MII MiiUtility
User Manual

All-In-One Software for MiiCraft Optical 3D Printer
Version 3.4.5

Content

I.   Install MiiUtility

System Requirements

Windows OS: Windows7 , Windows8, Windows10 and other updated version

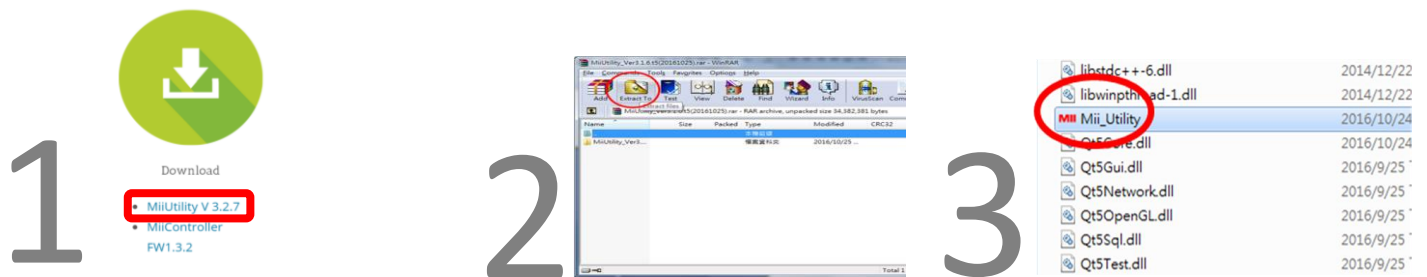Browser: Use Google Chrome only

(1) Install MiiUtility

Download **MiiUtility.exe** from   Unzip the download file   Open   **MII** Mii_Utility

http://www.miicraft.com/support/

1   2   3

II.   Overview

Quick Access Tool bar

Quick access tool bar is on the top of screen

·   File management

Enable "Create new file", "Open .mil file", "Save .mil file"

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

·   Enable "undo", and "redo action you undid"

·   Enable "Surface polishing view", this will help surface structure more obvious

·   Enable "Perspective view" or "Orthogonal view"

·   Enable " Orthogonal view "

·   Set Import model's property setting, including rotation degree and scaling factor.

Select "floor" item to enable the import model to ground (=Z: 0.00)

- The primary method of setting your view of the build area is to drag the mouse inside the viewport with the following key combinations:

  Right Mouse Button -Rotates your view of the build table

  Middle Mouse Scroll -Zooms in and out making the view of the build area larger or smaller

  Middle Mouse Button -Move the build table

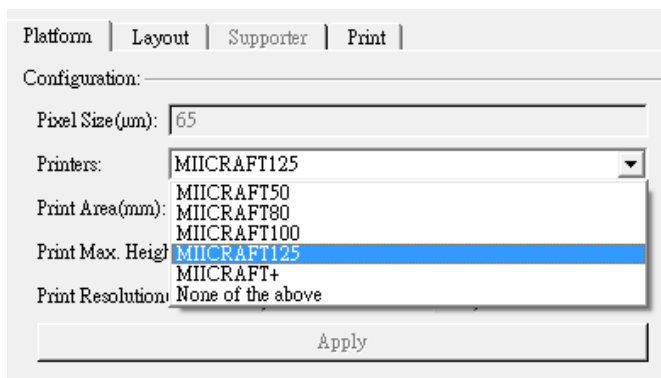- **Import .STL file** -Left click +drag the file from outside windows

Mode Overview

There are 4 modes in MiiUtility, modes selection and modes operation is on the right side of screen. You can switch between 4 modes at any time by clicking on the Platform, Layout, Supporter, Print.
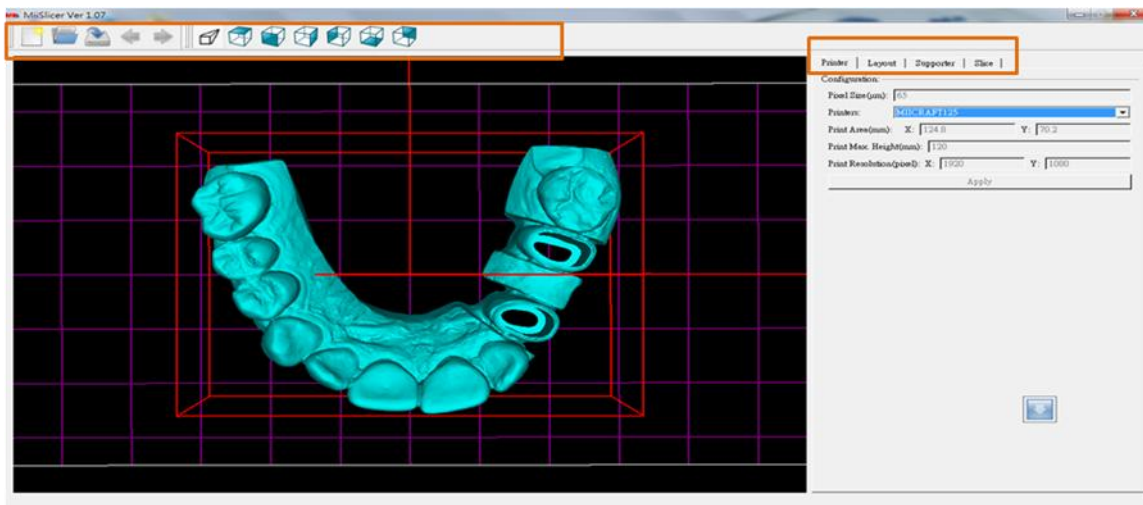
III. Platform Mode

Here you can select the printer type:

Printer's information will automatically shows

Boundary of layout for specific printer will show in preview panel. The yellow line is the border of printable area
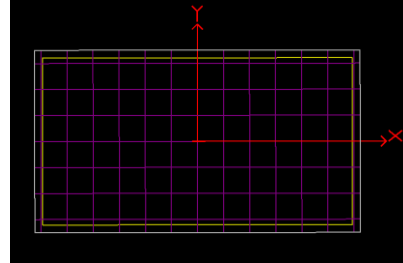
- · Select "None of the above" when your printer type isn't show in the drop-box
  => Enter your printer information, and click "Apply"

IV. Layout Mode

Here you can arrange objects in the building area.
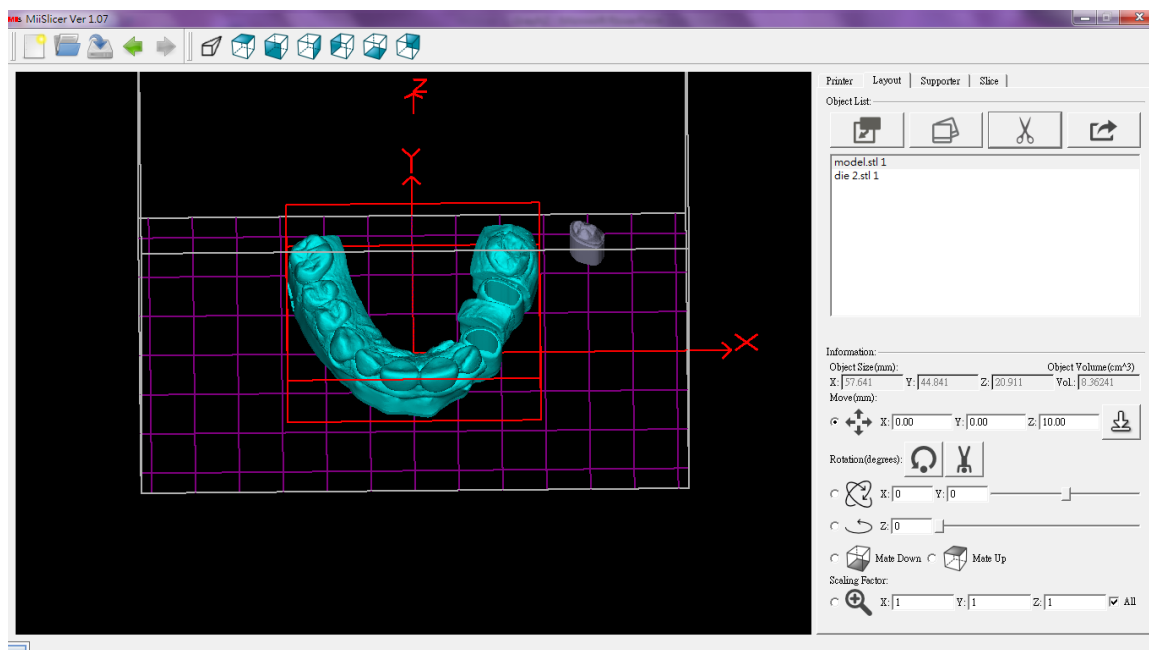
Object list

· [icon] Import STL files to the building area

=> Once the object is imported it will appear in the center of the build area in the viewport and will be selected. The object is then ready to be oriented and supported.
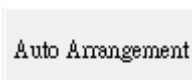
=>Select object by click on 3D preview model or select object list

=>Select more than one object in the list : Shift + left mouse button

· [icon] Duplicate the selected object

· [icon] Delete the selected object

· [icon] Export whole layout to STL file

=> Export file will save several objects as one object, but it is not a necessary step for building supporter or slicing. You can directly go to next step by changing tabs.

Layout

Here you can manage the object's layout by selecting one object and enter its place information

· [Object Size(mm): X: 56.7501 Y: 58.9217 Z: 32.841   Object Volume(cm^3) Vol.: 8.36241] Selected object's size and volume

· [Auto Arrangement] Enable multiple models spread evenly through the X Y area

· The rotations, Face down/up, and adjust the scaling factor is available for multiple model selection

· [Move(mm): X: 0.00 Y: 0.00 Z: 0.00 icon] Move the object

=>Select this item to enable clicking and dragging the object around the build table

=>To move a object left click the object in the viewport and drag until it is in the desired position, then release the mouse.

-When moving the object across the build area, it is best to use this tool in a top view

-When raising or lowering the object, it is best to use this tool in a front view

=>Hold the shift key while dragging up and down to lift the object in the Z direction or enter the value in coordinate (X , Y , Z)

· [icon] Put the object to ground (=Z: 0.00)
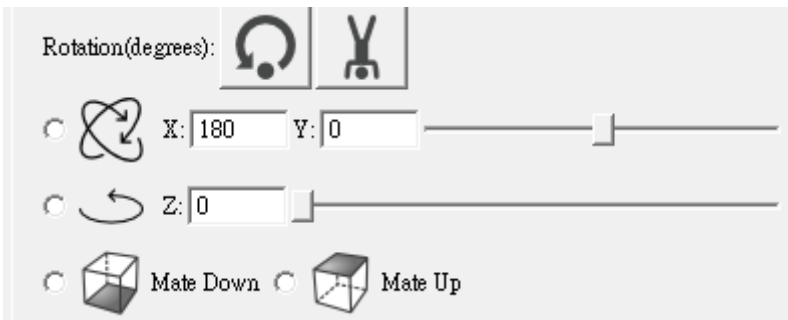
Rotate the object

 Reset X, Y, Z rotations back to 0, 0, 0

 Upside down (=X rotate 180 degree)

 X, Y rotation

-Select this item to enable X rotation and Y rotation

-Give the X and Y rotations of the object in degrees, and press "Enter"

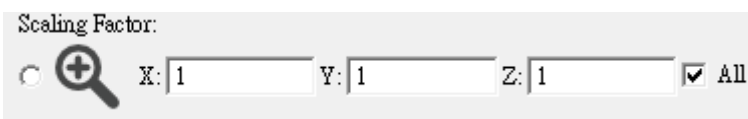-Moving the slider will rotate the object from 0 to 360 degree

 Z rotation

-Select this item to enable Z rotation

- Give the Z rotations of the object in degrees, and press "Enter"

-Moving the slider will rotate the object from 0 to 360 degree

-Select this option and click any point on object's surface

=>The point you click will face down/ face up

-Gives the scaling factors in the X, Y and Z directions, and press "Enter"

- A scaling factor of 1.0 restores the object to original scale

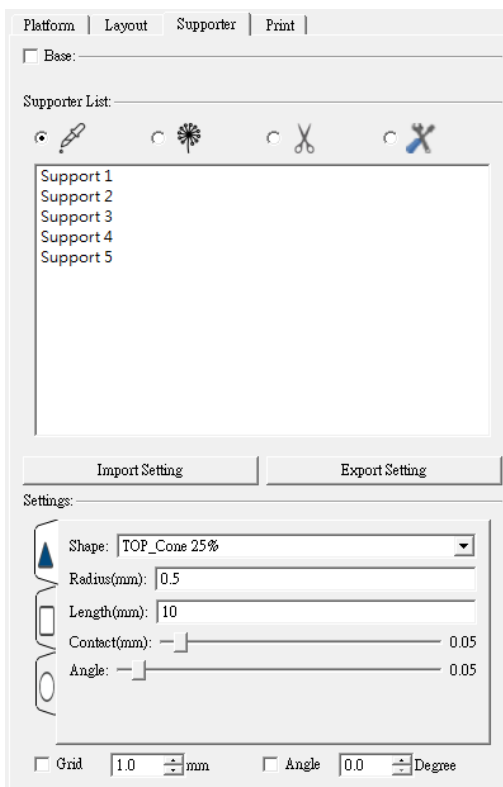- Scales across the X, Y and Z directions are force to be the same if the "All" checkbox is enabled

·   Calculate total volume of models and base

Click any blank area in object list, the total volume of imported models, supporters and base will show at the bottom
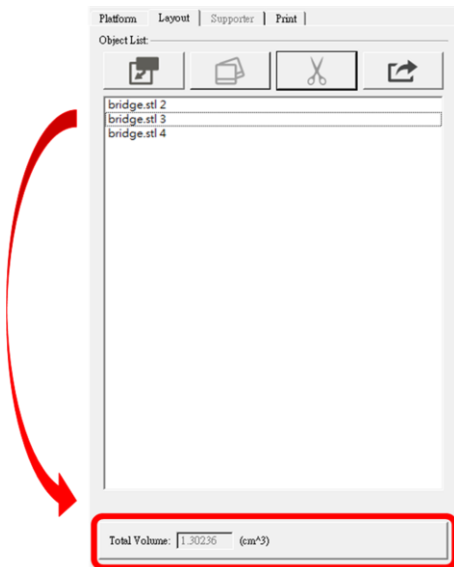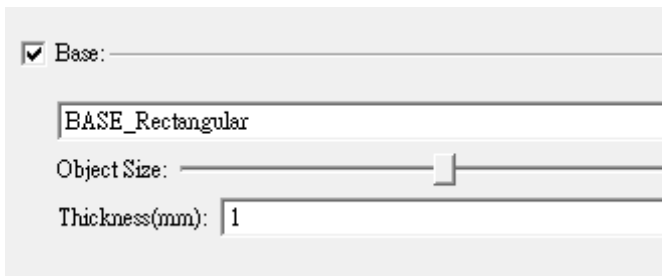
V. Supporter Mode

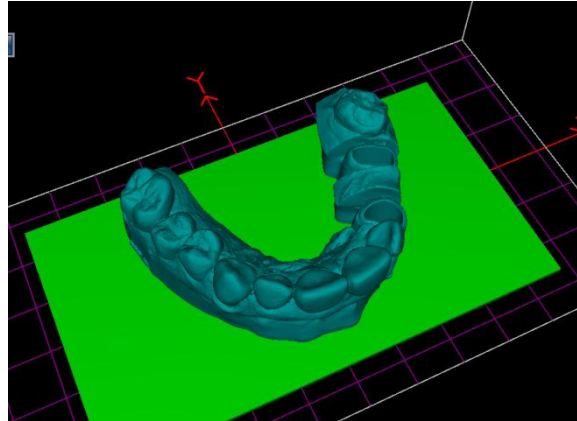Supporter mode is only available when the desired object has selected.

Add Base

-Tick the Base option and select base type
-Change Base size by moving the slider
-Enter the thickness of Base

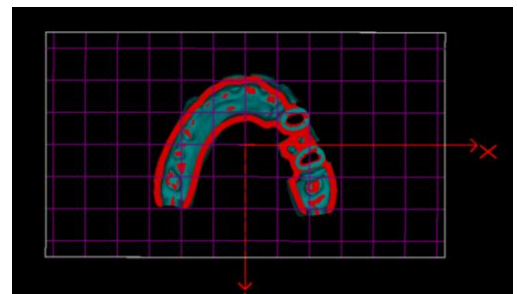## Grid and Angle Indicator
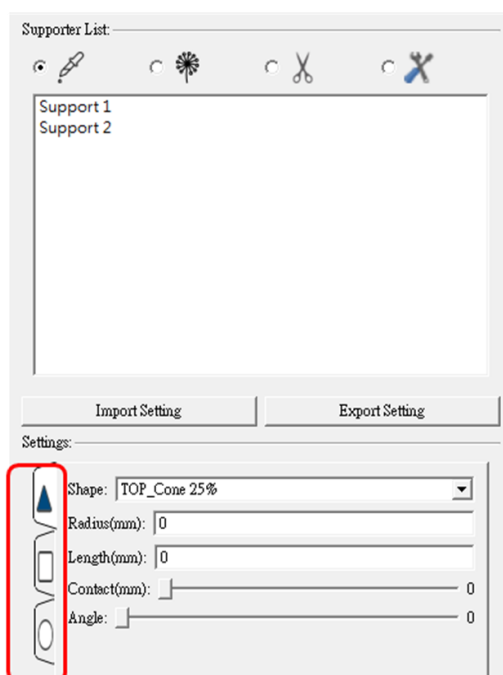

Grid will help you build supporter in accurate position.
Angle Indicator will help identify the bevel angle of object surface.
=>Tick the angle indicator option, and set angle degree
=>Object surface under this angle will become red in preview
=>These red area indicates area more flat, which is suitable for building supporters

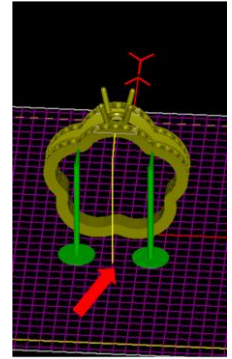## Supporter list

(1) Add supporter

- Enable adding of supporter
- To add a supporter, left click on the object
- Parameters of added supporters can be altered in "Modify Supporter Mode"
-When mouse over the object, there's a yellow line for user to preview the supporter before building, and it will align with grids if you open the grid indicator

Supporter Setting

The Supporter Setting is to specify the size and shape of supports. If the user is using the "Add Support", the interface shows the parameters that the next support added will have. If the user is using the "Modify" and a support has selected, the interface is used to edit the parameters of the selected support.

(1) Add support mode

User can apply three basic supporter setting: Heavy, Light, Medium.

User can edit the supporter setting from basic supporter setting, but cannot save different parameters into basic supporter setting. Please add a new supporter setting first and then save it

The supporter is made up with 3 sections: Joint, Middle of support and Bottom. These sections are accessible in the interface by clicking on the corresponding sideways tab in the interface:
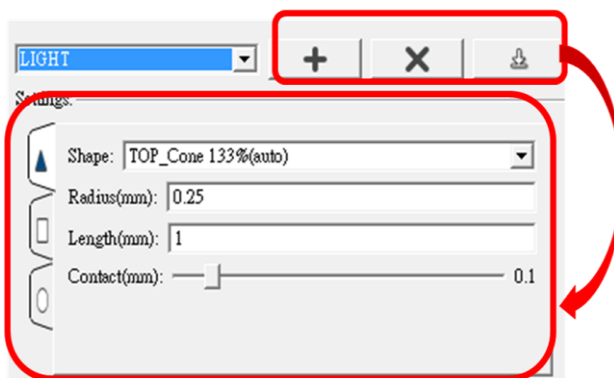
- Joint

  Shape : The shape of the joint

  Radius : The radius of the joint

  Length : The length of the joint

  Contact : How far the joint should extend past it's position and into the object

  Angle : How intense the angle should be between the joint and the object
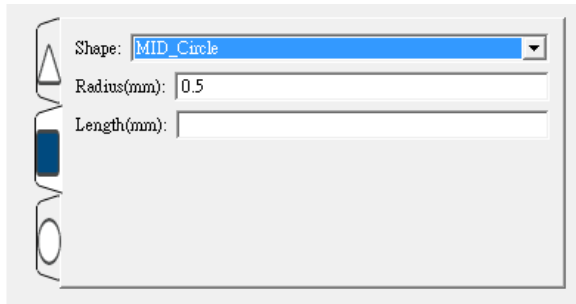
- Middle of support

  Shape : The shape of the support

  Radius : The radius of the support

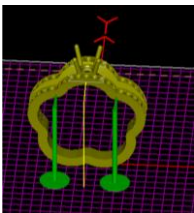 Length : The length of the support
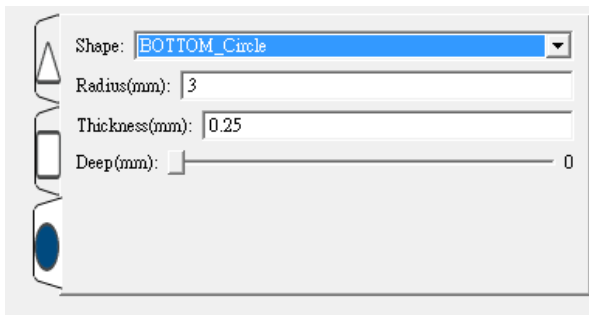
- Bottom

  Shape : The shape of the bottom

  Radius : The radius of the bottom

  Thickness : The thickness of the bottom

  Deep : How far the bottom should extend past its position and into the floor

=> Ctrl+ Click : add symmetrical support

(2) Add multi-supporter

-Choose one supporter

-Tick the multi-supporter function

-From the base of joint, you can extend multi-supporter. Click on the place you want to build the multi-supporters.

(3) Delete

- Enable deletion of supports with the mouse
- To delete a support lift click on it with the mouse

(4) Modify

- Enable modification of supports
- Supports can be modified with the mouse or via the Setting
- Clicking and dragging the top or middle of a support will move the top of the support across the object's surface

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- While holding **control +** dragging the joint of the support, the length of the joint will be altered

- While holding **control +** dragging the middle of the support, the overall width of the support will be altered

- Clicking and dragging the bottom of the support will move only the bottom of the support

- While holding **control +** dragging the bottom of the support, the overall thickness of the support will be altered

Supporter setting in Modify mode
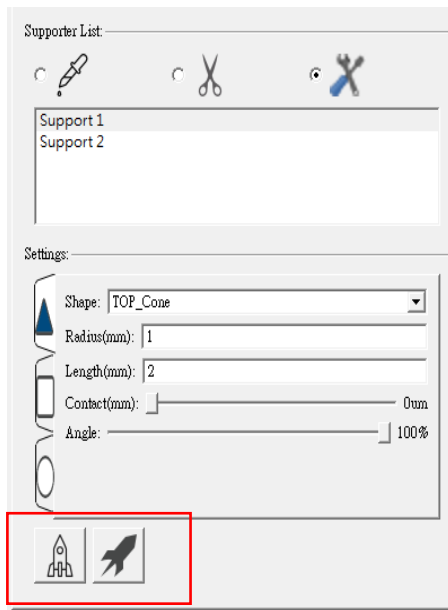
   Let support become vertical to the object
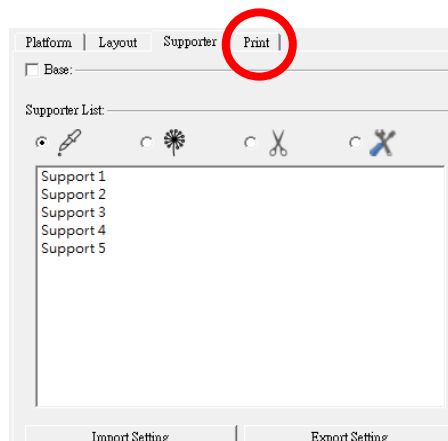
   Undo the vertical supporter

Xsec   Cross Section
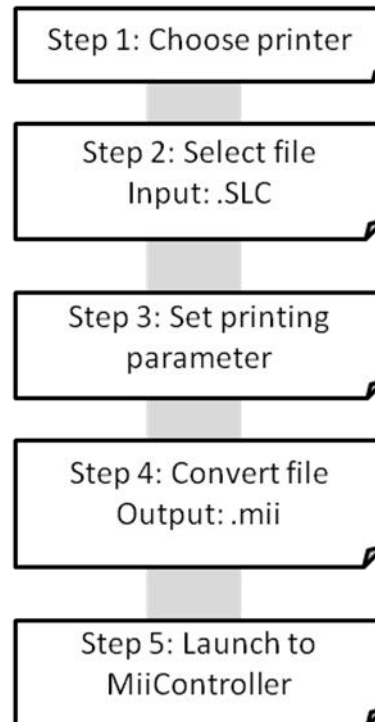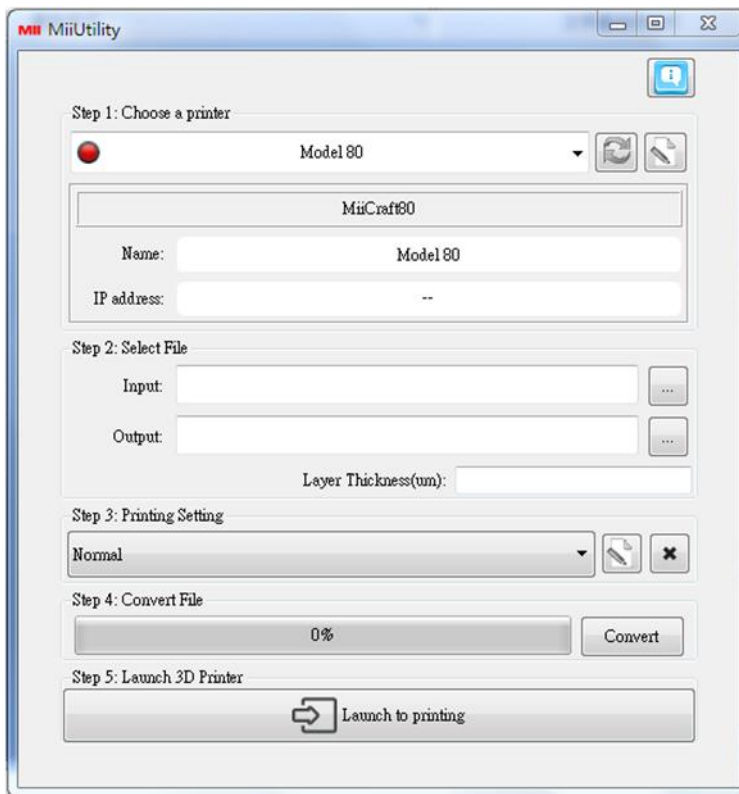

-Enable transparent object view

-Select the object and click Xsec button

-Moving slider for different transparent level

VI.   **Print Mode**
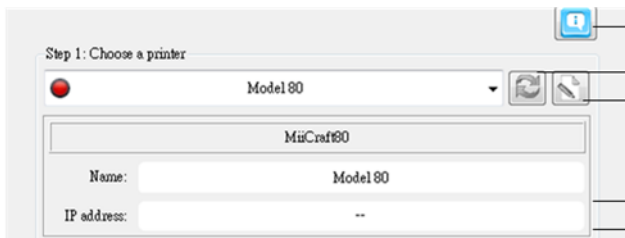
For slice and printing setting.
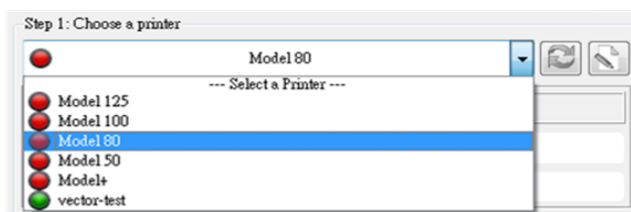
Connect and Printing setting

Step 1: Choose printer
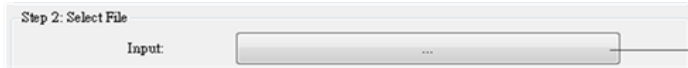

Choose a printer

- 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.

Step 2: Select file

Input : Automatically drag in editing file.
Or click button to select another .SLC file

Step 3: Set printing parameter

This is a function for user to quickly apply a set a printing parameters. Three basic printing setting: Slow, Normal and Fast, means different peeling speed. Detailed model with delicate structure needs slower peeling speed.
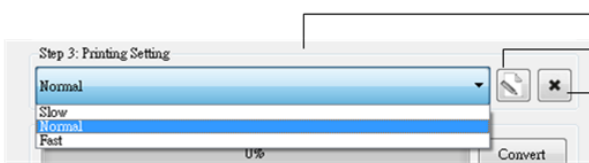
Select printing setting
Edit printing setting
Delete printing setting

Edit printing setting → Printing setting interface

The printing setting interface allow you to export printing setting as .mps file.
.mps file is an editable format for MiiUtility Printing setting interface, you can export your working status as .mps file at any time, and import .mps file to continue editing.

After editing printing parameters, you can save and name it. Back to main page, you'll find the printing setting shows in drop-box.
(1) Edit Printing Setting Interface
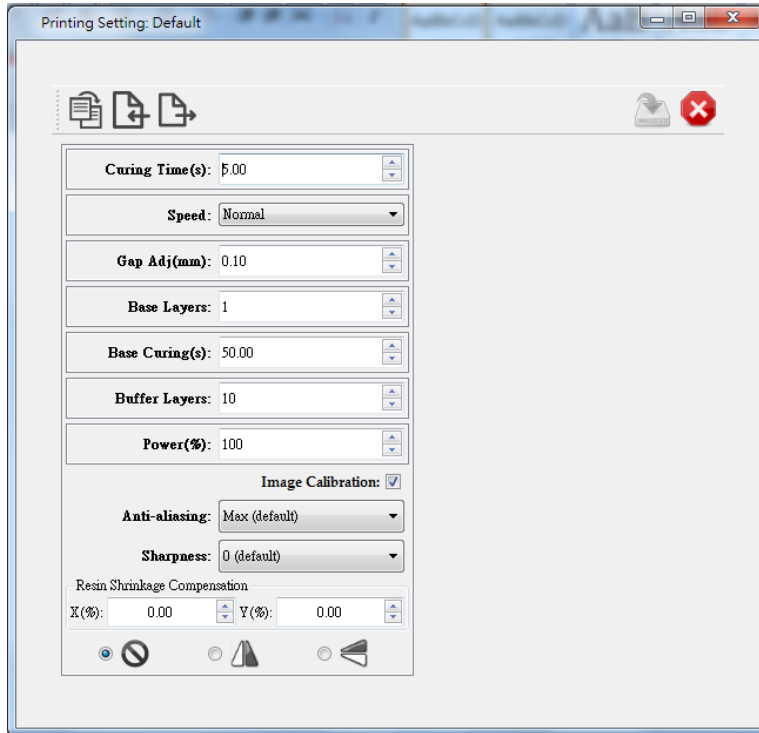
* Speed: Select "Advanced", the advanced peeling setting will show in right column

(a.) Tool bar

(b.) Basic setting

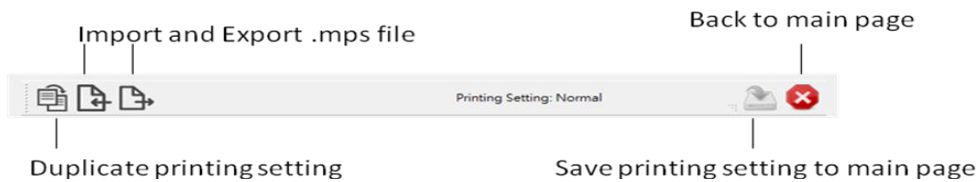|	
Curing Time(s):	5.00
Speed:	Normal
Gap Adj(mm):	0.10
Base Layers:	1
Base Curing(s):	50.00
Buffer Layers:	10
Power(%):	100
Image Calibration:	☑
Anti-aliasing:	Max (default)
Sharpness:	0 (default)

Resin Shrinkage Compensation
X(%): 0.00   Y(%): 0.00

-Curing Time: The amount of time for UV curing(seconds)

-Speed: Slow, Normal and Fast, means different peeling speed. Also user can select "advanced" to set user defined peeling mode, more info please refer (c)

-Gap Adj.(mm): Adjust thickness of the first layer

-Base Layers: Define number of base layers

-Base Curing(s): Curing time for base layers

-Buffer Layers: Set the Number of buffer layers

-Power(%): At 100% is the existing brightness of light engine. User can adjust the power in response to different resin character

What is Buffer layer?

Within buffer layer, the curing time is gradually change from base layer setting to layer setting.
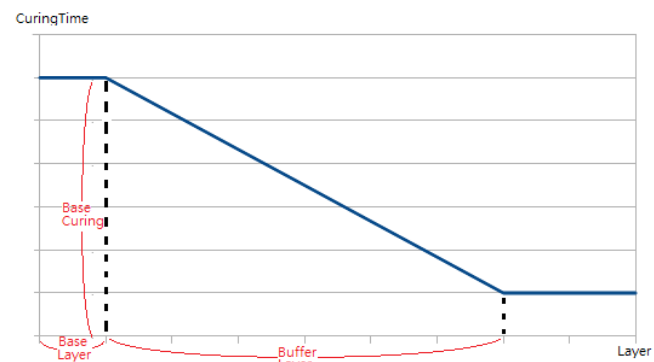
-Image Calibration: Tick calibration option, the image will be calibrated by selected printer

-Anti-aliasing: Surface smoothing from Z axis, the greater number means higher compensation from Z axis

-Sharpness: Enabling sharpness from X and Y axis (+ →Sharpen an image ; − →Soften an image)

-Resin Shrinkage Compensation: +0% to 9.9% →Enlarge an image ; -0% to -9.9% →Shrink an image

-Flip Image: Flip image by X axis or Y axis

(c.) Speed -> Advanced setting

-Here you can set the actions of cartridge and picker. The setting will be saved as one motion cycle, repeat for every layer.

-Start from action 1, choose object module first, and choose action item, and its step and period(Table1). Keep adding new action item until one cycle is finished.

-If you'd like to have different peeling mode in one printing, you can set starting layer, from starting layer above will use different peeling mode.

-The advantage of advanced setting is you can decide peeling mode, general there are two ways:

　　Tilt mode : Set cartridge down for bigger area peeling

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

| Starting Layer: | 000000 | ▼ | + | X |

Advanced Setting

Action1 | Cartridge ▼ | Down ▼ | 500 | 3200 | ✕
Action2 | Cartridge ▼ | Down ▼ | 500 | 3200 | ✕
Action3 | Stay ▼ | ▼ | 0 | 1000 | ✕
| Cartridge ▼ | Down ▼ | 1000 | 800 | ✕
| Picker ▼ | 1Layer ▼ | 0 | 800 | ✕
| Cartridge ▼ | Up ▼ | 2010 | 800 | ✕
| Stay ▼ | ▼ | 0 | 2000 | ✕

Add New Action

Table1.

| Object Module	Action Item	Step (5um/step)	Half step period (ms second)
Cartridge	Up	Max.2500	
	Down	Max.2500	
Stay	NA	NA	Min.800
Picker	Up	Max.2500	
	Down	Max.2500	
	1 Layer	1 Layer	

Trouble shooting

Why in printing setting interface, the Save button is unavailable?
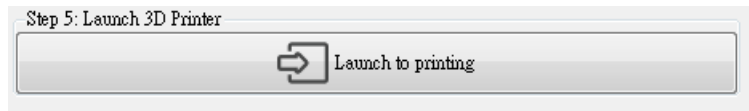It is because three basic printing setting cannot be changed directly, but you can duplicate one and then change it.

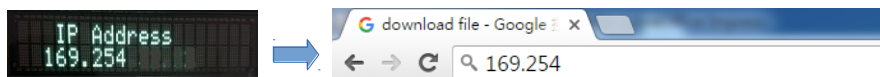## Step 4: Convert file from .SLC to .MII

.MII include printing setting
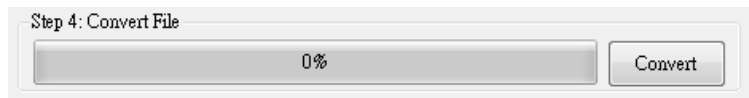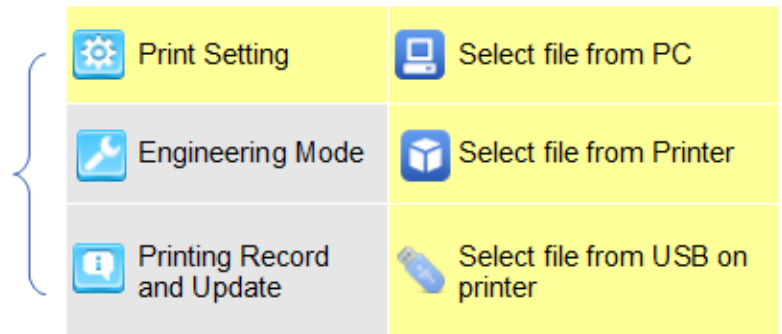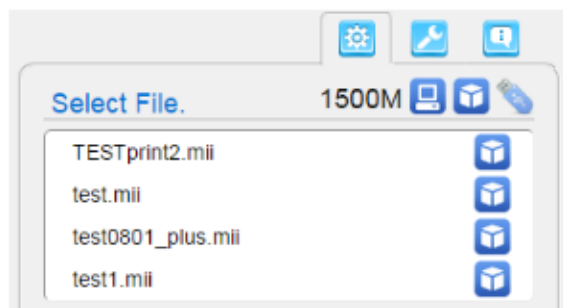

Step 5: Launch to printing (MiiController)

VII. Launch to printing (MiiController)

Launch to MiiController (Browser: Use Google Chrome only)

-From MiiUtility : Press "Launch to printing"

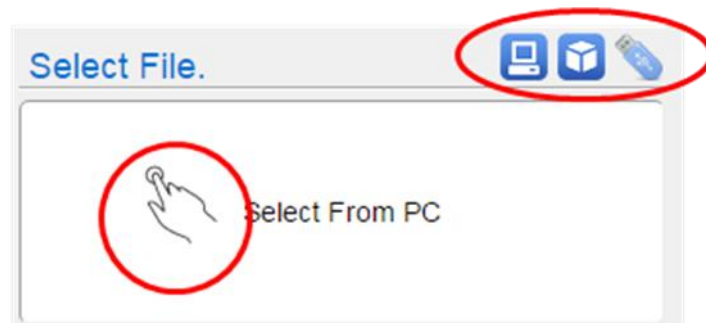-From Browser : Find printer's IP address on electronic display, and search it by Google Chrome.

MiiController interface introduction
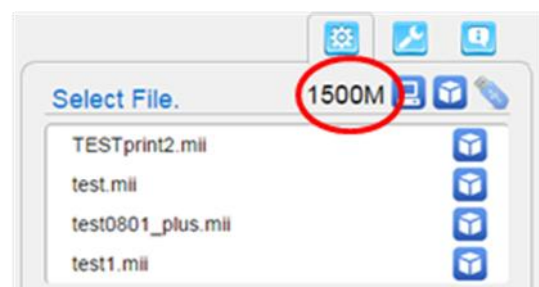

(1) Print Setting Mode

Select file:

Input .mii file, the printing parameters will automatically apply the same one in MiiUtility.


File input limitation from PC: 130MB   MB left within Printer or USB

File input limitation from USB: 1GB

The printing setting is same as printing setting interface in MiiUtility (Page14), here is for some adjustment if needed before printing. The "Offset Print" is unique function in MiiController.

  - OffSet Print(mm) : User can interrupt printing, and continuous printing from specified height
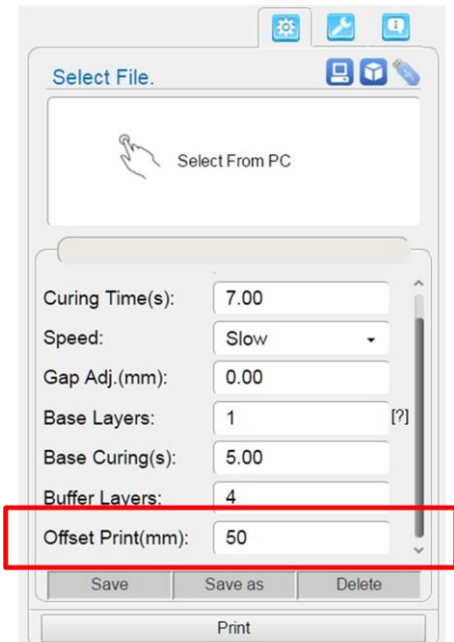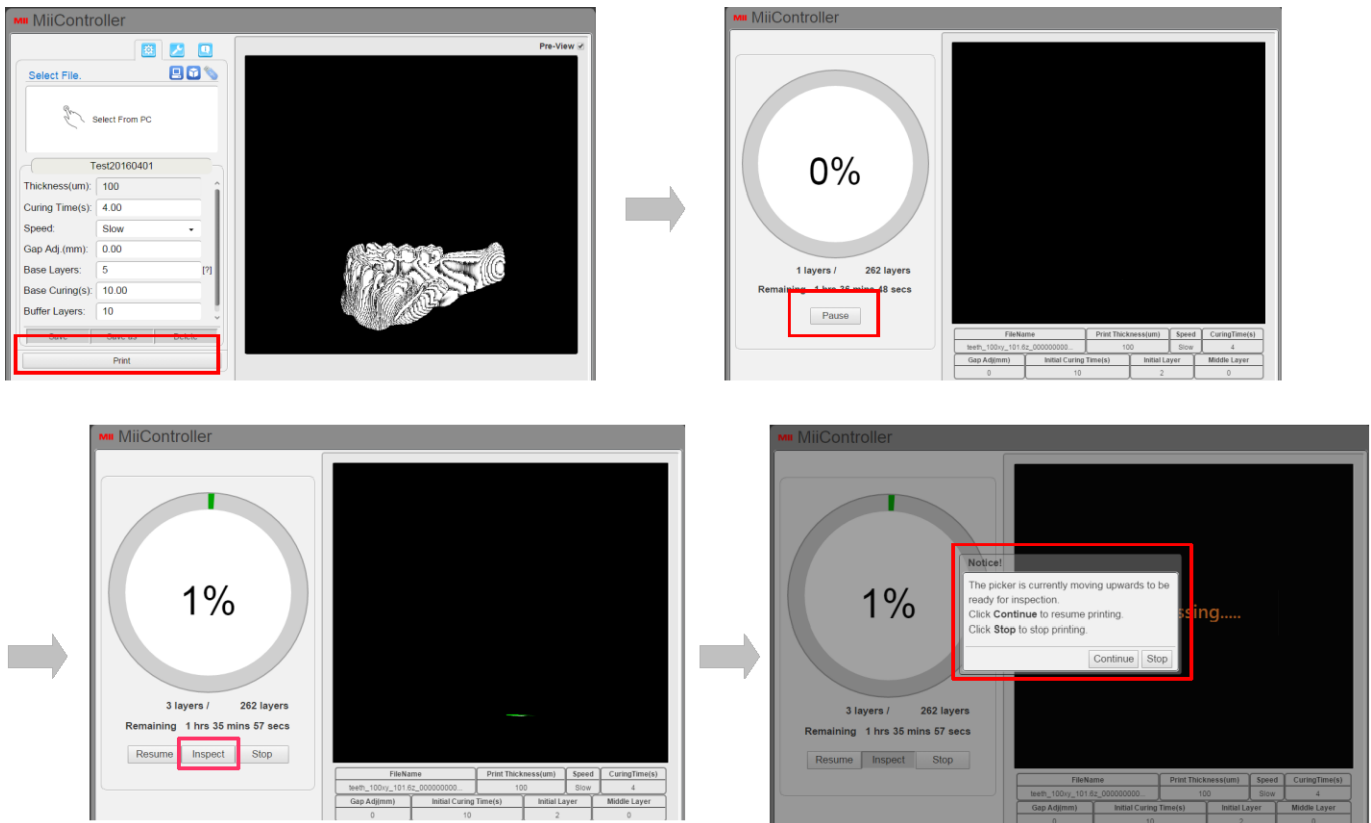

Pre-View ☑ : Tick this option to preview 3D image

Save as : Save to Printer / Save to USB on printer (Printer's memory capacity is 3GB)

Delete : Delete file in Printer / Delete file in USB on printer

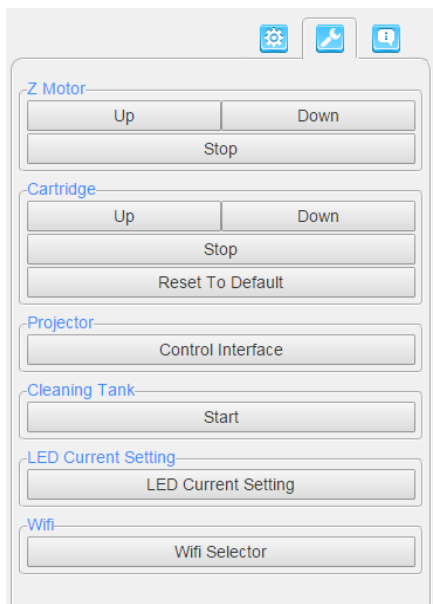|	Save	Save as	Delete
Select file from PC	X	O	X
Select file from Printer	O	O	O
Select file from USB on printer	O	O	O

Print and Inspect

🔲 Notifications:

- Do not put your hand into the printer while printing

(2) Engineering Mode

Test Module	Action Item	Verifying Correct Module Behavior
Z-Motor	Up	The Z-platform moves upwards.
	Down	The Z-platform moves downwards.
	Stop	The movement stops.
Cartridge	Up	The cartridge moves upwards.
	Down	The cartridge moves downwards.
	Stop	The cartridge stops.
	Reset	The cartridge moves to default height.
Projector		Control Interface, please see below picture(1)
Cleaning Tank	Start	(1) Project a complete pattern to tank, the residue will be transformed into a solid layer. (2) Using the scrape, scoop up one side of the layer. Then carefully lift to remove the layer from the tank.
LED Current Setting	LED Current	Change the current of optical engine, range from 0.3A to 6A
	Reset	Reset LED current to default
Wifi		Wifi Selector, please see below picture(2)

(a.) Projector Control Interface

On/Off : Turn on or Off the projector

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

Pattern menu : From 01 to 09 are more choices of test patterns.

Pattern No.10 can test the wire connection or its availability

Uniformity Mask: Tick this option to apply printer calibration function

Light(%): At 100% is the existing brightness of light engine. User can set higher brightness or lower brightness for test printing

Calibrate: Reset to original brightness (default setting)

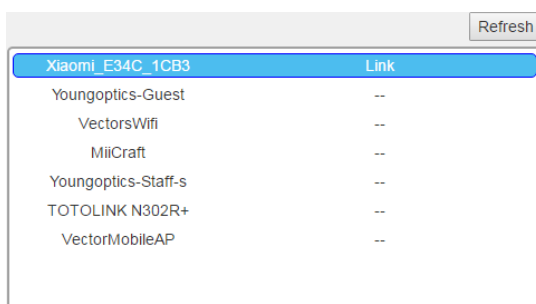Curing Time(s): User can set curing time for test printing
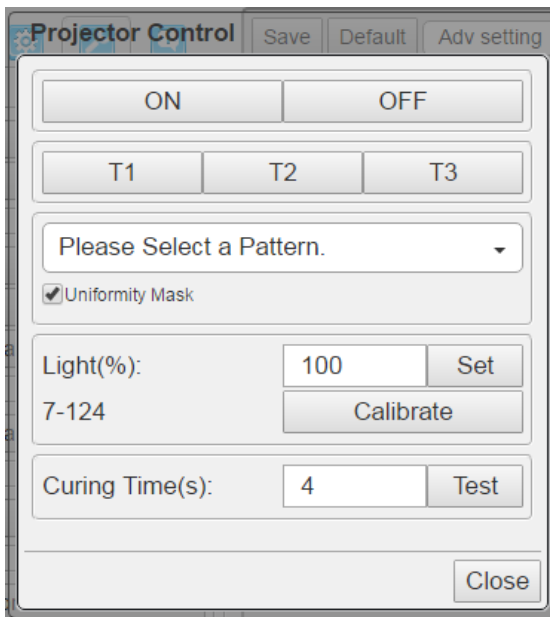
(b.) Wifi Environment

Wifi dongle Model : EW-7811Un

Other wifi dongle cannot work on MiiCraft printer, please use suggested model to enable wifi function.

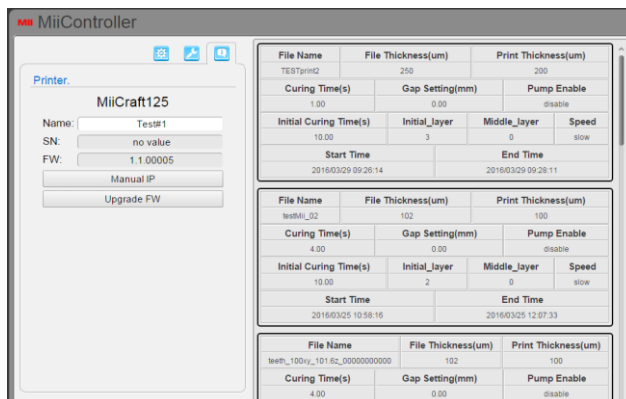MiiController Firmware : FW 1.2.00001 or above to enable Wifi function.

-Click Wifi selector

-Search and link to available AP

*Only the first time using Wifi dongle, you need cable/LAN/IP sharer to connect printer and laptop. After then, just insert the Wifi dongle to enjoy wireless control

(3) Printing record and update firmware

- Name: file name / SN: Serial number / FW: Firmware version

- Manual IP: Set a static IP address for the Printer.

- Upgrade FW: Download the latest firmware from

 http://www.miicraft.com/support/

 Save as .ZIP file, and select it for upgrade
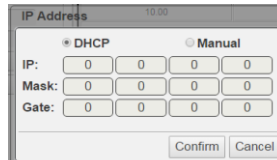
 Information:

-Why and how to use manual IP function?

Manual IP function is for the user whose environment don't have DHCP network, and would like to speed up the printer connection. First, use manual IP function to set a static IP address on printer. Second, set the same static IP address on your computer.

-Trouble shooting

If a connection error happen due to manual IP's typing error, please download 『DHCP recover』 file from http://www.miicraft.com/support/

Save the file in USB, and follow the 『USB upgrade process』 as page 8 to unlock.

Appendix1. Advanced Setting

User define Supporter

You can design your supporter and put it into MiiSlicer's supporter setting drop-box.

- Design a 1mm*1mm*1mm shape, save as STL file.

- Naming your file as follow:

    SUPPORT_(PART)_(SHPAPE)   EX: SUPPORT_TOP_Circle

    (PART)=TOP, MID, BOTTOM, BASE

    (SHAPE)=Joint, Cross, Cone, Circle, ...etc.

-Copy your file and paste it to downloaded file of MiiSlicer

File: MiiSlicer_version1.07\AppDirFiles

-Open MiiSlicer again, new supporter will show in drop-box

MiiSlicer_version1.07 ► MiiSlicer_version1.07 ► AppDirFiles

- anchor
- splash
- SUPPORT_BASE_Circle
- SUPPORT_BASE_Rectangular
- SUPPORT_BOTTOM_Circle
- SUPPORT_BOTTOM_Rectangular
- SUPPORT_MID_Circle
- SUPPORT_TOP_Cone
- SUPPORT_TOP_Joint