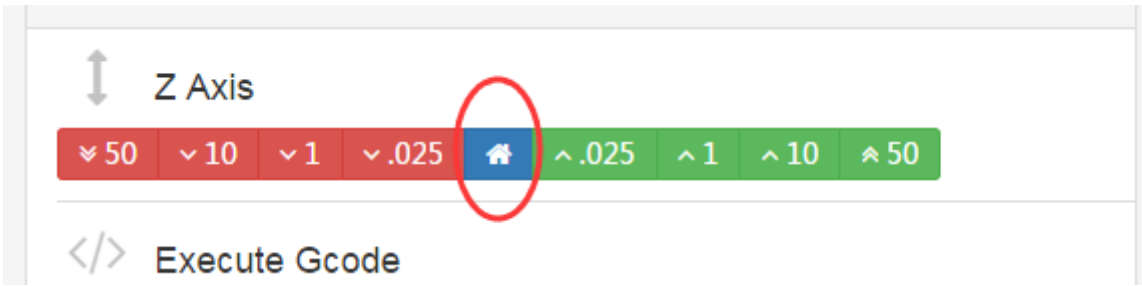
Enter **Settings** page, click **Check new version**



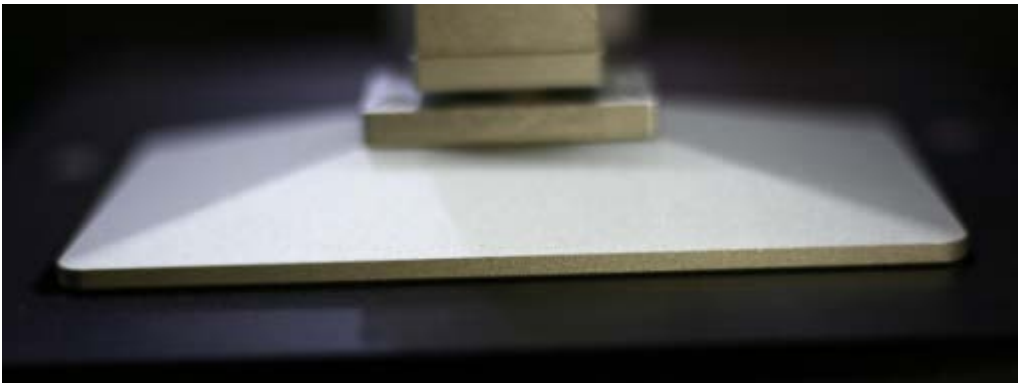
8. Daily Maintenance and FAQs

Printing platform leveling

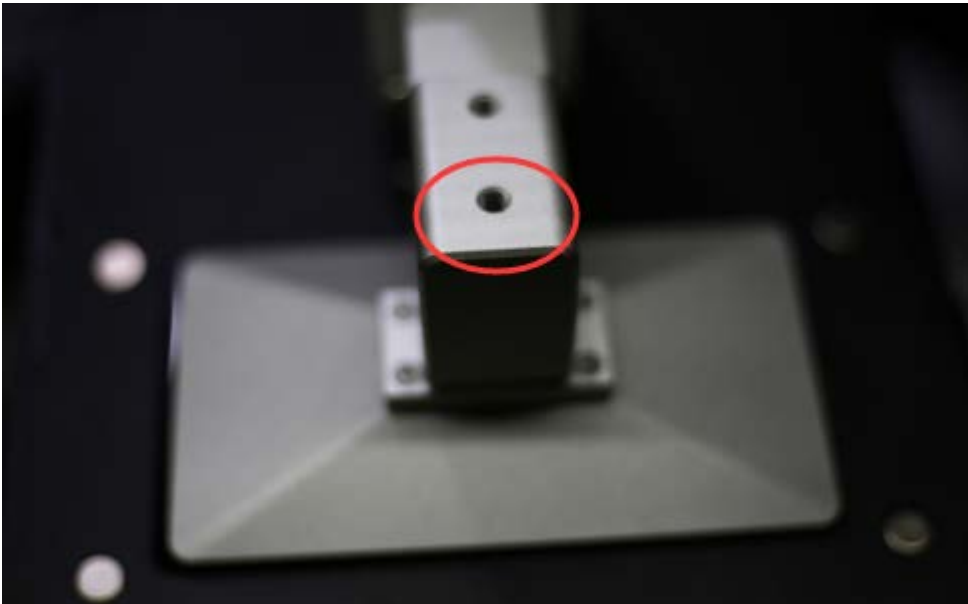
Remove the resin trough, enter printer Controls page, click the homing icon(see below), the platform will automatically return to home:



After the platform is returned, observe the space between the printing platform and the LCD screen. The distance should be even, and the gap is probably only one piece of paper.



If not, twist the four screws above the printing platform, and repeatedly adjust, check four corners until evenly:



Off-membrane maintenance

Off-membrane is a special material, as far as possible not to use other company's resin to print, may damage the membrane(cleaning difficulties).

Pay attention to avoid the use of hard material contact, may resulting in the breakage of the film.

If the object is found to be glued to the membrane, and adding the exposure time of the first layer can not solve, it is likely that the performance of the film has reduced. At this point, it is recommended to replace the membrane.

The replacement method is very simple, first unscrew the screw to remove the membrane from the resin tank, and then install a new, help video: http://Isun3d.cn/?page_id=495

LCD screen cleaning

Wipe with glasses cloth, can be stained with a few drops of water or alcohol, carefully wipe.

Be careful not to let any liquids flow from the screen into the printer during the weekend, or it will cause damage to the device and corrode the internal components.