

MIICRAFT



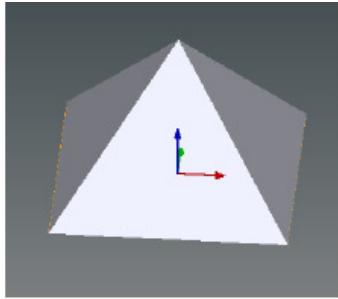
Utility V6.3.0 & Touch screen Panel User Manual

Mar. 2020

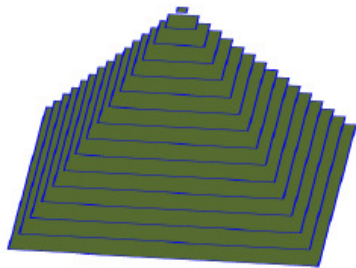
Printing work flow

This manual focus on the work flow of 3D file preparation and Printing setting

MIICRAFT



1. Get 3D file (*.stl) from
 - a. CAD
 - b. 3D scanner



2. 3D file preparation
 - a. Repair 3D file
 - b. Build supports
 - c. Slice (Layer thickness)



3. Printing setting
 - a. Material selection
 - b. Tilt speed
 - c. Printing optimization



4. After printing
 - a. Post curing
 - b. Remove supports
 - c. Grinding (optional)

Main Content

1. System requirement (page 5)
2. Open Utility and Connect to printer (page 6-9)
3. Import file (page 10-11)
4. Hot key (page 12)
5. Semi-Auto mode (page 13)
6. Duplicate and resize model (page 14-17)
7. Generate Nameplate (page 18)
8. Back and Next (page 19)
9. Auto arrangement (page 20)
10. Auto support (page 21)

Main Content

10. Model arrangement (page 22)
11. Build supports (page 23-29)
12. Build support – View mode (page 30-43)
13. Tool bar (page 44-49)
14. Prepare printer connection
15. Printer setting (page 50-52)
16. Printer setting (.mps) (page 53-64)
17. Print via computer (page 65-66)
18. Engineering mode (computer) (page 67-69)
19. Printing record and update firmware (page 70)
20. Print via touch screen panel (page 71-79)

System requirements for using Utility

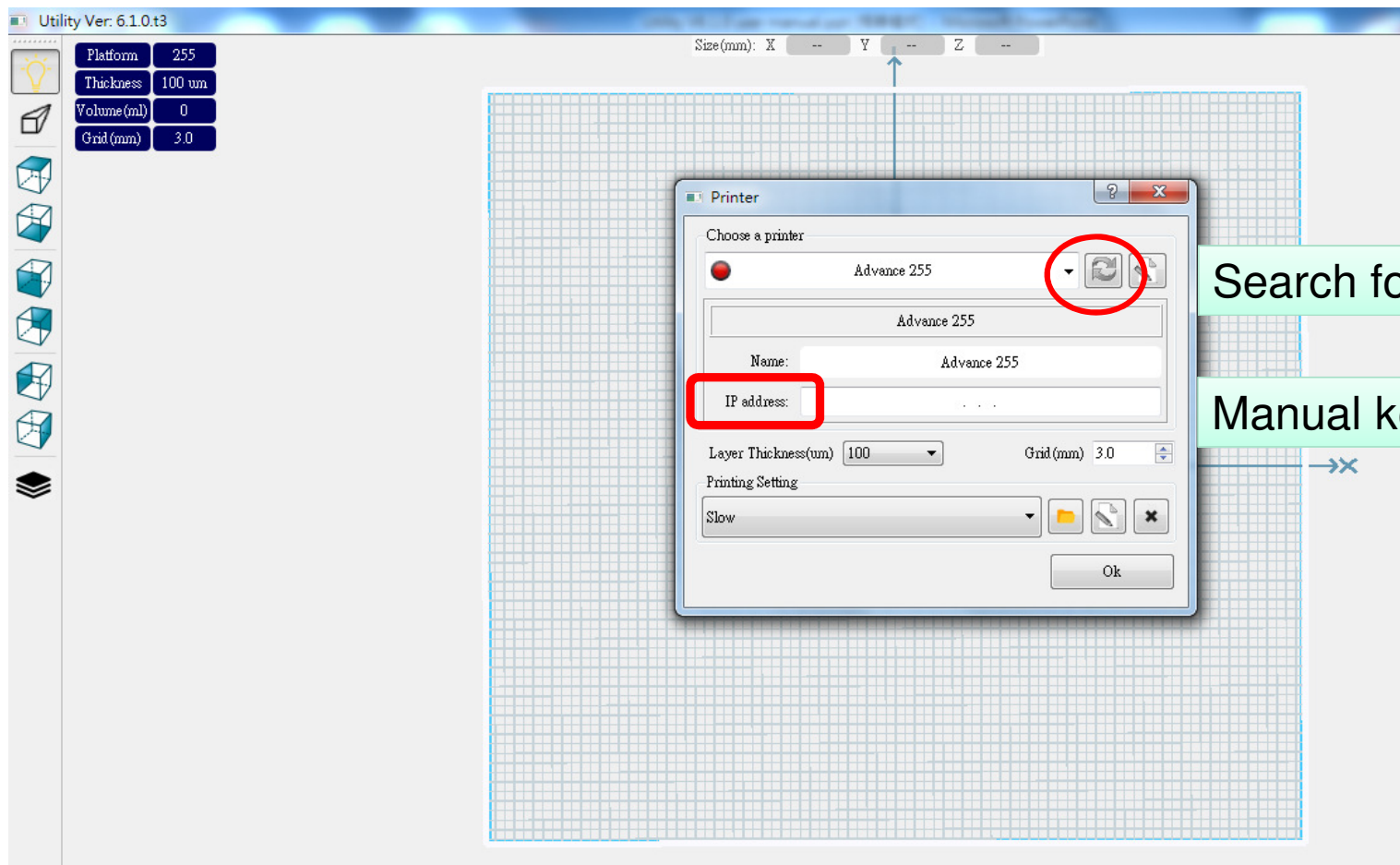
These are the basic requirements for using Utility on a PC. If your device does not meet these requirements, you can still install Utility, but may not have the greatest experience with Utility.

Operating system:	Windows 10
CPU:	Intel Core i7 or above
RAM:	8 GB or above
Hard drive space:	250 GB SSD or above
Graphic cards:	Dedicated Graphics 2GB or above ; Support Open GL 3.3 or above
Browser:	Use Google Chrome only
Wifi Dongle: (Optional)	Advance Series/ Profession Series / Prime Series / Hyper Series suggest to use with D-Link DWA-127 Wireless Networking Adapter. Ultra Series suggest to use with EW-7811Un Other brand and model of wireless network adapter may not compatible to our printer



Open Utility and Connect to printer

- 1) Unzip the installation file, and click Utility.exe
- 2) Need to connect to printer first, otherwise cannot use Utility



Search for connected printer

Manual key in IP location of printer

- Printer connection method introduce in the next page

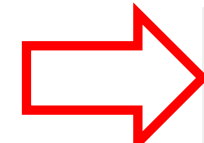
Open Utility and Connect to printer

1) Connect your printer with laptop

- Basic** : Connect printer and laptop by RJ-45 cable [Initiating time 1 minute]
- LAN** : Connect both printer and laptop to local area network [Initiating time a few seconds]
- IP sharer** : Connect both printer and laptop to IP sharer [Initiating time a few seconds]
- WIFI dongle** : Insert WIFI dongle into printer USB port => Panel: Engineering mode => Wifi
=> Connected WIFI dongle => Key in IP(Wifi) location shown on printer on Utility
[Initiating time a few seconds]

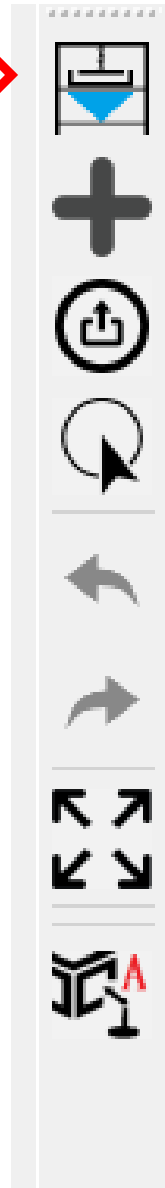
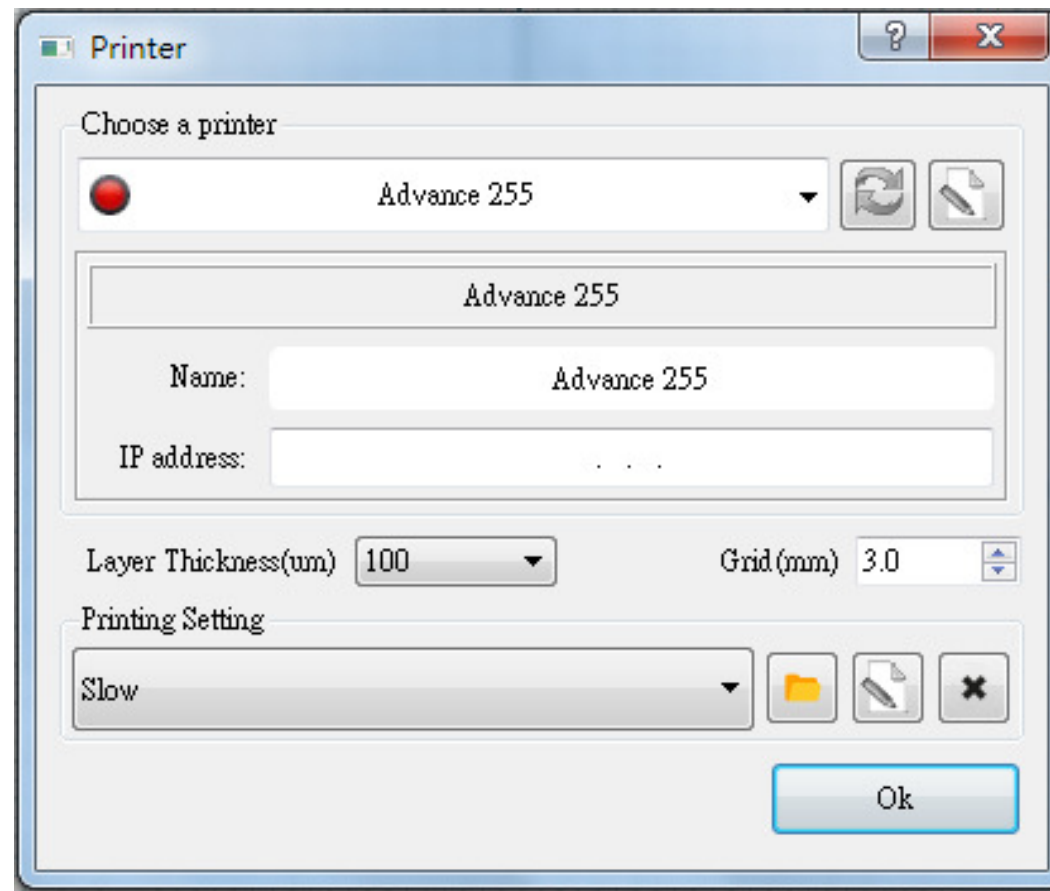
Choose a Printer

- 1) Select printer, also select building platform size.
- 2) Set Z layer thickness. Set building platform grid size.
- 3) Set printer information whenever using this panel.



Platform	255
Thickness	100 um
Volume (ml)	0
Grid (mm)	3.0

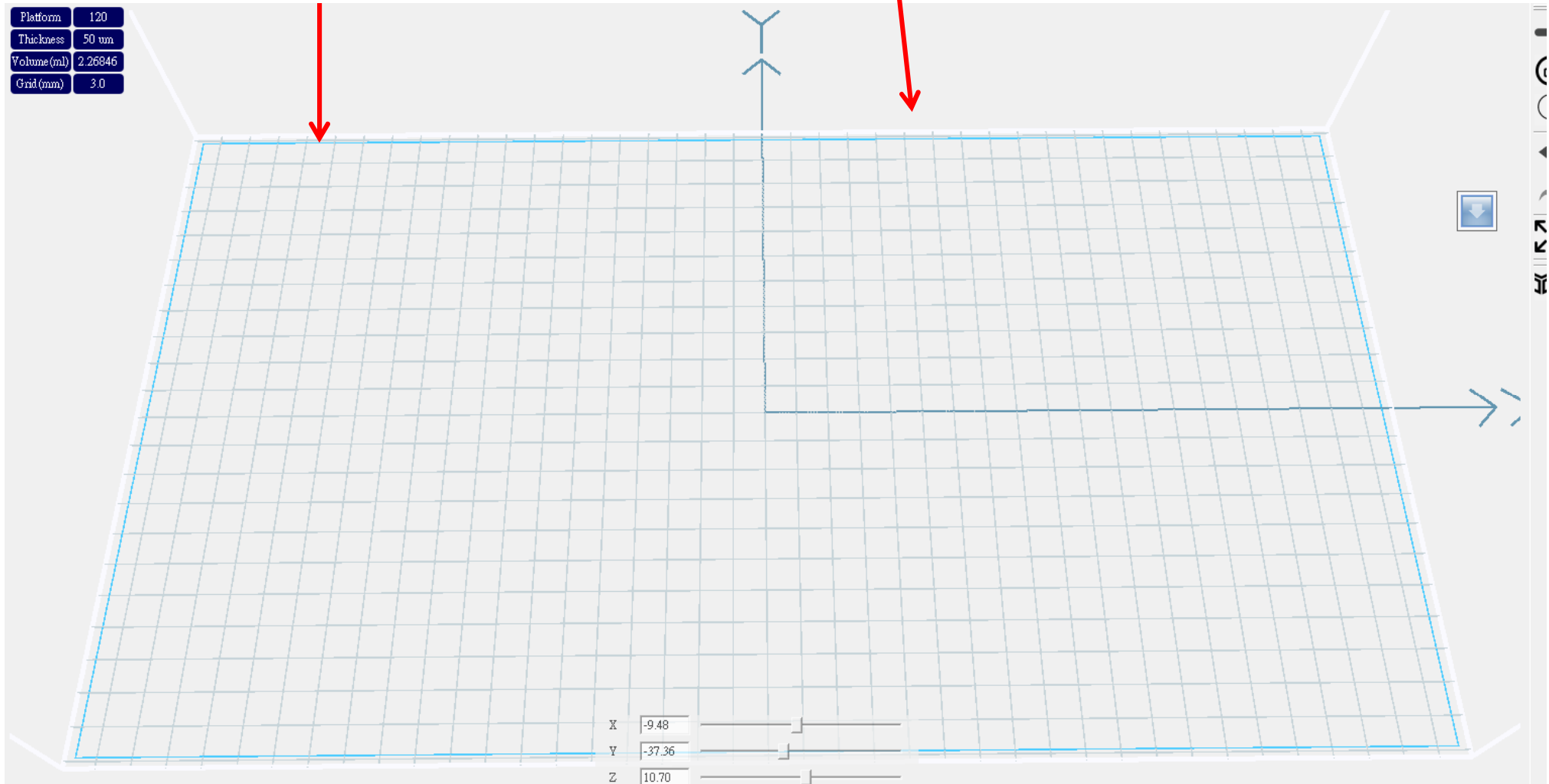
Printer Information



Open Utility and Connect to printer

White frame is the largest printing boundary

Blue frame is suggest printing boundary



Import file

- 1) Two way to import .stl file
 - ① Tool bar, icon as picture on the right
 - ② Drag the .stl file from folder into Utility

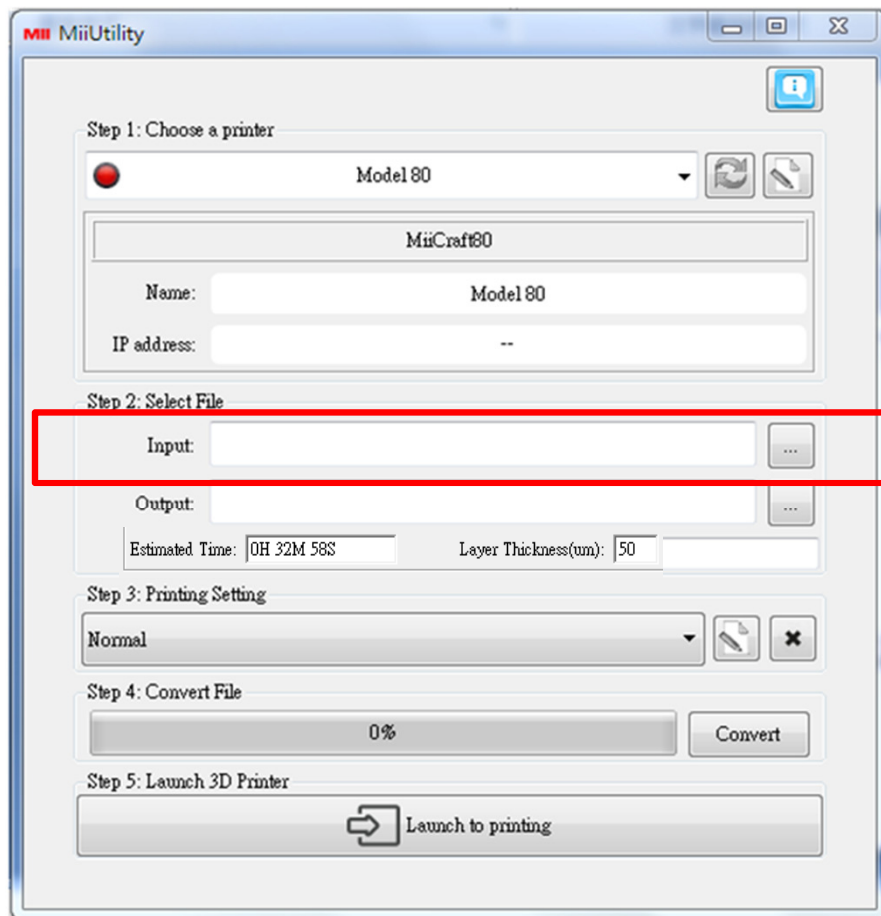
MIICRAFT



Import file



1) How to import .slc file (sliced file)

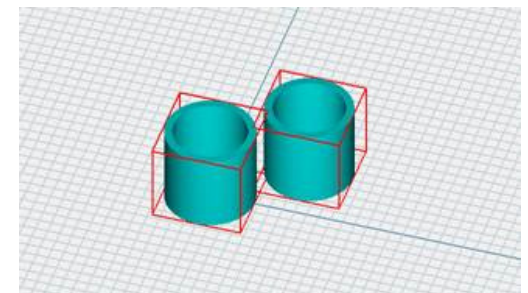
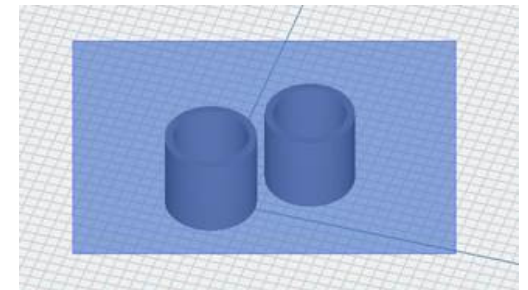
① Tool bar, icon as picture on the right



Select .slc file

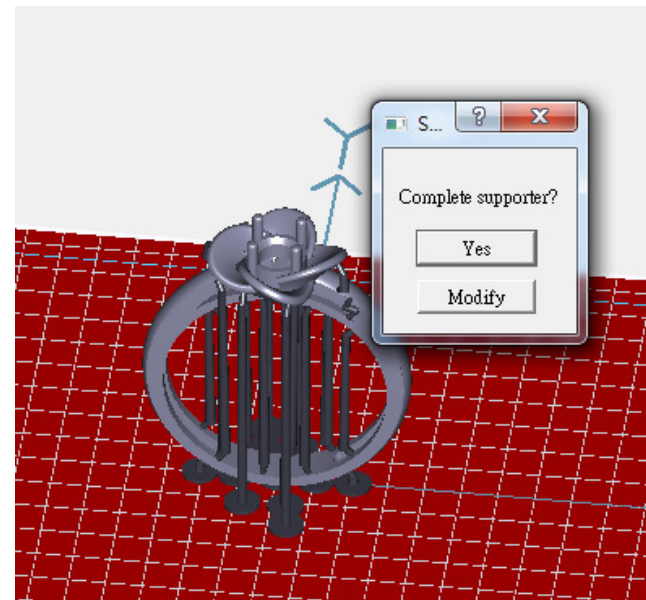
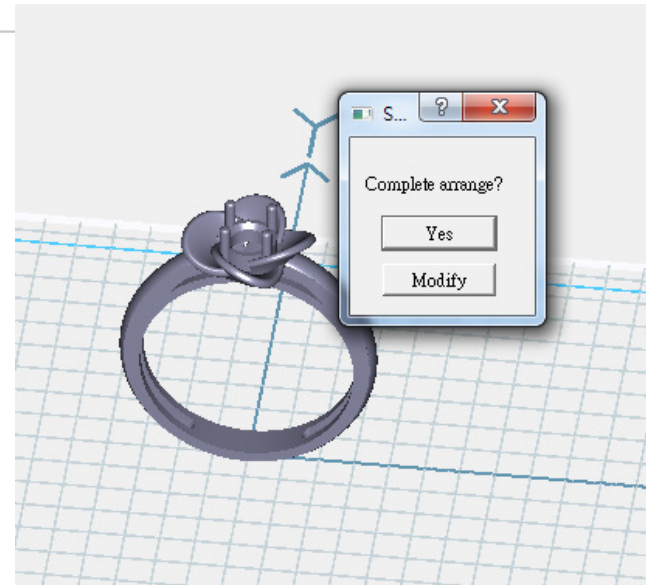
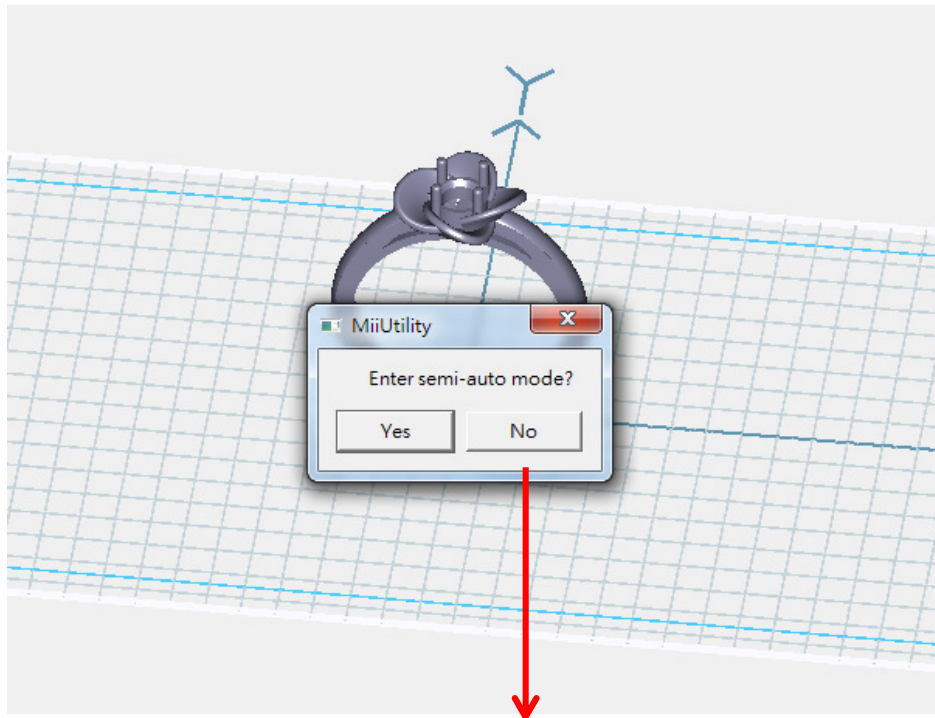
Hot key

- **Right Mouse Button** –Rotate platform
- **Middle Mouse Scroll** -Zooms in and out making the view of the build area larger or smaller
- **Middle Mouse Button** -Move platform
- **Alt+E** = Move model 
- **Alt+R** = Rotate model 
- **Ctrl + D** = Duplicate object
- **Ctrl + mouse click** = Multi select the object
- **Ctrl + mouse click + drag** = Move multiple object
- **Mouse click + drag area** = Box selection

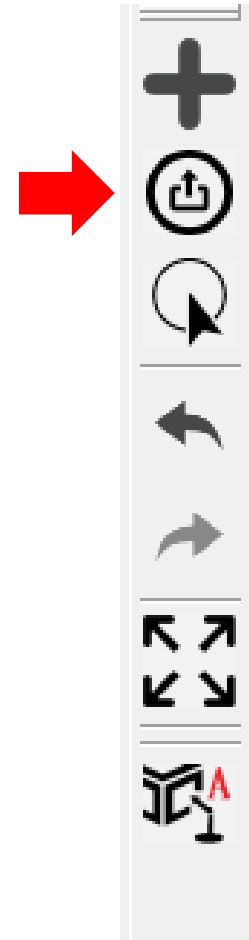


Semi-Auto mode

- 1) Import model
- 2) Click Tool bar “Printer”
- 3) Enter Semi-auto mode
- 4) Click Yes → Auto arrangement & Auto support → slicing → convert



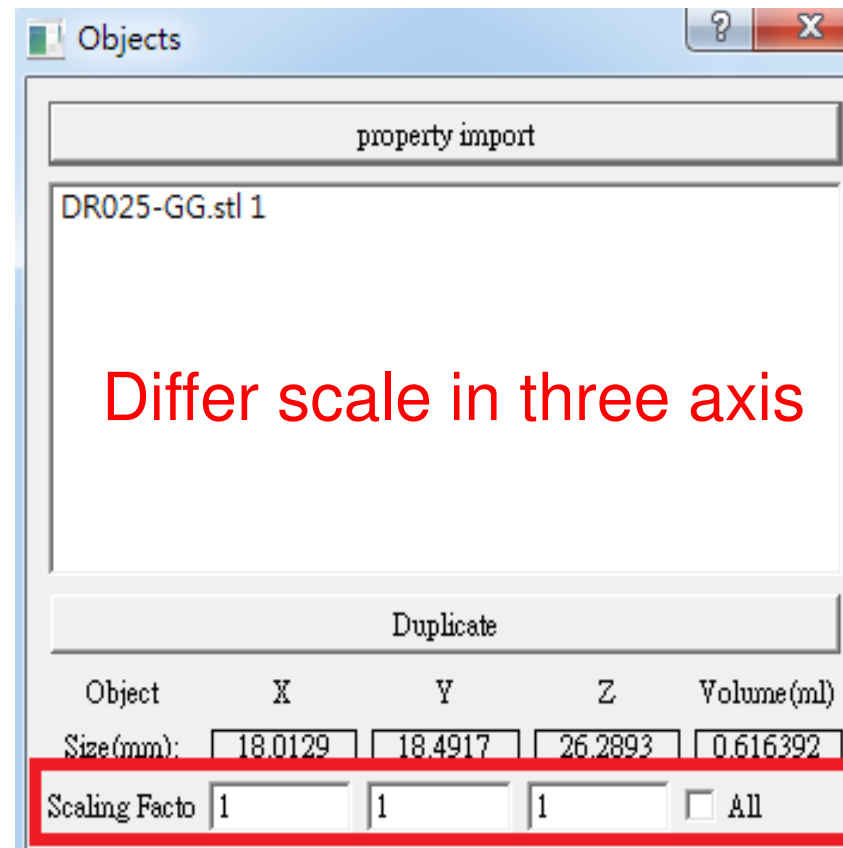
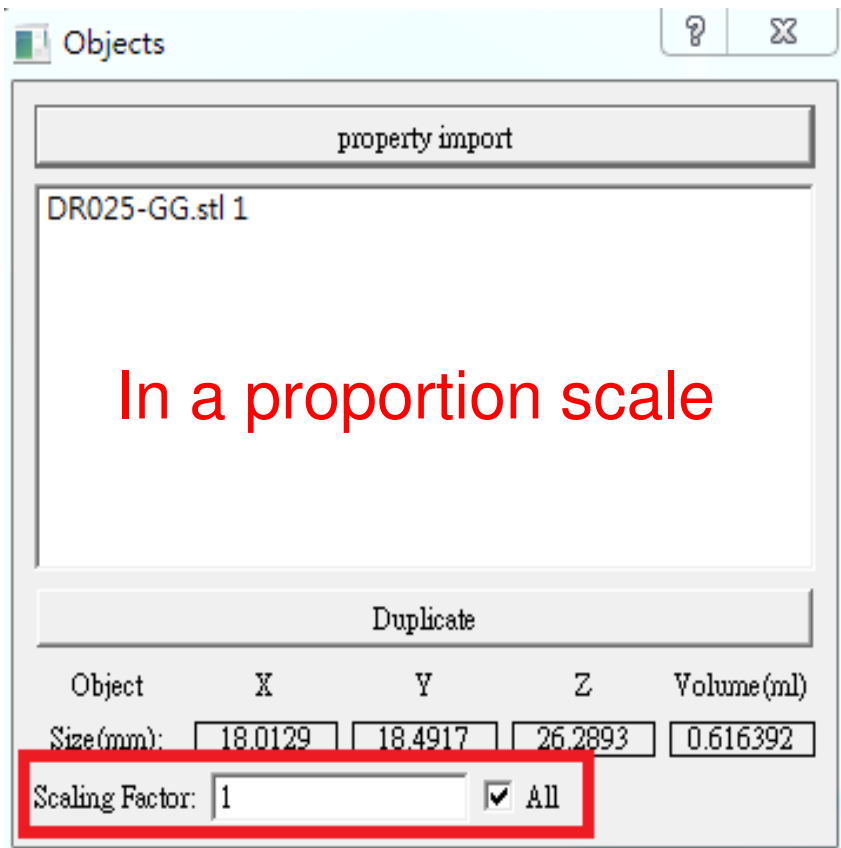
MIIICRAFT



* If user already customize model arrangement and build support, click “No” to move on to slicing.

Duplicate and Resize Model

- 1) Tool bar, icon as picture on the right
- ① Note: When the file name is high light, means the model been selected, now instruction is active.
- ② Select “all” to do amplify or minify in a proportion scale

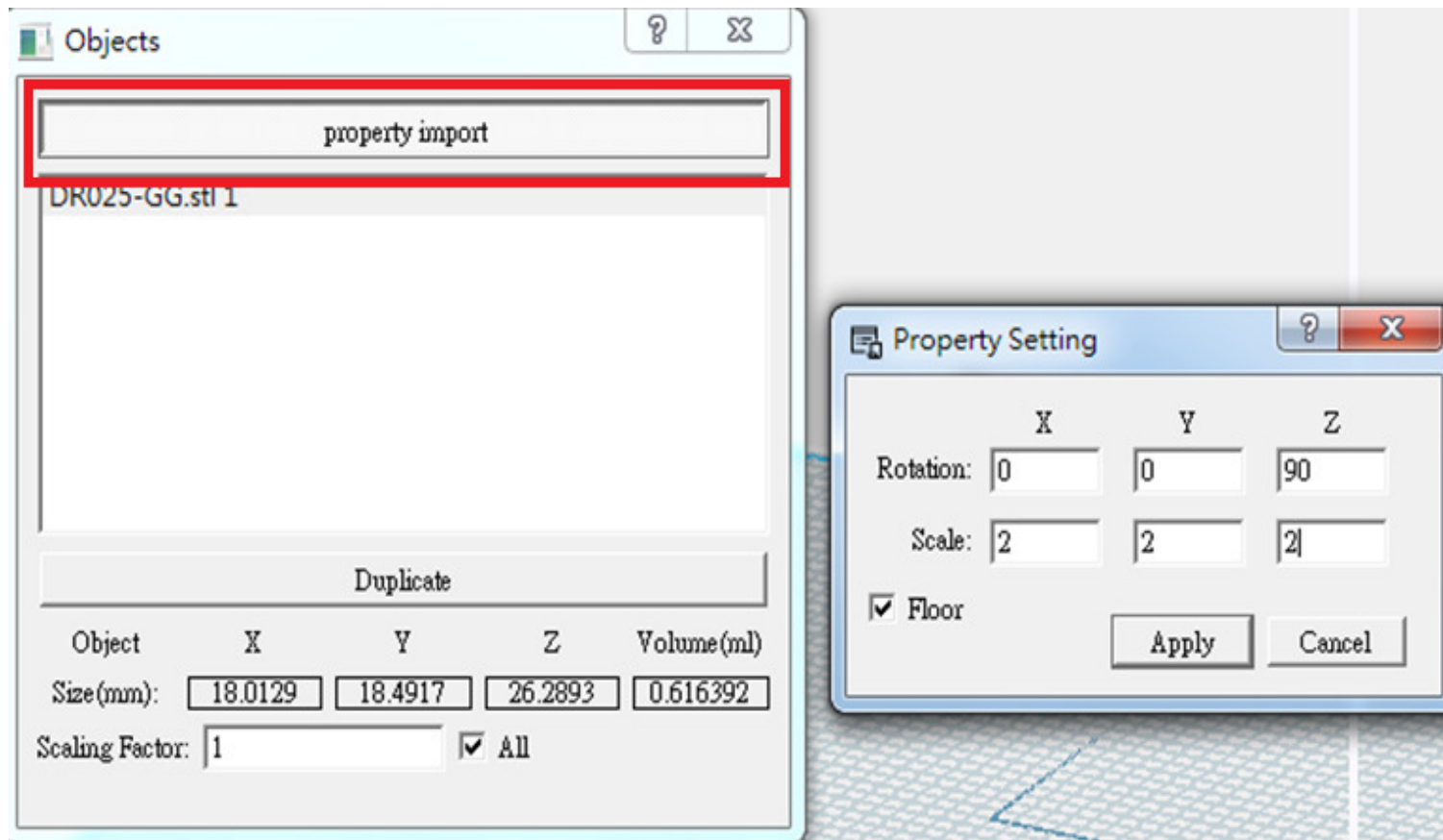


Duplicate and Resize Model

2) Property import, the setting will apply to every model import later

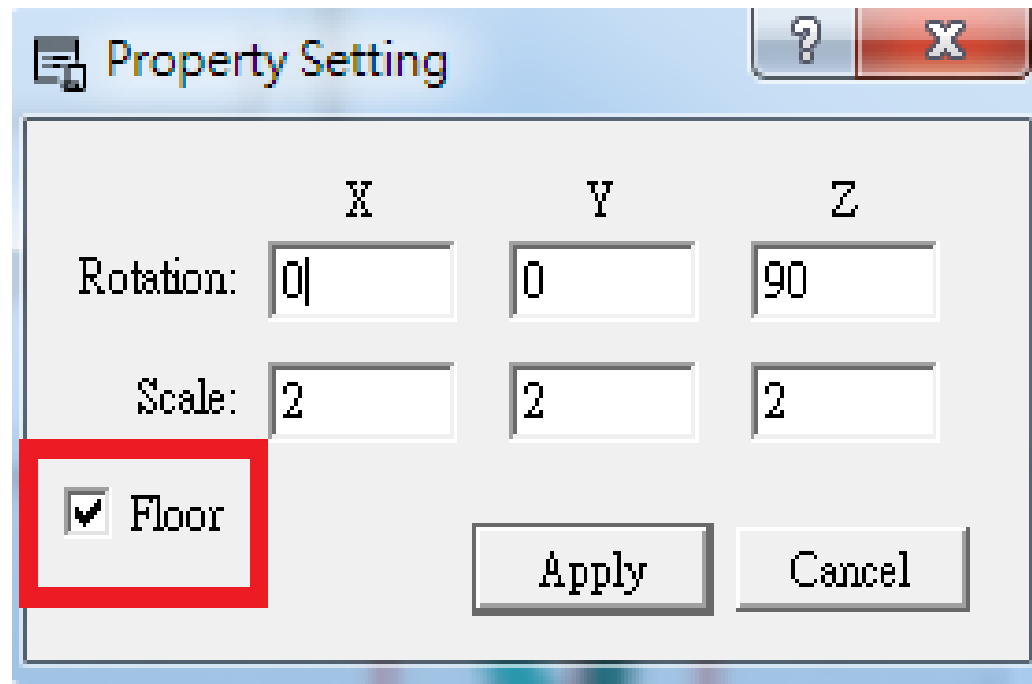
EX: Property import setting Z axis rotate 90 degree, X,Y,Z amplify

2 times, so the model import later will all follow this setting



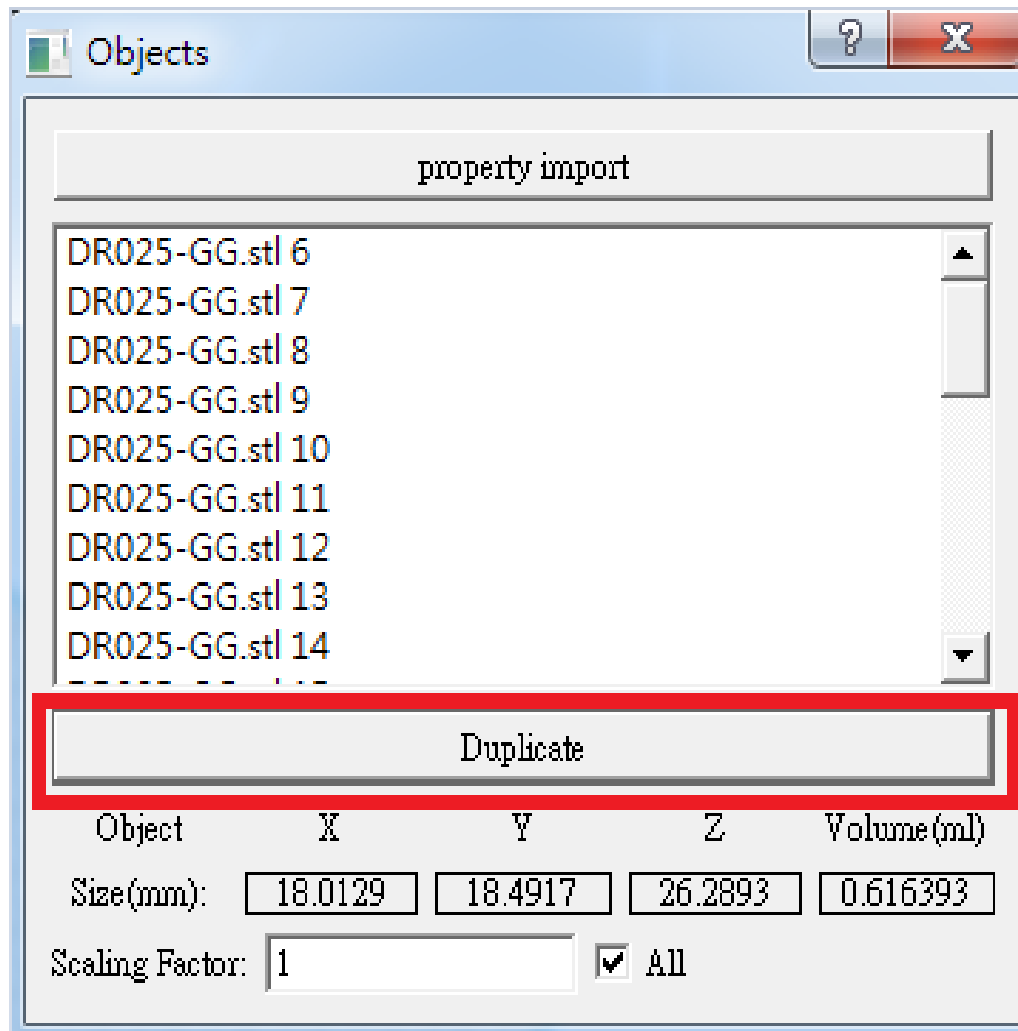
Duplicate and Resize Model

- 3) Property import, select "Floor" to let model import with Z coordinate zero



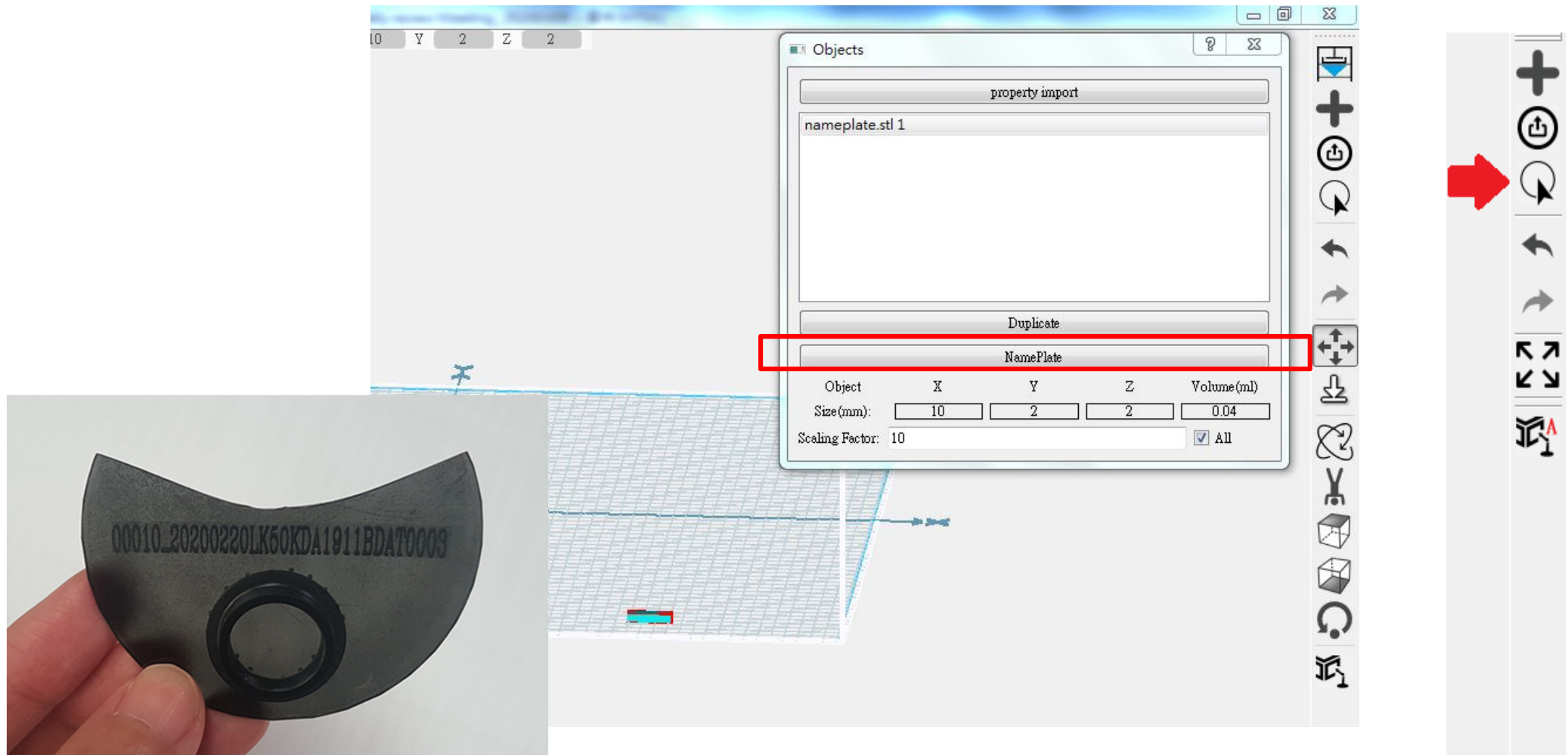
Duplicate and Resize Model

4) Duplicate selected model



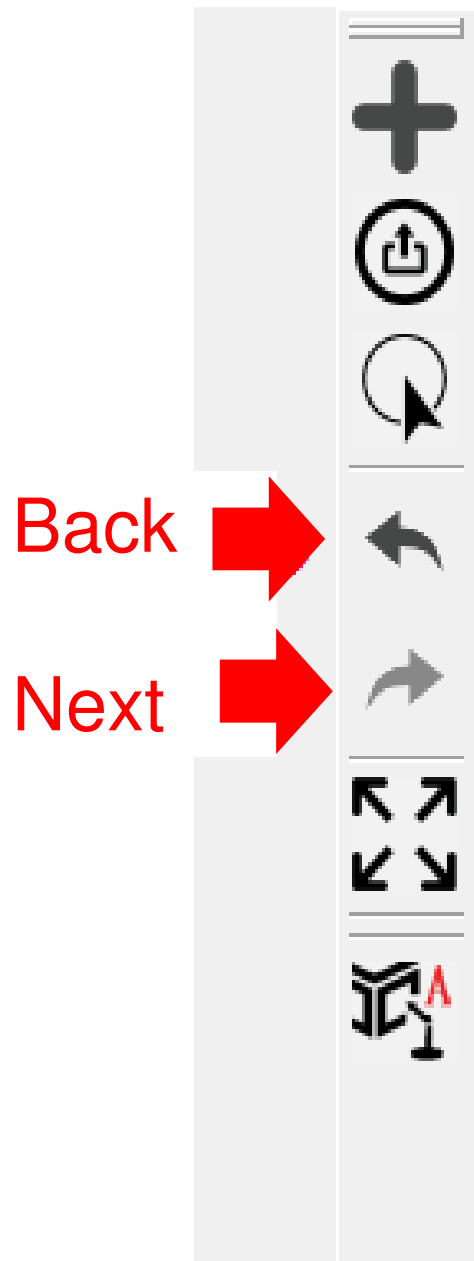
Generate Nameplate on print model

1) Nameplate is a serial number combines date, machine serial number and printing job number.



Back and Next

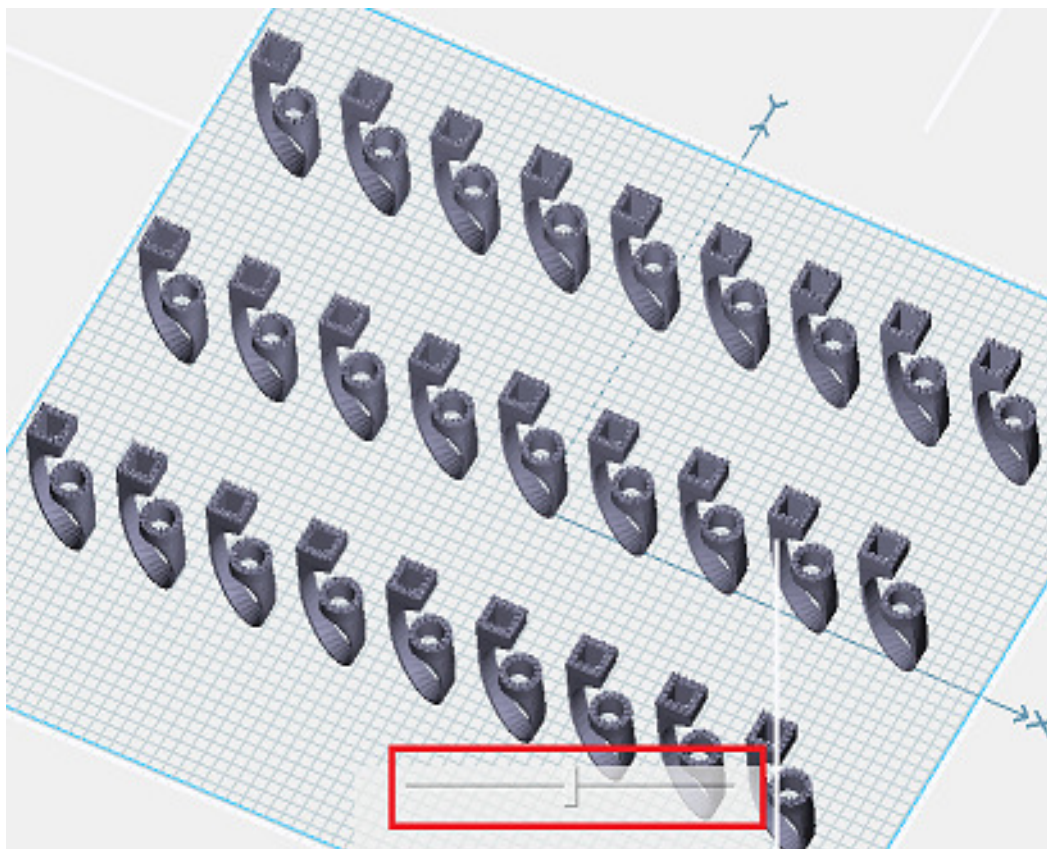
1) Tool bar, icon as picture



Auto arrangement

1) Tool bar, icon as picture on the right

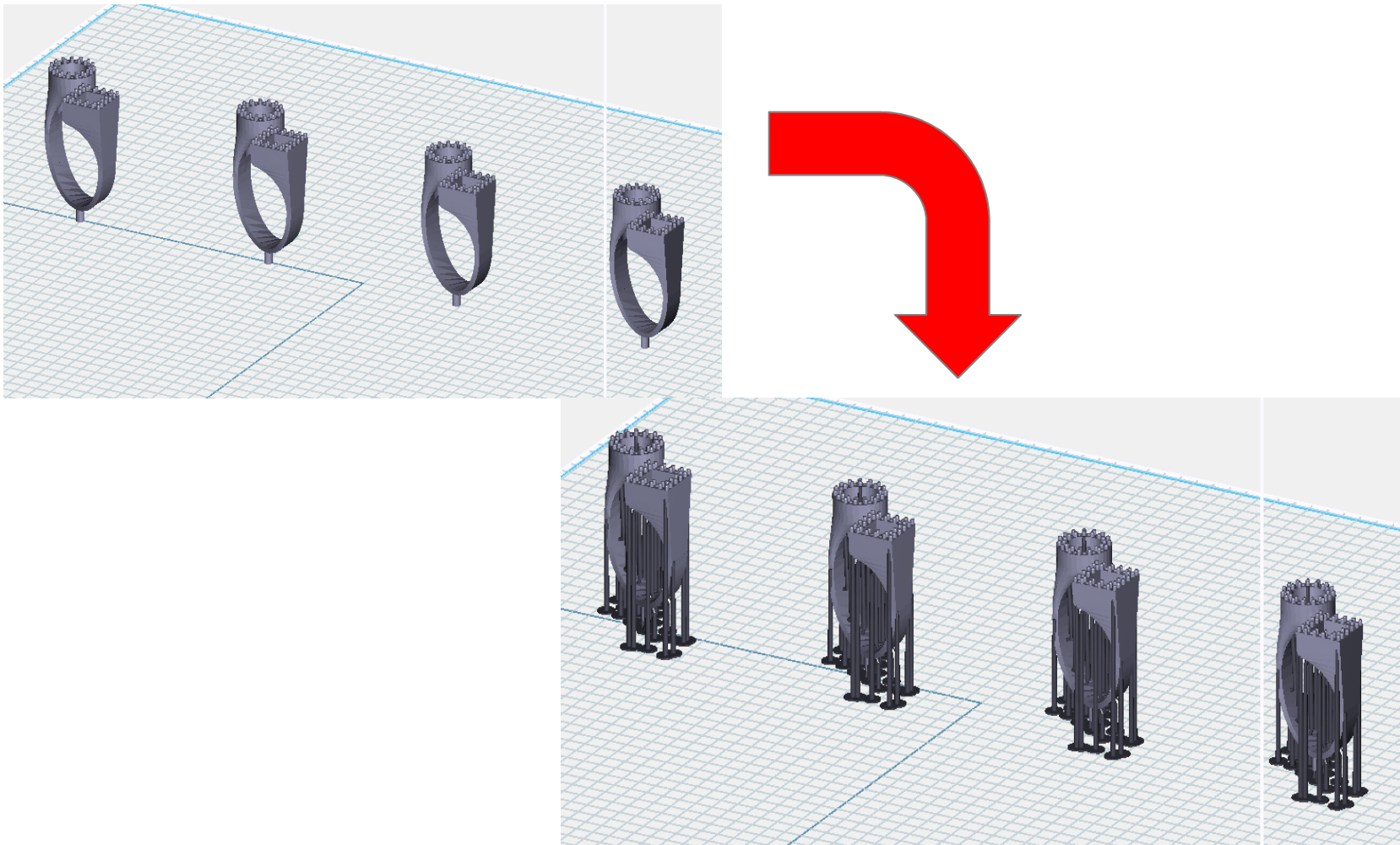
Multiple model auto arrangement, and can adjust the spacing with horizontal scroll bar



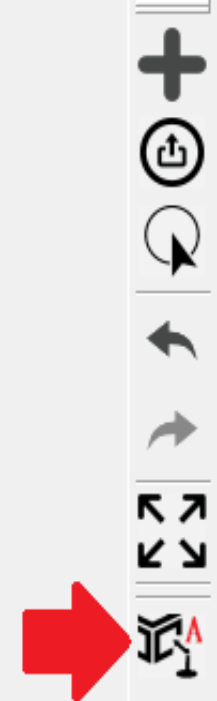
Auto support

1) Tool bar, as picture on the right

Build auto support for every model

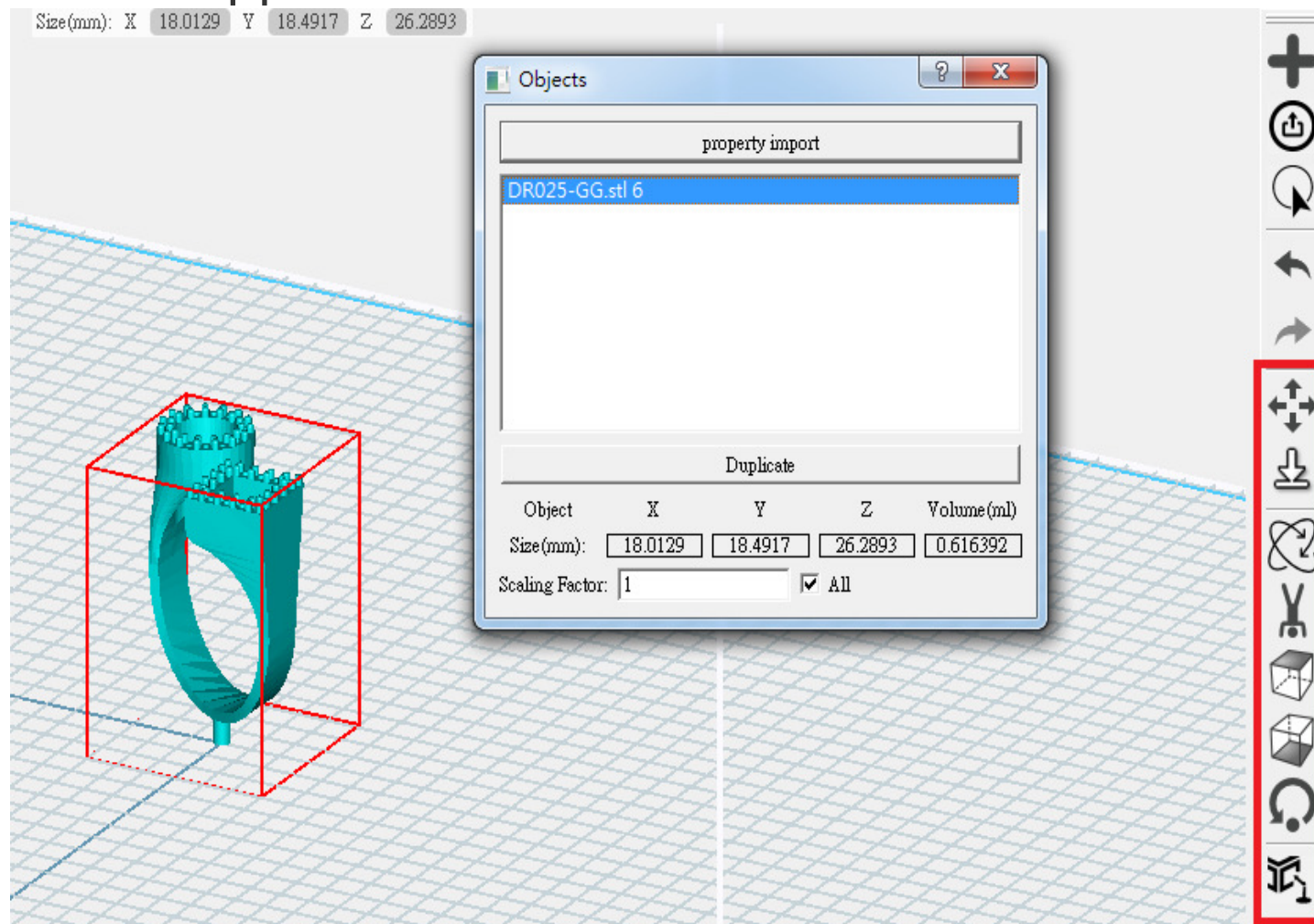


MIICRAFT



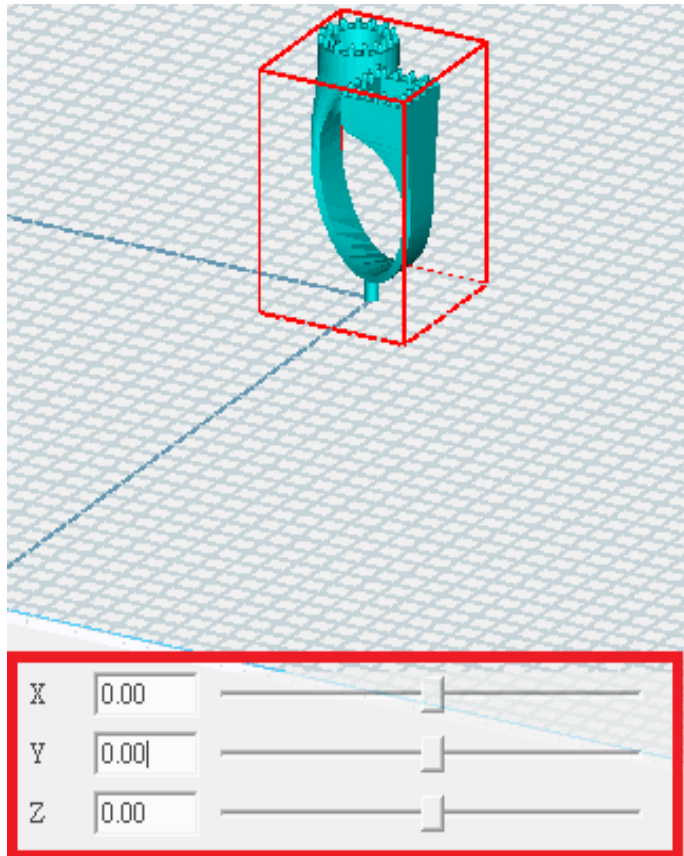
Model arrangement

Select one model (been high light), more setting shows up in tool bar (as below red box), here you can do customize model arrange, and build customize support

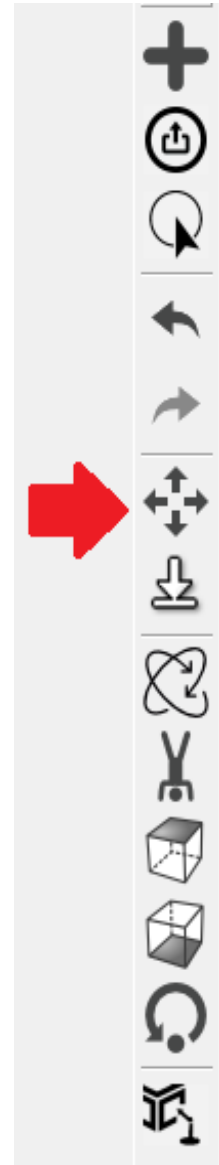


Model arrangement

- 1) Select model, and click on tool bar
 - ① Drag and move the model
 - ② Or set X, Y, Z coordinate



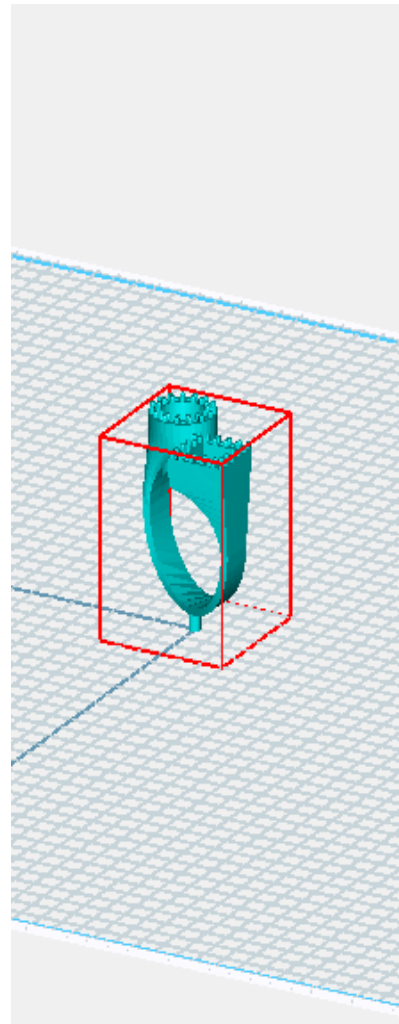
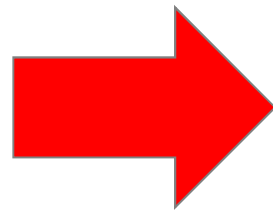
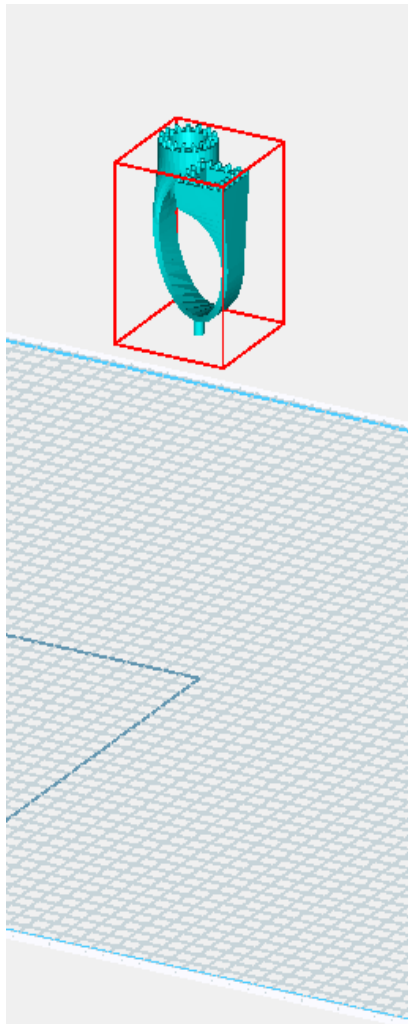
MICRAFT



Model arrangement

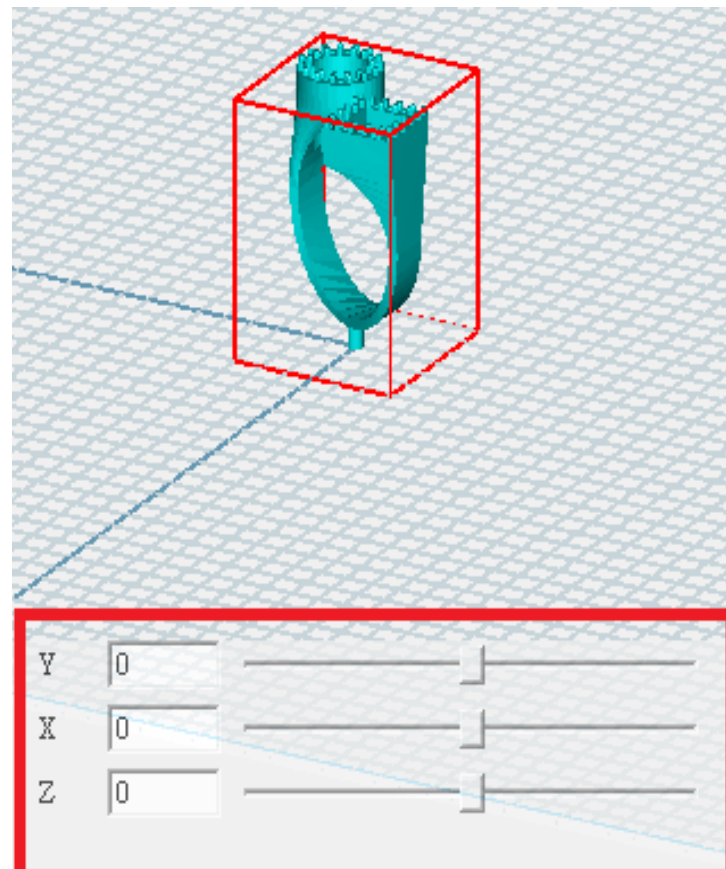
2) Select model, and click on tool bar

Put model down to floor



Model arrangement

- 3) Select model, and click on tool bar
 - ① Set X, Y, Z axis rotation degree
 - ② Or use horizontal scroll bar

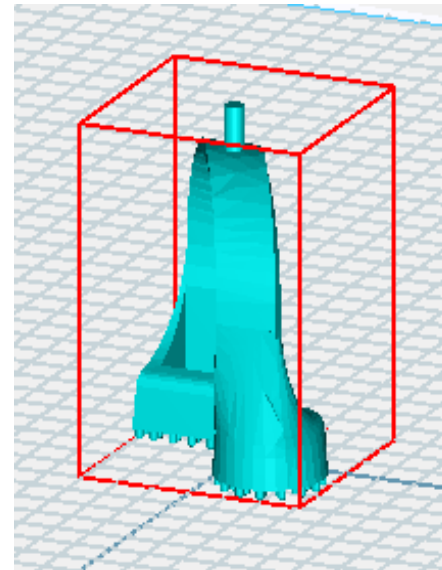
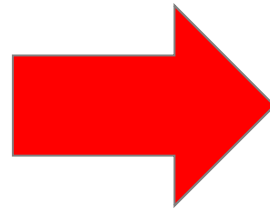
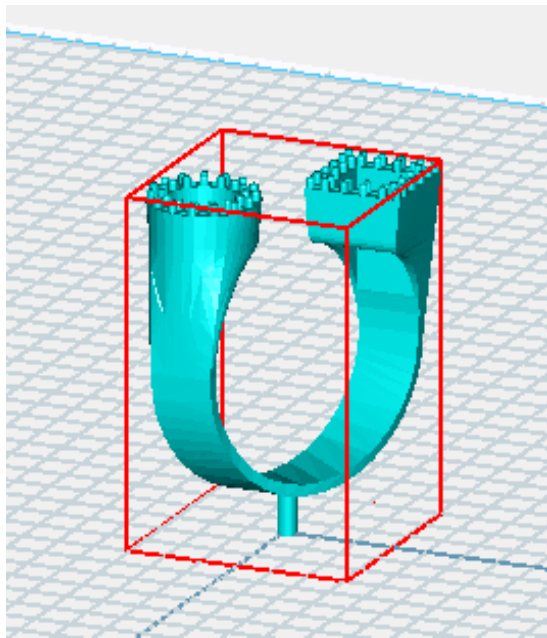


MIICRAFT

Model arrangement

4) Select model, and click on tool bar

Put model upside down



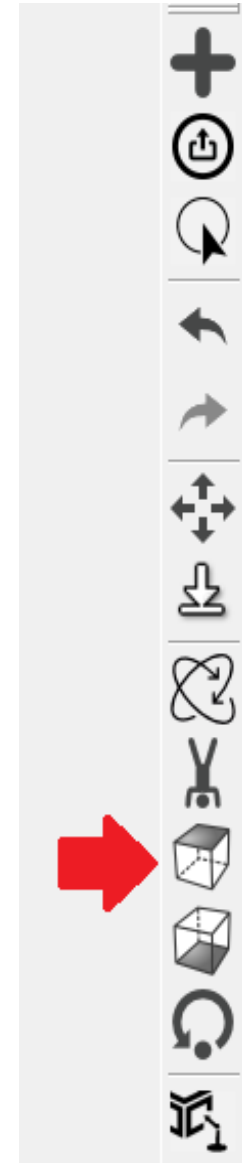
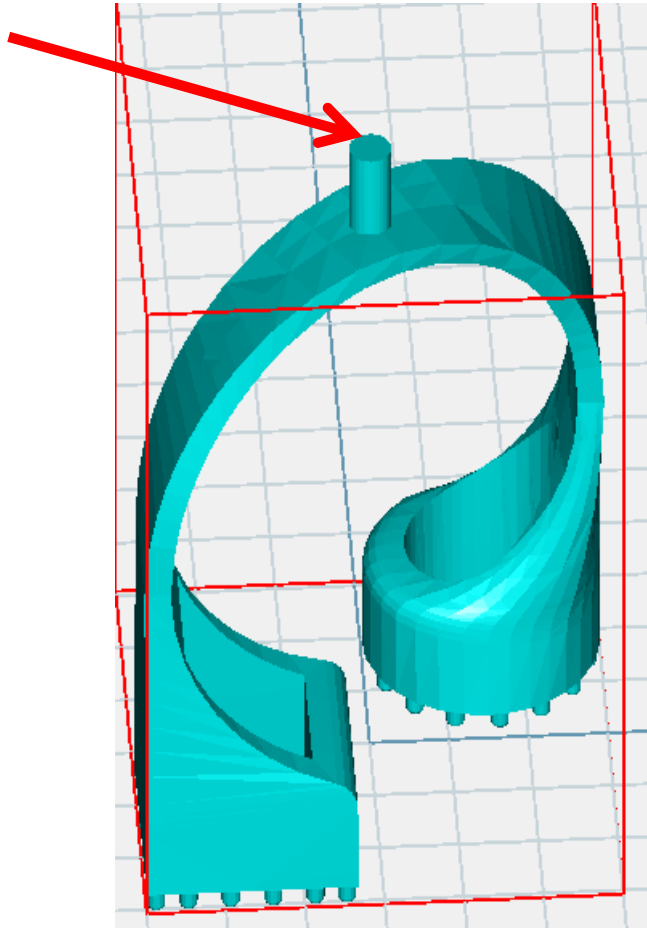
MICRAFT

Model arrangement

5) Select model, and click on tool bar

Click on one side, face up

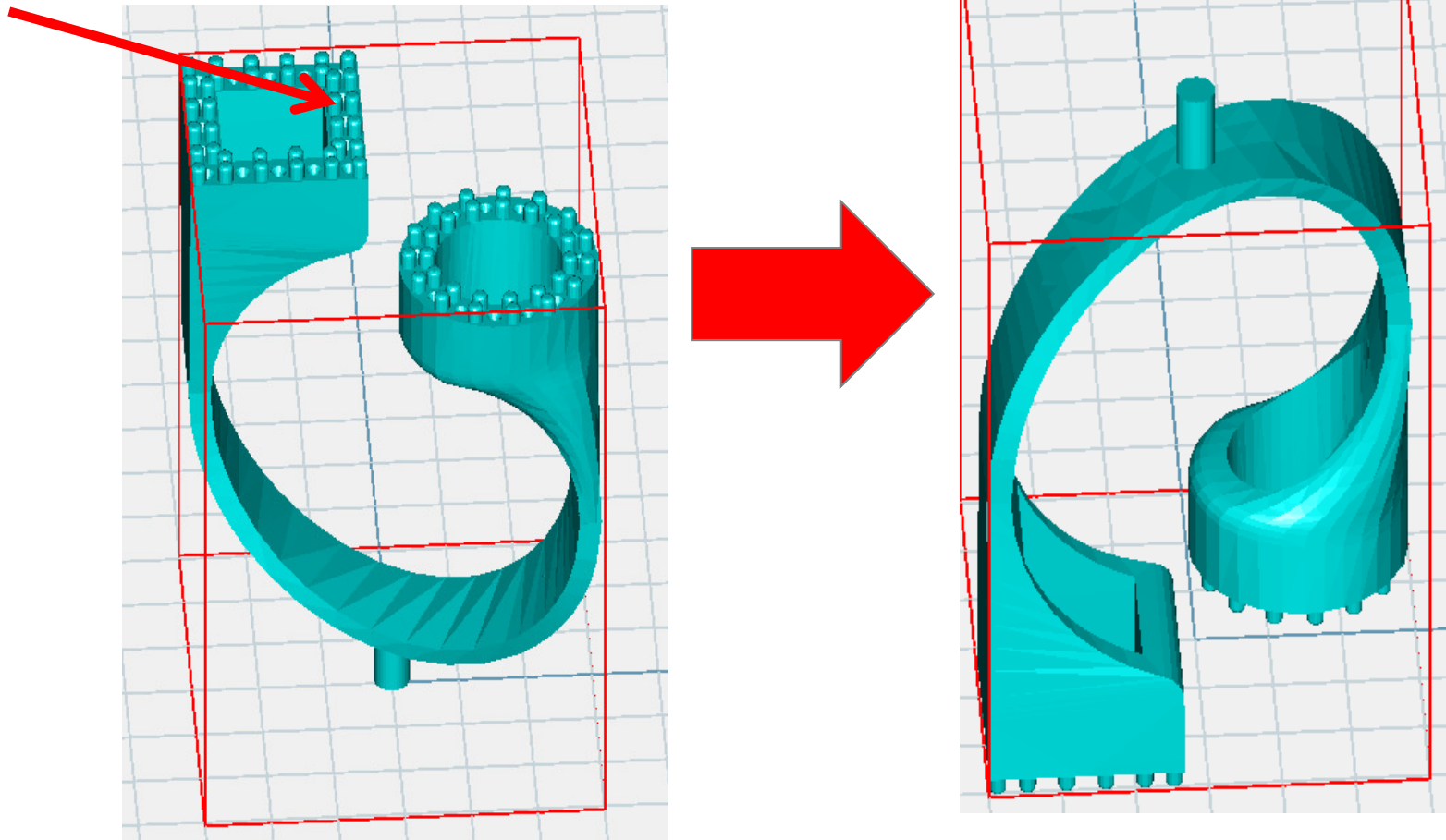
EX: Select this side



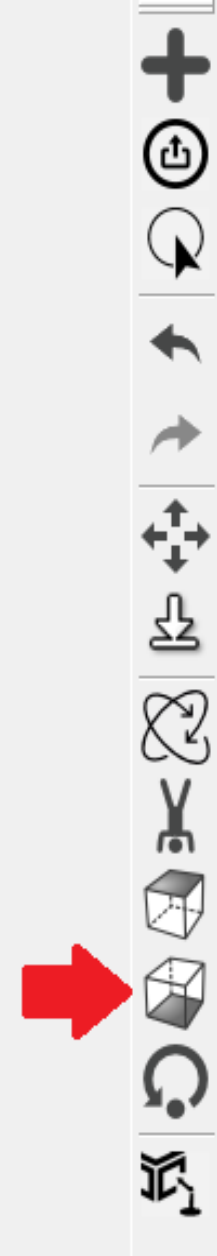
Model arrangement

- 6) Select model, and click on tool bar
Click on one side, face down

EX: Select this side



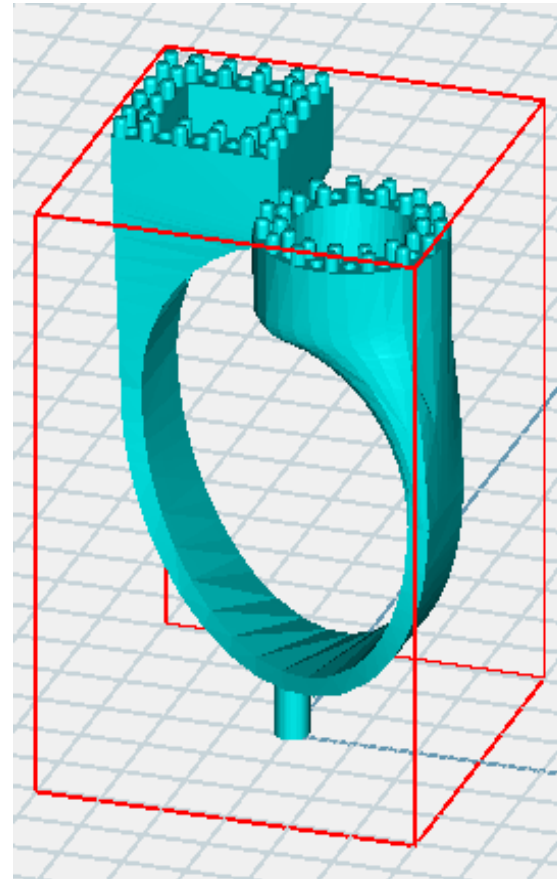
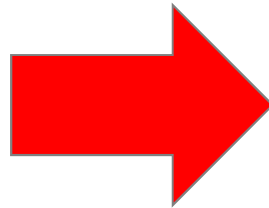
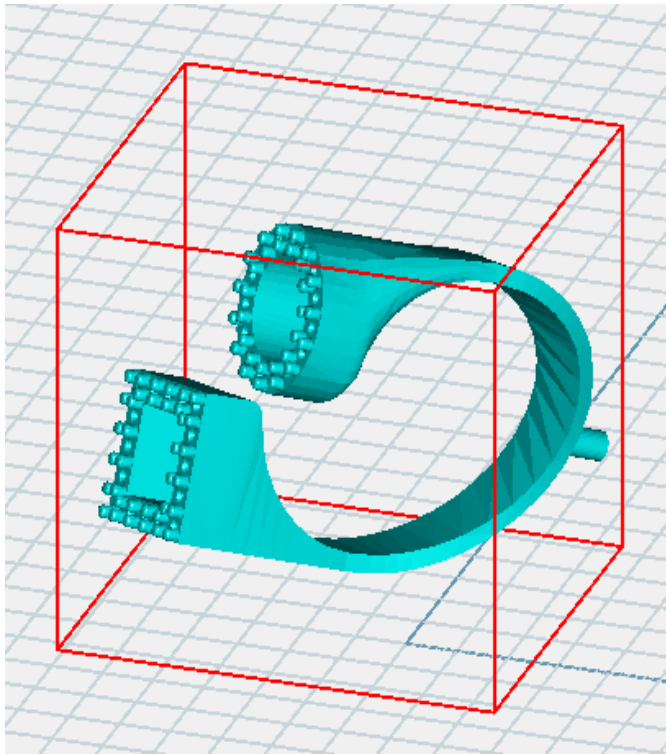
MICRAFT



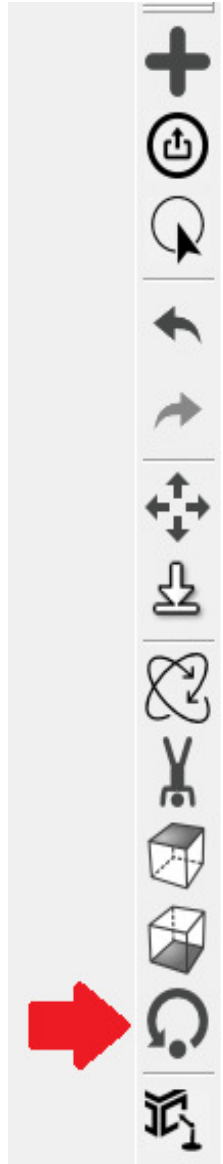
Model arrangement

7) Select model, and click on tool bar

Back to the default rotation



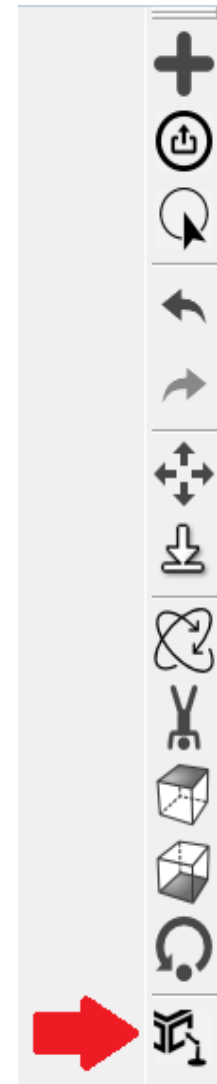
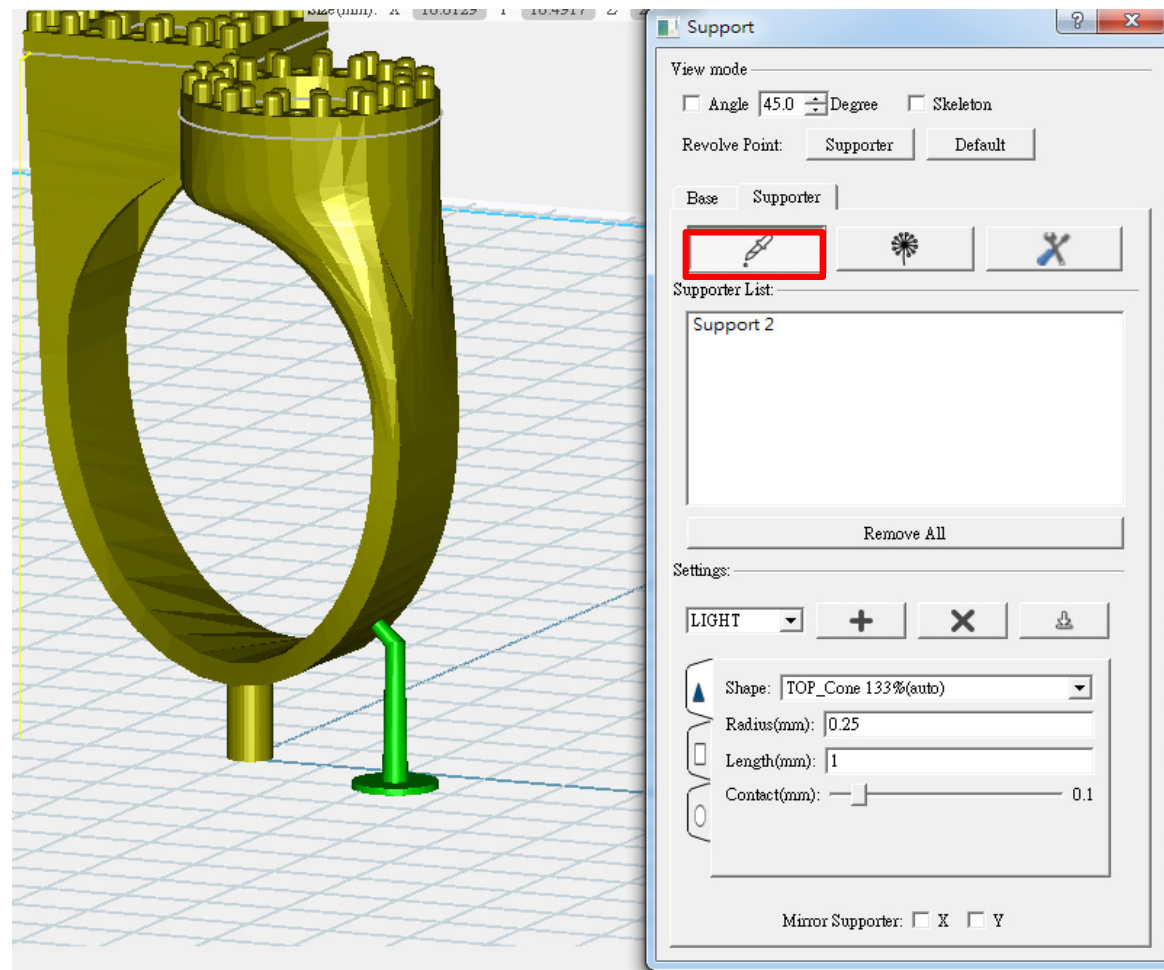
MICRAFT



Build supports

Select one model (been high light), more setting shows up in tool bar (as below red box), here you can build personalize support

① Add support, click where you'd like to add support



Build supports

Add support to existing support

Add Support

Base Supporter

Supporter List

Support 2

Revise Support

Remove all supports

Remove All

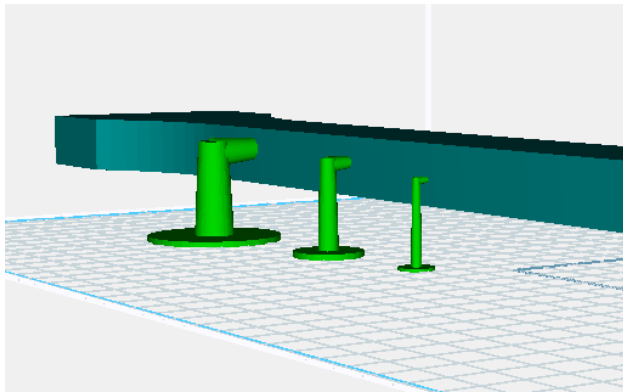
The image shows a software interface for building supports. At the top, there are two tabs: 'Base' and 'Supporter', with 'Supporter' selected and highlighted by a red box. Below the tabs are three buttons: a pen icon, a dandelion seed head icon, and a wrench and screwdriver icon. A red arrow points from the text 'Add support to existing support' to the dandelion icon. Below these buttons is a section titled 'Supporter List' containing a list with one entry, 'Support 2'. A red arrow points from the text 'Support List' to this list. To the right of the list is a 'Revise Support' button, with a red arrow pointing from the text 'Revise Support' to it. At the bottom of the interface is a 'Remove All' button, with a red arrow pointing from the text 'Remove all supports' to it. On the left side, a red arrow points from the text 'Add Support' to the pen icon button.

Build supports

1) Support setting

(a) 3 kinds of basic support setting can be selected by user preference

- LIGHT
- MEDIUM
- HEAVY



Can customize and save support setting

- EDIT

Settings:

a **b** **c** **d**

LIGHT

Shape: TOP_Cone 133%(auto)

Radius(mm): 0.25

Length(mm): 1

Contact(mm): 0.1

Mirror Supporter: X Y

Build supports

MIICRAFT

- (b) Add support setting
- (c) Delete support setting
- (d) Save support setting

Settings:

b **c** **d**

LIGHT

▲ Shape: TOP_Cone 133%(auto) ▼

□ Radius(mm): 0.25

□ Length(mm): 1

○ Contact(mm): 0.1

Mirror Supporter: X Y

Build supports

Customize support setting

One support can be separate into top, middle and bottom

Top support setting:

- a) Top support shape
- b) Top support radius
- c) Top support length
- d) Top support and model contact

Top
Middle
Bottom

Settings:

LIGHT + X [Download Icon]

Shape: TOP_Cone 133%(auto)

Radius(mm): 0.25

Length(mm): 1

Contact(mm): 0.1

Mirror Supporter: X Y

a

b

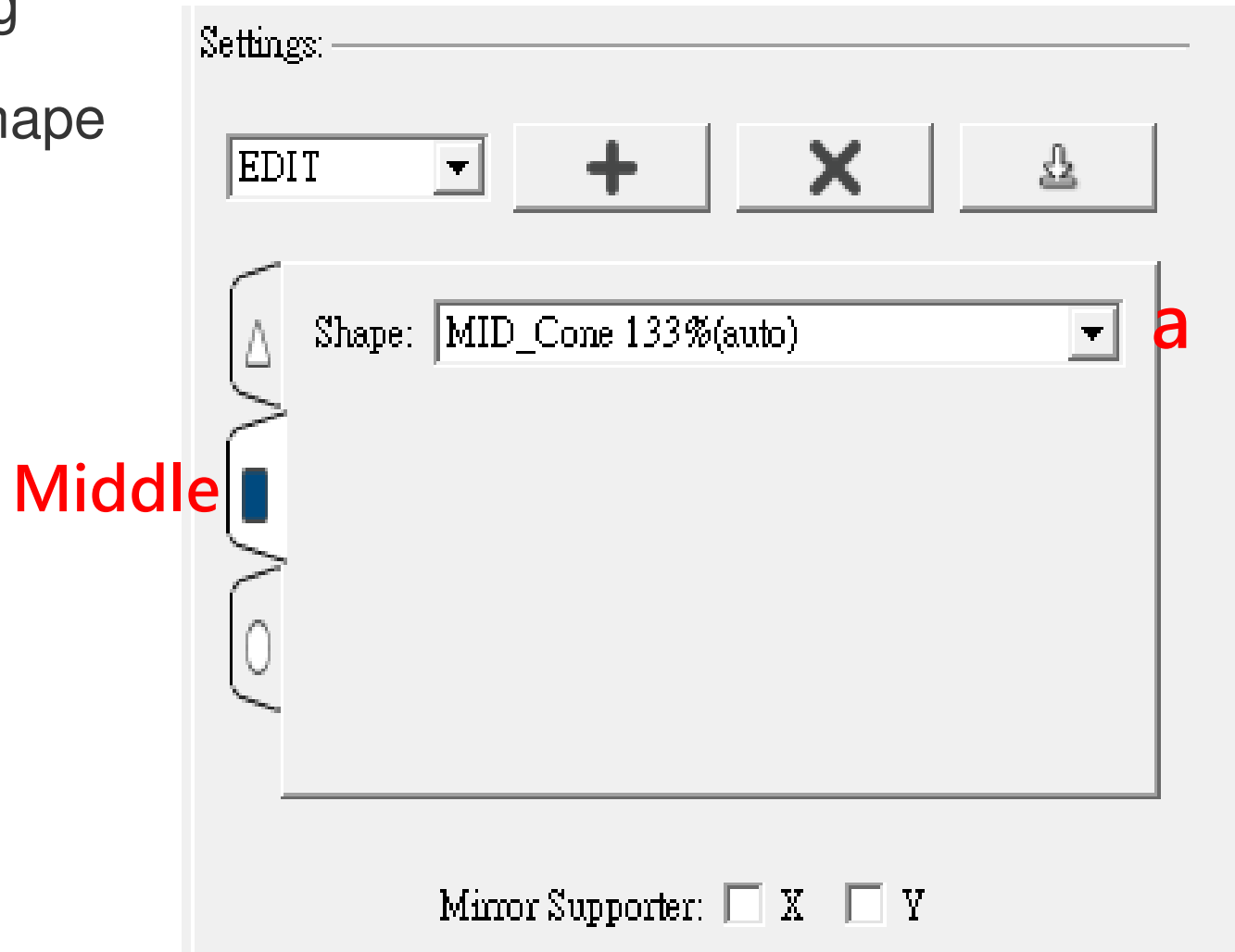
c

d

Build supports

Middle support setting

a) Middle support shape



Build supports

Bottom support setting

- a) Bottom support shape
- b) Bottom support radius
- c) Bottom support thickness

Bottom

Settings:

EDIT [+] [X] [Download]

Shape: BOTTOM_Circle **a**

Radius(mm): 1.5 **b**

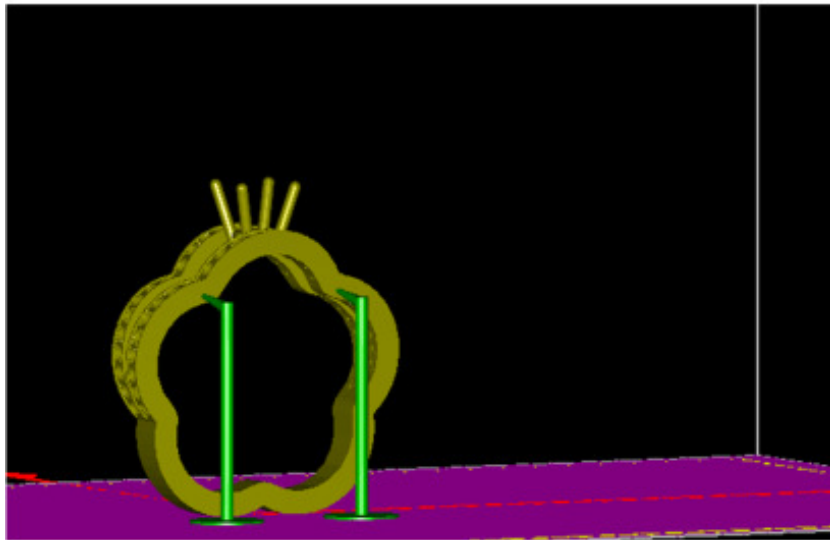
Thickness(mm): 0.25 **c**

Mirror Supporter: X Y

Build supports

Mirror supporter:

Build symmetrical supports according to X axis or Y axis



Settings:

EDIT [dropdown] [+] [X] [download icon]

Shape: [BOTTOM_Circle dropdown]

Radius(mm): [1.5 text box]

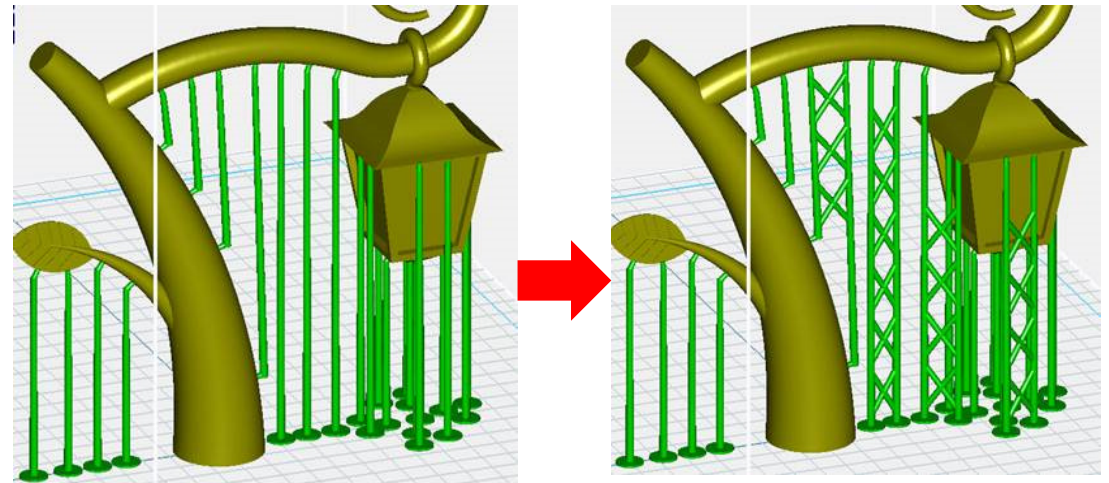
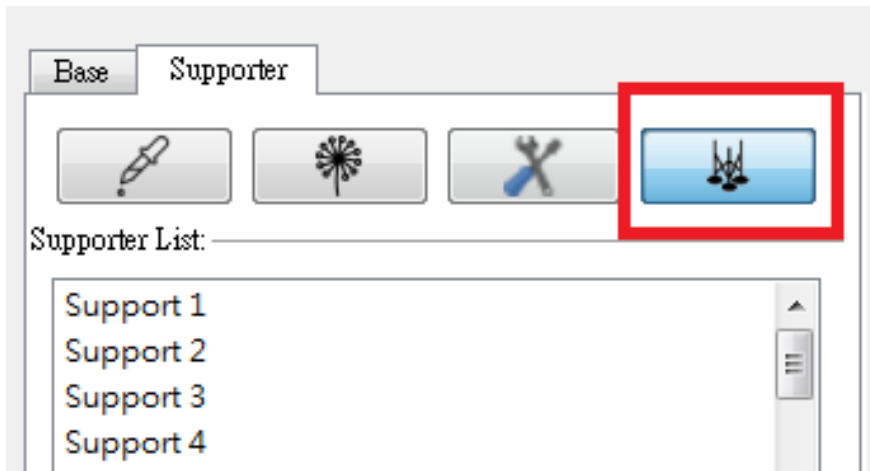
Thickness(mm): [0.25 text box]

Mirror Supporter: X Y

Build supports

X type supporter:

- (1) First build at least two supports.
- (2) Click cross structure function
- (3) Click two supports which you like to have cross structure between
- (4) Click two supports again can cancel the cross structure



Build Base

Base available or not

Base Supporter

Base:

Base type

BASE_Rectangular

Base size

Object Size: 100%

Thickness(mm): 0.5

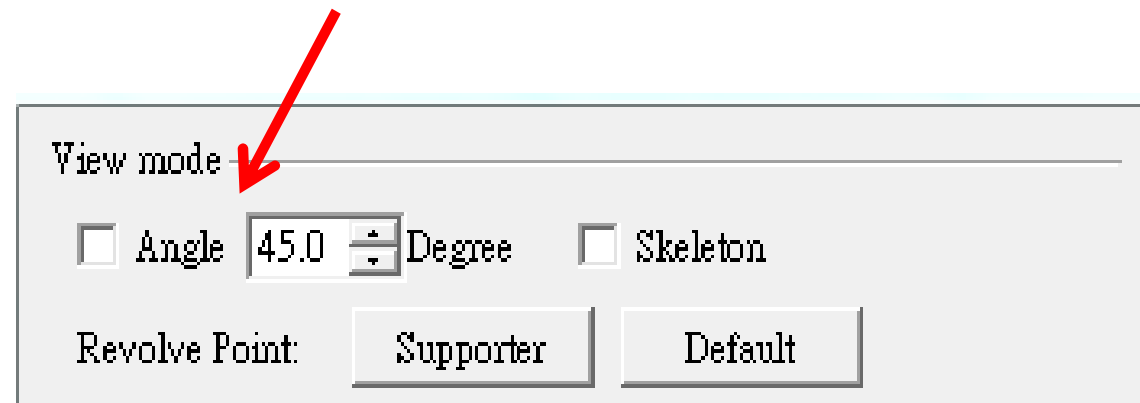
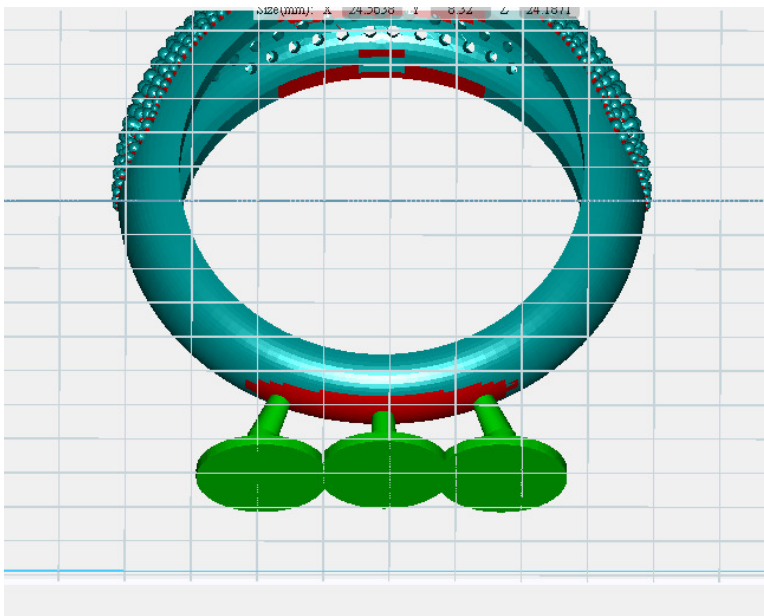
Base thickness

Build support – View mode

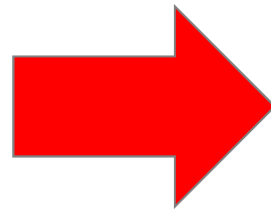
Angle Indicator will help identify the bevel angle of object surface

a) Below a certain angle will become red in preview

b) These red area indicates area more flat and possibly hang in air, where need to build supports



Build support – View mode



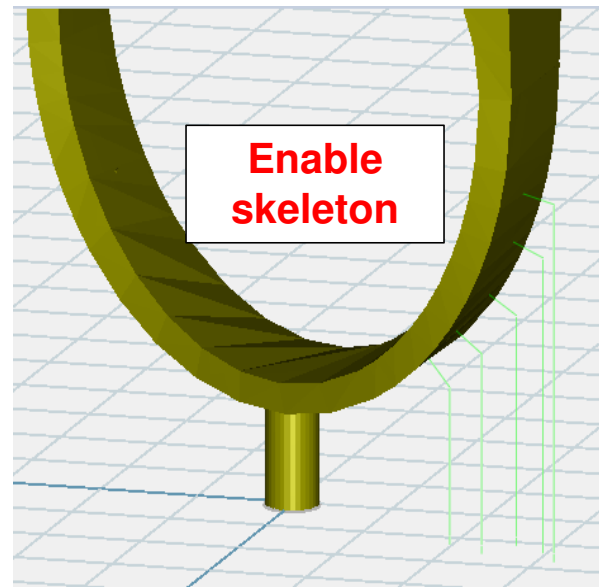
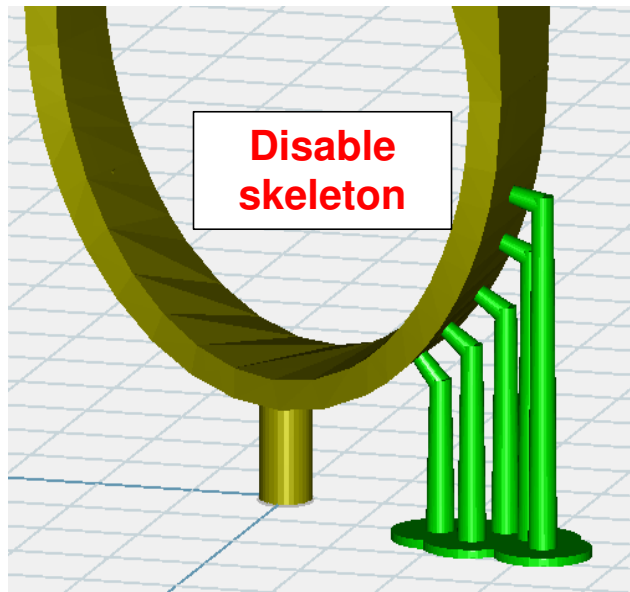
Build support – View mode

Show support in line

View mode _____

Angle 45.0 Skeleton

Revolve Point:



Build support – View mode

View mode _____

Angle Degree Skeleton

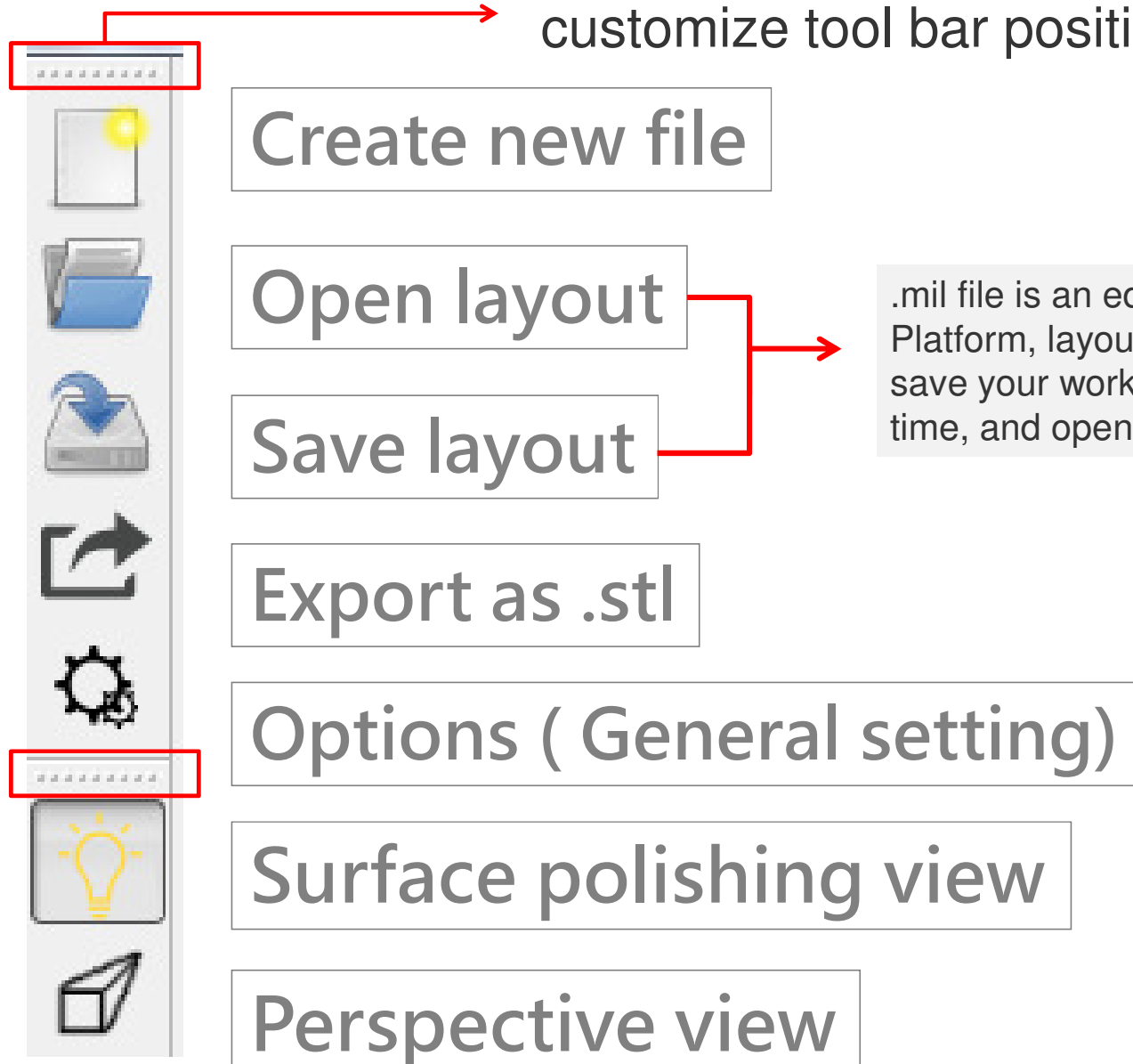
Revolve Point:

- a) Select one support
- b) Click Revolve point: supporter
- c) Use fix support as view rotation center
- d) See the 360 degree position of support

Default (Use platform as view rotation center)

Tool bar

Click and drag the tool bar, use can customize tool bar position



Create new file

Open layout

Save layout

Export as .stl

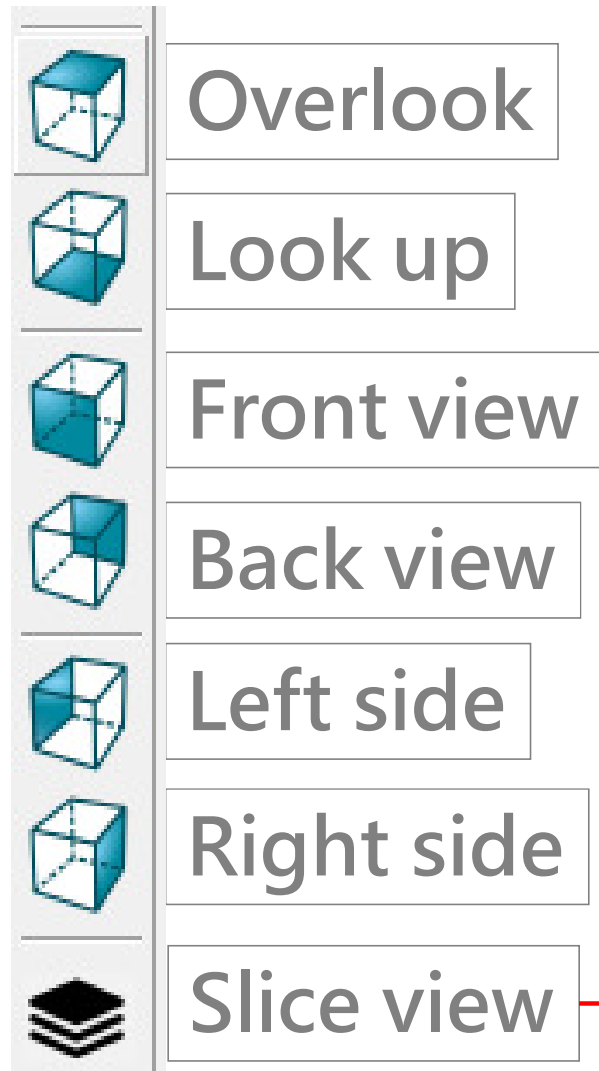
Options (General setting)

Surface polishing view

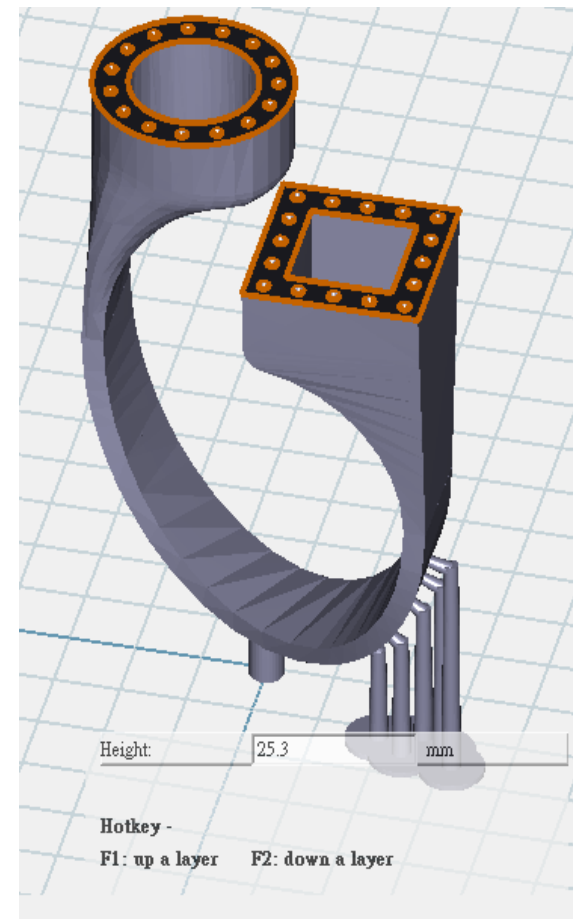
Perspective view

.mil file is an editable format for Utility Platform, layout, supporter function, you can save your working status as .mil file at any time, and open .mil file to continue editing

Tool bar

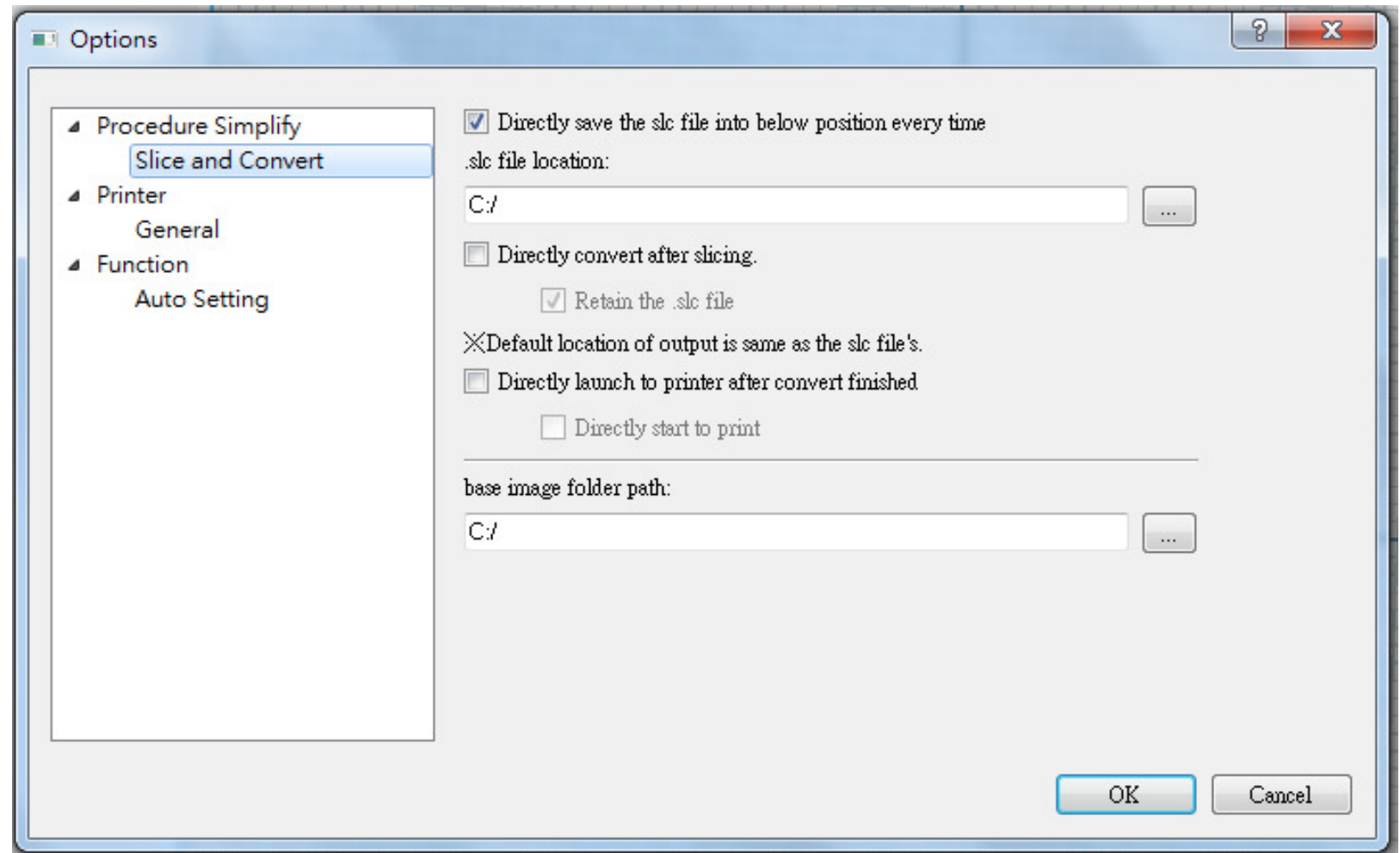
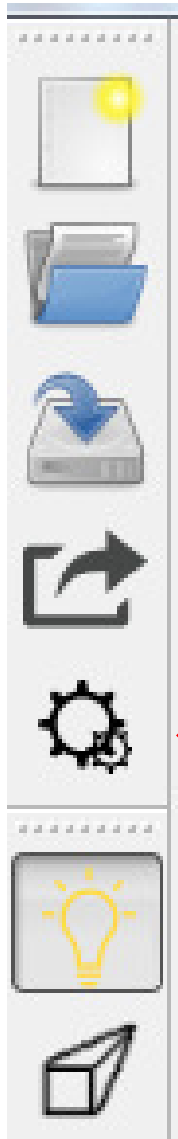


Slice view
Preview each layer
(but not export .slc yet)



Tool bar – Options setting

- 1) Procedure Simplify : Settings for skip some procedure enquiry alert every time.

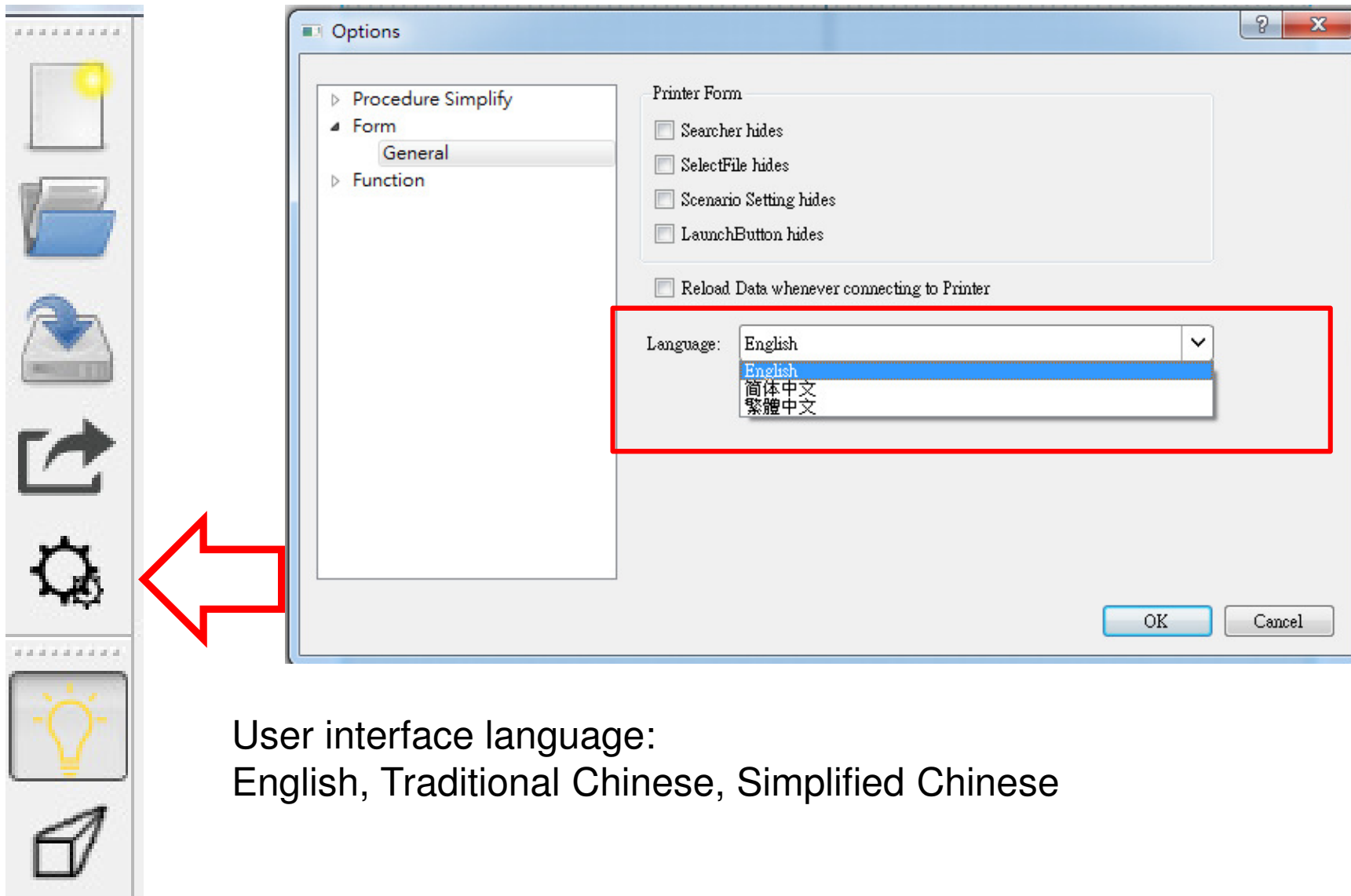


Tool bar – Options setting

Printer => General setting

- 1) Printer panel setting : Settings for hide some function panel.
- 2) Reload Data(Printer calibration data) whenever connecting to printer.

Tool bar – Options setting



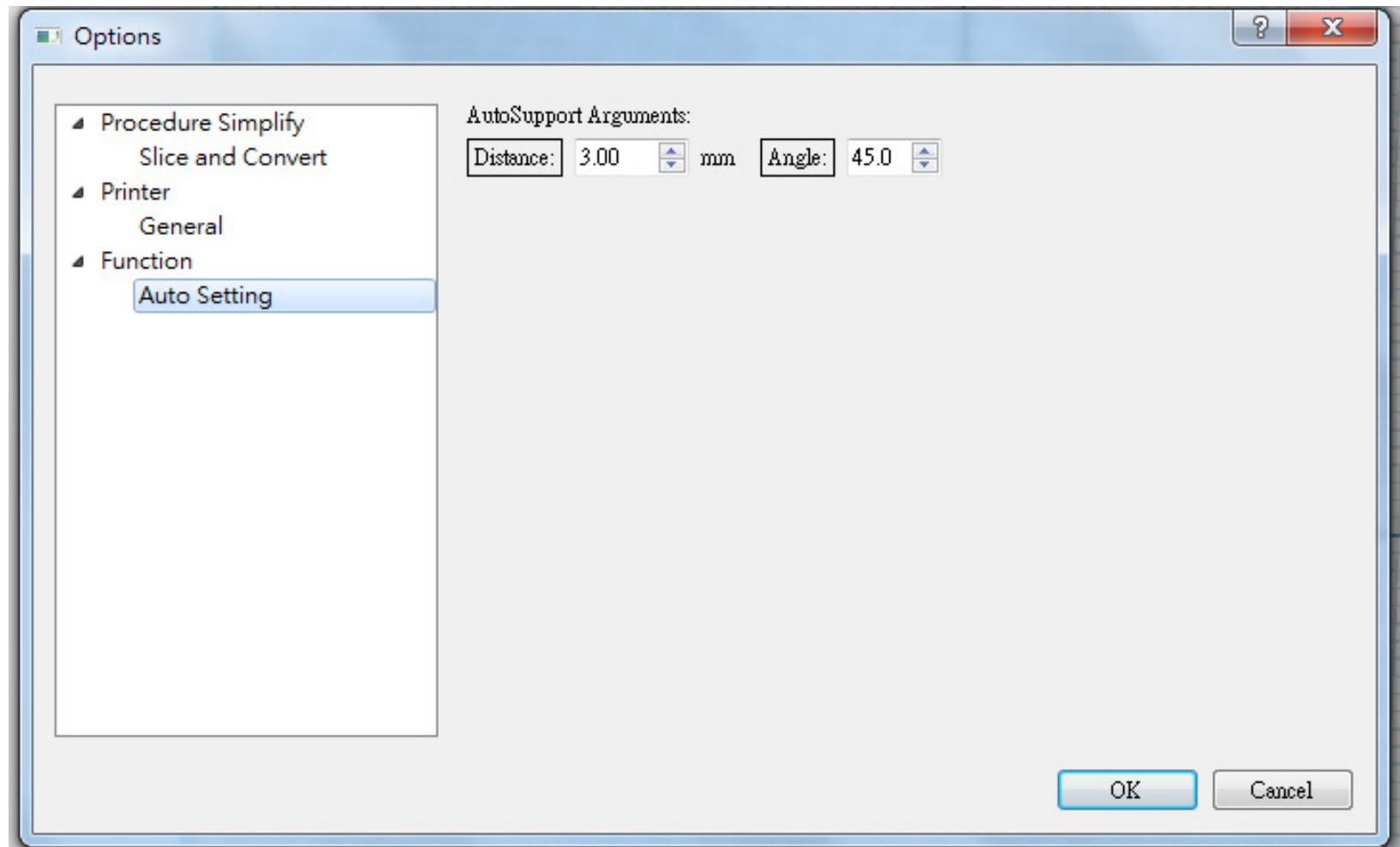
User interface language:
English, Traditional Chinese, Simplified Chinese

Tool bar – Options setting



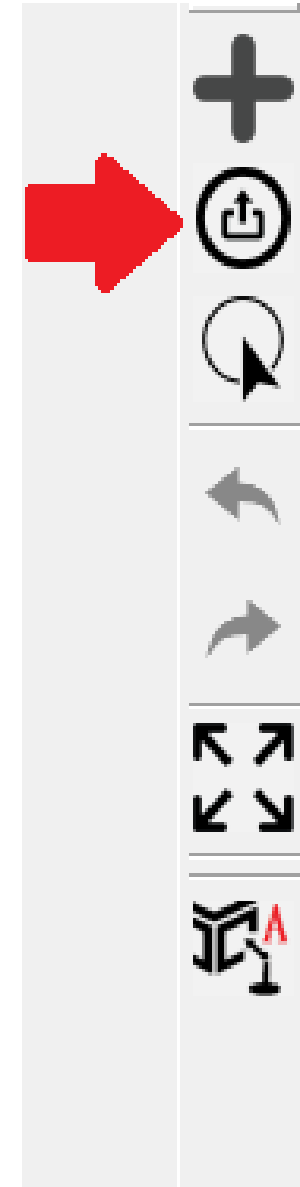
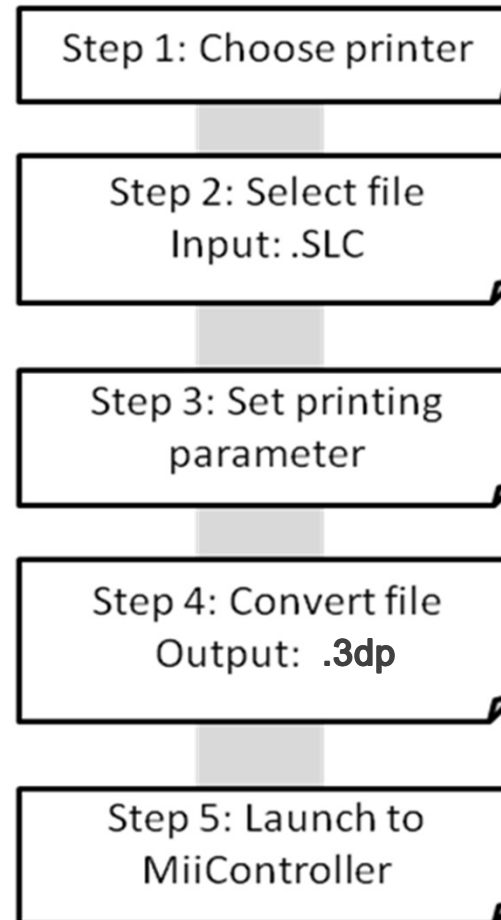
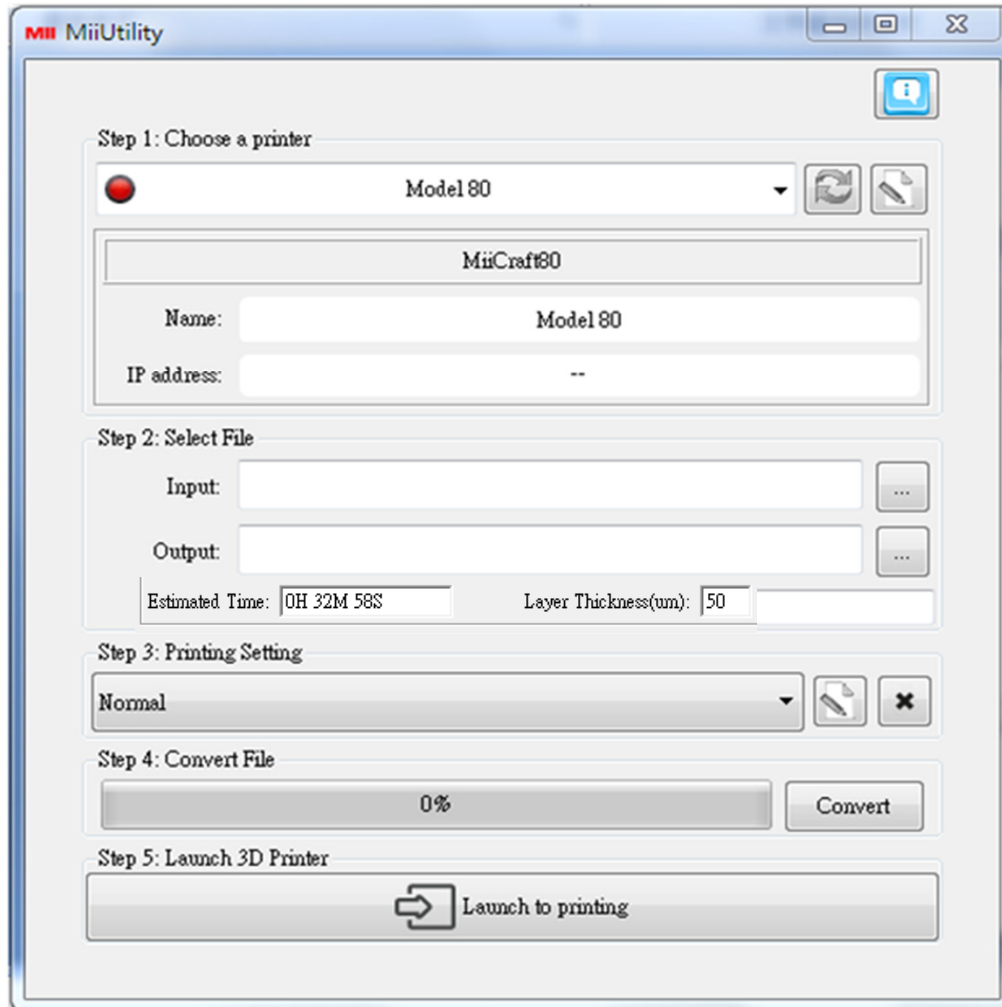
Function => Auto setting:

- 1) Distance: The distance of supports and supports. The density of supports.
- 2) Angle: The model surface below a certain angle, will automatically build supports.



Printer setting

1) Tool bar, icon as picture on the right

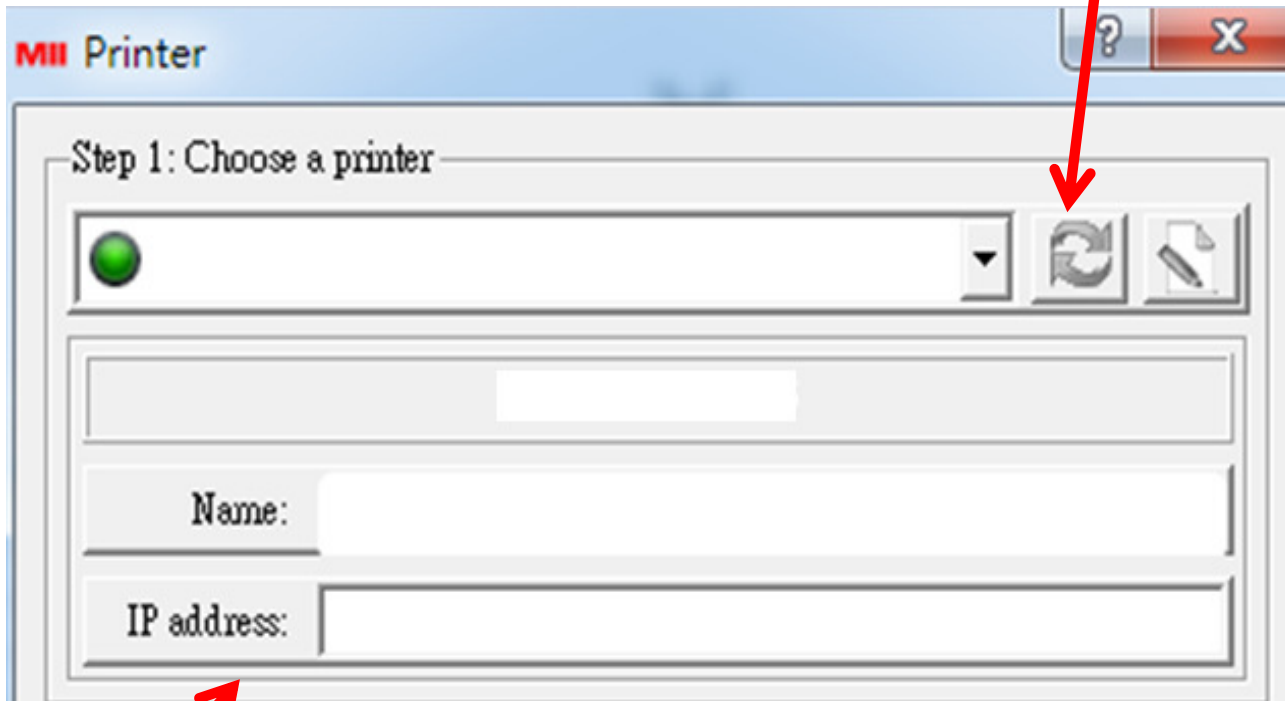


Printer setting

Step 1

- Online printer
- Offline printer

Scan online printer



Printer IP

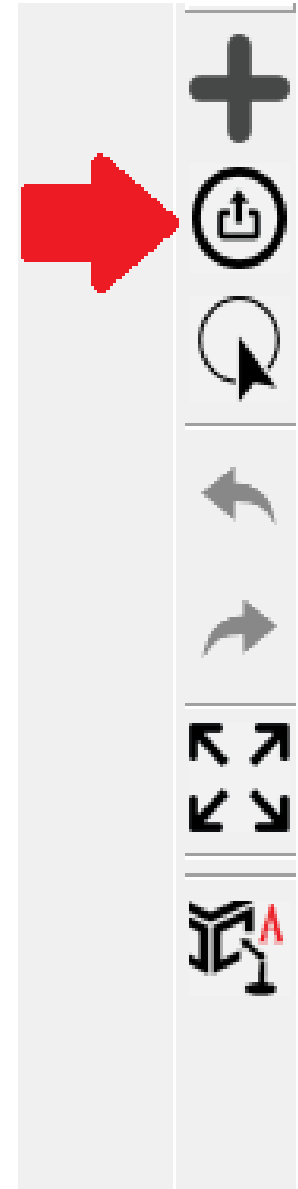
- To print (only online printer)
- To use printer calibrate information when converting files (Both online and offline printer)



Trouble shooting ↕

If unable to connect computer and printer, please check computer's proxy setting, it has to be close. ↕

MIICRAFT



Printer setting

Step 2

Step 2: Select File

Input: ...

Output: ...

Estimated Time: Layer Thickness(um):

← Default user edit .slc file

← Output .3dp file

← Estimated printing time

Step 3: Printing Setting

- 1) Select .mps file
- 2) Edit .mps file (printing parameter)




















Step 4: Convert File

Step 5: Launch 3D Printer

Printing setting (.mps)

 Active

MIICRAFT

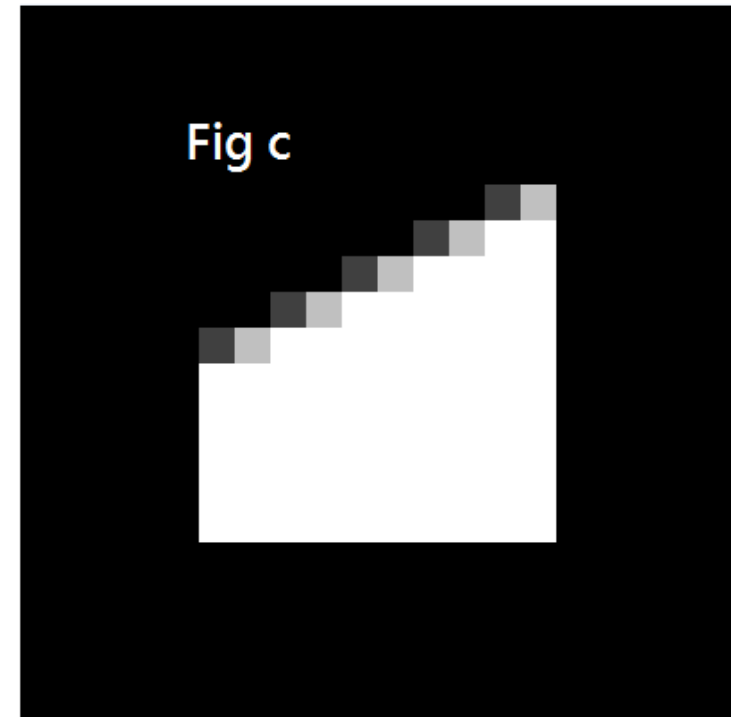
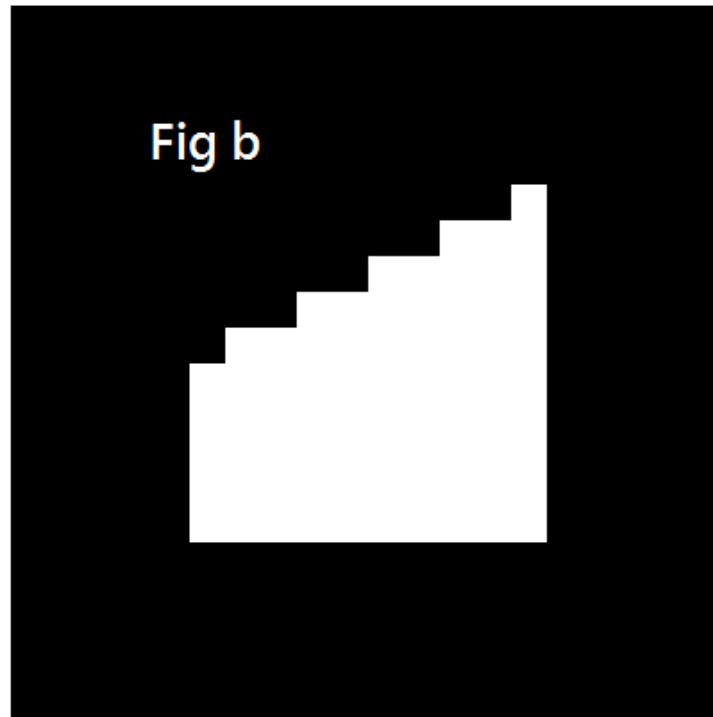
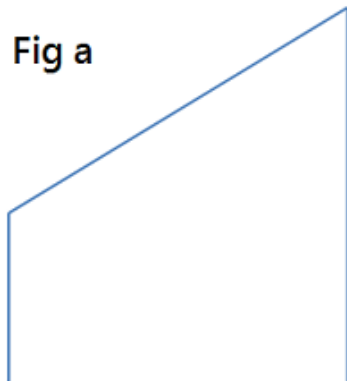
	Ultra series	Advance series	Profession series
Image Calibration			
Anti-aliasing			
Pixel offset			
Edge enhance			
Overlap (%)			
Blur			
Contour exposure			
Resin Shrinkage compensation			
Flip image			

Printing setting (.mps)

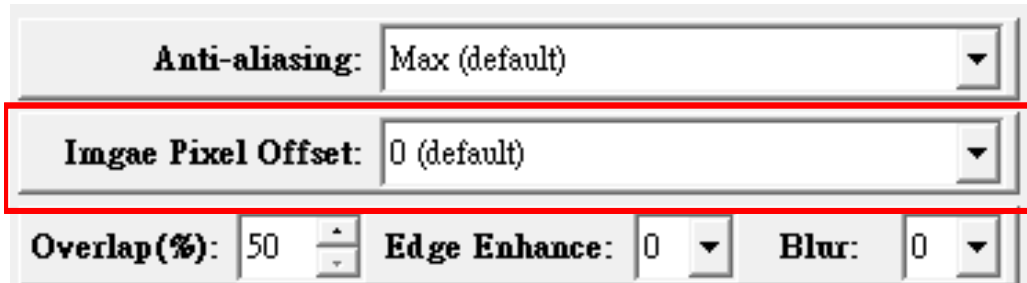
Anti-aliasing:	Max (default)				
Image Pixel Offset:	0 (default)				
Overlap(%):	50	Edge Enhance:	0	Blur:	0

None Anti-aliasing

Max Anti-aliasing



Printing setting (.mps)



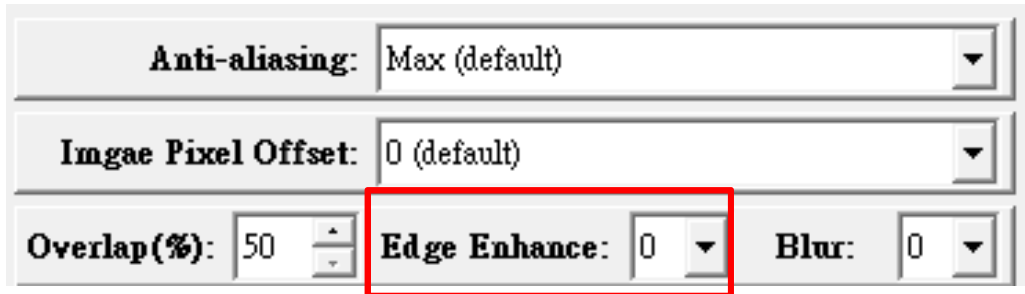
Pixel offset : Can slightly adjust edge pixel (0.5 pixel = 1)

For example:

Select -2, erode 1 pixel on the edge

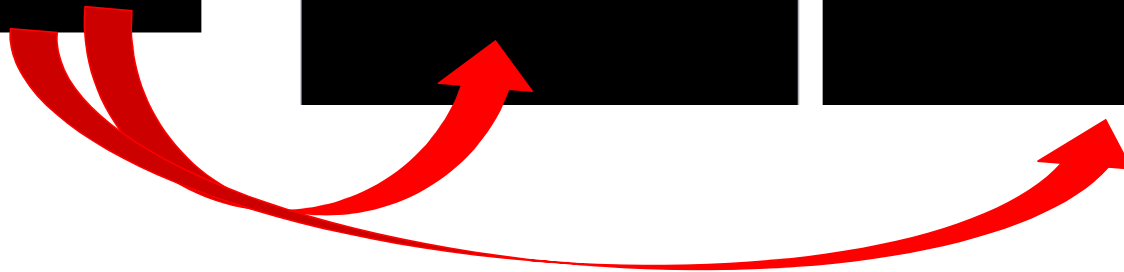
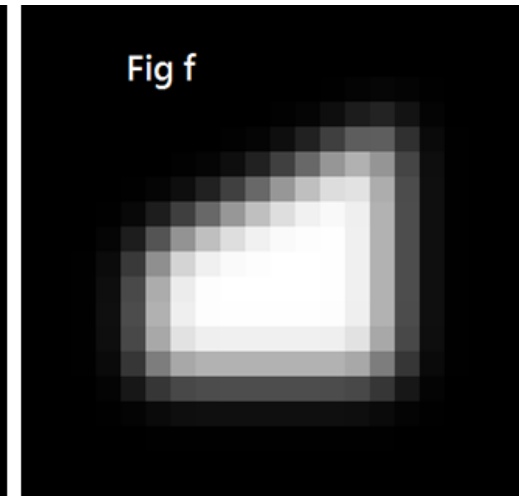
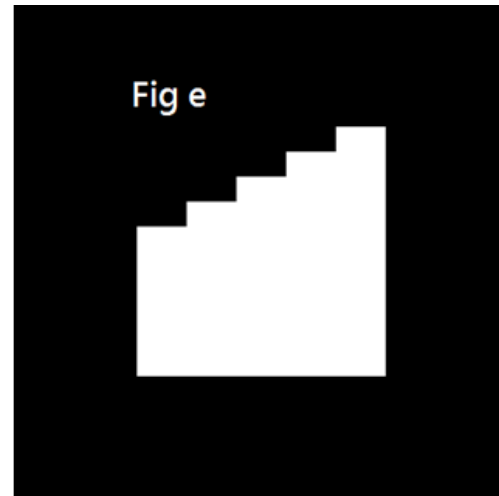
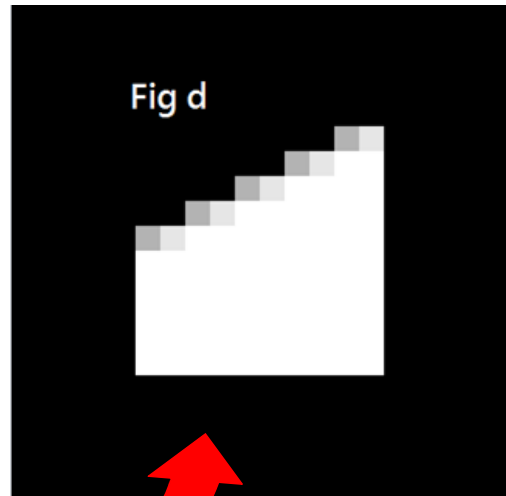
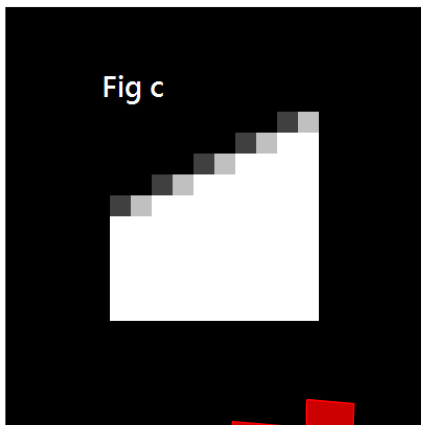
Select 2, add 1 pixel on the edge

Printing setting (.mps)

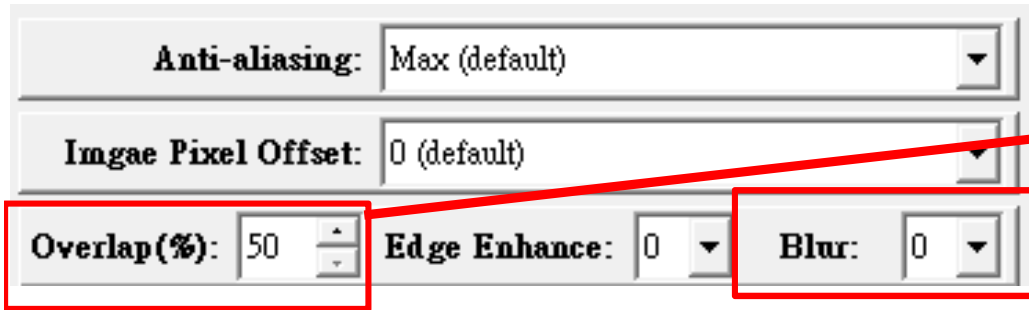


Edge Enhance level 3 Edge Enhance level 5

Blur

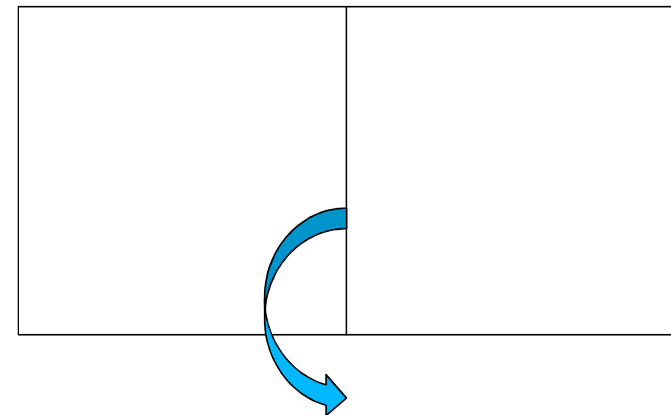
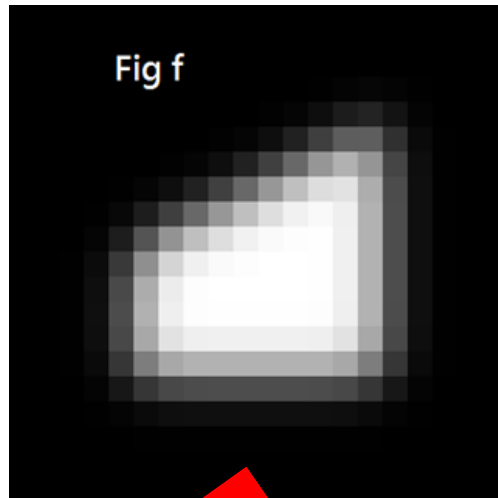
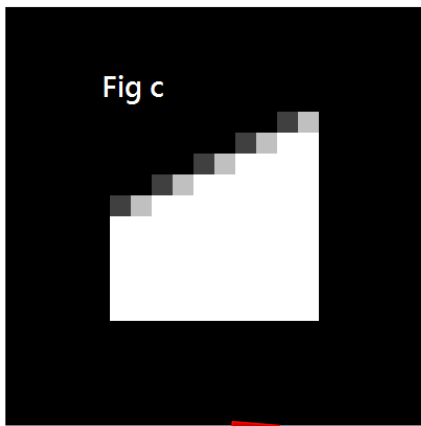


Printing setting (.mps)



Only apply to Advance series

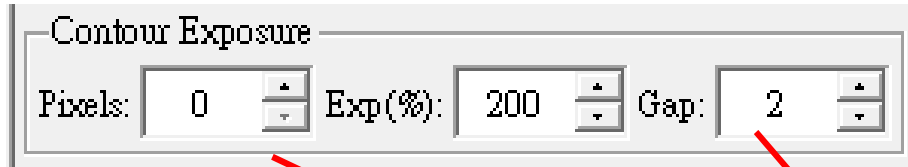
Blur



Overlap of dual light engine

Overlap% : Two light engine power percentage. Suppose both light engine have same power, the percentage is 50%

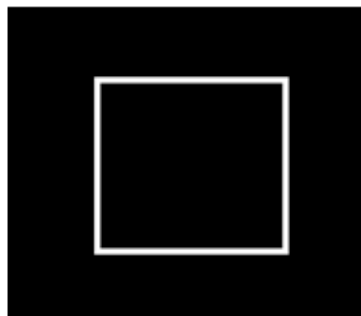
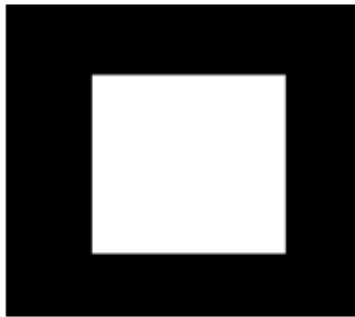
Printing setting (.mps)



Contour Exposure : User set this function to exposure contour image first, then exposure inside image. Can prevent contour deform

Pixels : Contour pixel
Exp (%) : Contour exposure time
The percentage is compare to curing time (Inside image exposure time is same as curing time)

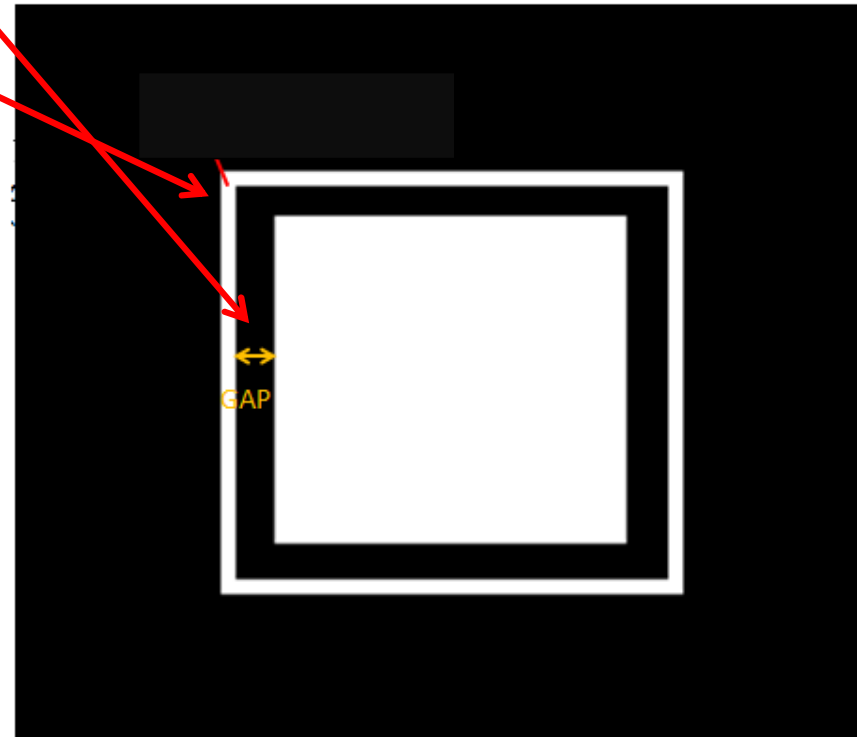
For example:
Square object



Contour image

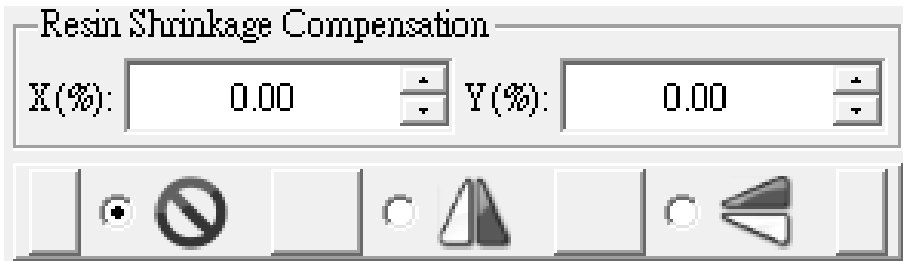


Inside image



If user set contour pixel, one image will become 2 image, contour and inside

Printing setting (.mps)



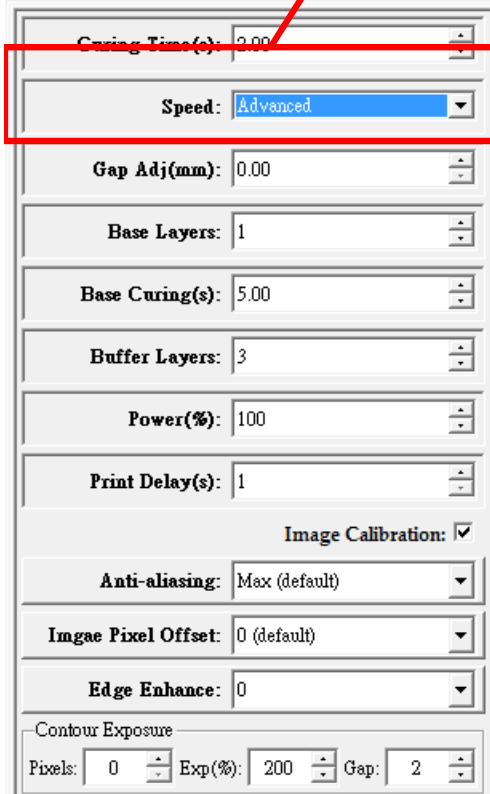
+0% to 9.9% → Enlarge an image

-0% to -9.9% → Shrink an image

Flip image by X axis or Y axis

Printing setting (.mps) –Advance setting

Speed : select Advance
Enable Function: Customize peeling mode



Curing Time(s): 2.00

Speed: **Advanced**

Gap Adj(mm): 0.00

Base Layers: 1

Base Curing(s): 5.00

Buffer Layers: 3

Power(%): 100

Print Delay(s): 1

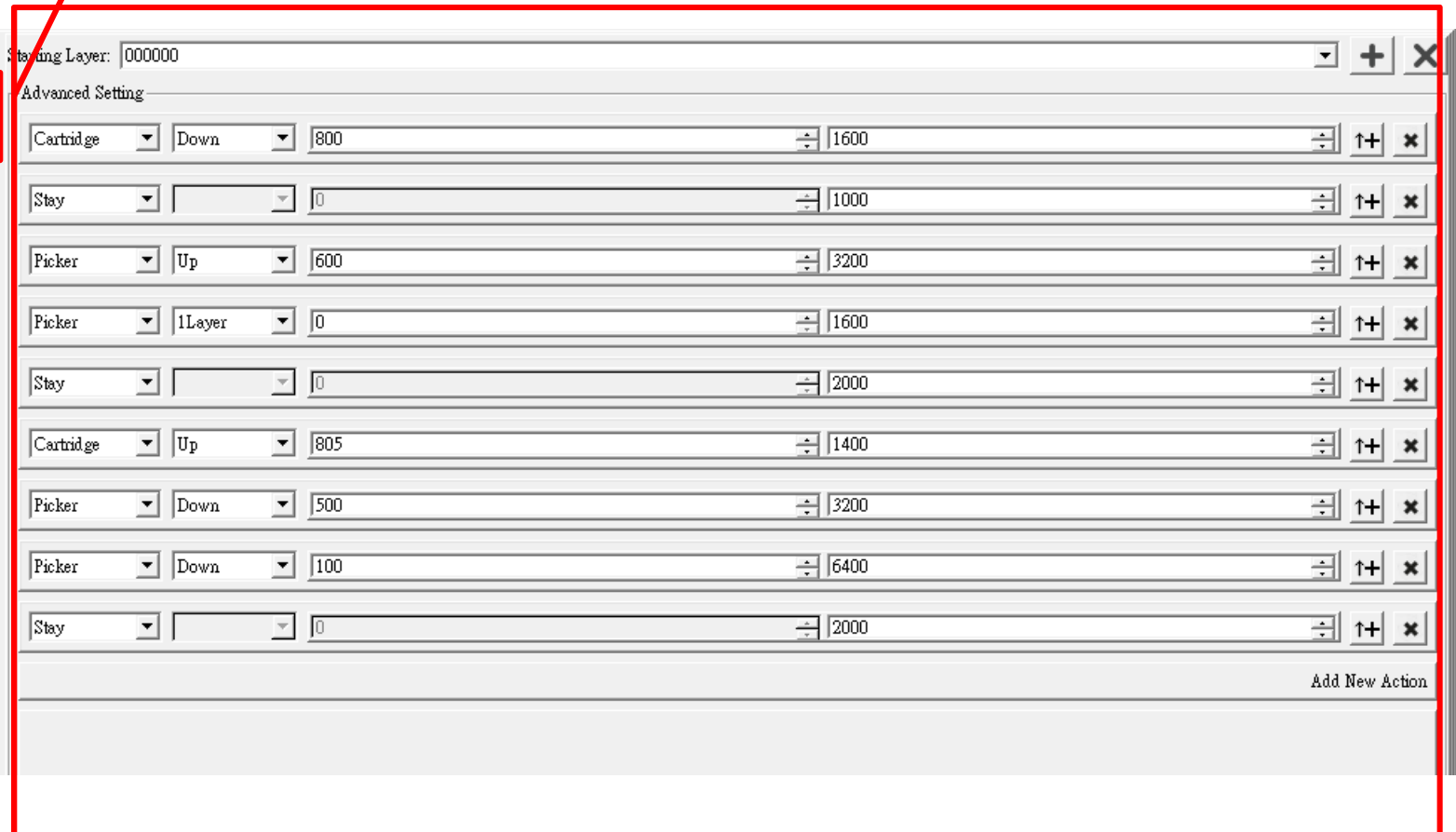
Image Calibration:

Anti-aliasing: Max (default)

Image Pixel Offset: 0 (default)

Edge Enhance: 0

Contour Exposure
Pixels: 0 Exp(%): 200 Gap: 2



Staying Layer: 000000

Advanced Setting

Cartridge	Down	800	1600
Stay		0	1000
Picker	Up	600	3200
Picker	1Layer	0	1600
Stay		0	2000
Cartridge	Up	805	1400
Picker	Down	500	3200
Picker	Down	100	6400
Stay		0	2000

Add New Action

Printing setting (.mps) –Advance setting

The advantage of advanced setting is you can decide peeling mode

Tilt mode : Set cartridge(tank) up and down for bigger area peeling

Direct mode : Only set picker's movement, cartridge stay, to let peeling speed faster

Sweep: Set recoater movement

Starting layer: from starting layer start to use advance setting peeling mode

Half step period (micro second)

Items Movement Step (25um/step)

- 1
- 2
- 3
- 4
- 5
- ...

Layer	Cartridge	Cartridge Mode	Cartridge Value	Half Step Period (micro second)
1	Cartridge	Down	800	1600
2	Stay		0	1000
3	Picker	Up	600	3200
4	Picker	1Layer	0	1600
5	Stay		0	2000
...	Cartridge	Up	805	1400
	Picker	Down	500	3200
	Picker	Down	100	6400
	Stay		0	2000

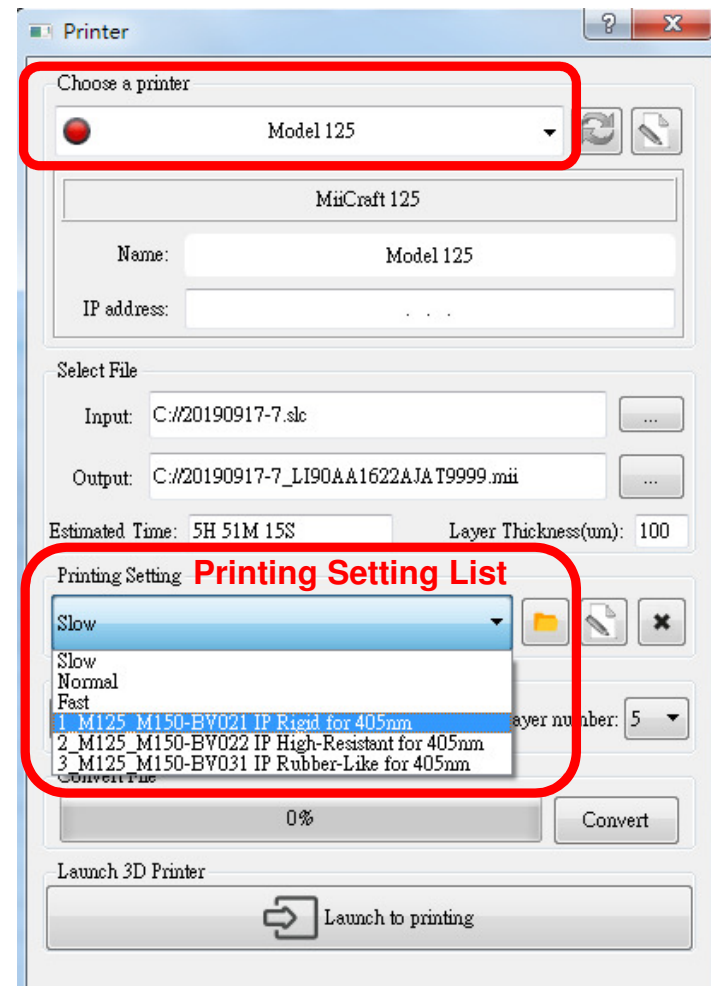
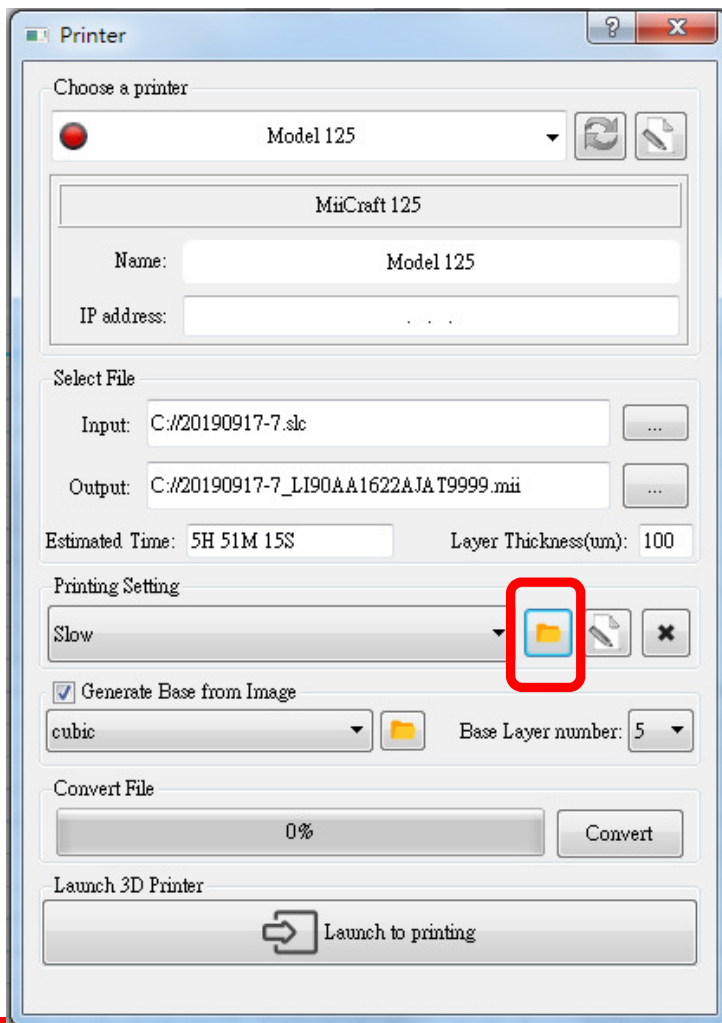
.mps file user management

(1) Assign .mps user management file

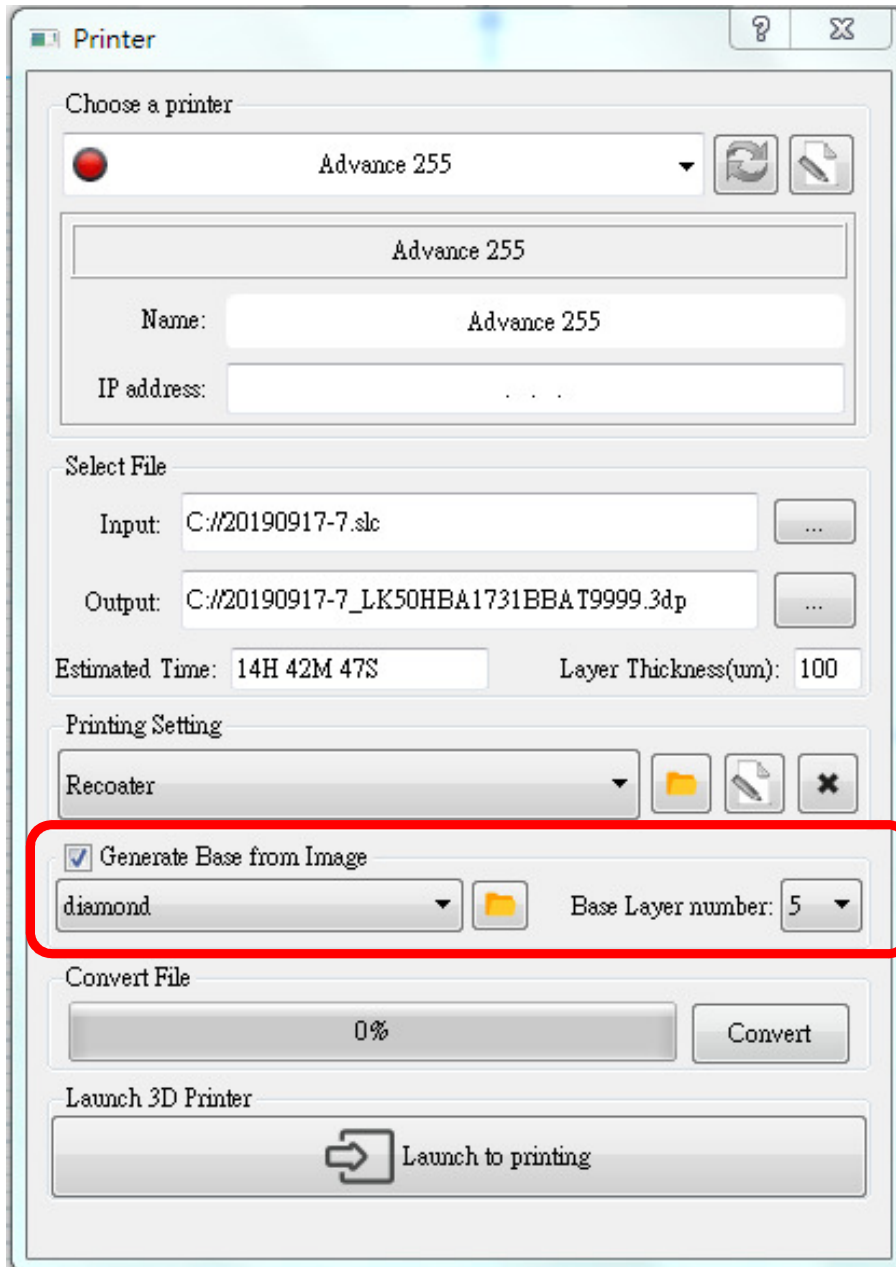
The printer you choose will affect the .mps you can see.

ex: Choose MiiCraft Profession Printer, can only select .mps file for MiiCraft Profession Printer

(2) Put .mps into user assigned file, the .mps will show up in the printing setting list as below picture.



Generate Base from Image



MIIICRAFT

Step 3: Printing setting

(1) Select image

Cubic

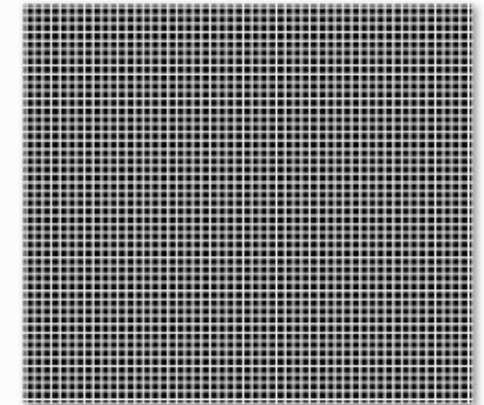
Diamond

Hexagon

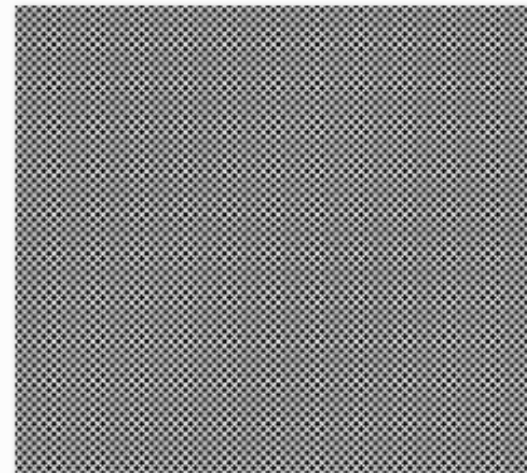
Or DIY image for Base

(2) Set Base layer thickness

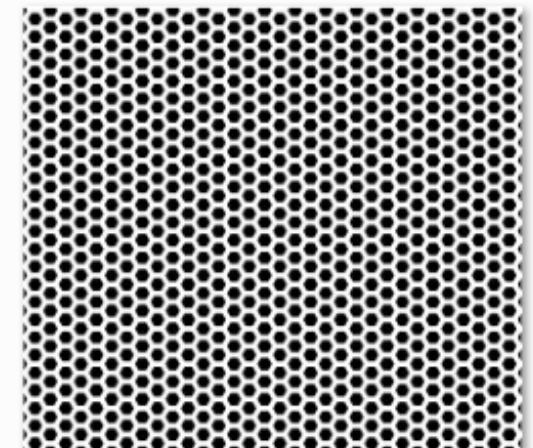
(for image base)



cubic.png



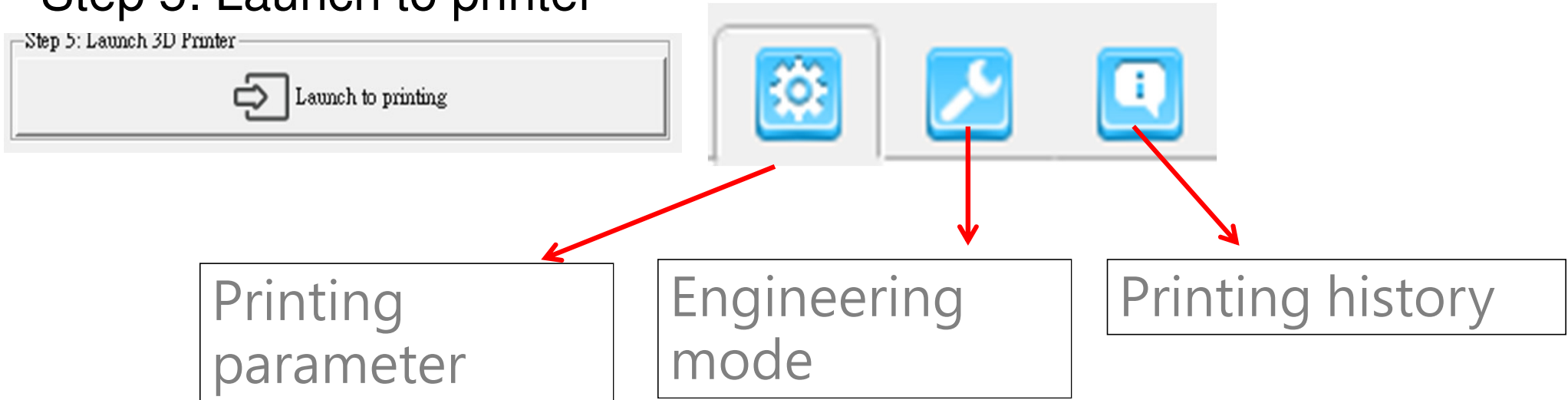
diamond.png



hexagon.png

Print via Computer

Step 5: Launch to printer



Select .3dp file

From PC

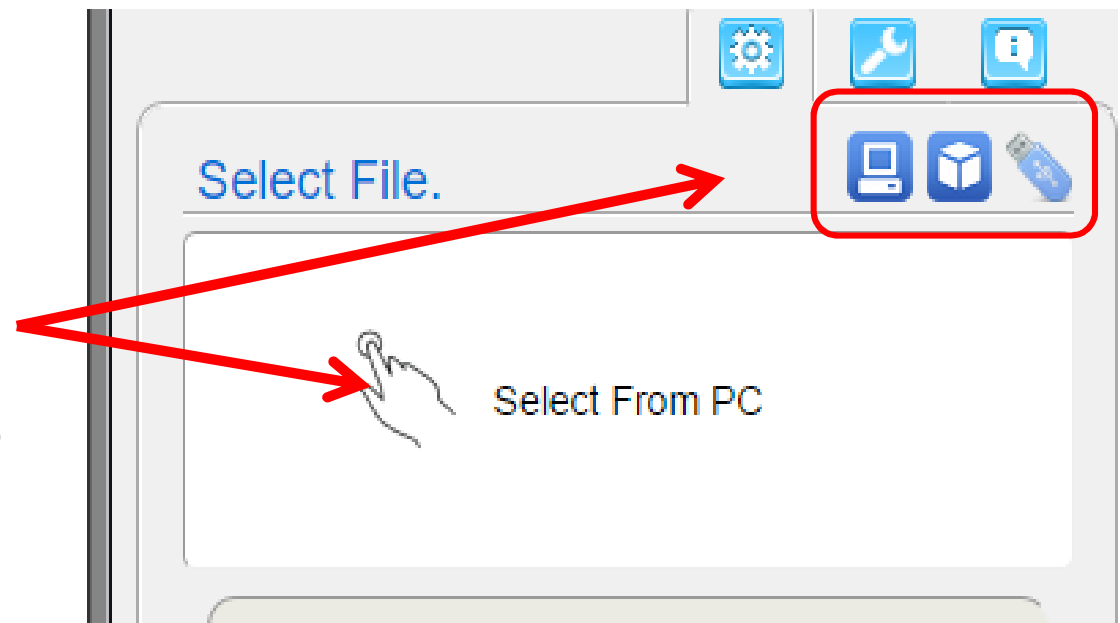
From machine ((file saved in printer))

From USB (USB insert into Printer)

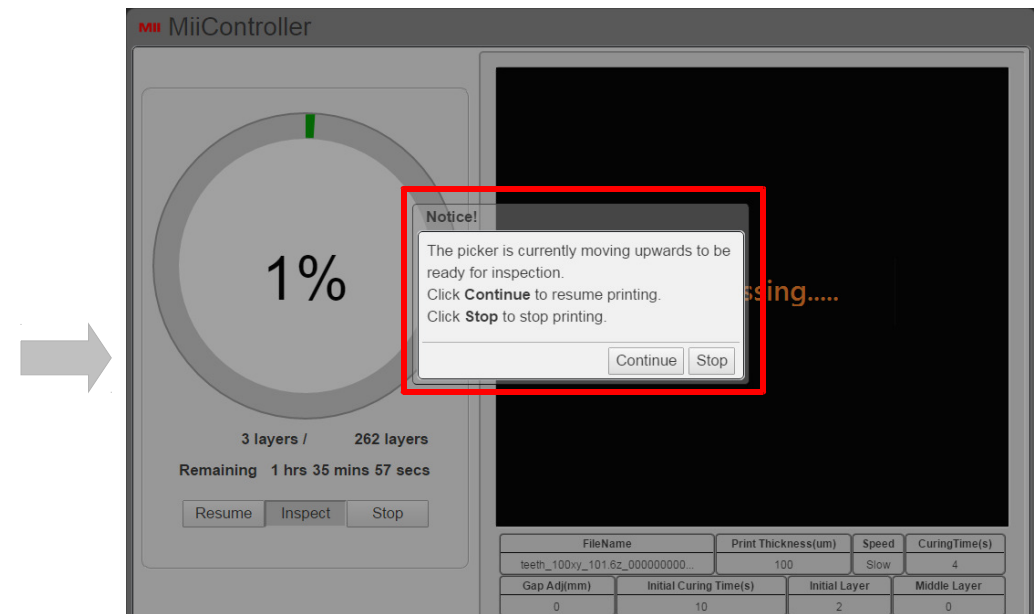
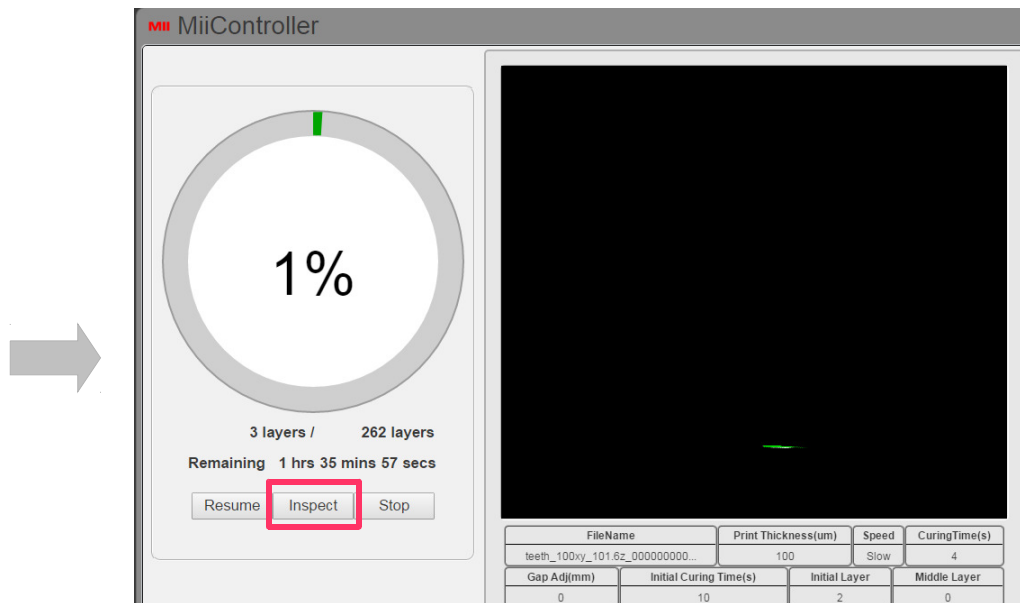
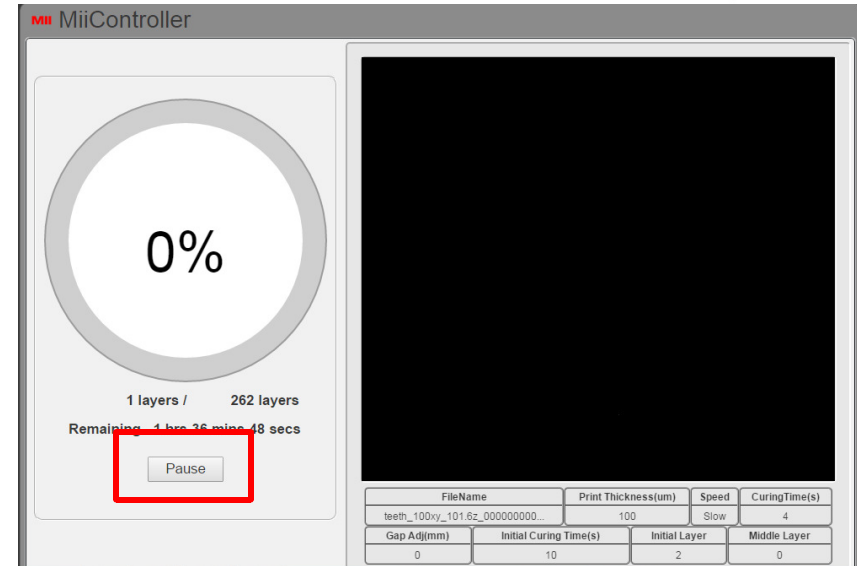
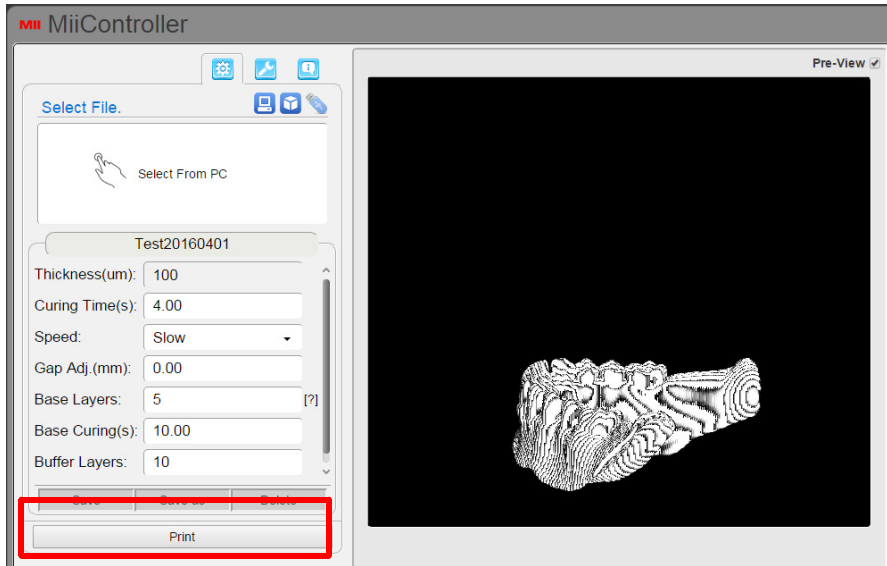
File input size limitation:

(1) Upload file from Computer, file limitation 500MB

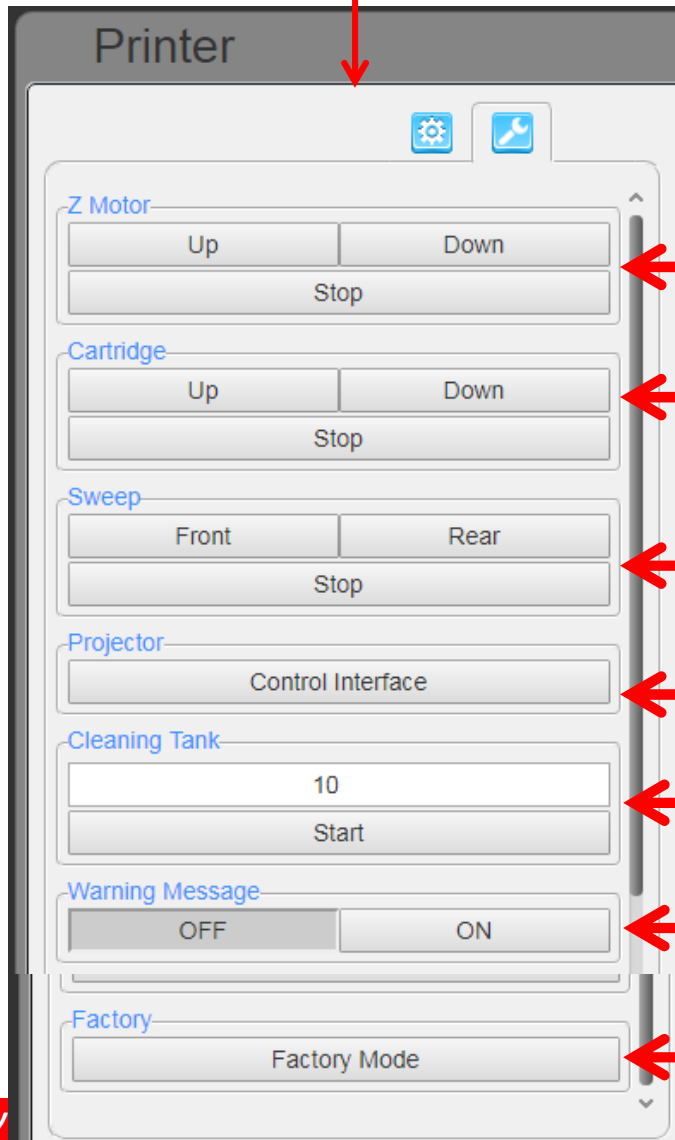
(2) Upload file from USB, file limitation 1G



Print via Computer



Engineering mode (Computer)



Control Z-platform (Build platform)

Control teflon module

Control recoater blade

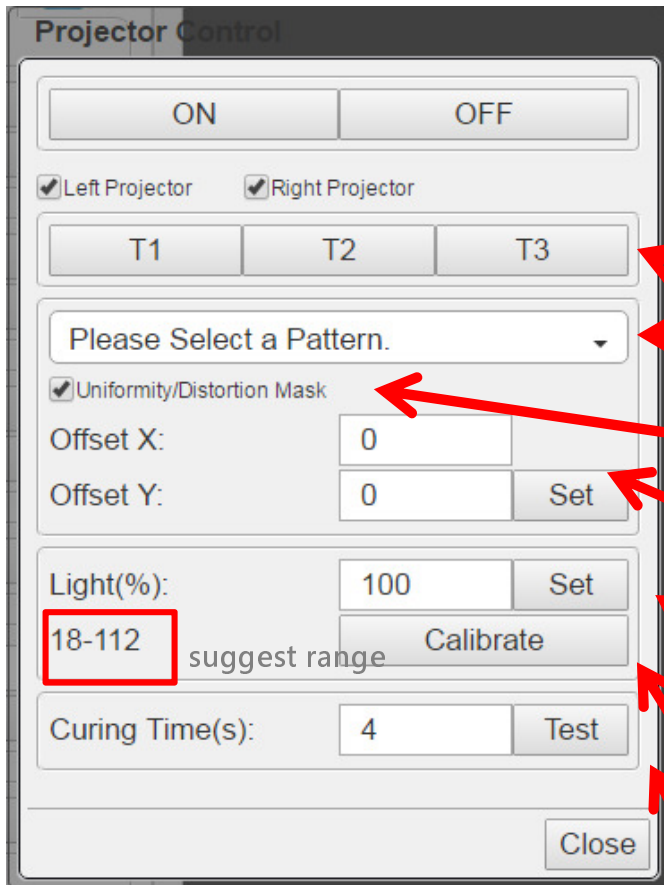
Introduce in the next page

Project a complete patten, the residual will be transformed into a solid layer

On/off of warning message shows before print

Key in password to use Factory mode
(For distributor use)

Engineering mode (Computer)



← Control the projector

← If Machine is Advance series, you can choose left or right projector to control.

← T1/T2/T3 : Use test pattern inside the projector, or select a pattern from menu

← Tick this option to apply printer calibration function

← Fix the left projector, and move right projector through X axis or Y axis.

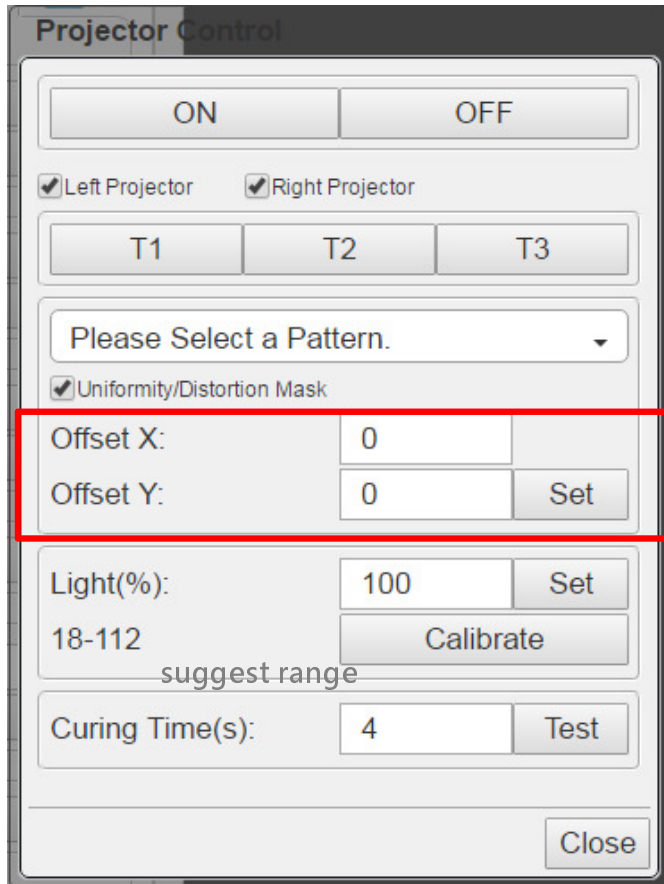
← Light(%): At 100% is the existing brightness of light engine. The suggest range is base on the printer' s condition, user can only set the % within the suggest range.

← Calibrate: Return to default setting of brightness

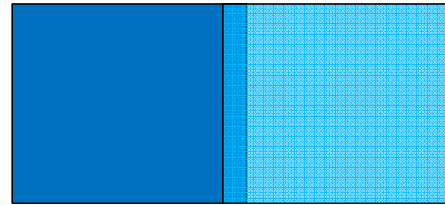
← Curing Time(s): Test print curing time.

Engineering mode (Computer)

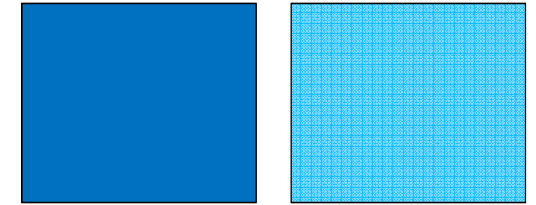
MIICRAFT



Fix the left projector image, and move right projector image through X axis.

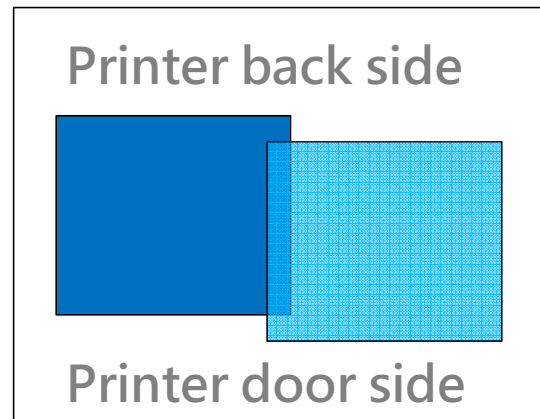


Offset X : -9

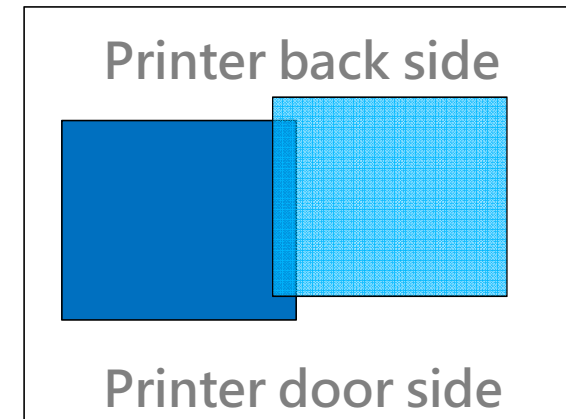


Offset X : 9

Fix the left projector image, and move right projector image through Y axis.



Offset Y : -9



Offset Y : 9

Printing record and update firmware



Printing history

Printer

Printer.

Advance 205

Name:

SN:

FW:

Interval: ~

Total Printed Layers :

Total Printed Time :

File Name	Print Thickness(um)	Curing Time(s)	
DUAL_RUNIN	50	1.50	
Gap Adj.(mm)	Base Curing Time(s)	Base Layers	Buffer Layers
0.000	5.00	1	3
Speed	Print Delay(s)	Start Time	Power Ratio
file	1	2019/05/17 19:55:10	1.00(L:810,R:761)
End Time		Total Layer	
2019/05/18 05:19:38		3788	

File Name	Print Thickness(um)	Curing Time(s)	
DUAL_RUNIN	50	1.50	
Gap Adj.(mm)	Base Curing Time(s)	Base Layers	Buffer Layers
0.000	5.00	1	3
Speed	Print Delay(s)	Start Time	Power Ratio
file	1	2019/05/17 09:17:02	1.00(L:810,R:767)
Stop Time		Total Layer	
2019/05/17 17:37:22		3392(3788)	

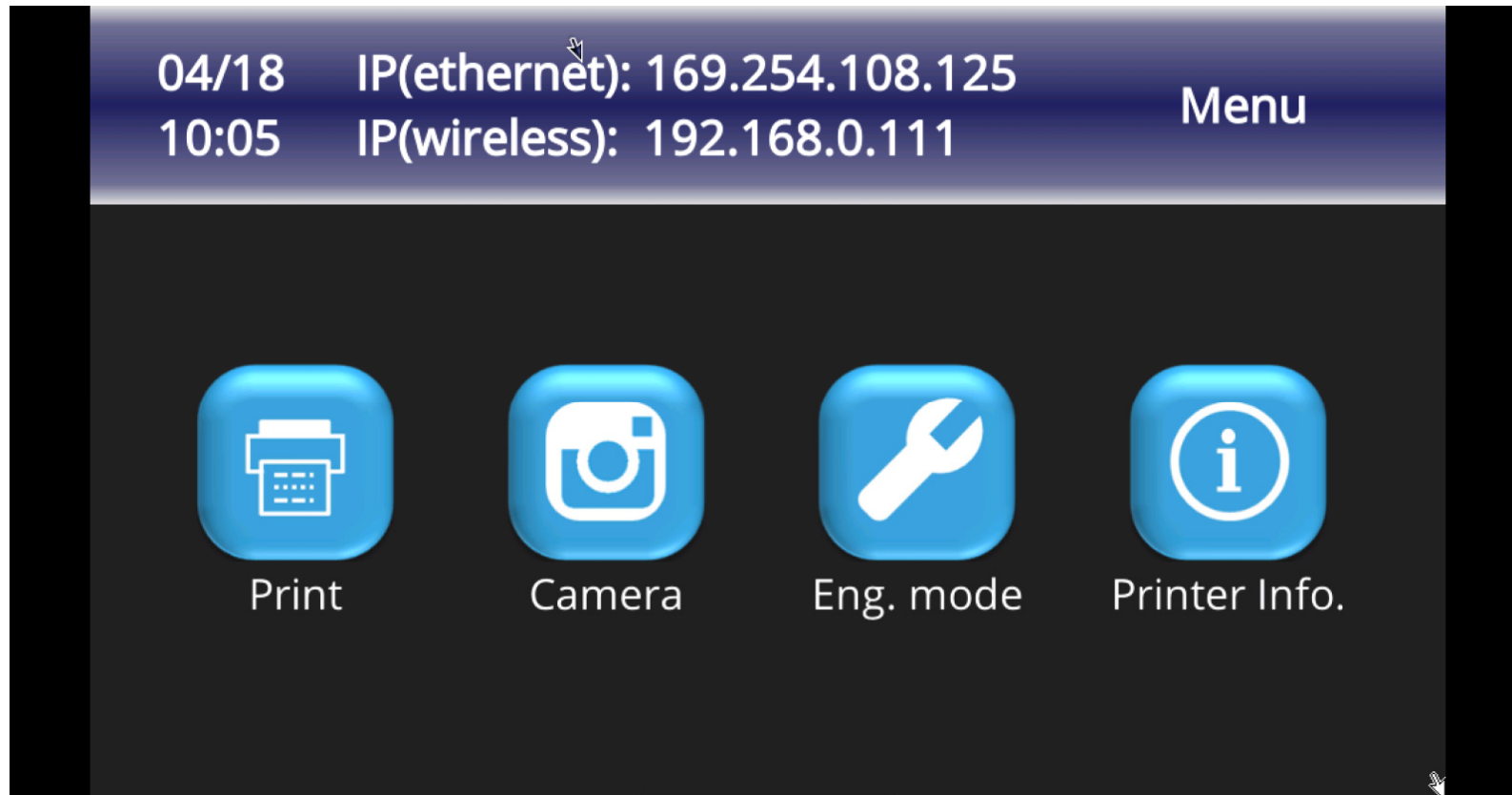
Search interval

Record

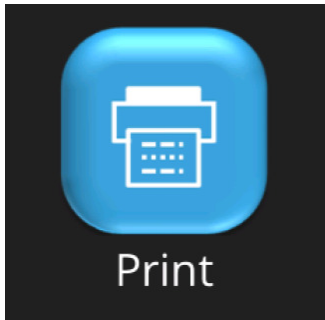
Upload the latest Firmware package to upgrade printer firmware

Print via touch screen panel

MIICRAFT



Print via touch screen panel



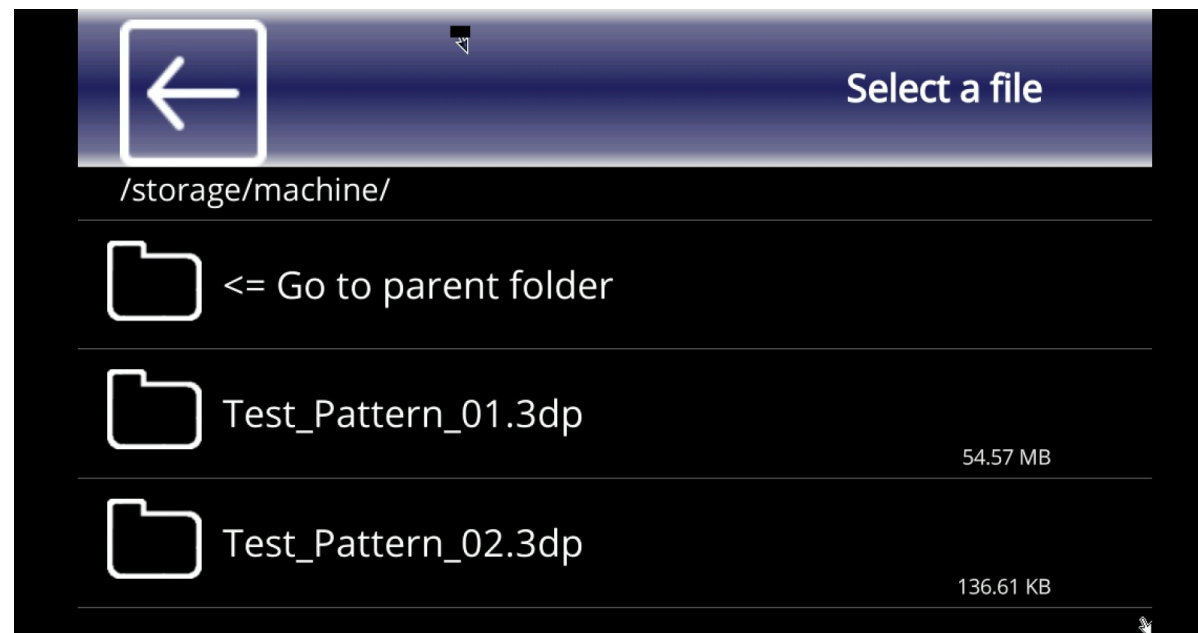
To print:

Select .3DP file from

- (1) machine (file saved in printer) or
- (2) USB (insert into printer)

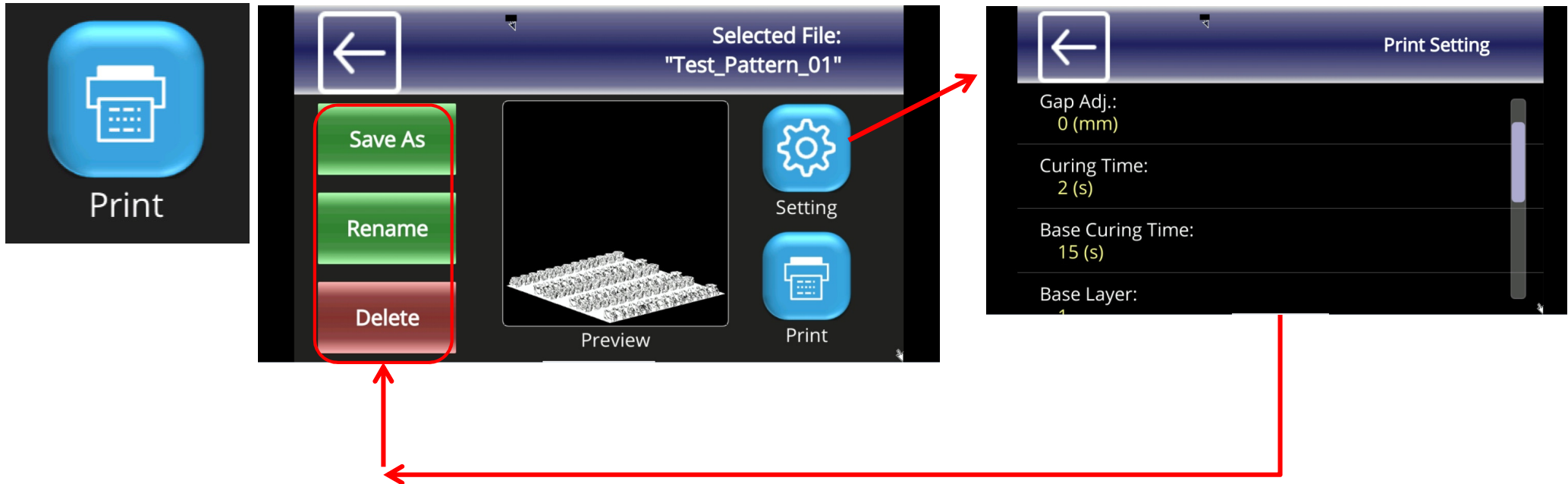
File input size limitation:

- (1) Upload file from Computer, file limitation 500MB
- (2) Upload file from USB, file limitation 1G



Print via touch screen panel

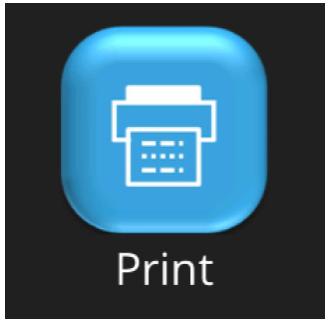
MIICRAFT



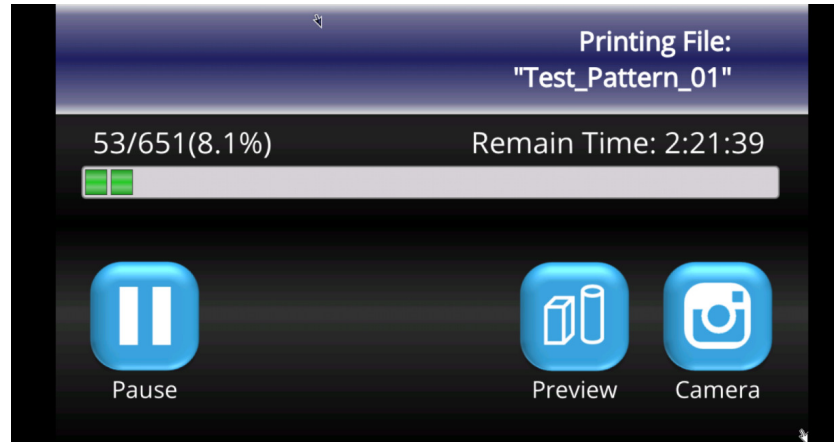
.3DP file

- (1) Save as : Save printing setting as another .3DP file
- (2) Rename : Rename .3DP file
- (3) Delete : Delete .3DP file

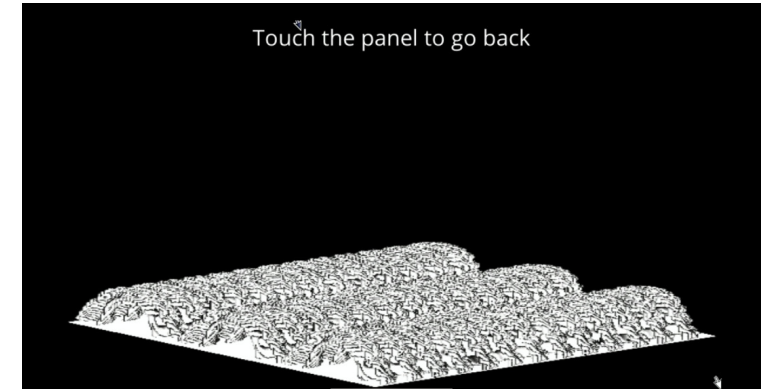
Print via touch screen panel



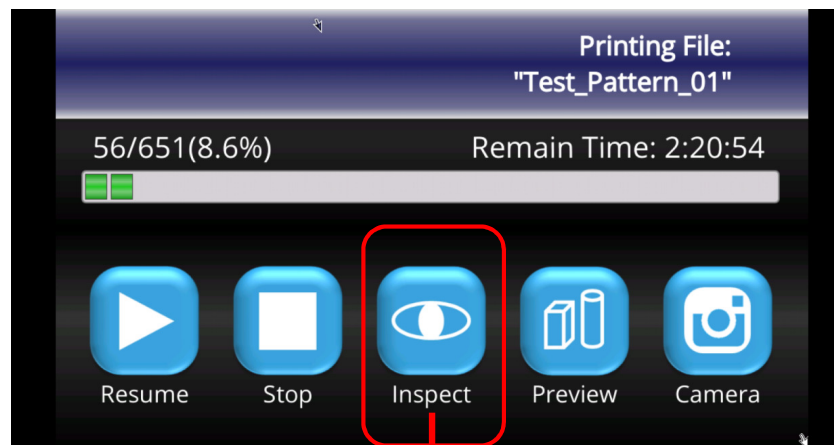
Printing



Preview



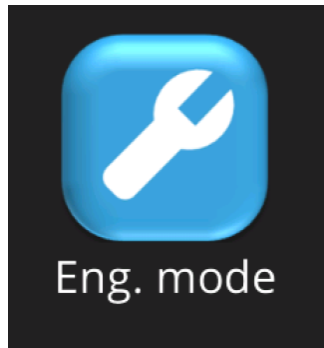
Pause



Let build platform moving upwards for inspect

Touch screen panel -Engineering mode

MIICRAFT

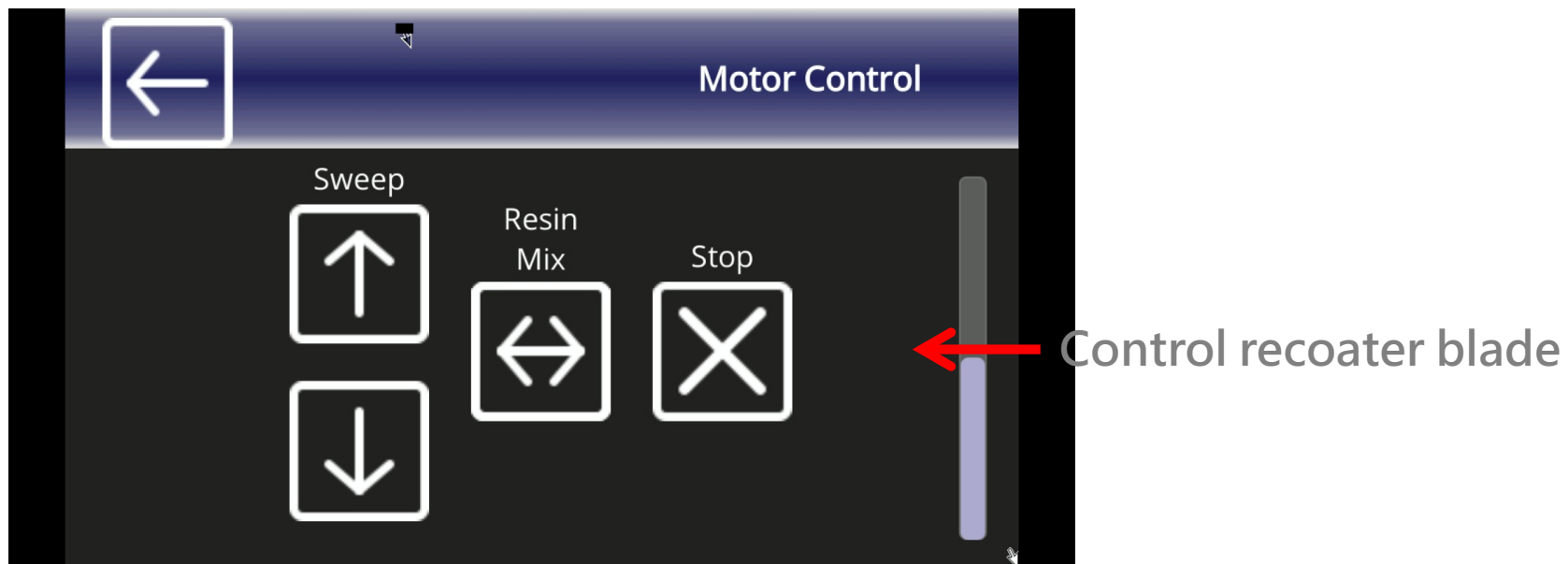
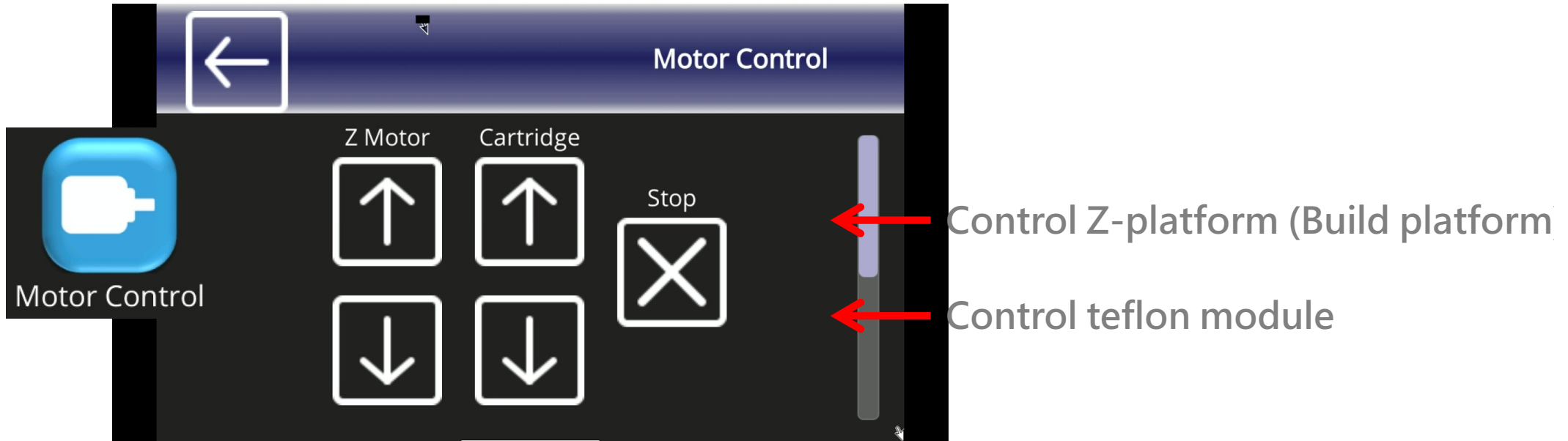


Printing record

Search WiFi
Printer connect to Wifi

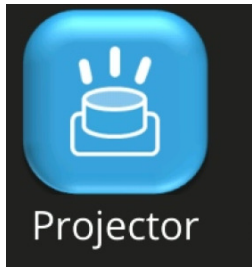
Upload the latest
Firmware package
to upgrade printer
firmware

Touch screen panel -Engineering mode



Touch screen panel -Engineering mode

MICRAFT



Control the projector

Tick this option to apply printer calibration function

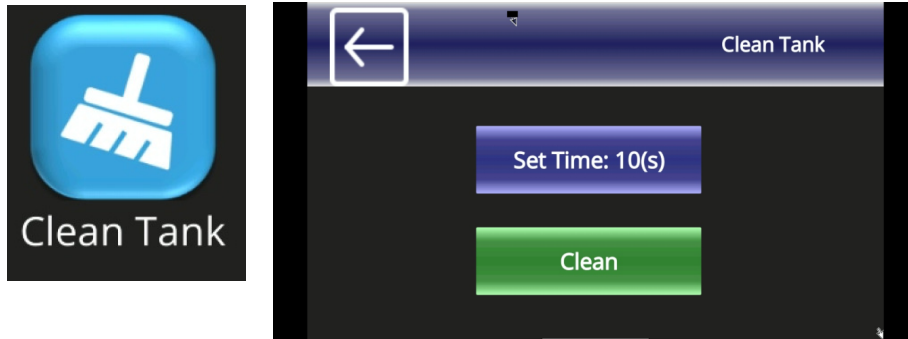


Select a pattern to project

Light(%): At 100% is the existing brightness of light engine. The suggest range is base on the printer' s condition, user can only set the % within the suggest range.

Reset to default setting of brightness

Touch screen panel -Engineering mode



When printing failure happen, there may have some printing residual left and stick on teflon module.

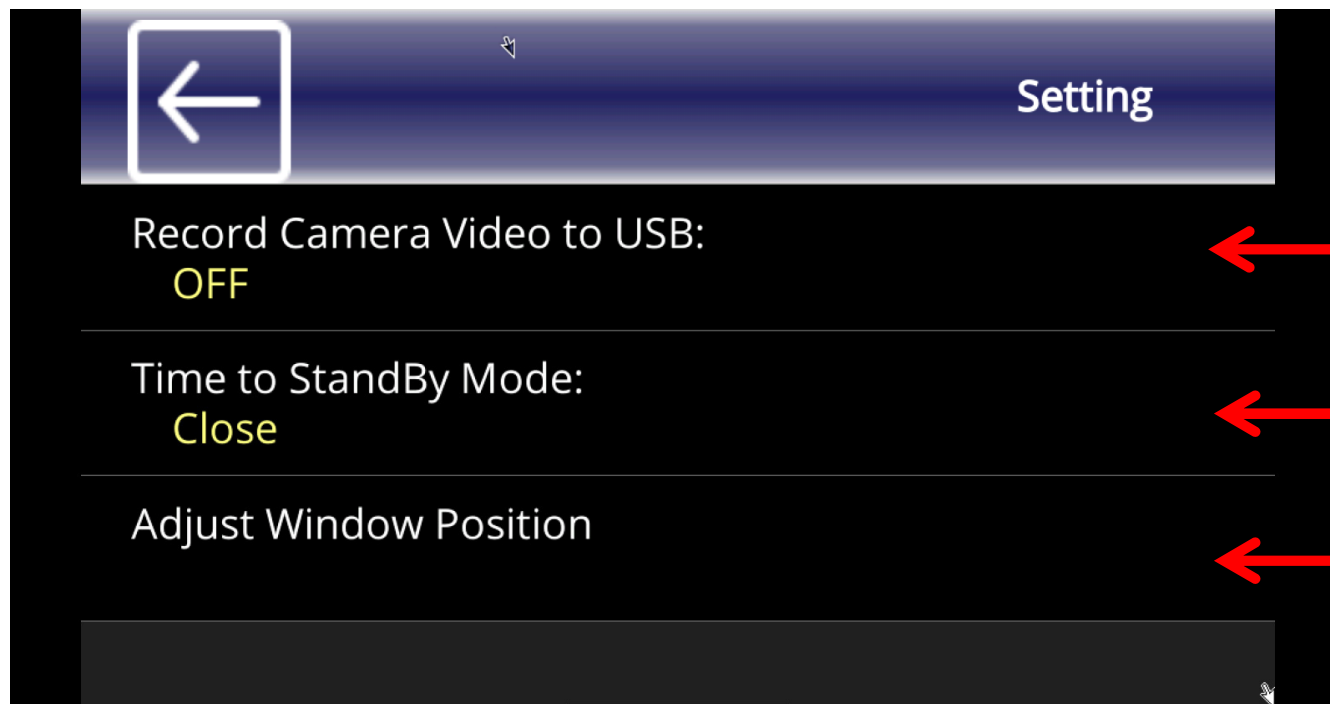
Before to start another printing job, be sure to clean the printed residual out of teflon module.

(1)Use “Clean tank” function via touch panel, it project a complete patter, the residual will be transformed into a solid layer.

(2)Using the scrape, scoop up one side of the layer. Then carefully lift to remove solid layer from the teflon module.

Touch screen panel -Engineering mode

MIICRAFT



Save video or not
Save in which device

Enable Stand by mode or not
Duration

Adjust panel' s window
position

MIICRAFT

Thank you