CUBICON

Cubicreator3.5 User Manual

www.3dcubicon.com

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Symbols used in the manual

	WARNING: Failure to observe this precaution could result in serious injury or property damage.
	CAUTION: Failure to observe this precaution could result in personal injury or property damage.
	Note: Shows tips or additional information useful to you.

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1. Cubicreator3 V3.5

1.1 New Functions

- Enhanced capability to form manual support (Dynamic rig support)
- Function to change the starting point of the outside wall line.
- MESH-separated model separation function
- 3DP-310F, 210F, 110F Printing.
- Model section view function
- Providing explorer thumbnail (stl, obj, hfb)

1.2 Features of Cubicreator

Cubicreator is a host program of Cubicon 3D printer. It is intuitive and easy to use, and can easily print 3D models (extension stl, obj format) to printer. With the Model Converter, you can easily move, rotate, resize the model, and the improved manual support is easy to use. You can also view retraction and filament yields using the improved G-Code preview feature. Cubicreator is using modified CURA as a slice engine.

1.3 Specifications

OS	
Operating system	Above WindowsXP or Windows 7
Required system specifications	
Memory	1GB
Disk amount	200MB
CPU	Pentium 4
Recommended specification	
Memory	2GB
Disk amount	500MB
CPU	Intel Core 2 – 2.0Ghz
Supported 3D file format	
Stl	Supported by most 3D model editing tools, industry standard for 3D model printing.
obj	Stl is widely used and has more information such as color and texture compared to stl.

Depending on the amount of system memory, the file size of models that can be loaded may vary.

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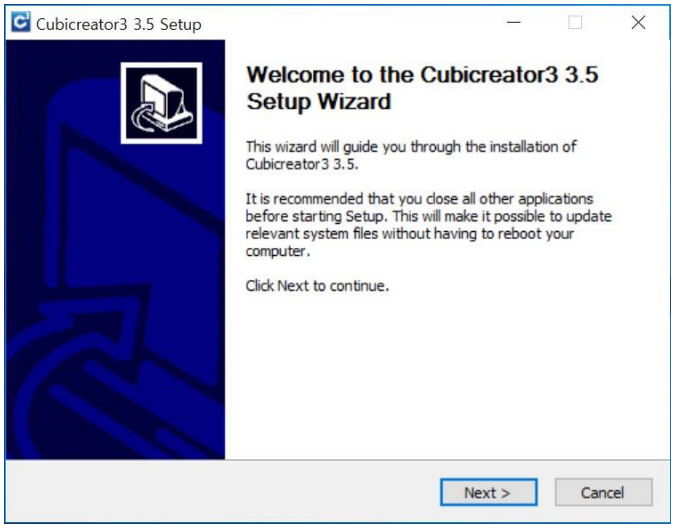
2. Cubicreator software installation.

The contents of the product include the printer Cubicreator installation file in the SD card.
The location of the Cubicreator installation file is SD/Cubicreator/Setup /cubicreatorSetupvxxx.exe.
The latest program can be downloaded from the homepage (http://www.3dcubicon.com).

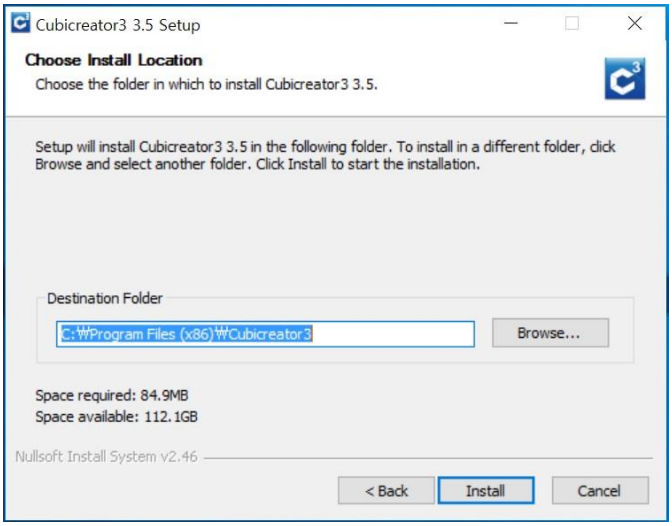
2.1 Cubicreator Installation

In the case of Windows 8.x, drivers that do not authenticate digital signatures cannot be installed because of security enhancements measure. "At 2.4. Unchecking the driver digital signature in Windows 8.x ", please change the setting and install the program and driver.

1. Run the installation file.



2. Click Install to proceed with the installation.



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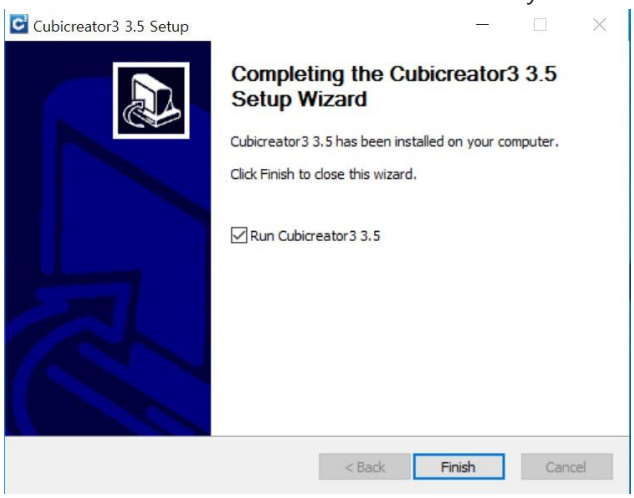
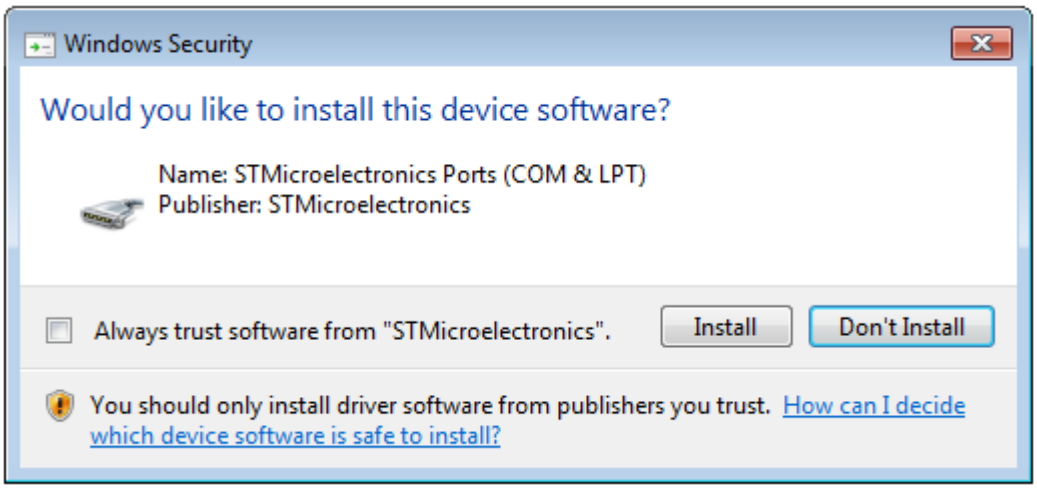
3. When the installation is complete, click the Cubicreator icon on the desktop to launch it.

2.2 Printer driver installation

After the Cubicreator installation is completed, check the "Run Cubicreator" option on the screen to run the printer driver and the driver will be installed automatically.



If you click Finish button, a window asking for driver installation is displayed as shown below. Click Install and then finished.



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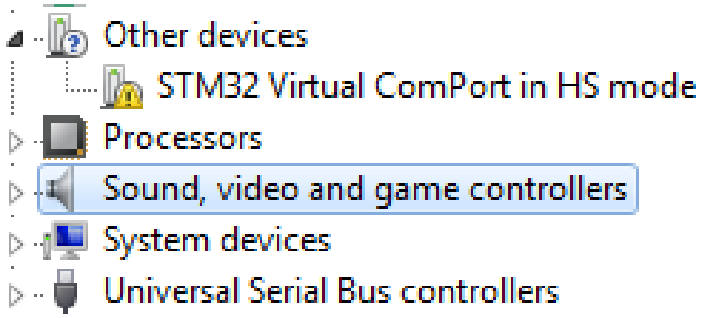
2.3 Manual printer driver installation (Windows 7 standard)

Connect the printer and PC using the supplied USB cable, and then turn on the printer. Open the Windows Device Manager and install the Cubicon driver.

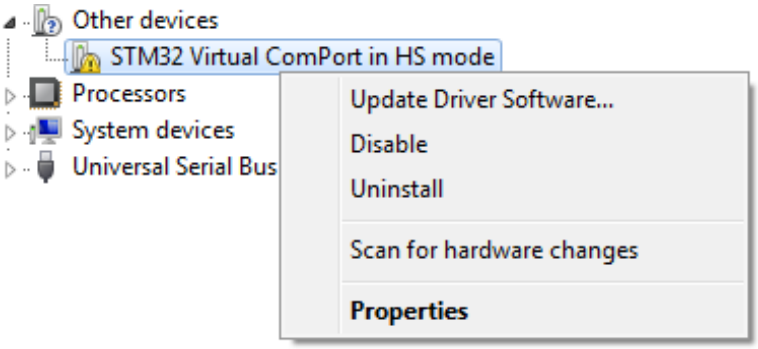
The location of the printer driver is SD ₩ Cubicreator ₩ Driver ₩ stmcdc.inf.

1. Initial printer recognition

During USB connection between printer and terminal, 'Other devices' are searched as shown



2. Updating the driver software
Select [Update Driver Software] from the sub menu by right-clicking the mouse.



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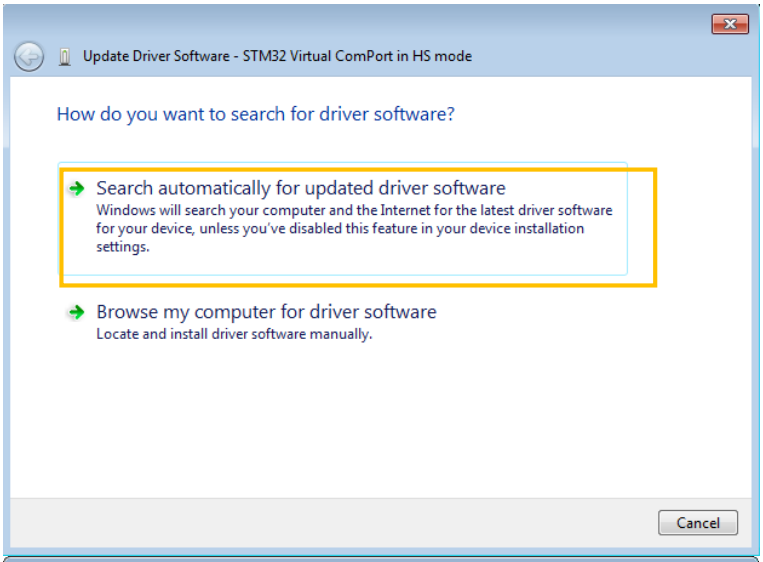
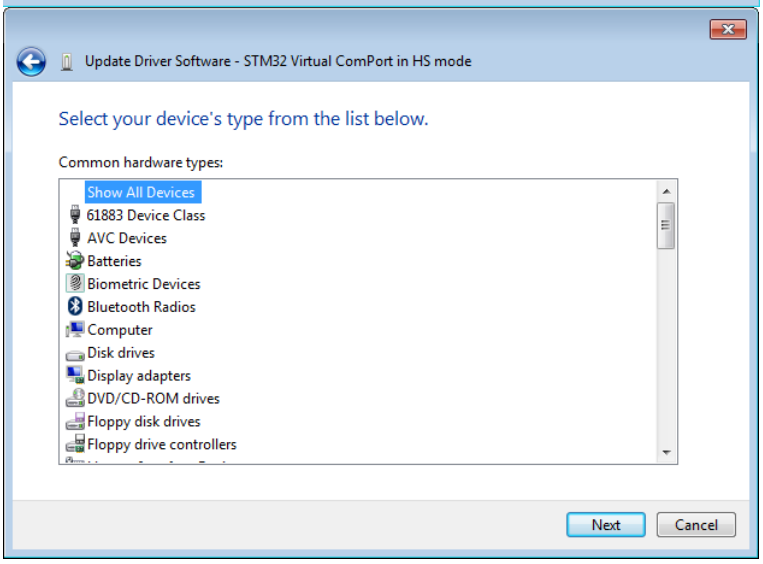
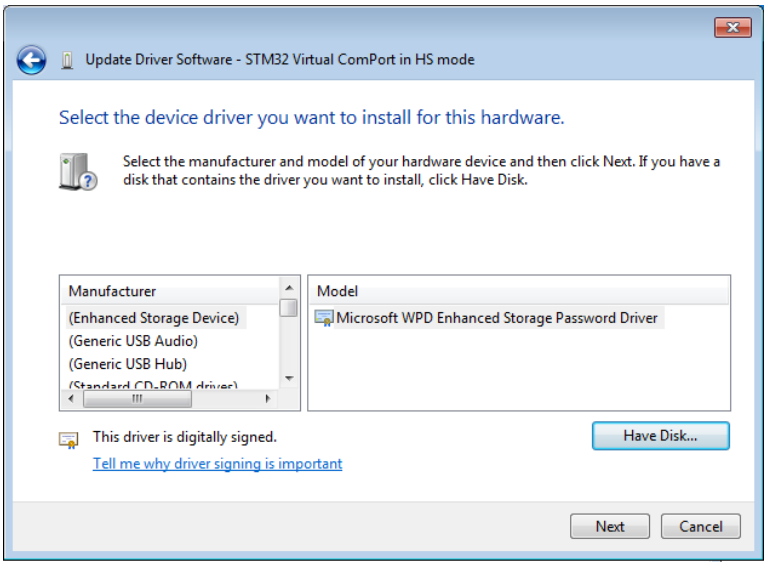
3. Select Browse Driver [Select directly from the list of device drivers for your computer (Search automatically for updated driver software)]



4. Select device type [Show All Device] - Select [Next]



5. Hardware device drivers to install Select (Have Disk)



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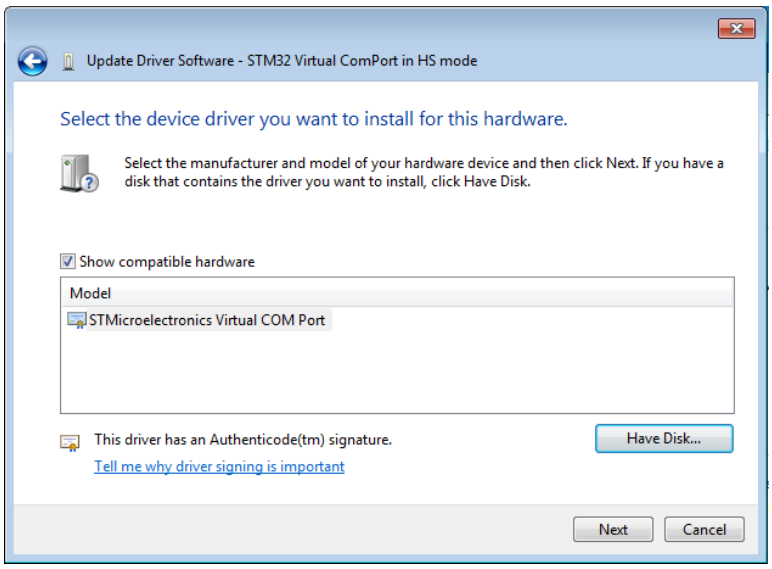
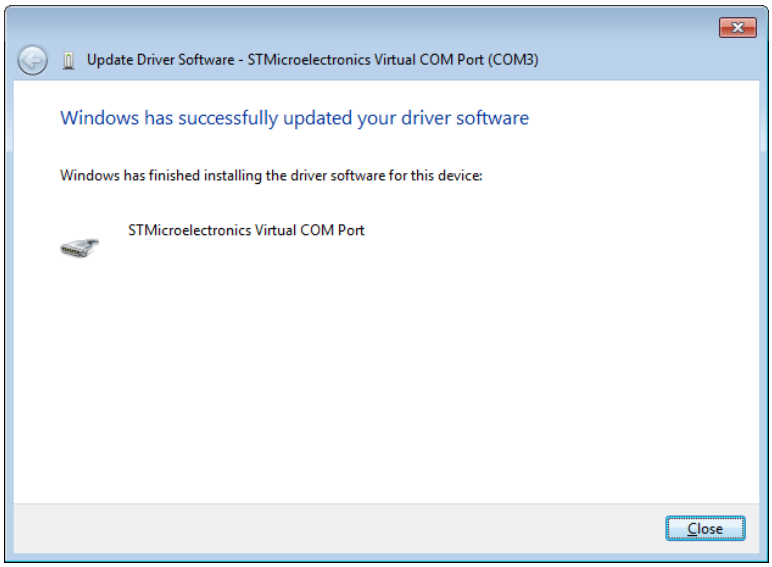
6. Select Driver

Select the [stmcdc.inf] file on the enclosed SD card.



7. Completing driver software update



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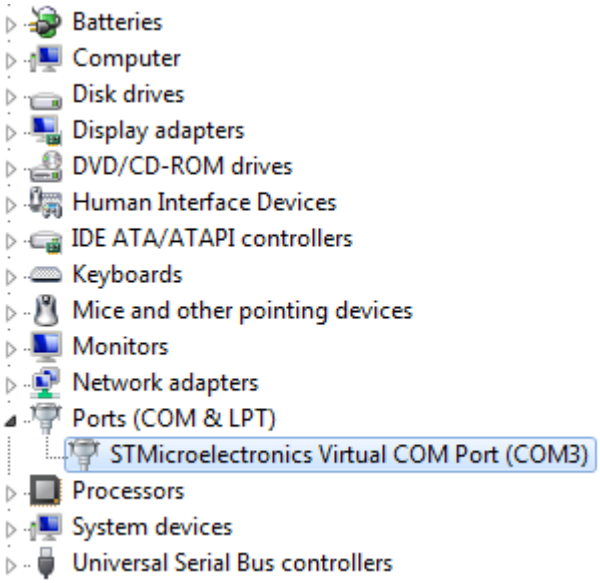
8. When the installation is complete, the driver device looks like this:



2.4. Unchecking the Driver Digital Signature Check in Windows 8.x.

The security protection built-in to Windows 8.x does not allow you to install an unauthenticated driver. To install the driver, you will first need to cancel the digital signature check, as described below.

Reset the driver signature check after the driver is installed.

1. Click " Ctrl + i " on the keyboard and click the Power icon

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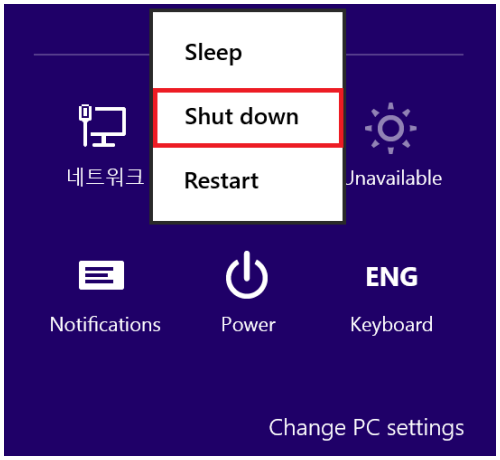
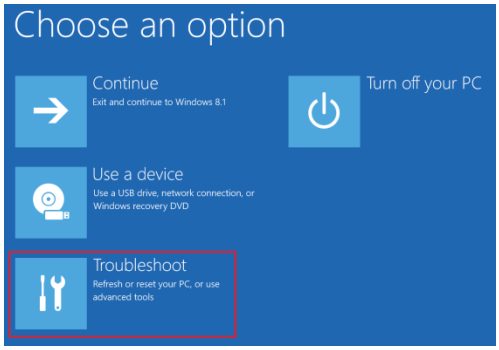
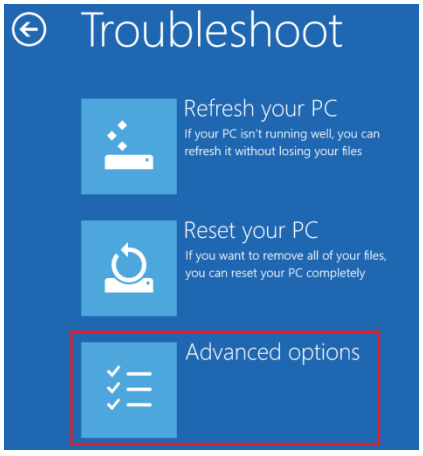
2. Select restart while holding down the Shift key.



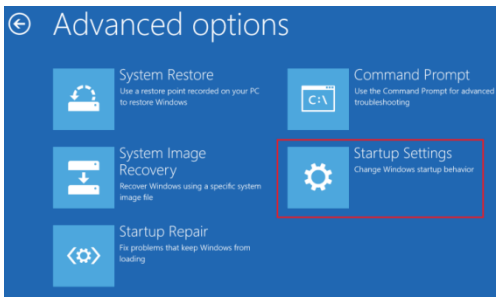
3. Click Troubleshooting.



4. Click Advanced Options.



5. Click Start Setting.



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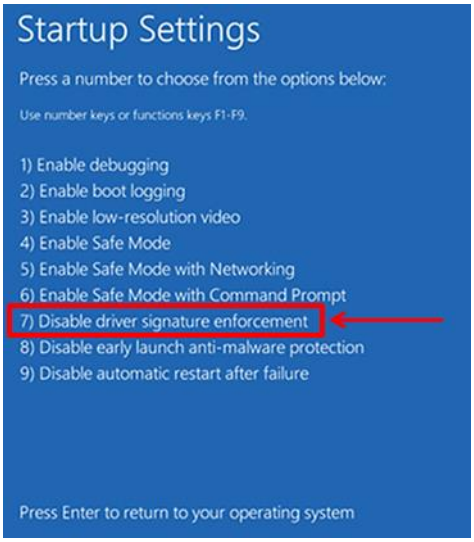
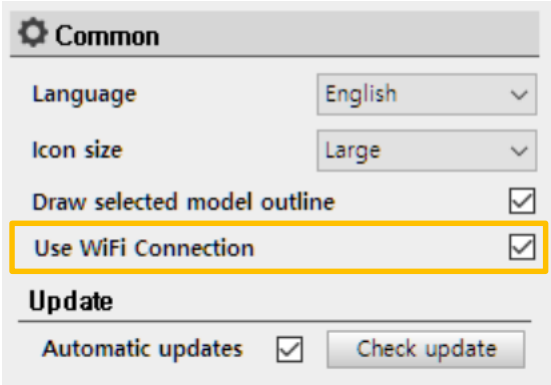
6. Click Restart.

7. In the option page after rebooting, select "Driver signature not applied".



2.5 Connecting printer from Wi-Fi

The printer can be printed via wireless LAN (Wi-Fi) connection. Check Use Wi-Fi connection in Preferences for a wireless connection with the printer.



Once you have established a Wi-Fi connection, click the connection icon to open the connection window.

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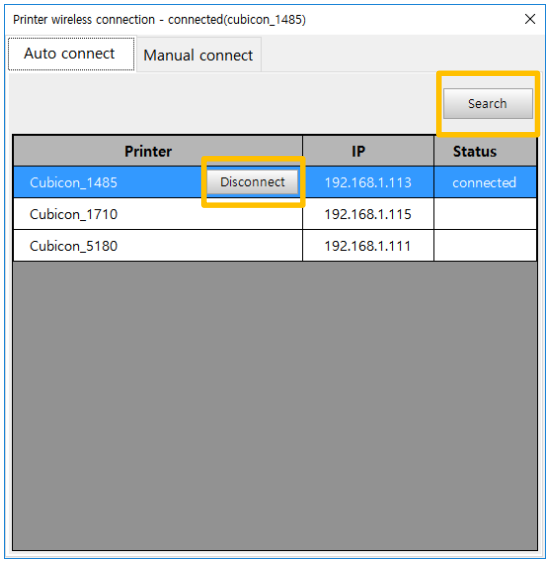
There are two methods of wireless connection to the printer: automatic connection and manual connection.

2.5.1 Automatic connection

The automatic connection method requires that the printer be connected to the same network (router) first. Refer to the printer manual for the printer network connection method. If the printer is connected to a private IP network, press the search button to locate the printer. When the printer is detected, select the printer to be connected from the printer list at the bottom and press the connect button to connect the printer. When the connection is completed, the top is marked as connected.



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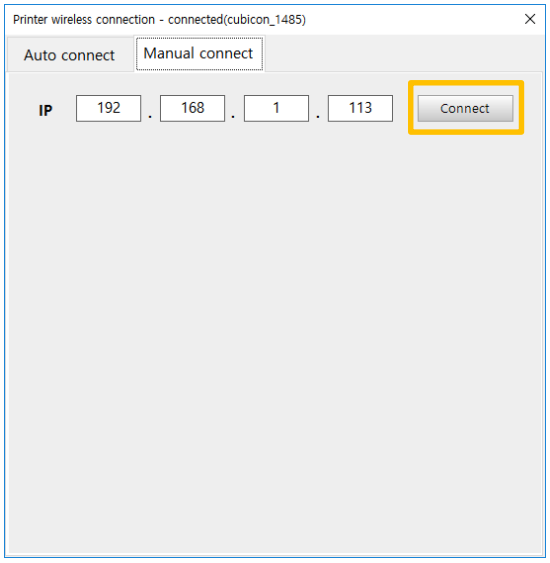
2.5.2 Manual connection

Manual connections must know the IP of the printer connected to the network. Refer to the printer manual for IP information.

Insert the printer's IP and press the connect button. When the connection is completed, the top is marked as connected.



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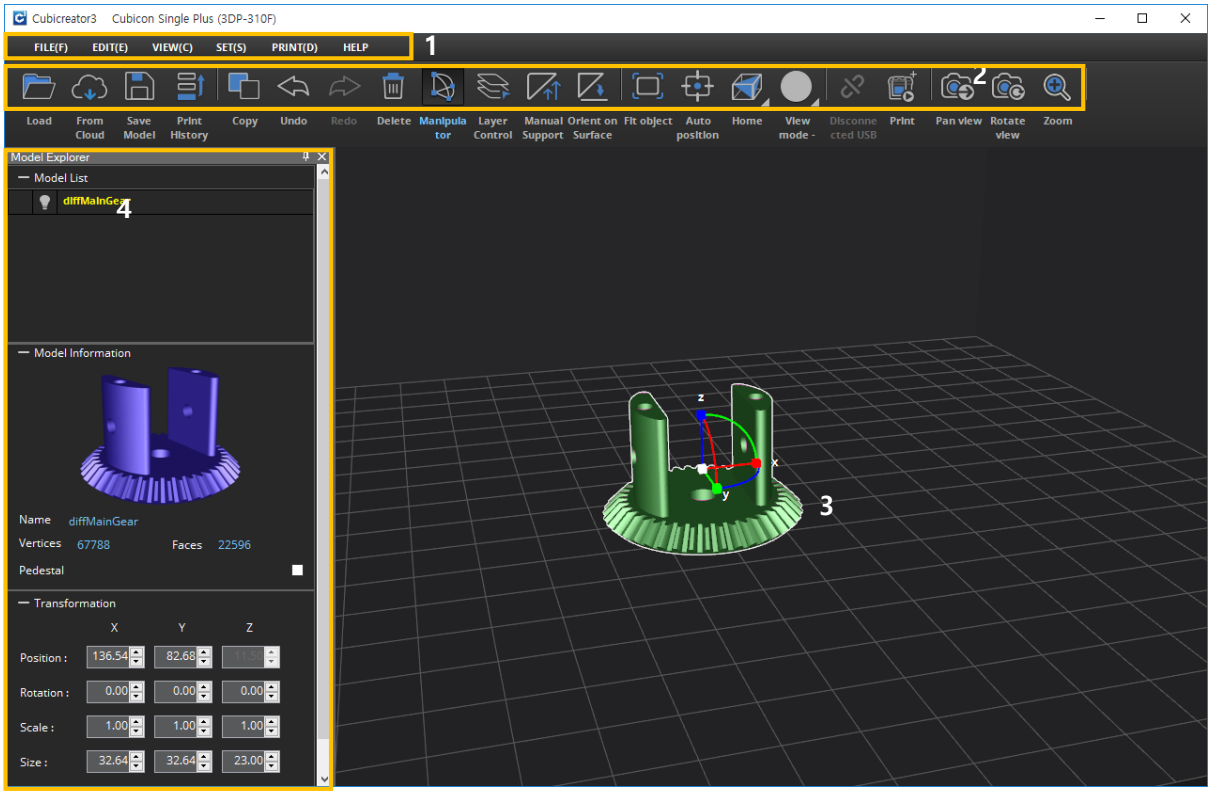
3. Cubicreator Screen Configuration and Functional Description



<Screen configuration>

3.1 Screen configuration

The screen is divided into four main areas: main menu (1), icon menu (2), scene (3), and model explorer (4)

3.1.1 Main menu

You can select the function of the program, and the configuration consists of file, edit, view, setup, print, and help.

File	**Menu related to file**	
	Open	Loads a file in * .stl or * .obj format.
	Save model	Saves the models currently displayed on the screen as files in stl format.
	Image converter	Converts image files (jpeg, bmp, png) to 3D model files. [3.2.4 Image conversion]
	Model explorer	Displays a list of 3D models on the screen and

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		displays information about the selected model. [3.1.5 Model Explorer]
	Print history	You can check the history of files that you have recently printed or saved as a G-code file.
	Recent file	Displays a list of recently used models.
	Exit	Exit the program.
Edit	**Menu related to editing**	
	Copy	Copies the selected model. [3.2.5 Copy]
	Undo[Ctrl+Z]	Cancels the executed function.
	Redo[Ctrl+Y]	Run the canceled function again.
	Delete [Delete]	Deletes the currently selected model.
	Manipulator	Move, rotate, and resize models.
	Layer control	Performs a specific command at a specified layer location. [3.2.1 Layer control]
	Manual support	Allow users to add supports to specific locations [3.2.2 Passive supports]
	Orient on surface	Rotates the selected face of the model to the same rotation as the specified face. [3.2.3 Face Rotation]
	print option Viewer	Shows the printing options for G-code currently being printed or selected.
	Display size	Displays the size of the model.
	Separate	Separate models that are separated by a mesh.
	Hide	Makes the selected model invisible.
	Hide unselected	Makes unselected models invisible.
	Hide all	Makes all models invisible.
	Show all	Make all invisible models visible on the screen.
	G-Code viewer	Shows the currently sliced G-Code.
View	**Menu related to screen setting**	
	Pan view	Moves the viewpoint of the screen.
	Rotate view(arrow key)	Rotates the view around the screen.
	Zoom[+/-]	Zoom in or out on the screen.
	Home	Base point
	Top	View from looking at the top
	Bottom	View from looking at the bottom
	Front	View from looking at the bottom
	Left	View from looking at the left side
	Right	View from looking at the right side
	Back	Viewpoint from back side
	Fit object	Adjust the screen so that the selected model fits the screen.

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	Auto position	Arrange the model.
	View mode – Shaded	Render the base model
	View mode – Shaded edge	Renders the corner of the model as well
	View mode –Shaded point	Renders the point.
	View mode – Sliced	Preview G-code path
Set	**Cubicreator Program settings**	
	Environment setting	Set up language, scene lighting, model color [3.4 Preferences]
	Update firmware	Update the firmware of the printer device. [6.2 Firmware Update]
Print	**3D model printing menu on screen**	
	Print	Start printing
	Pause	Pauses the printing while printing. **It does not stop while heating.**
	Stop	Stop printing.
	Print Status Window	When printing, the printing status window is displayed on the screen.
	Temperature graph	Monitor the printer's temperature when printing.
Help	**Help and program information**	
	Quick guide	Shows a simple usage of the program.
	What's New	Shows new features.
	Software info	Shows information about the program.

3.1.2 Icon Menu

Icon menu that allows you to use frequently used functions right away.

	Open	Loads a file in * .stl or * .obj format.
	From Cloud	Model files can be downloaded from the Myminifactory site.
	Save Model	Saves the models currently displayed on the screen as files in stl format.
	Print history	You can check the history of files that you have recently printed or saved as a G-code file.
	Copy	Copies the selected model. [3.2.5 Copy]
	Undo	Cancels the executed function.
	Redo	Run the canceled function again
	Delete	Deletes the currently selected model.
	Manipulator	Moving, rotating, and scaling the selected 3D model through the adjuster [3.2.7 Model Converter]

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	Layer control	Performs a specific command at a specified layer location. [3.2.1 Layer control]
	Manual support	Allow users to add supports to specific locations [3.2.2 Manual supports]
	Orient on surface	Rotates the selected face of the model to the same rotation as the specified face. [3.2.3 Face Rotation]
	Fit object	Adjust the screen so that the selected model fills the screen.
	Auto position	Arrange the model.
	Screen view	Set the screen to Main Screen / Front / Left / Right / Top / Bottom. When you rotate the camera, the icon changes to the default screen.
	View mode	Sets the view mode of the model. Modeling, edges, points, and output paths. [3.2.6 View Mode]
	Print	Save the model as G-Code or print out the printer. Pressing the pause button during output pauses the printing. When the printer is not connected to the PC, the disconnect icon is displayed.
	Pause	Pauses the output.
	Stop	Stop the output.
	Pan view	Moves the viewpoint of the screen. **Press Shift + right mouse button to move the screen.**
	Rotate view	Rotates the view around the screen. **You can rotate the screen by right-clicking and dragging.**
	Zoom	Zoom in or out on the screen.

3.1.3 Shortcuts

Keys	Functions
Ctrl + A	Select All
Ctrl + C	Copy
Ctrl + P	Print
Ctrl + V	Paste
Ctrl + Y	Redo
Ctrl + Z	Undo
Left	Rotate viewpoint to the left
Right	Rotate the view right
Down	Rotate the view downwards
Up	Rotate the view upwards

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+	Camera zoom in
-	Camera zoom out
Delete	Delete model
ESC	Cancel function

3.1.4 Scene

Displays the imported 3D model fit on the screen.

3.1.5 Model Explorer window

The model explorer consists of model list, model information, model manipulator, G-code information (printing) and manual support editing.

- **Model list**

On the screen, you can display multiple models, support, pedestal, etc. in a tree structure, and select and print On / Off ( ) control for that model. Off models are not to be printed.

- **Model Information**

Displays model information such as previews and vertices for selected models, and the number of faces.

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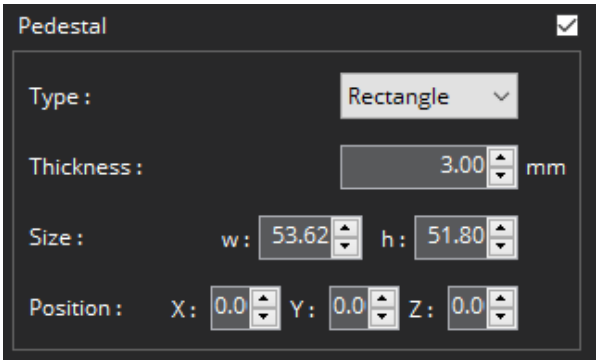
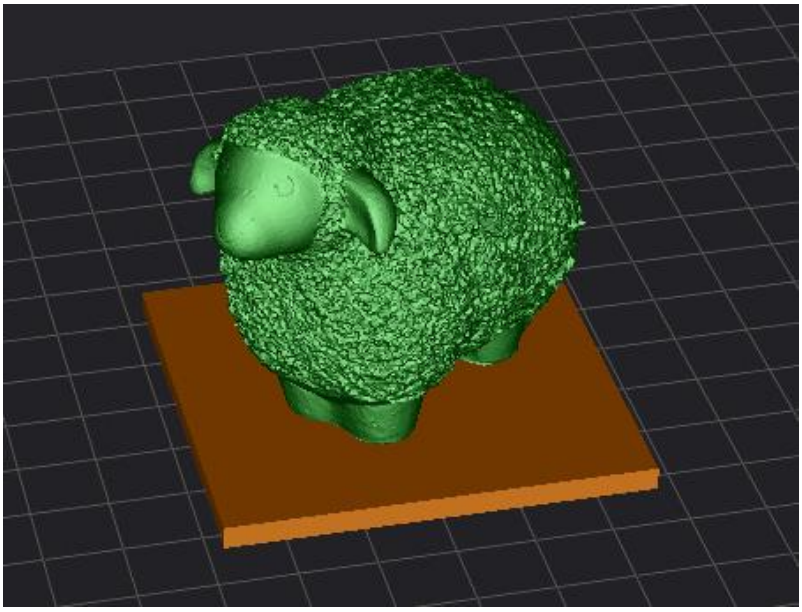
- **Pedestal**



Add a pedestal to the printout. Can be useful for character models.

Option	Explanation
Type	Outline, rectangle, hexagon, octagon, circle
Thickness	Set the thickness of the pedestal.
Position	Adjust the position in the X, Y, and Z axes around the model.
Size	Adjust the width and height of the pedestal.

The following image is a model with a pedestal.



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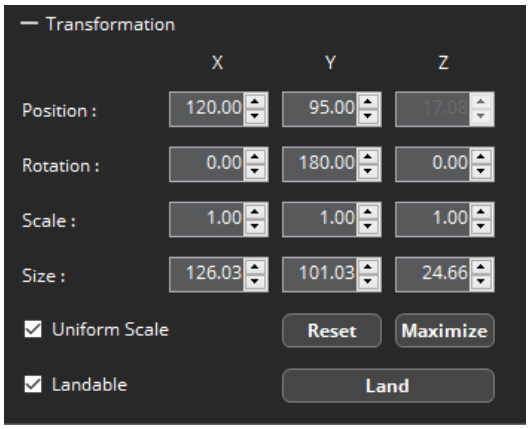
- **Transformation**



You can adjust the position, rotation, size ratio, size, etc. for the selected model.

Reset

Returns the values except the model position to the initial state.

Maximize

Adjust the size of the model to fit the screen size.

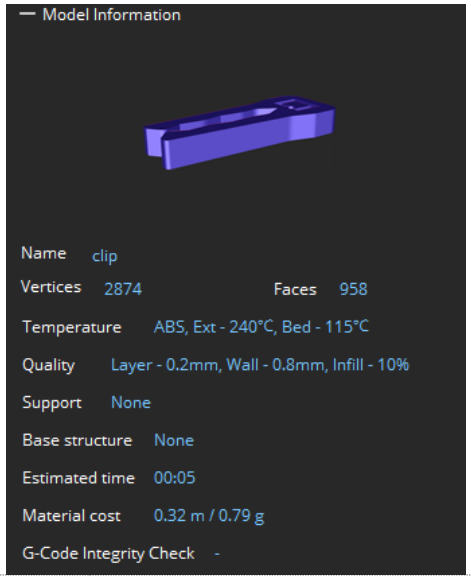
Automatic floor Attachment (Landable)

The bottom of the model is automatically attached to the bed. If you disable the setting, you can move the model along the Z axis using the model manipulator.

Bottom floor attachment (Land)

Attach the model to the bed with the automatic floor attachment disabled.

- **G-Code information**



Displays the result of slicing.

G-Code information is displayed after slicing

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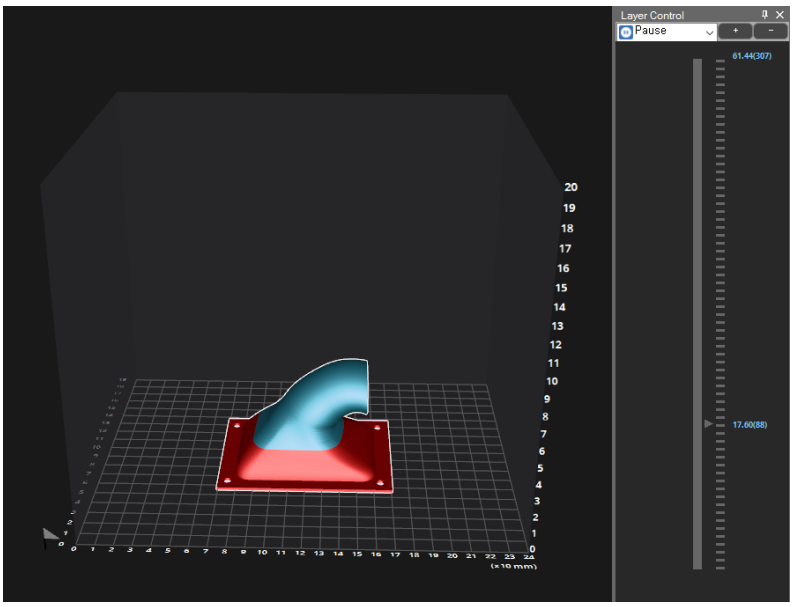
3.2 Function explanation

3.2.1 Layer Control



Layer control pause is a function that automatically pauses after printing to a specific layer. After pausing at a specific layer, you can replace the filament and print the model in different colors.

The functions of each control in the layer control window are as follows.

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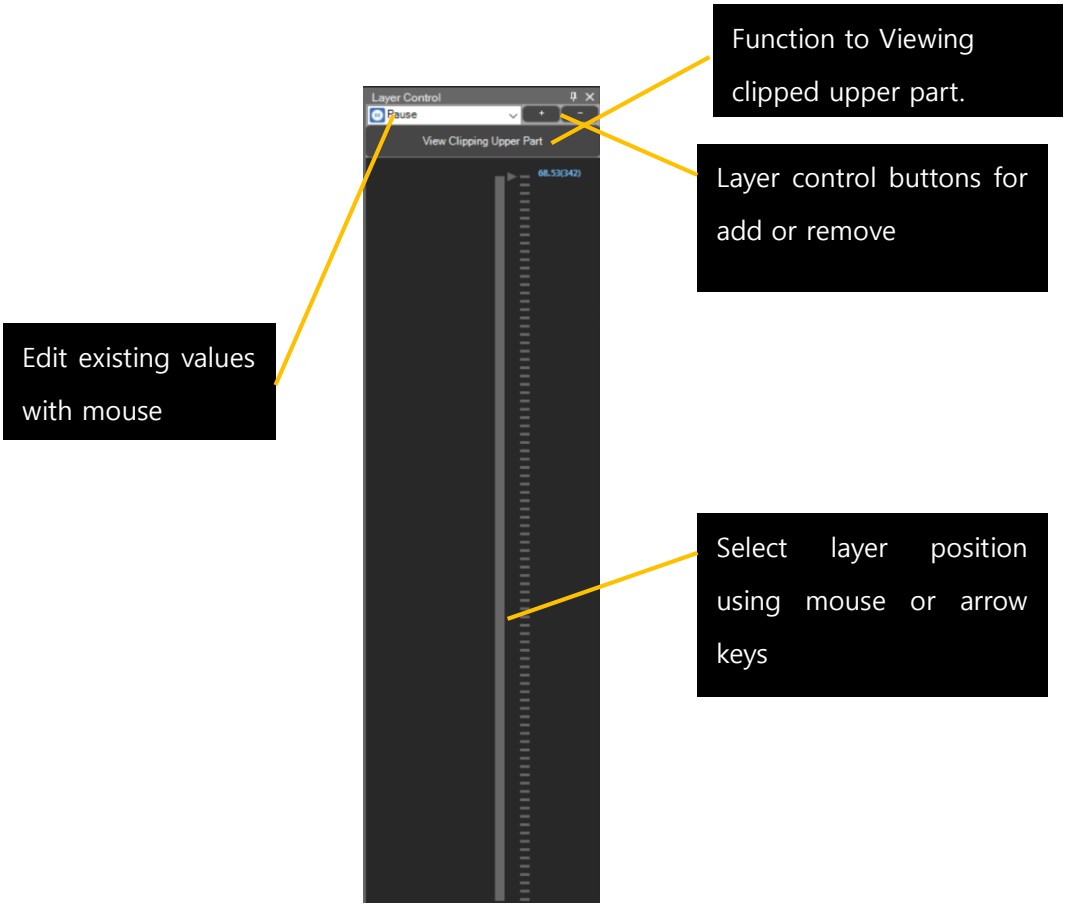

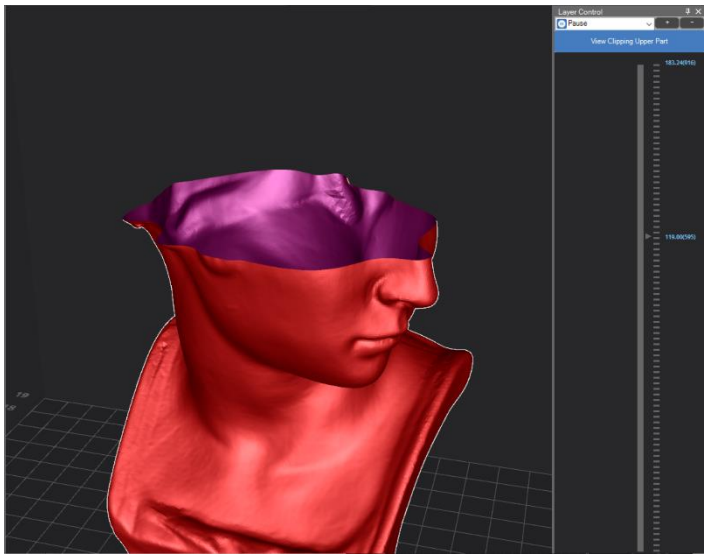

Model section views are useful for identifying modeling problems.

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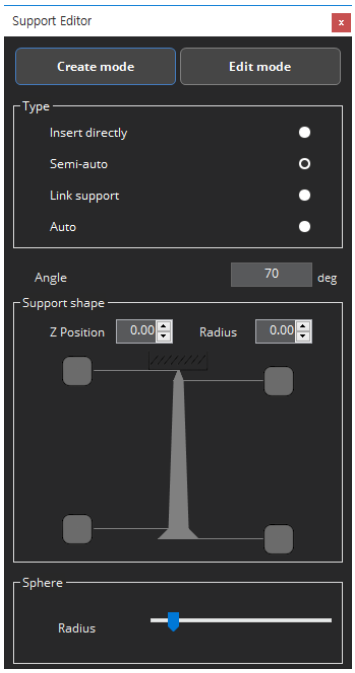
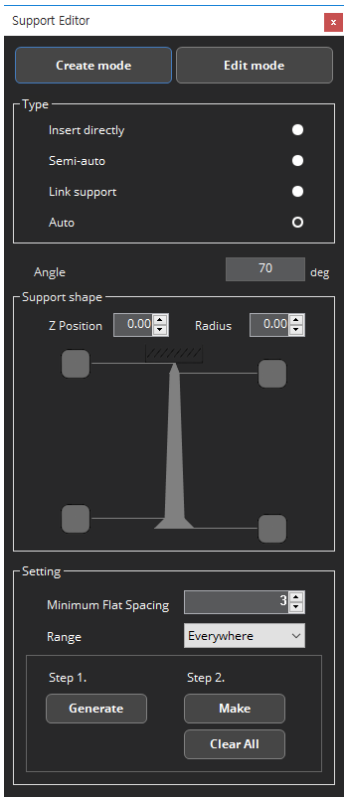
3.2.2 Manual support

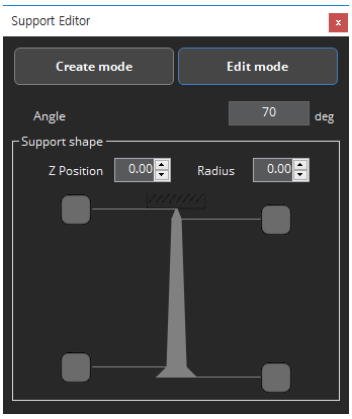
It is the function to add the support to the 3D model to the specific part so that the selected model is prevented from falling down and the print is good. Dynamic rig support is a function that automatically adds joints to the support geometry where the support is created.



<Generating mode – General>



<Generating mode- Automatic>



<Editing mode>

Option	Explanation
Insert directly	Add a support to the contact of the selected model with the mouse.
Semi-auto	Add support to the most optimal position in the model contained within the sphere.
Link support	Add support for connecting specific points between selected models and models.
Sphere(Radius)	Sets the size of the sphere activated in the semi-automatic function.
Support shape	The shape of the added or created support can be adjusted by mouse dragging or numerical input
Z-position	The distance between the support and the model, the negative value falls away from the model, and the positive value digs into the model.
Angle	The set angle of each face of the model relative to the floor for automatic contact detection.
Location	The function of moving the position of the selected support in X, Y axis direction

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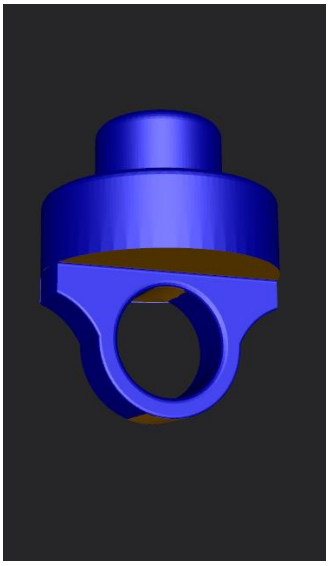
- **Support area display function**
  Analyze the shape of the model and display where the support is needed with color information.

Before marking

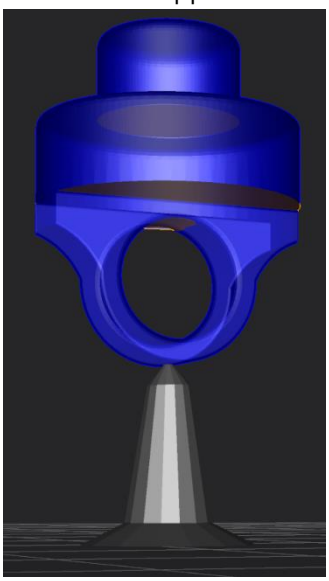
After marking the point where the support is needed



- **Insert directly**

Set location

Add support



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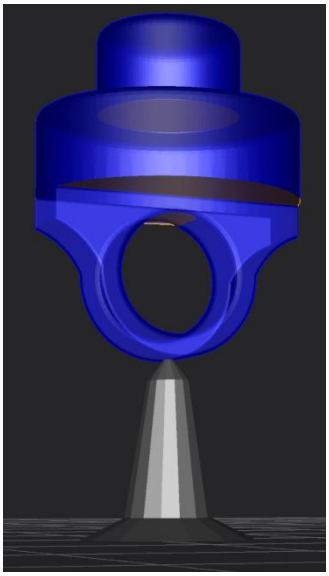
- **Semi-auto**

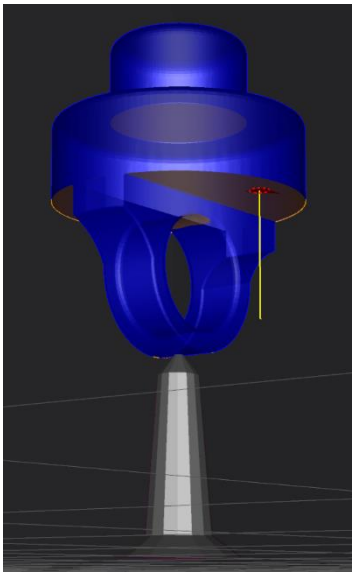
Set location

Add location

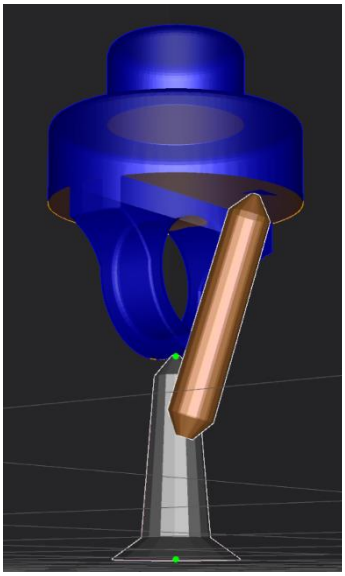


- **Link support**

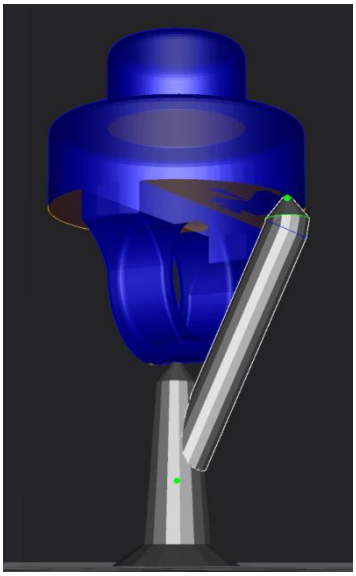
Set location 1



Set location 2



Add support



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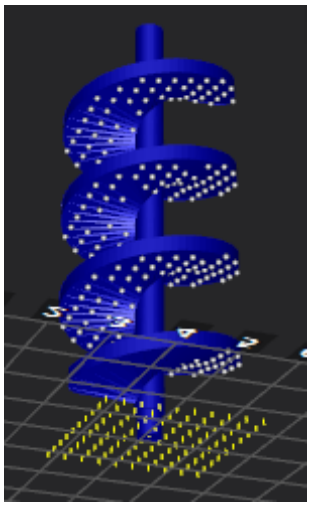
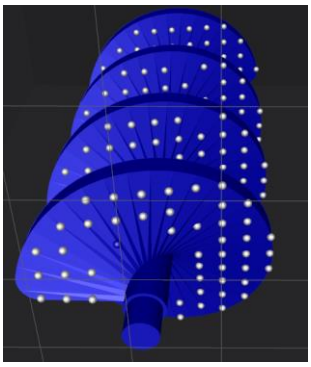
- **Auto**

Calculate location

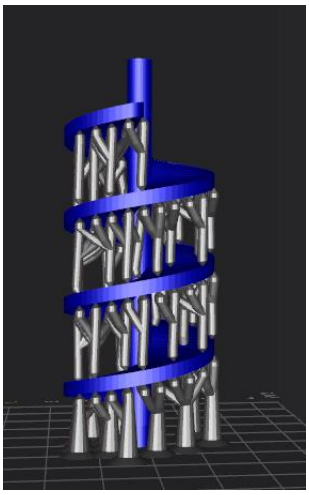


Edit location



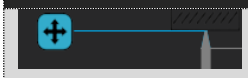
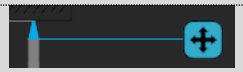
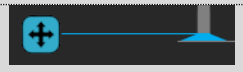
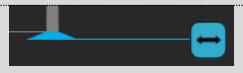
You can add or remove the pointer by clicking it

Add support



- **Modify the support shape**

You can modify the geometry of the created support for each part in the edit mode.

Function	Explanation
	You can adjust the distance and diameter of the support to the contact surface using left / right mouse drag.
	You can adjust the horizontal / vertical size of the shape of the upper part of the support by mouse dragging.
	You can adjust the horizontal / vertical size of the shape of the lower part of the support by mouse dragging.
	The bottom diameter of the support can be adjusted by dragging the left / right mouse.

- **Edit mode**

In Edit mode, you can edit the generated support. When you select a generated support, the control points are displayed at the top and bottom of the support. By dragging the control point with the mouse, you can place the support at the desired point and automatically change to the appropriate

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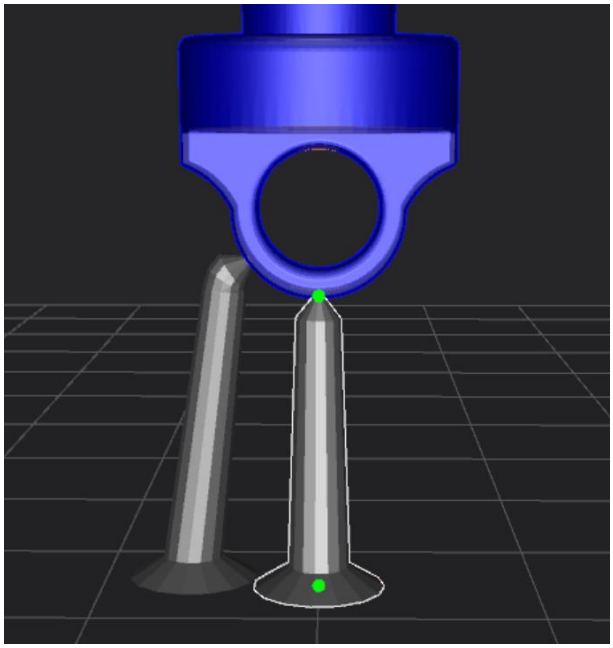
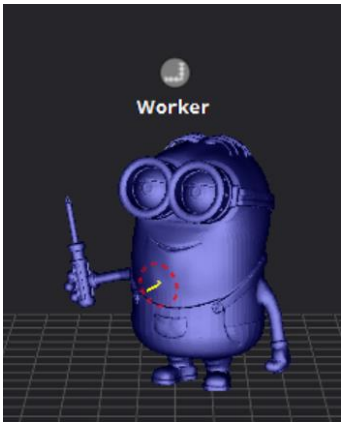
shape to match the position. The support must be positioned at the bottom of the model to effectively support the model. The support function cannot be performed if the upper and lower supports are bent excessively. When connected to a support, it moves along the center axis of the support.



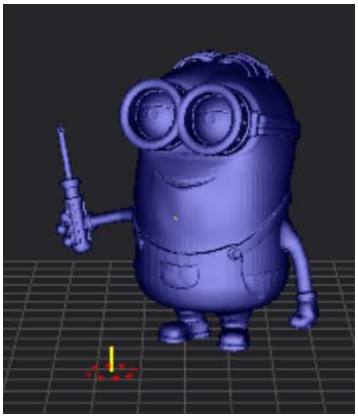
3.2.3 Orient on surface

Based on a specific face of the model, rotate the model in parallel to the target surface.

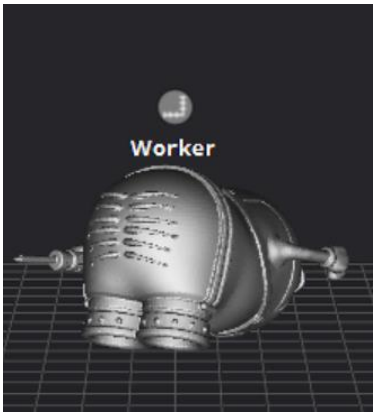
① **Choose surface of model**



② **Choose target surface**



③ **Rotate**



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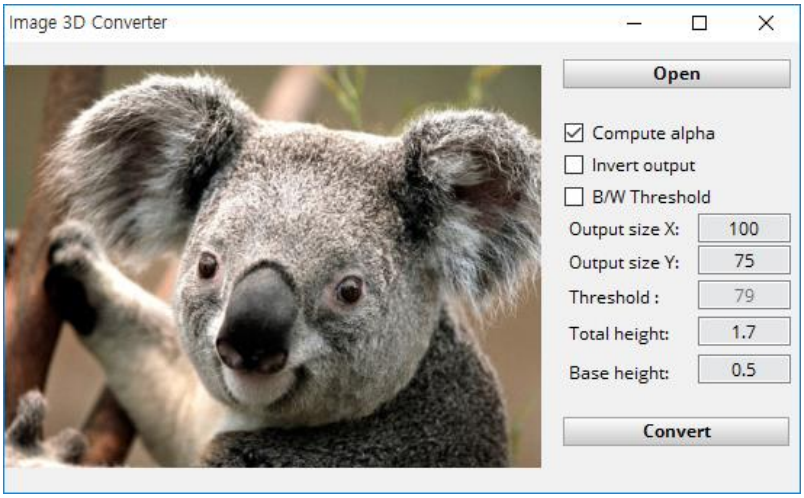
3.2.4 Image 3D Converter

Calculates the brightness value of an image and converts it to a 3D model. Converted 3D model Images can be used with frames.

Supported image formats are BMP, JPG, and PNG.



Options	Description
Compute alpha	Using alpha values for 3D model transformations
Invert print	Convert image after invertion
B/W Threshold	Brightness Threshold
X,Y-axis size (Output size X,Y)	Set the size of printout model (in mm)
Total height	Sets the height of the output image model
Base height	Set the default height of the printout image model
Open	Import image
Convert	Convert to 3D model

Press the Open button to load the image and press the Convert button to convert it to a 3D model. The image below is the result image converted to a 3D model

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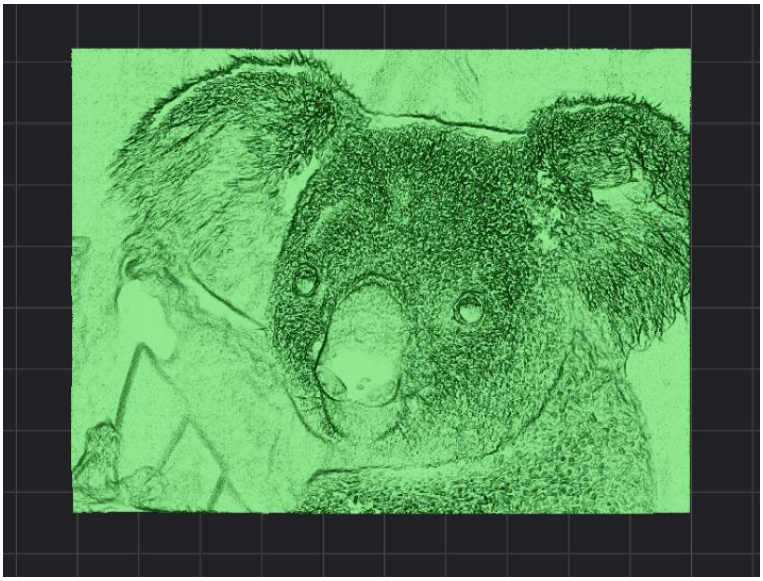
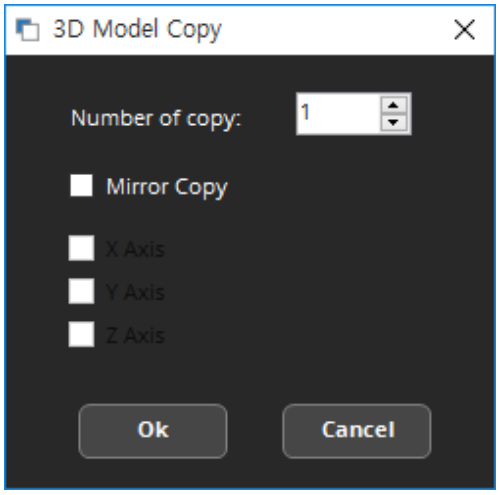


3.2.5 3D model copy

Copy the selected model. With the mirror copy function, you can easily convert left and right for shoes models.



Options	Descriptions
Number of copy	Number to copy
Mirror copy	Set up mirroring
X-axis	Copy mirror on X axis
Y-axis	Copy mirror on Y axis
Z-axis	Copy mirror on Z axis

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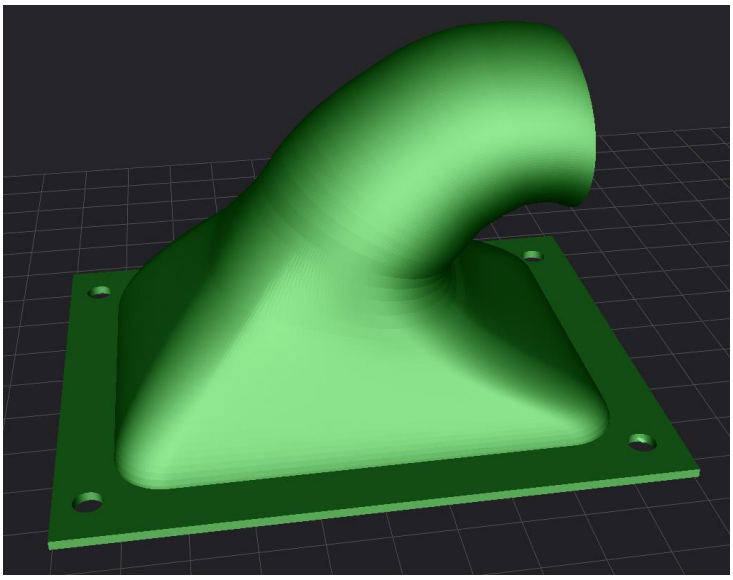
3.2.6 View mode

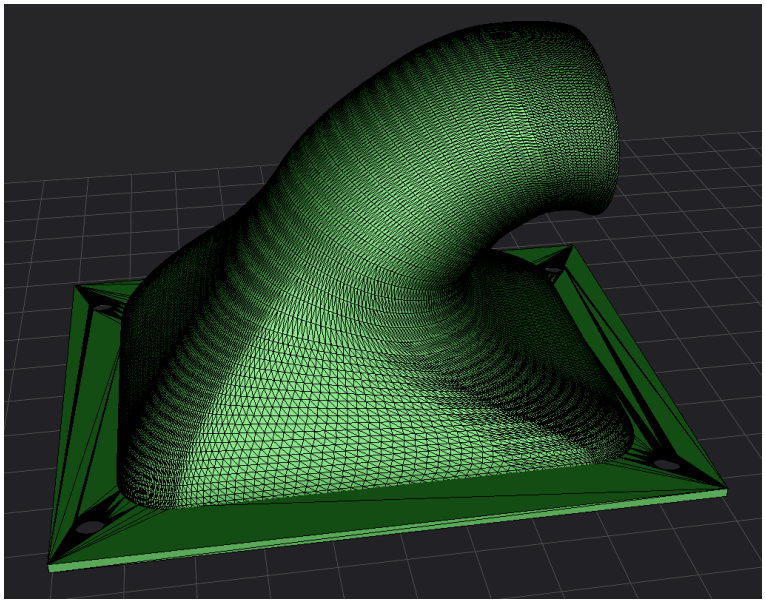
- **Modeling**

  Shows the 3D model with shading.



- **Edge**

  On the modeling view, displays edge-line together on the modeling view.



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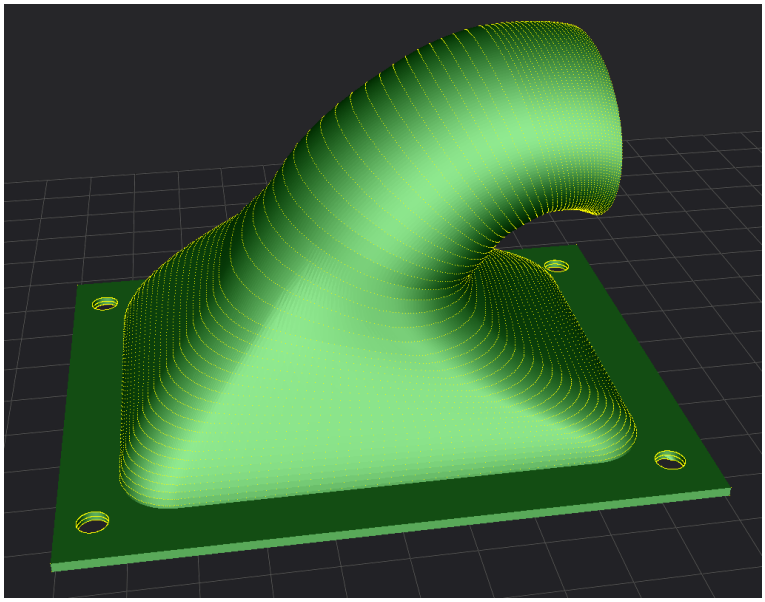
- **Point**

  Displays the vertex points together on the modeling view.



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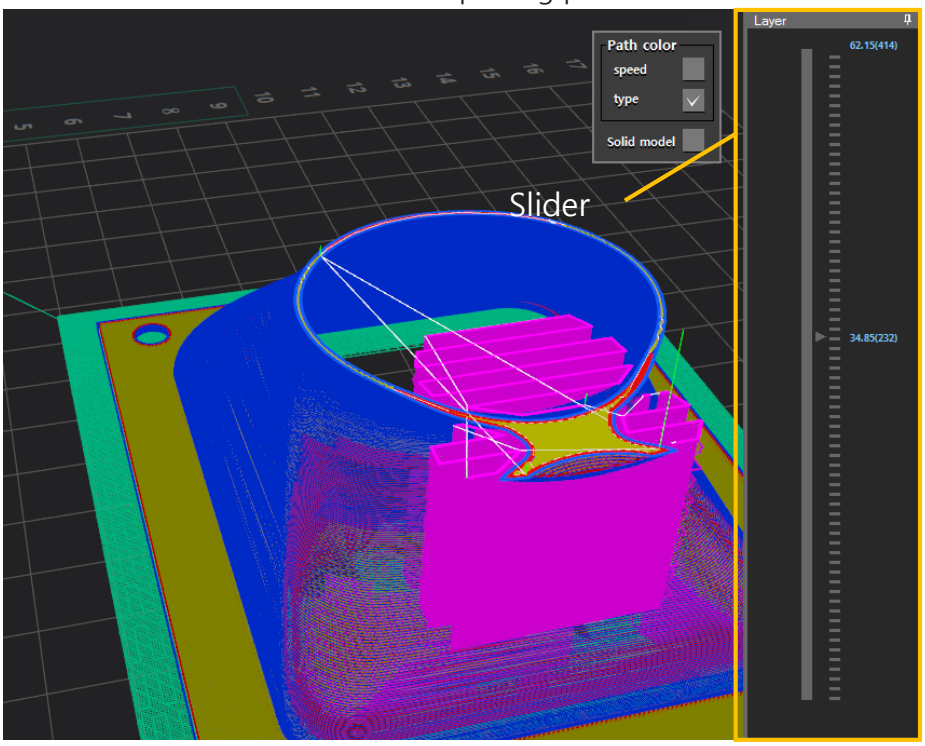
- **Drawing path**

G-Code Simulation shows sliced print. The image below shows the G-Code path and shows the type of path in color. Model cannot be selected in printing path mode.



- **Slider**

Control the layer location of the G-Code

Checking the print through G-Code View before actual printing can reduce the failure rate.

The G-Code Path color may be changed to improve performance.

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3.2.7 Model Manipulator

The model manipulator adjusts the movement, rotation, and scale of the selected model by dragging the adjuster with the mouse. The color of the Adjuster indicates the axis, red indicates the X axis, green indicates the Y axis, and blue indicates the Z axis.

- Move

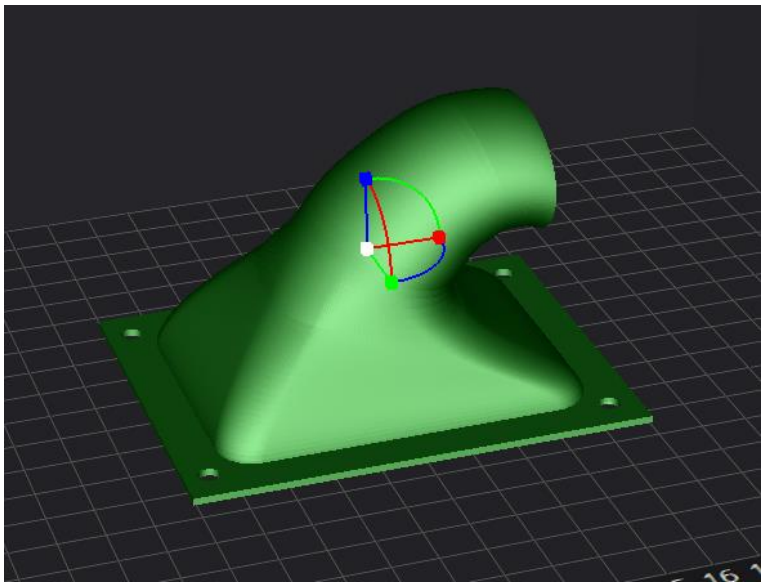
  Select model and drag to move in XY axis.

- Rotation

  Drag the arc to rotate the model.

- Scale

  Drag each square box to resize the model..



3.2.8 Context menu

After selecting the model with the mouse and pressing the right button, a context window appears and you can quickly use some of the functions in the Edit menu.

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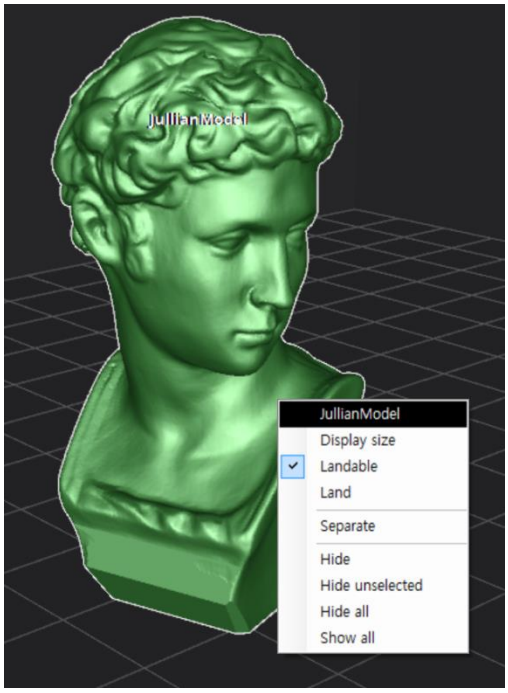
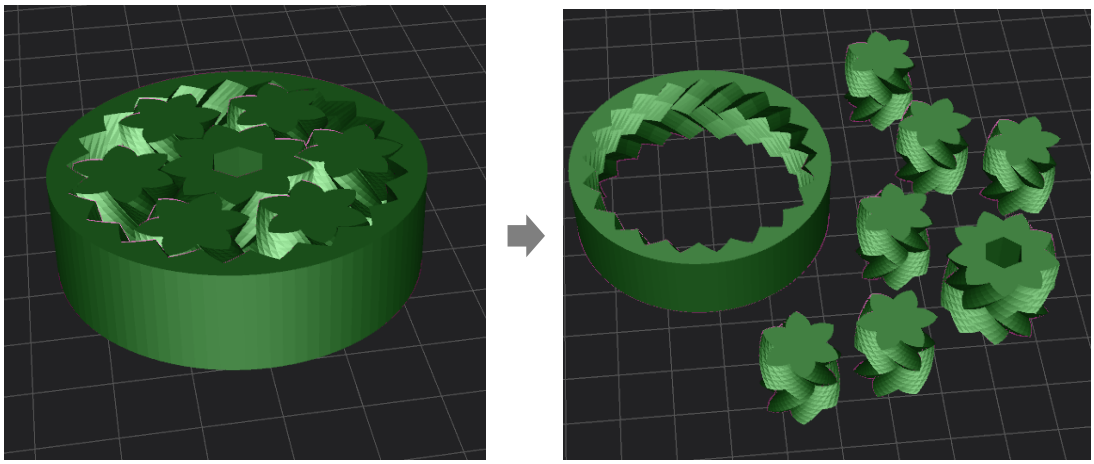


3.2.9 Model separation

The model separation function is a function to separate the separated models in the mesh structure. When you use this feature to separate, the model will have its Automatic floor attachment function (Landable) attribute turned off to maintain the same shape as it was before it was separated. To attach the model back to the automatic floor attachment, you need to set Landable in the context menu.



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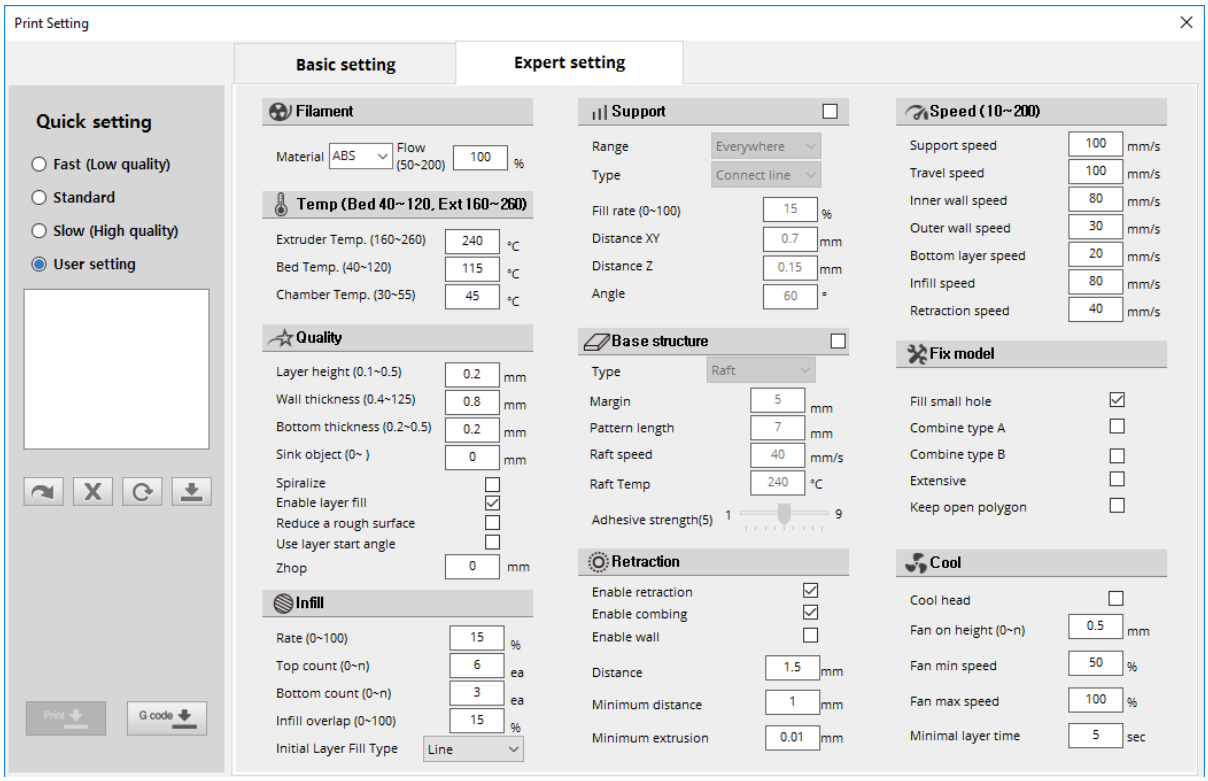
3.3 Printer setting



3.3.1 Quick setting

It is used to print quickly with the basic default setting without any special setting. However, in order to get a good quality printout, you have to set the option value for the model.

Speed	Description
Fast	Output speed is increased to shorten output time but quality is poor.
Standard	Normal output speed. Good quality.
Slow	Output speed is slow. Excellent output quality.
User setting	Use the customized profile you set for your model.

3.3.2 Basic setting

You can set basic level settings among the 3D printer printing options.

3.3.3 Expert setting

Set detailed options for 3D printer output.

Since the printing result varies depending on the shape of the 3D model, it is necessary to set the option according to the model. For detailed setting options, refer to "5. printing options ".

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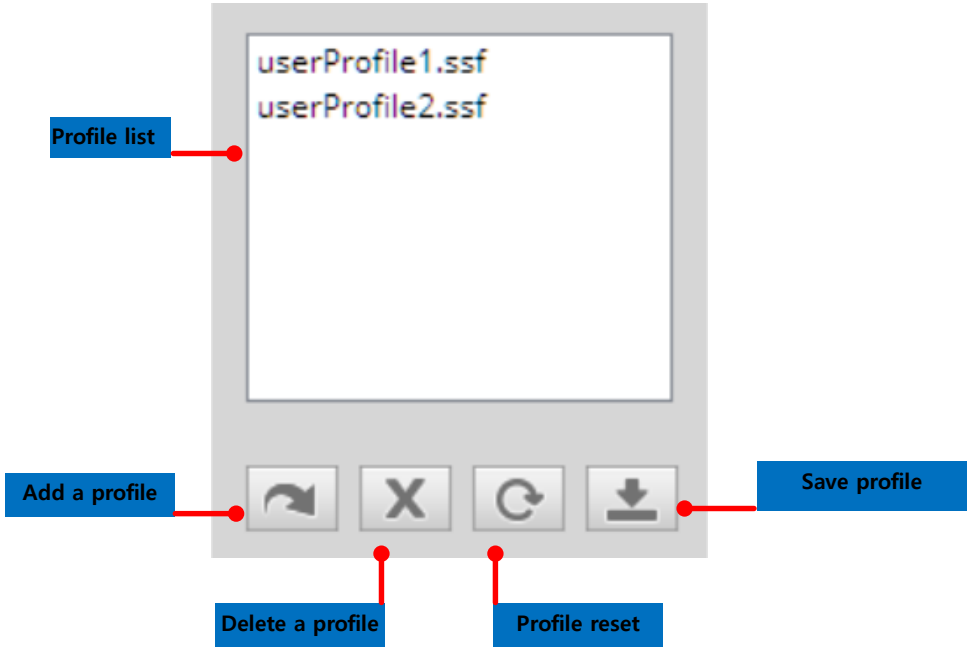
3.3.4 Profile setting

Profiles can save or load print options to a file. Saved profiles can be used by selecting profiles through the Profile List window. The extension of the profile is ssf.



Function	D
Profile list	Displays a list of saved profiles.
Add a profile	Add an external profile.
Delete a profile	Delete selected profile from profile list.
Profile reset	Initialize the profile.
Save profile	Save the current profile.

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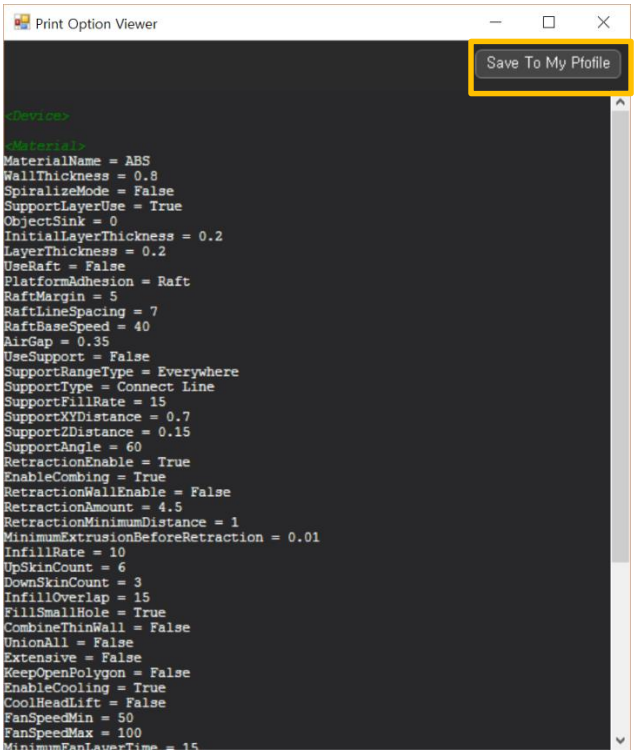
3.3.5 View print options in an HFB file

If you reload the HFB output file via Cubicreator, you can see the printer output options used for that file (choose Edit -> View Print Options).



<View output option>

Save To My Profile: If you click the button, you can save the current output option as a user profile.

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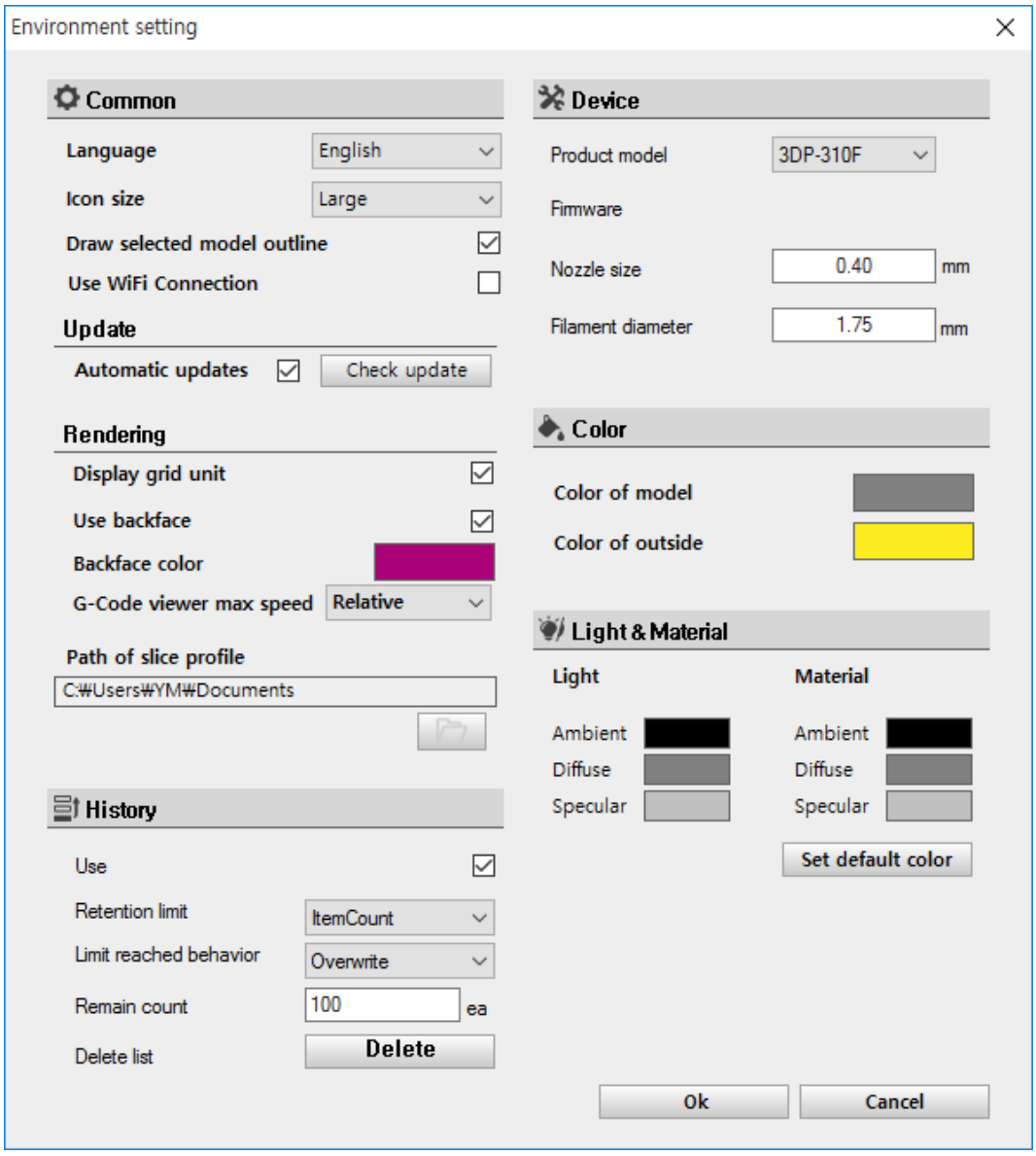
3.4 Environment setting



3.4.1 Common

Function	Description
Language	Language selection.
Icon size	Set the size of the icon. Medium, Large Support
Show outline of selected model (Draw selected model outline)	Displays the outline of the selected model. On low performance computers, turning this feature off improves performance.

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3.4.2 Update

Automatic updates: Set automatic update.

Check update: Press this button to connect to the server and update immediately if there is an update.

3.4.3 Rendering

Function	Descriptions
Display grid unit	Set whether to display grid on screen
Use backface	Sets the back side of the model surface to be drawn on the screen. It is the back side from the front / back side of the triangle side which is a unit of the 3D model. If the front / back side are wrong, the slicing may not work properly. The wrong 3D model needs to be corrected correctly on the front / back side of the face using a 3D editing program.
Backface color	Sets the color of the back side of the model surface.
G-Code viewer max speed	Set the speed display maximum value in G-Code preview. Supports two modes of relative speed and absolute speed. In case of relative speed, expresses the maximum speed of the current G-code path as the maximum value. For absolute speed, the maximum speed of the supported device is expressed as the maximum value.

Print profile location: Set the path to save printing options profiles.

3.4.4 History

Function	Description
Use	The color of the selected model.
Retention limit	The color of the unselected model.
Handling when the limit is reached (Limit reached behavior)	The color of the model that has a problem with the printing
Remain count	The color when the model leaves the printing area or the models overlap each other.
Delete list	Delete the printing history **Erased data cannot be recovered.**

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3.4.5 Device

Function	Description
Product model	Select Cubicon printer type
Firmware	Displays the firmware of the currently connected printer. **It may not be displayed depending on the firmware version.**
Nozzle size	Set the size of nozzle. **If the nozzle size is changed randomly, the printing quantity may change, which impacts printing.**
Filament diameter	Set the diameter of filament. **The diameter of the filament depends on the extruder. In addition, printing time and filament consumption become inaccurate.**

3.4.6 Color

Set the color of 3D Model.

This is the color of the model shown in the program and is not related to the color of the actual printout.

Color by status	Description
Color of model	The color of the unselected model.
Color of outside	The color when the model leaves the printing area or the models overlap.

3.4.7 Light & material

Settings for lighting and materials required for 3D rendering. By adjusting the color of the light or the material, you can express a metal-like material or a plastic-like material. Please note that the table below applies to the same lighting material.

Light/Material color	Description
Ambient	The surrounding material color. It refers to the surrounding light, has no directionality of light, and works on all surfaces identically.
Diffuse	Diffused reflective material color. It refers to the intrinsic color of an object, and the intensity of the light is determined by the direction of the light source.
Specular	Total reflective material color. The color of the brightest part of the object that is reflected by the light source.

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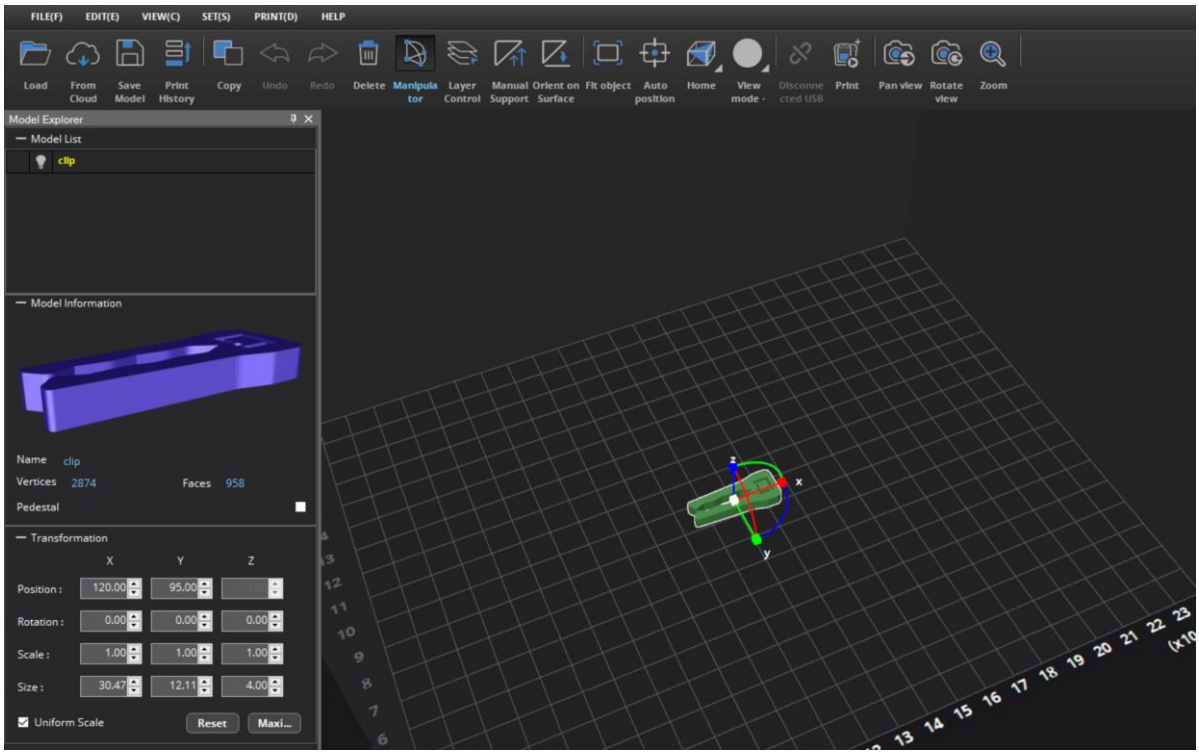
4. Printing example

There are two ways to print 3D models with Cubicon. The first method is to connect the USB cable between the PC and the printer, and the second is to save the model's G-Code file (* .hvs / *.hfb) to the SD card and output from the SD card.

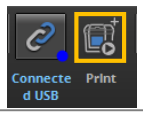
4.1 Print via USB or Wi-Fi connection

1. Connect your PC and printer with the supplied USB cable. When it is connected properly, the disconnected icon changes to connected icon
2. Open file menu or click Icon to bring up the file SD₩Cubicreator₩Samples₩clip.stl inside the offered SD Card.



<Sample file>

3. If necessary, use the Model Manipulator or Transformation in the Model Explorer to edit the imported model as desired.
4. Connect the USB cable to the printer for USB connection. Please refer to 2.4 Printer Wi-Fi Connection for printing with Wi-Fi connection.
5. When you are connected to the printer, click the Print Start or Print icon in the Printing menu to print.



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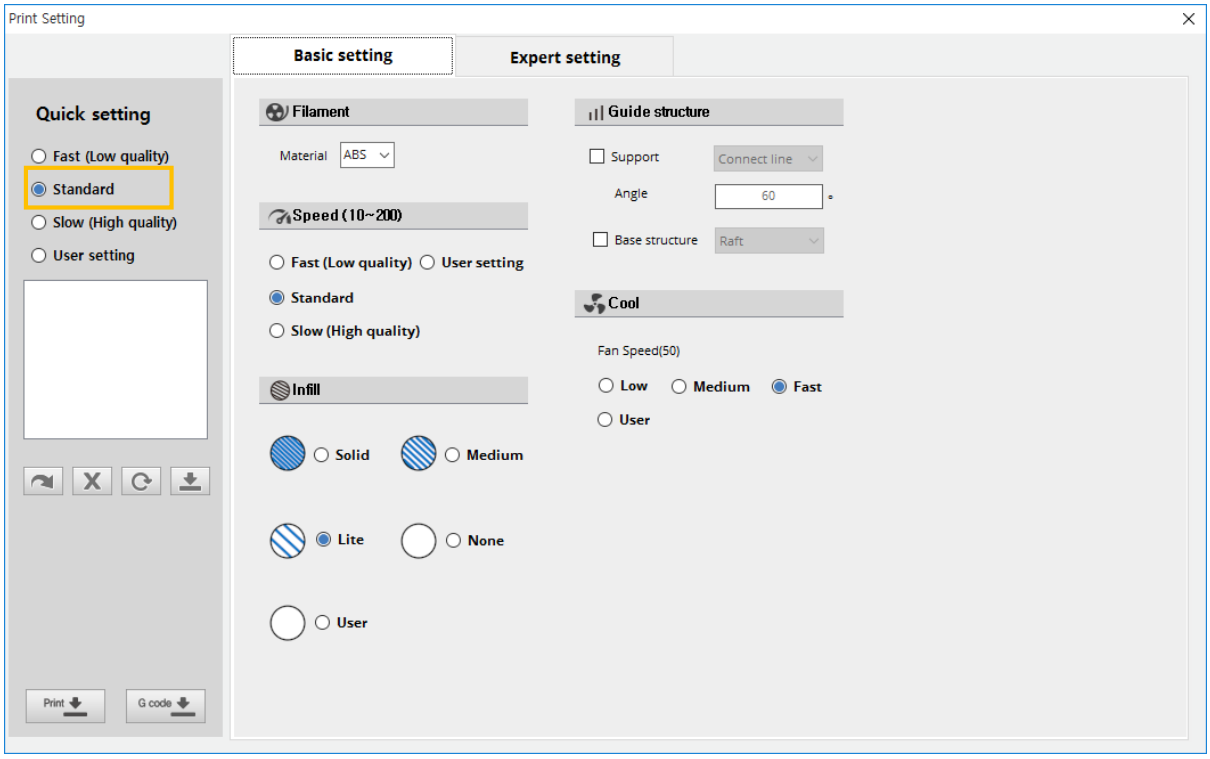
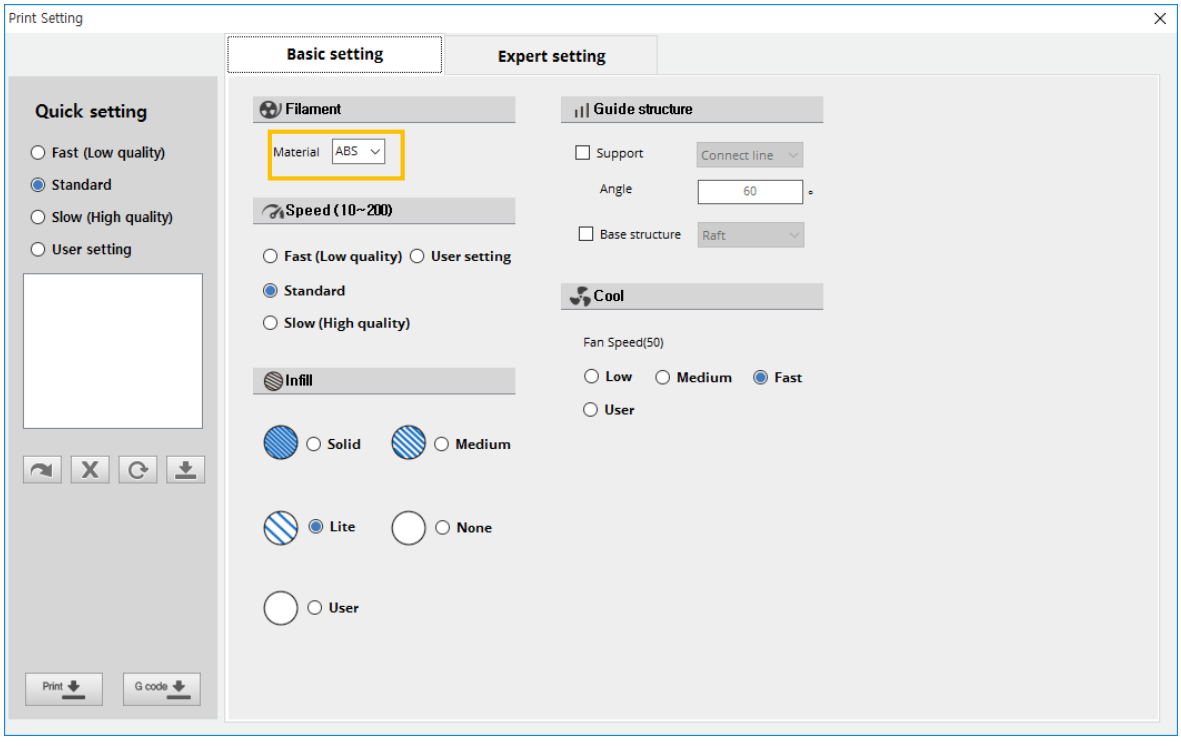
6. When you have completed the printer settings (clearing the bed and loading filaments) for printing, select Standard from Quick Settings on the left.



7. On the upper right tab, set the material of the default setting to the filament that is currently in use (The ABS included in the product).



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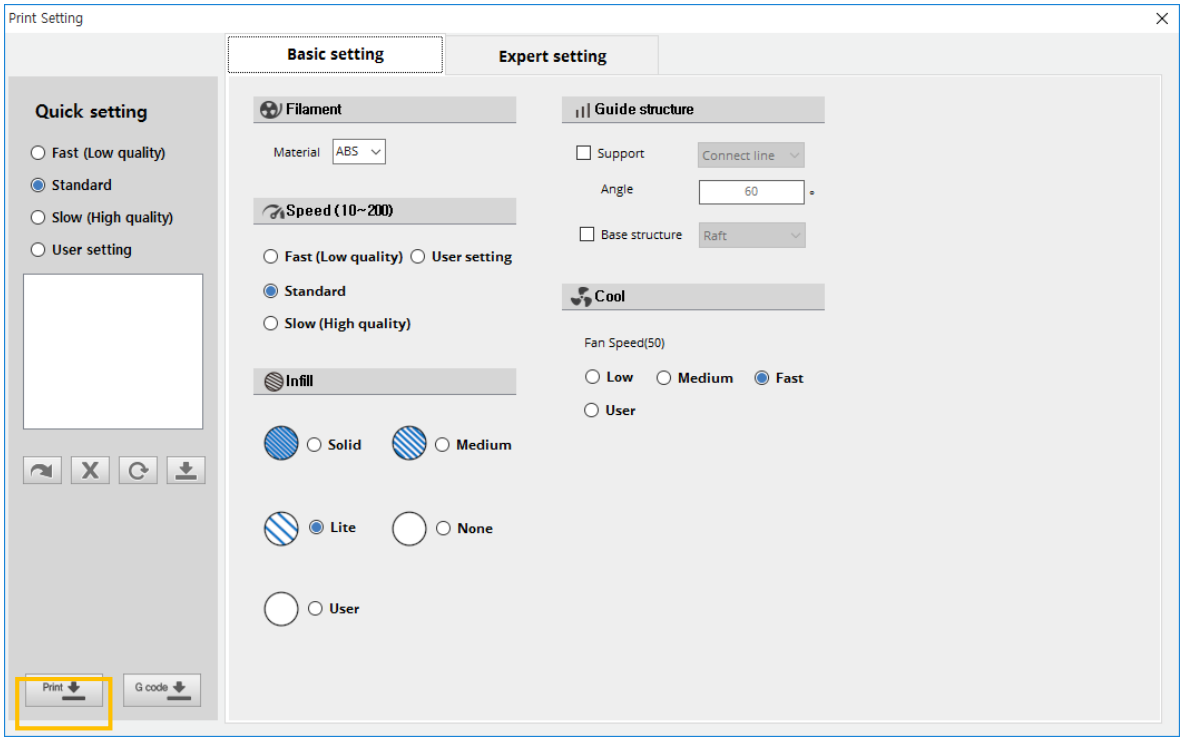
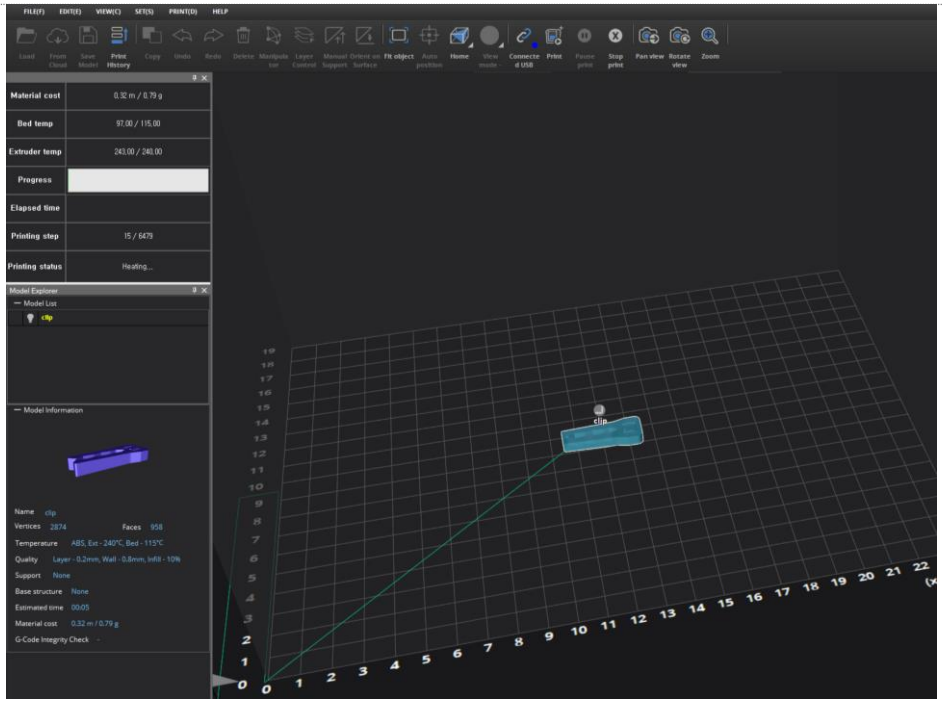
8. Click the Print icon in the lower left corner to print.



9. When the print starts, the progress window is displayed and the print starts.

At the beginning of the first print, the unit will not move immediately because it will heat up for a certain period of time to raise the bed and extruder to the set temperature



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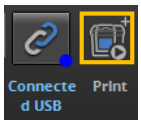
4.2 Printing from SD card

1. Connect SD card to SD card reader.

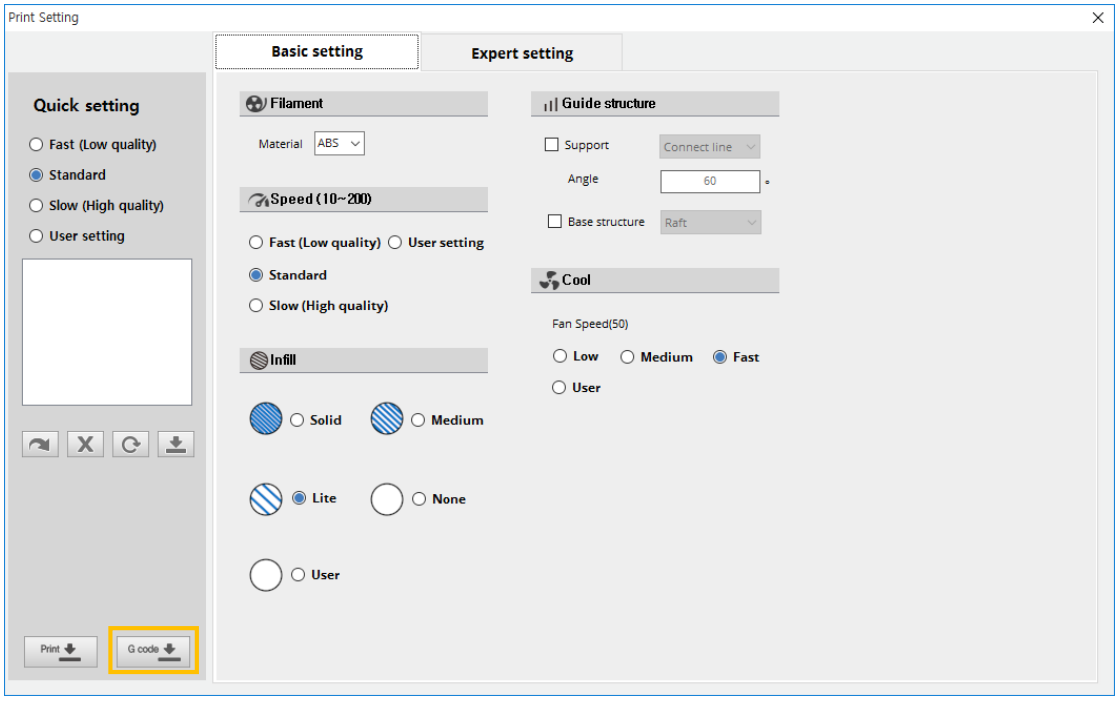
2. Refer to [4.1] for the contents to edit after loading the model file to be printed.

3. Click the Start Print or icon in the Print menu to print.



4. Refer to [4.1] for output setting.

5. Click Save G-Code in the bottom left corner and save it as clip.hvs file on the SD card.



6. After inserting the SD card into the printer, select the clip.hvs file in the Print SD File menu and press the Enter key to start printing.

*** If unexpected problems such as power down or reboot to PC or printer during USB connection printing, printing may stop.**
*** If you unexpected power down or reboot to the printer during printing through SD card, printing may stop.**
In this case, please remove the print from the printer and print again. If the print is in the printer, the print may interfere with the operation of the printer and cause the printer to malfunction.

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5. Print Setting

3D printers have different output quality depending on the print model and output option settings. By understanding the output characteristics and adjusting the output options, you can get better quality output.

5.1 Filament

- Material

The types of filaments currently supported by Cubicon are ABS-A100, ABS, PLA and TPU. Please refer to the following table because the operating temperature of each material is different. **The values in the table are recommended values and should be adjusted to the optimum value according to the print conditions of the filament type and printing model.**

Available filaments may vary depending on the Cubicon product.

Material	Extruder	Bed	Chamber
ABS-A100	230℃	100℃	45℃
ABS	240℃	115℃	45℃
PLA	210℃	65℃	35℃
TPU	230℃	65℃	35℃

If the temperature condition is not matched according to the print model, filament type, etc., the print may not stick to the floor, may fall off the floor of the print, and the print quality may be poor.
In severe cases, the filament may not be extruded out due to cracks or the nozzle may be clogged and change of the extruder may be necessary.

- Flow

Sets the amount of filament for printing. The default value is set to 100%. It is recommended that you do not change the output unless you have a specific problem.

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5.2 Quality

- Layer height

The interval between slicing the model. The smaller the value, the higher the model precision and the longer the printing time.

- Wall thickness

Sets the wall thickness of the printout.

- First layer thickness (Bottom thickness)

The height of the first layer in the model, excluding the auxiliary print(base structure such as Raft or Brim). Adjust the height to get a good bond with the bed. It is recommended that you do not modify it unless you have a specific problem.

- Sink object

Sets the starting height of the printing z-axis.

- Spiralize

It is a mode for printing a cylindrical model such as a cup. The bottom wall is thickened so that water does not leak, and the upper part print a spiral shape.

You should only use cylinders. Slicing may also fail if you use the same shape as a cup with a handle.

- Enable layer fill

This function is to fill the horizontal plane of the middle part except the top and bottom. If you have a model with no horizontal plane in the middle (cup-shaped model), turning it off improves the output quality and shortens the output time.

If you turn off this feature for models with planes in the middle, you may have holes in the model.

- Reduce a rough surface **(Use Wall Enhancement option)**

Reduces lumps at the point where the layer changes. Good surface quality.

For small or complex models, the strength of the model may be weak.

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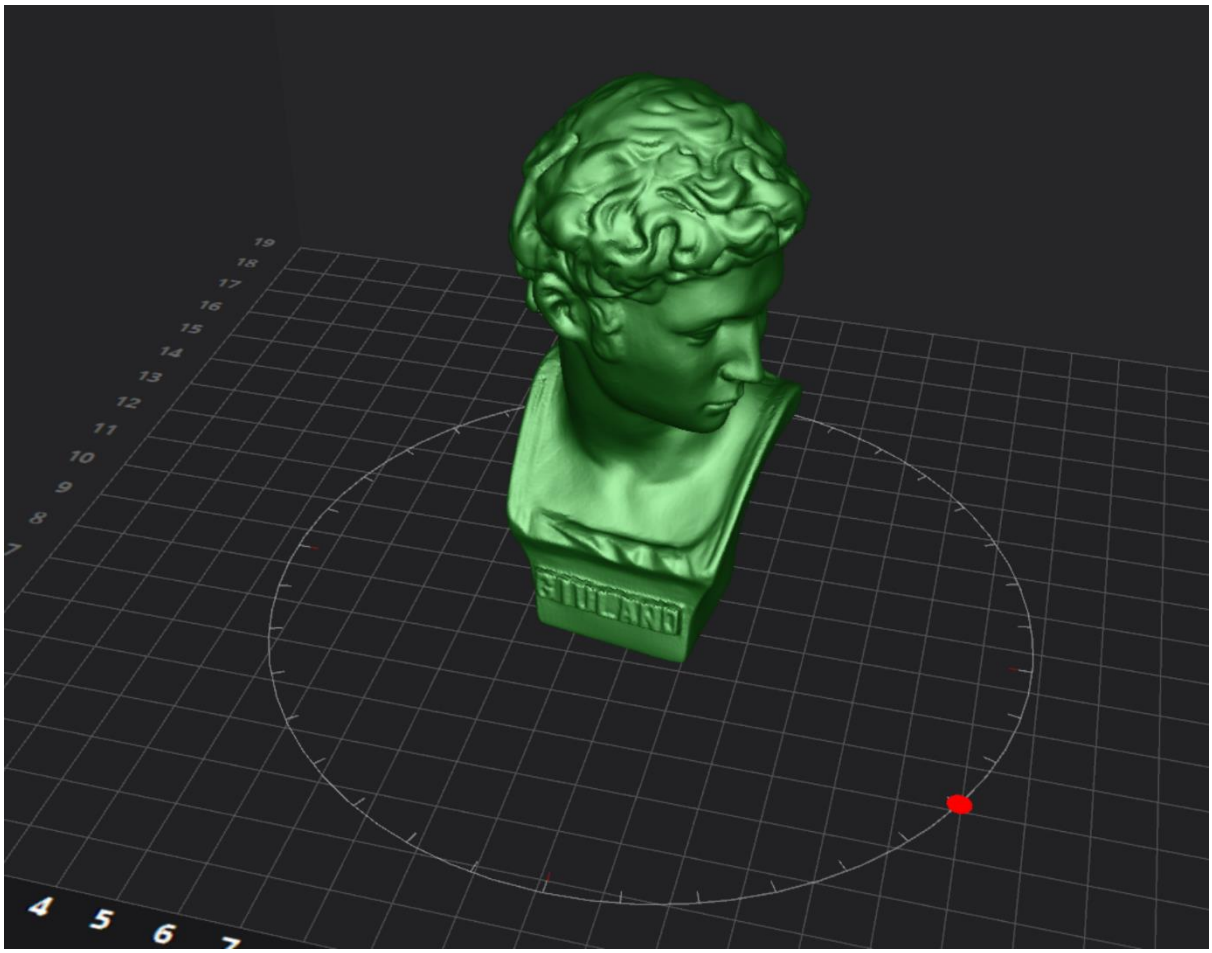
- Use layer start angle

Start Layer Changes to a specific point direction. Changes can be made at one point so that the surface of the model is smooth. If this function is enabled, a handle can be shown to change the starting point around the model. Adjust this to set the layer starting position. When there are multiple models, the set angle is applied as the center of each model.



- Z-hop

Allows the nozzle to hop and move as it moves without extruding from the nozzle. The setting value sets the interval at which the nozzle is hopped.

Using this feature may degrade the surface quality. It is recommended that you only use when there is a conflict between the nozzle and model during printing.

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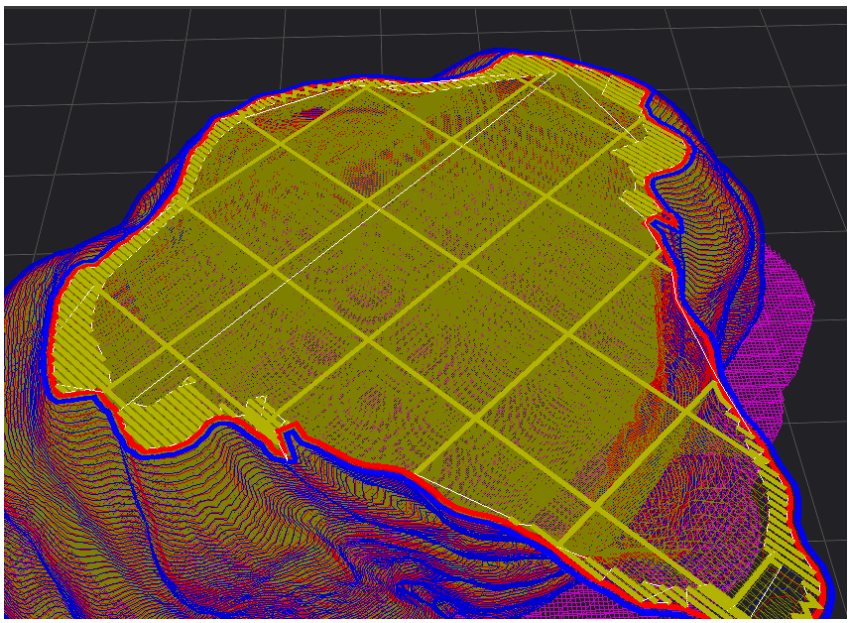
5.3 Infill



- Rate

Solid form the degree of filling the interior of the model. The higher the value, the higher the density and the longer the printing time.

- Top count

Number of layers to fill on top

- Bottom count

Number of layers to fill on bottom

- Infill overlap

The degree to which the infill overlaps the wall inside.

- Initial layer fill type

Option	Description
Line	Fills the first layer with a straight line.
Concentric	Fill in concentric circles to fit the model geometry of the first layer. For certain models, it helps to bond with the bed.

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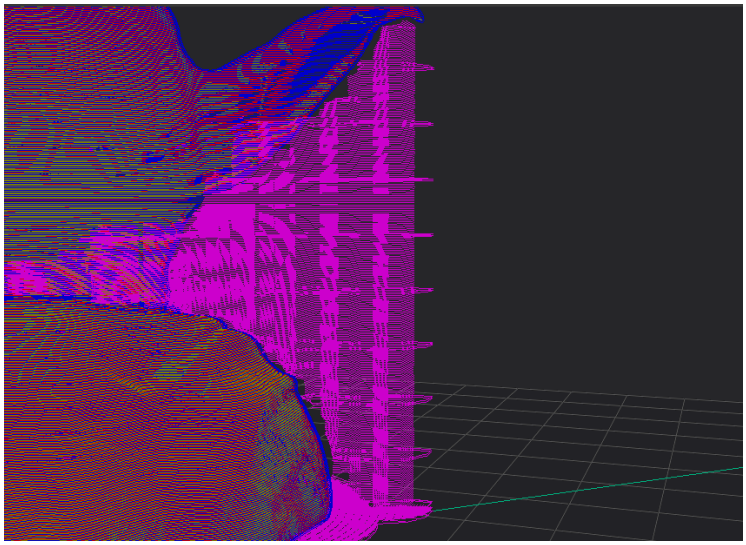
5.4 support

Due to the nature of 3D printers, they are stacked from bottom to top. If there is no pattern already printed below the print layer, the filament will be piled up in the air and the structure will not be created. In this case, you can use the "support" to improve the structure in the air.



<Support>

- Range

Option	Description
Touch plate	Generate supports only on the bottom view.
Everywhere	Supports are created in all areas where needed.

- Types

Options	Description
Line	The structure of the support is piled up in the form of a straight line. It is easy to remove after the printing is completed, but it can fall if raised.
Connect line	The structure of the support is connected by connecting the end points in a straight line. The support is robust, and the removal is easier than the grid method after printing.
Grid	The structure of the support is stacked in a grid shape across the straight line. Durable, difficult to remove.

- Fill rate

Sets the rate of filling the interior of the support.

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- Distance XY

XY distance between printout and support

- Distance Z

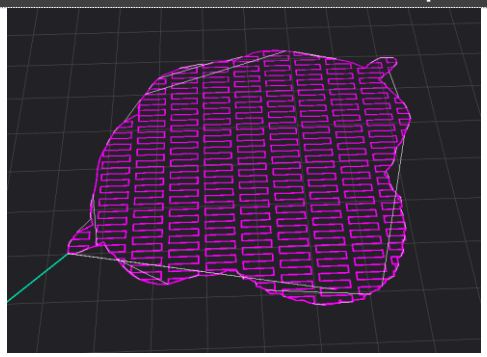
Z-axis spacing between print and support. The farther away you are, the better the separation from the model will be, but the quality of the support surface will be poor.

- Angle

Calculates the angular difference from the normal to the polygon normal to determine where the support is created. The smaller the value, the more areas are supported.

5.5 Base structure

The printout should be well adhered to the bed floor during printing. If the floor area adhered to the bed is small, or if the bottom of the model has a heavy concave-convex structure, or if the floor adhesion is poor due to other reasons, you can improve the floor condition by using "Base structure".

Type	Options and description	
Raft		If the floor area of the model is too small to allow the object to collapse, use it to attach the bed well. However, because it takes a long time to print, it is better to use when the print tend to falls off the Bed. ※ If the print is large, the printing time for the Raft also takes a long time. so use when you need the most.
	Distance from print(Margin)	Distance that extends from the floor to the outside
	Pattern distance (Pattern length)	Spacing of zig-zag patterns filling the bottom surface
	Raft speed(Raft speed)	Set the Raft speed. If the Raft does not stick well to the floor, use it at a lower speed.
	Raft temperature (Raft Temp)	Sets the temperature of the nozzle when printing raft. In the case of TPU, it is possible to print the first layer well by adjusting the temperature because printing raft in TPU may not stick to the bottom depending on the temperature.
	Adhesion to model (Adhesive strength)	Set the degree of sticking to the model with Raft. The higher the value, the stronger it is.

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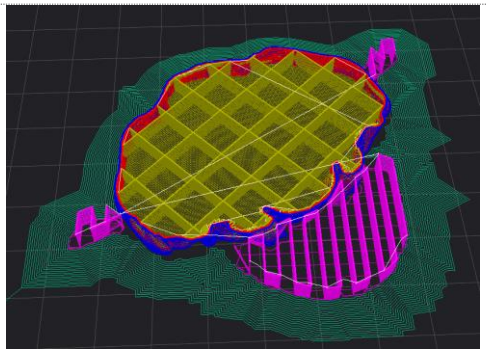
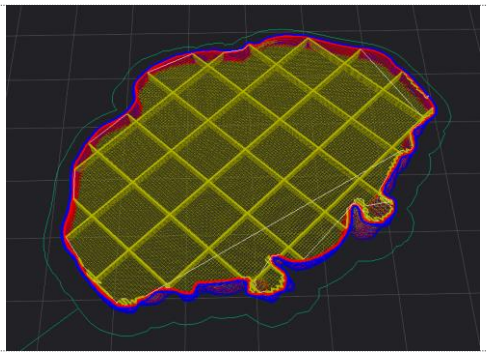
Brim		Draw the border several times around the bottom of the print so that the model fits well with the bed. After the printing is completed, the printed side and the separated side are dirty and require post-processing.
	Line count	Edge count
Skirt		Draw a border around the bottom of the model to stabilize the extruder.
	Line count	Edge count
	Start distance	Distance from bottom of model to skirt
	Apply minimum distance(Minimal length)	Minimal distance for using skirt

5.6 Fix model

- **Fill small hole**

Ignore small holes in the walls and print out the walls.

- **Combine type A**

This option is slicing with only the outer wall, so for walls that are thin and difficult to represent, this option will result in an interior filled with only one exterior wall. In this case, you can print the model with the desired thickness by adjusting the wall thickness without internal filling.

- **Combine type B**

Combine with models that are not well expressed because some of the walls are thin and perform algorithmically different processing with features that are similar to type A. Try using it with type A, and use better results in the print path view.

- **Extensive**

Filll up all the small holes in the model with polygons. This feature is time-consuming and can result

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in a variety of results and should be used with caution.

- Keep open polygon

If the outline is not a closed curve when the print layer is cut, this part will not be printed. In this case, this option can force the printing even if it is not a closed curve. However, since this is not a fully functional feature in all cases, we recommend modifying the model rather than using this feature.

5.7 Printing Speed

- Support speed

Supporter printing speed

- Travel speed

The speed at which the filaments move without being extruded

- Inner wall speed

The inner wall printing speed of the model. Because the inner wall is not visible from the outside, increasing the speed can shorten the printing time.

- Outer wall speed

Outside wall printing speed. Slower printing speeds usually improve quality because they are the visible appearance of the actual print.

- Bottom layer speed

The printing speed of the first layer of the model except for support, raft, skirt, and brims. In general, the lower the printing speed, the better the adhesion to the floor.

- Infill speed

The speed at which the model fills up inside the model. Since the inside of the model is not visible, it is used to increase the speed.

- Retraction speed

Retraction speed of the filament.

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5.8 Retraction

- **Enable retraction**

  Select whether to use the retraction. Retraction improves print quality by sucking in finer filaments as they move. However, depending on the model, it may be necessary to use it properly as it can clog the nozzle or cause small holes in the printout due to bubbles.

- **Enable combing**

This feature allows the extruder to move without travelling the inside of the printout, which does not use retraction and can improve the print quality of certain models.

- **Enable wall**

Retract at the end of the outer wall output.

- **Distance**

If the winding length of the filament for retraction is too much, it can clog the nozzle.

- **Minimal distance**

Minimum distance for retraction without extruder extruding.
When moving below the minimum distance, it does not perform retraction.

- **Minimal extrusion**

When performing the following retraction after a retraction, it must be reach at least the minimum output quantity. Otherwise, the retraction will be ignored.

5.9 Cool

- **Cool head**

If the output of one layer finishes fast, the next layer is printed out when the filament is not solid. This will cause a problem. If this option is used, the extruder will float and move to the x-axis a little.

- **Fan on height**

Starting height at which the shaping fan is operating

- **Fan min speed**

  Minimum printing fan speed

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- Fan max speed

Maximum printing fan speed

Because fan speed is affected by the extruder speed, the fan speed may vary depending on the printing model.

- Minimal layer time

At least guaranteed printing time for one layer. For models that have a short pass of the layer and print out quickly, the printing speed is automatically lowered to ensure minimum layer working time..

Because the minimum layer working time is limited by the extruder minimum moving speed, the actual layer working time may be different.

* In case of failing printing

For complex models, slicing a section can result in abnormal slicing. If this is the case, try rotating the model or editing the model.

If slicing fails on the first layer or on a particular layer, subsequent layers will automatically be deleted since the printing of the subsequent layer will fail if first layer printing fails.

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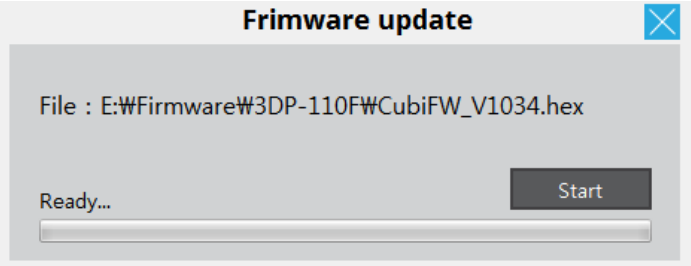
6. Update

6.1 Software update

There are two ways to update the software. The first automatic software update will automatically update when you start the program if you enable the update function in Preferences. [3.4.3. Auto update]
The second method is to update the latest program on the Cubicon homepage (http://www.3dcubicon.com).

6.2 Firmware update

Connect your PC and printer with a USB cable. Download the latest firmware file from the Cubicon homepage, select the firmware update in the setup menu, and then load the firmware file (* .zip, * .hex) file. When the firmware update window appears, press the Start button.



<Firmware update>

Do not turn off the power of the PC or the printer during the firmware update, and do not remove the USB cable connected to the main unit. The printer may not work.

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