Slicing Software CHITU

Operating Instructions

chitubox®

+

Slicing software CHITU operating instructions

Table of contents
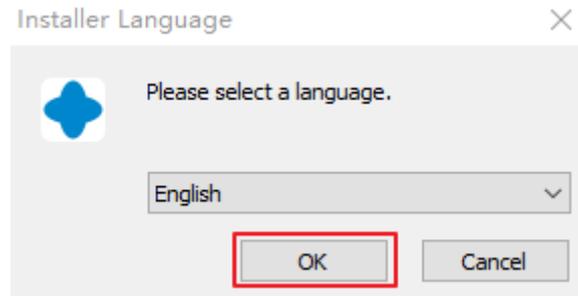
1. Slicing software installation

ChiTu slicing software is stored in the attached USB, users can install this software on the computer.

Note: The version may be different due to software upgrade, but the installation method is the same.

1) Double-click the software Installation file, and install it as shown below. Select a language and click "OK" to enter the installation.

2) Click "Next" and then "I Agree" to start the installation.
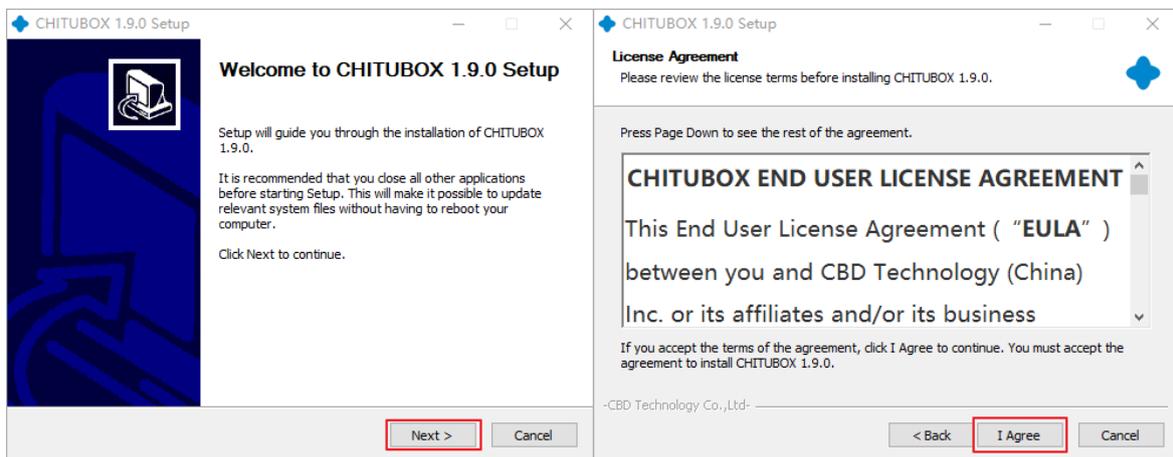
3) Choose where to install the software and click "Install".
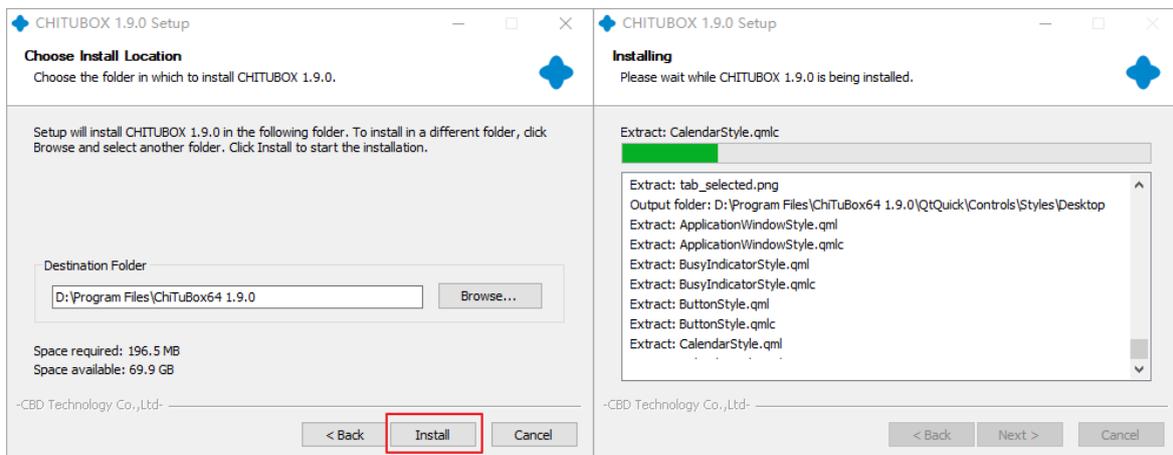
4) During the installation, "Do you want to restart the resource manager to achieve the thumbnail effect?" will pop up, click "Yes", then click "Finish" when the installation is complete.

2. Use of slicing software

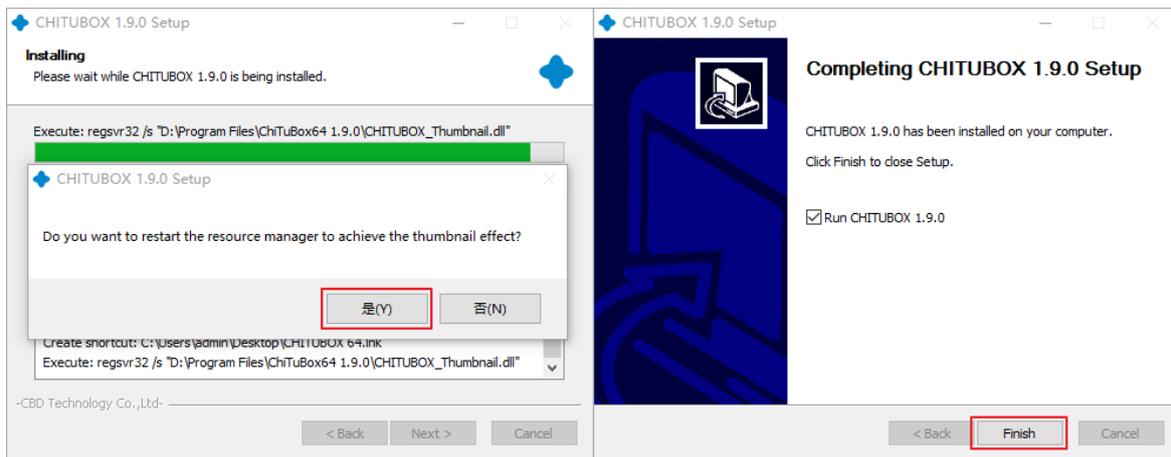## 2.1 Import config file

The config file (*.cfg) of this printer is stored in the attached USB, which can be imported into the slicing software CHITU to simplify the slicing software settings, thereby facilitating slicing and printing.

In slicing software CHITU, click [ ], click to enter [Settings], click <Import profile>, and select the config file (*.cfg) of the printer.

2.2 Basic operations

After the software installation is complete, the slicing software will automatically run (or double-click the software icon on the desktop). Click "Open File" on the upper left of the interface, import the *.stl file, click the model with the right mouse button and hold it, drag to change the view, users can also change the view, angle, size and switch solid/X-ray through the options on the left side of the window.
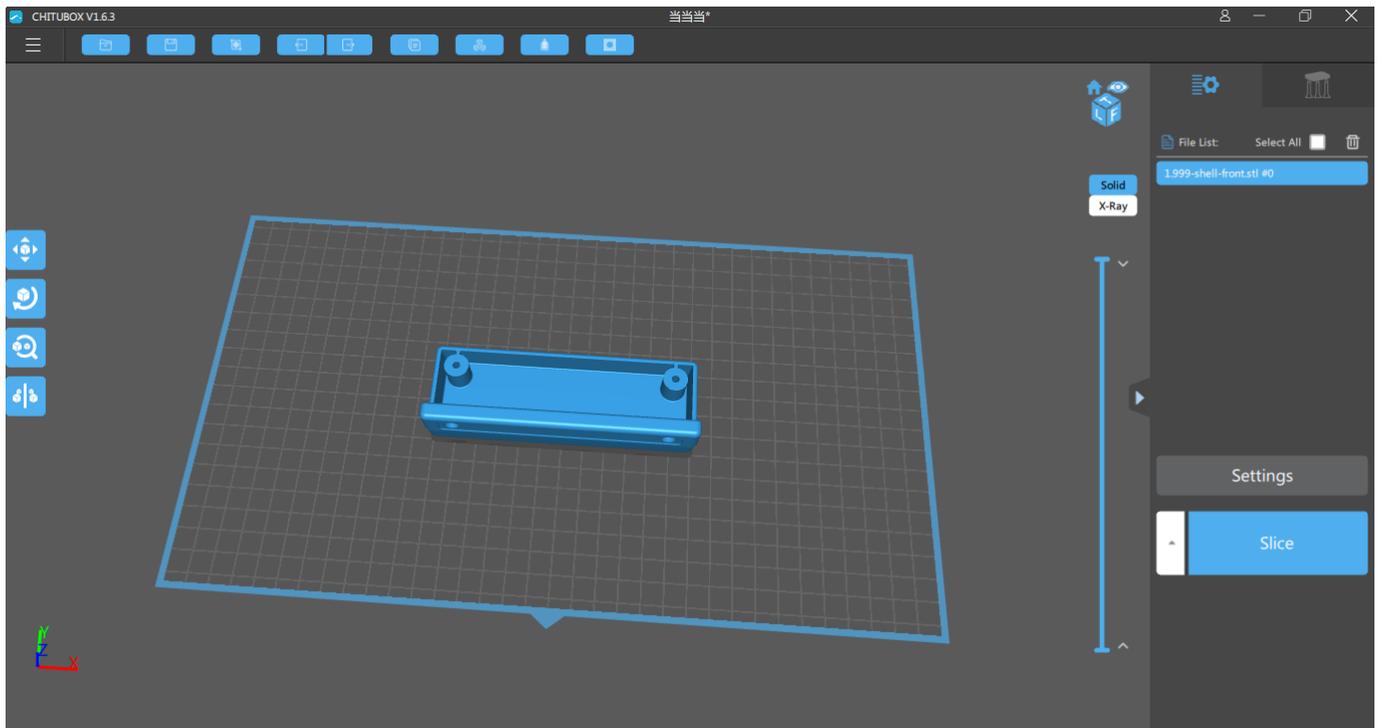
Mouse operations:

1) Left-click the model and hold it, drag the mouse to move the model on the platform.

2) Roll the middle mouse wheel to zoom in and zoom out.

3) Right-click the platform and hold it, drag the mouse to rotate the viewing angle.

3. Settings

There are three settings in the upper right of the software interface: "parameter", "support", "print size", the user needs to set.

3.1 Parameter settings

Layer Height: It is recommended to set to 0.025mm/0.05mm/0.075mm/0.1mm. The thicker the layer, the longer the exposure time.

Exposure time: It is recommended to set the time to 8s, the setting range is 8-10s, according to the thickness of each layer and the complexity of the details.

Bottom exposure time: It is recommended to set to 50s, the longer the exposure time, the stronger the bonding of the bottom layer on the platform.

Bottom layers count: the setting range is 3~6 layers.

Light-off time: the setting range is 1s.

Settings					✕

10.1*8*3*17 ▼

default

Machine	Resin	**Print**	Gcode	Advanced

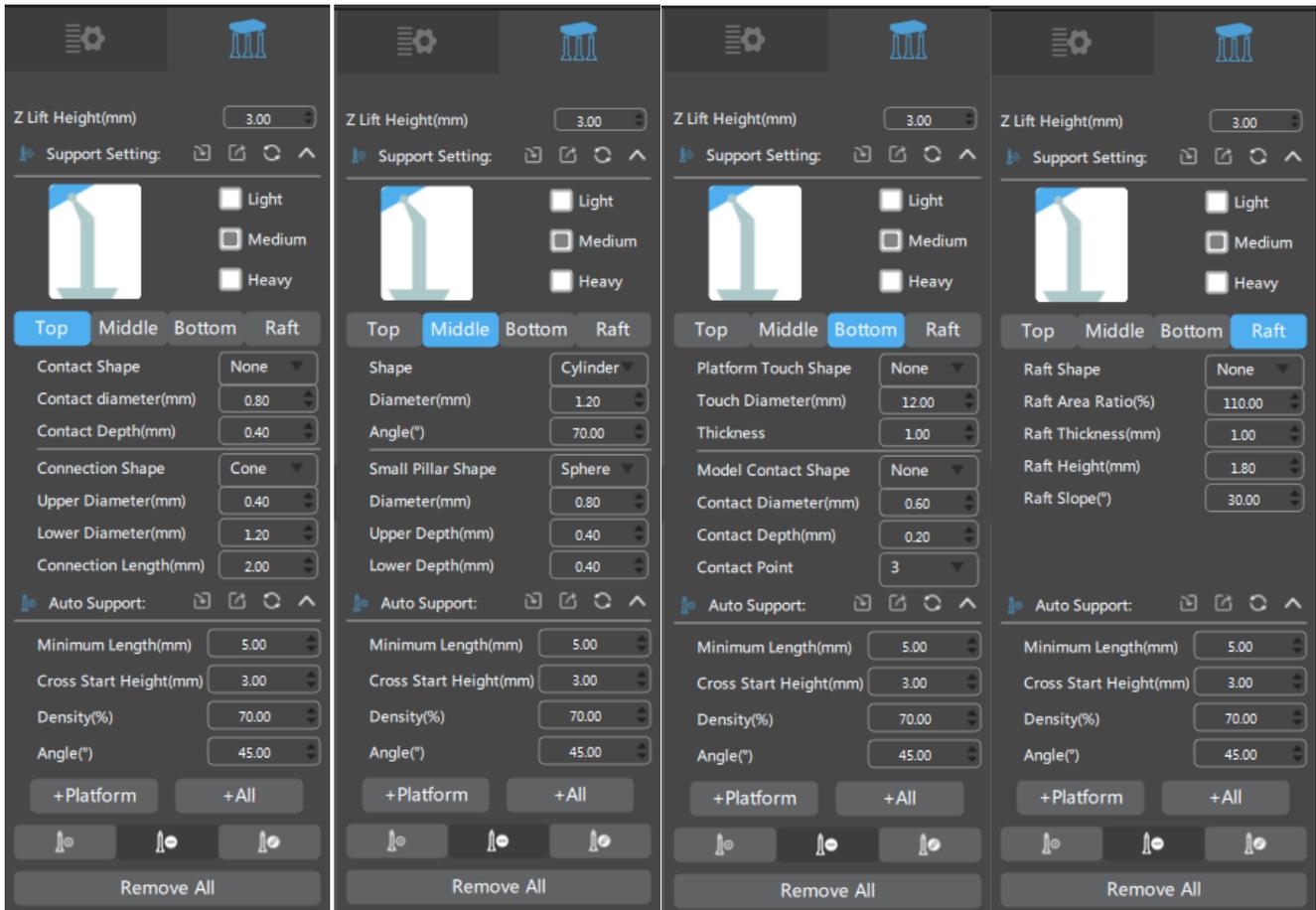| Layer Height:	0.050	mm		Bottom Lift Distance:	7.000	+	0.000	mm
Bottom Layer Count:	4			Lifting Distance:	7.000	+	0.000	mm
Exposure Time:	1.200	s		Bottom Retract Distance:	7.000	+	0.000	mm
Bottom Exposure Time:	25.000	s		Retract Distance:	7.000	+	0.000	mm
Transition Layer Count:	0			Bottom Lift Speed:	50.000	&	0.000	mm/min
Transition Type:	Linear ▼			Lifting Speed:	50.000	&	0.000	mm/min
Waiting Mode During Printing:	Restin... ▼			Bottom Retract Speed:	150.000	&	0.000	mm/min
Rest Time Before Lift:	0.000	s		Retract Speed:	150.000	&	0.000	mm/min
Rest Time After Lift:	0.000	s						
Rest Time After Retract:	0.000	s						

3.2 Support settings

The type of support settings can be divided into light, medium and heavy. Each has corresponding parameter settings.

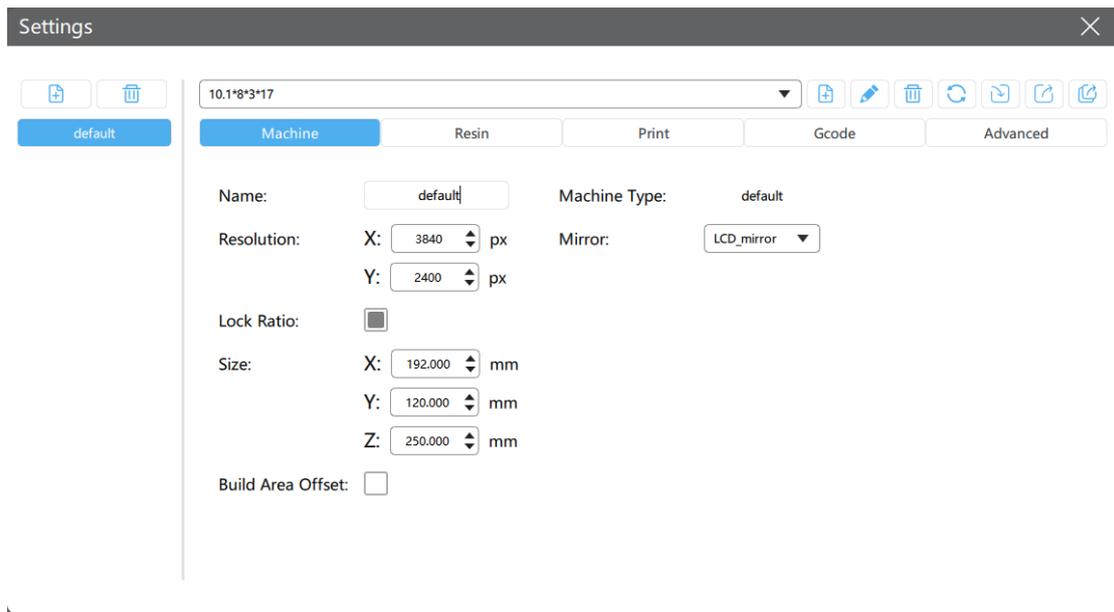Fine: The support and contact area between is thin, and it is easy to be removed.

Medium: The support and contact area between is relatively thicker, and it is relatively easy to be removed. It is recommended to set to "medium".

Heavy: The support and contact area between is thick, and it is not easy to be removed. The heavy mode is good for the large model to keep it stable.

Panel 1 (Top):

Z Lift Height(mm) 3.00

Support Setting:

☐ Light
☐ Medium
☐ Heavy

Top | Middle | Bottom | Raft

Contact Shape	None
Contact diameter(mm)	0.80
Contact Depth(mm)	0.40
Connection Shape	Cone
Upper Diameter(mm)	0.40
Lower Diameter(mm)	1.20
Connection Length(mm)	2.00

Auto Support:

Minimum Length(mm)	5.00
Cross Start Height(mm)	3.00
Density(%)	70.00
Angle(°)	45.00

+Platform   +All

Remove All

Panel 2 (Middle):

Z Lift Height(mm) 3.00

Support Setting:

☐ Light
☐ Medium
☐ Heavy

Top | **Middle** | Bottom | Raft

Shape	Cylinder
Diameter(mm)	1.20
Angle(°)	70.00
Small Pillar Shape	Sphere
Diameter(mm)	0.80
Upper Depth(mm)	0.40
Lower Depth(mm)	0.40

Auto Support:

Minimum Length(mm)	5.00
Cross Start Height(mm)	3.00
Density(%)	70.00
Angle(°)	45.00

+Platform   +All

Remove All

Panel 3 (Bottom):

Z Lift Height(mm) 3.00

Support Setting:

☐ Light
☐ Medium
☐ Heavy

Top | Middle | **Bottom** | Raft

Platform Touch Shape	None
Touch Diameter(mm)	12.00
Thickness	1.00
Model Contact Shape	None
Contact Diameter(mm)	0.60
Contact Depth(mm)	0.20
Contact Point	3

Auto Support:

Minimum Length(mm)	5.00
Cross Start Height(mm)	3.00
Density(%)	70.00
Angle(°)	45.00

+Platform   +All

Remove All

Panel 4 (Raft):

Z Lift Height(mm) 3.00

Support Setting:

☐ Light
☐ Medium
☐ Heavy

Top | Middle | Bottom | **Raft**

Raft Shape	None
Raft Area Ratio(%)	110.00
Raft Thickness(mm)	1.00
Raft Height(mm)	1.80
Raft Slope(°)	30.00

Auto Support:

Minimum Length(mm)	5.00
Cross Start Height(mm)	3.00
Density(%)	70.00
Angle(°)	45.00

+Platform   +All

Remove All

3.3 Print size settings

Users can modify the corresponding direction (X, Y or Z direction) as shown in the figure below.

Settings

10.1*8*3*17

default

Machine | Resin | Print | Gcode | Advanced

Name: default   Machine Type: default

Resolution: X: 3840 px   Mirror: LCD_mirror
Y: 2400 px

Lock Ratio: ☑

Size: X: 192.000 mm
Y: 120.000 mm
Z: 250.000 mm

Build Area Offset: ☐

3.4 Save the sliced file

● After all parameters are set, click the "Slice" button in the lower right corner to start slicing.

- After the slicing is completed, the volume, weight, estimated price of the resin and estimated time for printing will be displayed in the upper right corner of the interface.

- Preview through the window on the left to check whether the support and slicing are feasible. If it is not feasible, you can click "Back" to return to the previous step to reset and re-slice; if feasible, you can click "Save" to save the sliced model to the computer or directly to the USB.

- In the middle window, you can adjust the position of the layer height up and down to preview the exposure of each layer.
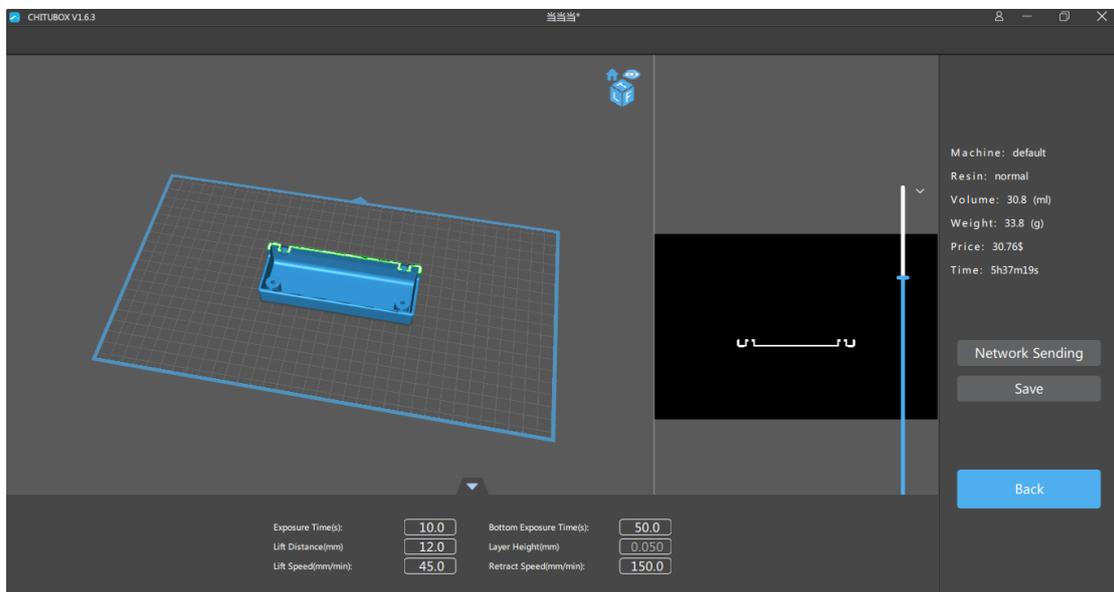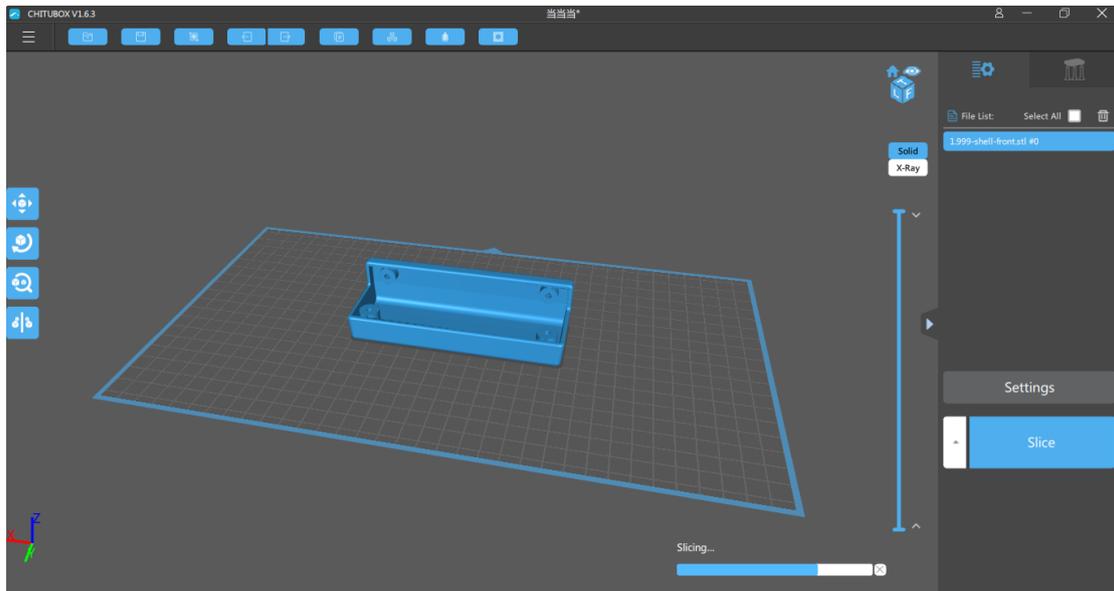
For more details, please check the annex.

4. Print

4.1 First printing

Note! To avoid the failure of the first printing, please check the following items before printing:

(1) Whether the Z axis works normally;

(2) Whether the platform fits the LCD screen;

(3) Whether the UV LED is displayed normally.

4.2 Print the model

- Save the sliced file to USB and insert it into the USB slot on the side of the machine.

- Pour the resin into the Vat slowly (note that the resin cannot directly contact the skin), and cover the cover.

- As shown in the figure below, enter the <Print>, select the file, and click the start ▶ to print. During the printing process, keep the top cover closed, avoid direct sunlight, and ensure that the desktop is flat and not shaking.
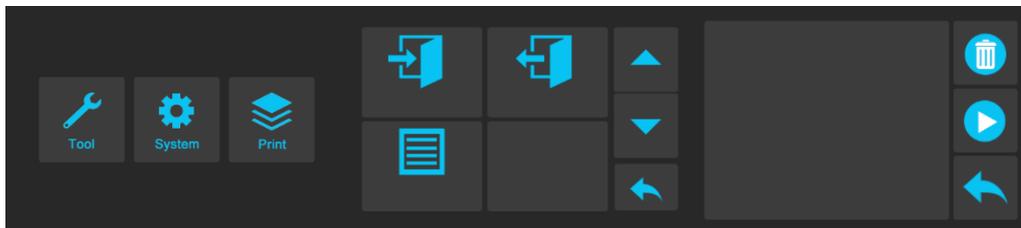
- If you find that the resin is not enough to print the model during the printing process, you can click ⏸. After the Z axis rises, slowly add the resin to the Vat. Click ▶ and continue printing after the Z-axis drops, as shown in the figure.
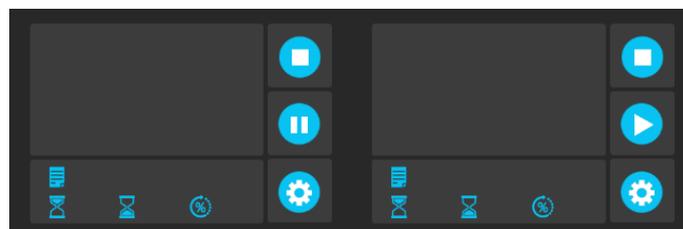
5. Post-process

After the printing is completed, the resin remaining on the platform no longer drips, loosen the platform fixing knob and remove the platform. Then, the user can use a scraper to shovel the model from the

platform, and then use more than 75% alcohol to clean the residual resin on the model. If necessary, use a syringe to clean the details and holes, or use an ultrasonic cleaner to clean it.

In the case of incomplete curing or failed printing, solid residues may remain in the resin in the trough. It is recommended that after each printing, the resin in the resin Vat is filtered out of the residue with a funnel and stored into the resin bottle. If this operation is not performed, the LCD screen may be damaged and damaged when the platform is lowered for the next leveling or printing.

The resin remaining on the platform and Vat can be wiped clean with paper towels.

Annex: ChiTuBox V1.9.0 Software operation
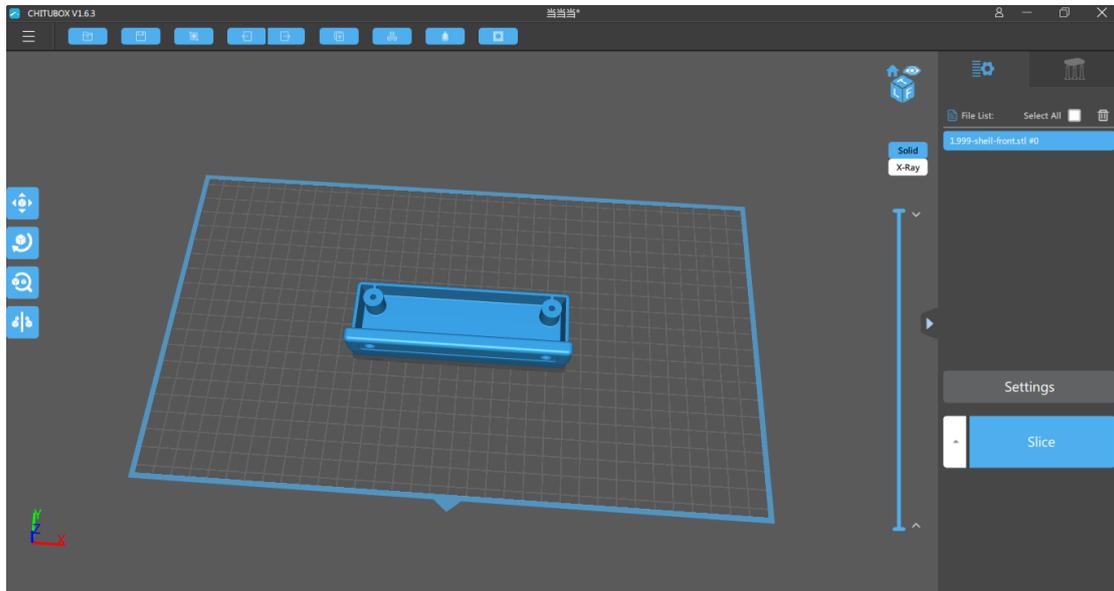
1. Drop-down list

1) New project: start a new project.
2) Open project: open an existing project.
3) Save project: save the operated model to the specified directory path
4) Open: open the model (the system default value will be directly saved last time The model has a directory path)
5) Save as: Save to computer
6) Open Recent: Records of recently opened model files
7) Account: login and authorization, Login; Authorization: Users who use ChiTuBox can choose whether to authorize ChiTuBox terminal's statistical records of the user's computer location and model
8) Language: Users can choose the language according to their needs
9) Help: Check for updates: users can check or uncheck to automatically check the latest version when starting ChiTuBox
10) Setting: Settings of the software.
11) Example: A cube model and a cylinder model are given in the system.
12) Quit: Click to close and exit ChiTuBox.

2. Menu bar

Button	Function	Description
	Open File	Open project files, import 3D models or slice files.
	Save Project	Save the current job objects as a project file.

	Screenshots And Records	Screen capture or video recording.
	Undo & Redo	Undo the last operation Redo the last operation
	Copy	Clone the currently selected models
	Auto Layout	Quickly layout the models in the project according to the set arrangement rule.
	Hollow	The selected models will be hollowed out according to the hollowing parameters.
	Dig Hole	The selected models are excavated according to the set hole parameters.
	Repair	The selected modes are repaired according to the selected repair method.

3. Editing

Button	Function	Description
	Move	Move the selected models to the set position. Put on the plate Centered Reset
	Rotate	Rotate the selected models according to the rotation direction and angle.
	Scale	Scales the selected models according to the set size or scale.
	Mirror	Mirror the selected models

4. Mouse operation

1) Left-click: left click on the model to select the model for operation, left click on the platform or blank space to deselect.

2) Left-click

(1) Left-click on the model and hold to move the model on the platform;

(2) Left-click on the platform or blank space and hold to drag the platform horizontally;

3) Right-click and hold: right-click and hold to rotate the model and platform;

4) Mouse scroll wheel: zoom in and out;

5. Scene

1) Drag the scene: left click and hold;

2) Rotate the scene: right click and hold;

3) Zooming the scene: scroll the mouse wheel;

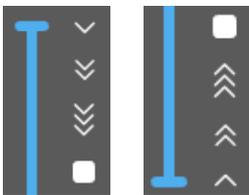4) Front view: Click to make the scene and model right front view facing the user;

5) Frontal perspective/perspective perspective: the current model can be switched between frontal perspective and perspective perspective;

6) Top angle/left angle/front angle: T-top angle; L-left angle; F-front angle;

7) Solid/X-ray: Click to switch the model between solid and X-ray;

8) Model bar: Use the entire model as a scale to view the corresponding cross-section of the model in real time; there are slices of one-, two-, and three-speed progress cuts and pauses on the upper, lower, and right sides.

9) Expand/Hide: Click to expand and hide the sidebar.

6. General settings

1) File list: all the models on the platform will be arranged in the file list, and you can edit or delete them in the full-select/single-select mode.
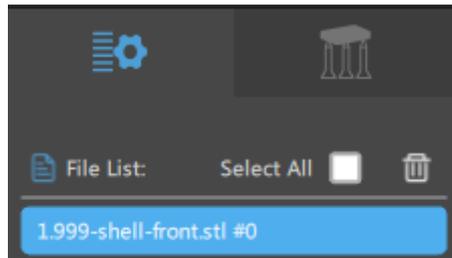
2) Settings:
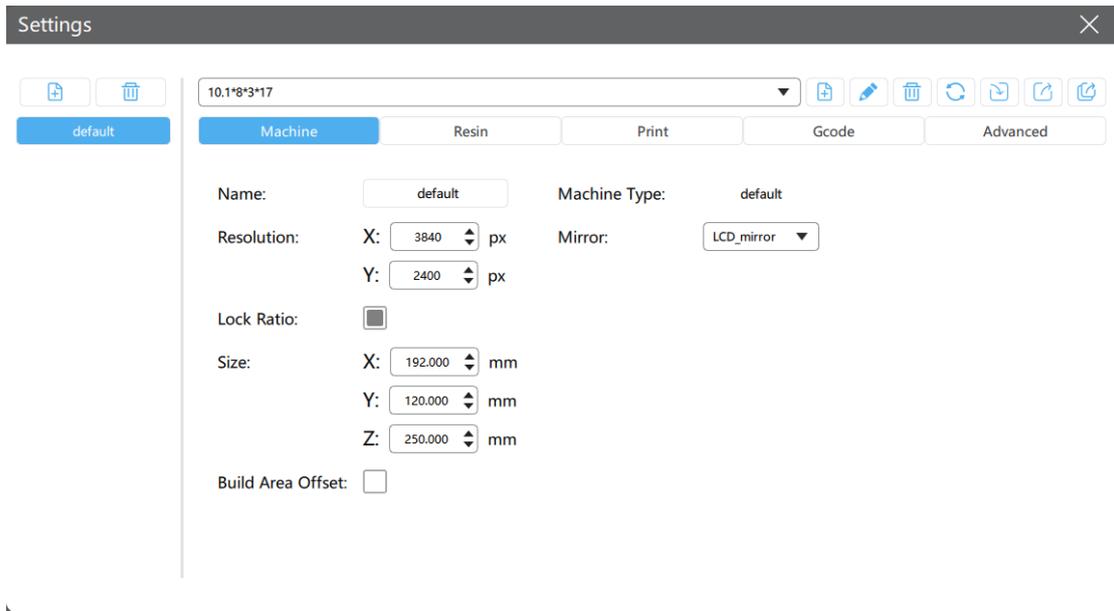
The users can add machine type, and then set the relevant parameters;

<Import>: Import the saved config file (*.cfg) to facilitate slicing and printing.

<Export>: Export the current config file (*.cfg) to import into the slicing software on other computers.

■ Machine
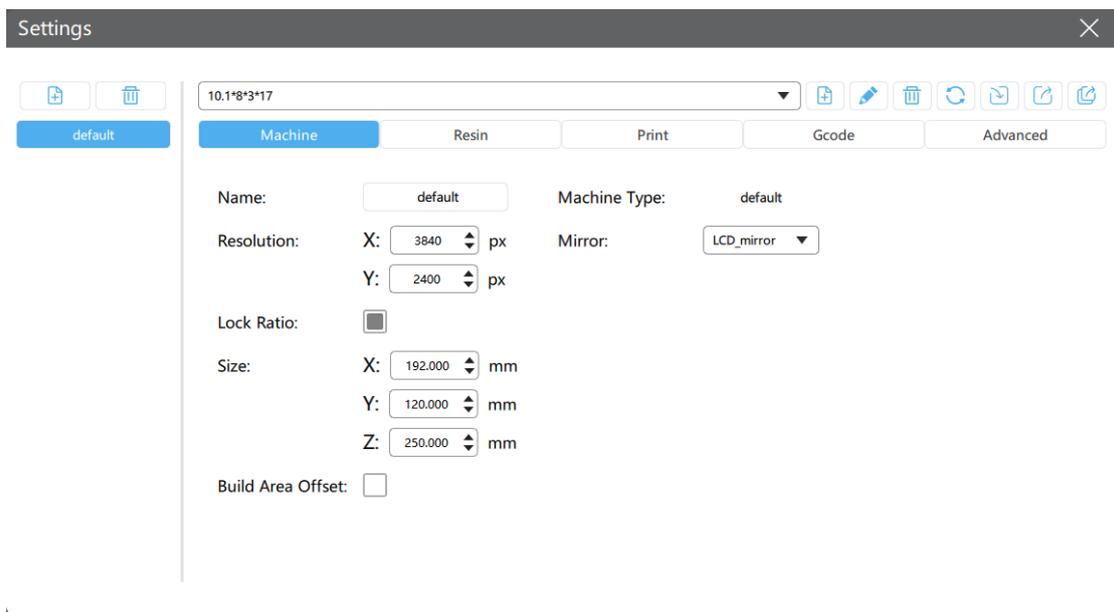
➢ <Name>: user can customize the machine name;

➢ <Resolution>: the resolution of the projector or LCD screen, this parameter directly affects the dimensional accuracy of printing, for KG406, it is 2560 x 1620 px; for KG408, it is 3840 x 2400 px; for KG410, it is 4920 x 2880 px;

➢ <lock ratio>: in normal cases, the ratio of the forming size XY = resolution ratio, that is the locking ratio; In some cases, such as DLP projectors, due to accuracy or machine design, the XY dimensions are slightly different, or they can be filled in with the actual projection dimensions without maintaining the ratio;

➢ <Size>: the build volume of the machine.

■ Resin

➢ <Resin type>: enter the resin type to distinguish;

➢ <Resin density>: density of resin, which is used to calculate the weight;

➢ <Resin price>: the cost of resin, which is used to calculate the cost;

■ Print


➢ <layer height>: the thickness of each layer of the model, it is recommended to set to 0.025mm/0.05mm/0.075mm/0.1mm. The thicker the layer, the longer the exposure time;

➢ < Bottom layer count>: The start printing layers. when the number of bottom layers is n, the exposure time of the first n layers is the exposure time of the bottom layers;

➢ <Exposure time>: exposure time of normal layer, the setting range is 8-10s, according to the thickness of each layer and the complexity of the details;

➢ <Bottom exposure time>: set the exposure time of the bottom layers. increasing the exposure

time of the bottom layers is helpful to increase the bond strength between the printing model and the printing platform;

➢ Waiting mode during printing <Light-off delay>: Light-off delay is the total time of platform lifts up, wait, and retract during resin 3D printing of one layer;

➢ Waiting mode during printing <Bottom light-off delay>: The light-off delay time of the bottom layers is calculated in the same way as above;

➢ <Bottom lift distance>: In the bottom layers printing process, the distance of the printing platform moves away from the printing surface each time;

➢ <Lifting distance>: In the normal layers printing process, the distance of the printing platform moves away from the printing surface each time;

➢ <Bottom Retract Distance>: In the bottom layers printing process, the distance of retract, leave it alone unless you have sufficient reason;

➢ <Retract Distance>: In the normal layers printing process, the distance of retract, leave it alone unless you have sufficient reason;

➢ <Bottom Lift Speed>: In the bottom layers printing process, the speed of the printing platform moves away from the printing surface each time;

➢ <Lifting Speed>: In the normal layers printing process, the speed of the printing platform moves away from the printing surface each time;

➢ <Bottom Retract Speed>: In the bottom layers printing process, the speed of the printing platform moves to the printing surface each time;

➢ <Retract Speed>: In the normal layers printing process, the speed of the printing platform moves to the printing surface each time;

■ Advanced
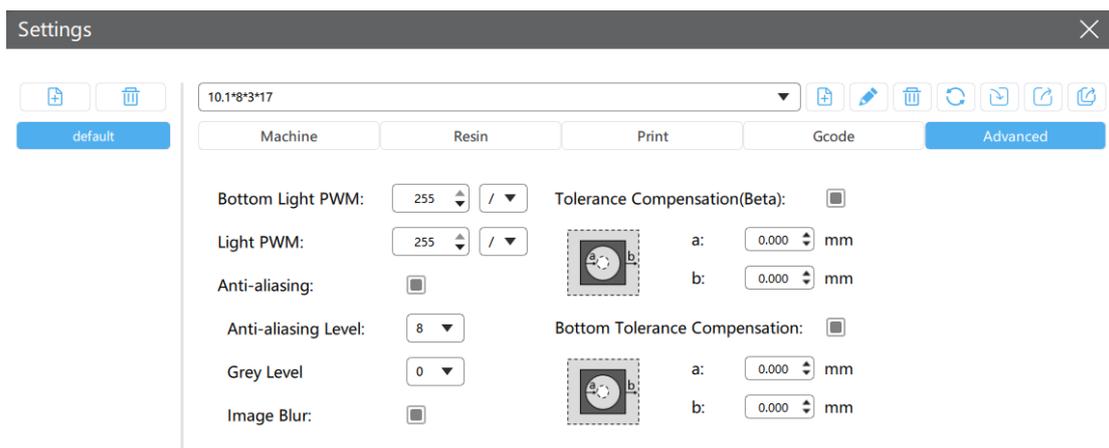
➢ <Bottom light PWM>: Light PWM for bottom layers, from 0 to 255;

➢ <Light PWM>: Light PWM for normal layers, from 0 to 255;

➢ <Anti-aliasing>: The triangular sawtooth of image edge is softened to achieve smoother surface effect. the continuity of edge exposure and the intensity of light transmission can be adjusted by adding or deleting pixel units with certain gray levels between adjacent triangular serrations, so as to achieve a smoother edge area. As shown below: anti-aliasing is not

enabled ☐ , anti-aliasing is enabled ◉
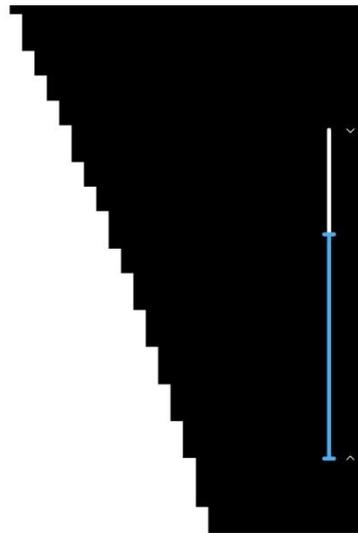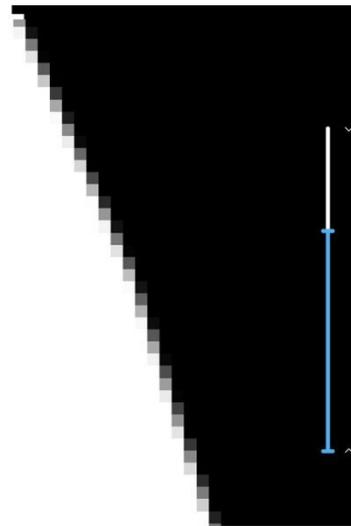
| None | X 4 |

➤ < Tolerance Compensation >: Inner and outer diameter compensation of normal printing layers;

◇ When a is larger, the inner diameter is shorter, and the model body is larger

◇ When a is smaller, the inner diameter is longer, and the model body is smaller

◇ When b is larger, the outer diameter is longer, and the model body is larger

◇ When b is smaller, the outer diameter is shorter, and the model body is smaller

➤ < Bottom Tolerance Compensation >: Inner and outer diameter compensation of bottom printing layers;

◇ When a is larger, the inner diameter is shorter, and the model body is larger

◇ When a is smaller, the inner diameter is longer, and the model body is smaller

◇ When b is larger, the outer diameter is longer, and the model body is larger

◇ When b is smaller, the outer diameter is shorter, and the model body is smaller

7. Support settings

1) Z axis lift height (default is 5mm), can be customized;

2) Support settings （ ⟳ Refresh data， ⌃ fold ⌄ Unfold）

■ Choose the size of the support, there are three options: light, medium and heavy;

- Top: Set the top of the support, there are default values, and the user can modify them according to personal preference;

- Middle: Set the middle of the support, there are default values, and the user can modify them according to personal preference;

- Bottom: Set the bottom of the support, there are default values, and the user can modify them according to personal preference;

- Raft: Set the raft of the support, there are default values, and the user can modify them according to personal preference;

3) Automatic support（ ⟳ Refresh data， ∧ fold ∨ Unfold）：Set the supported data automatically, there are default values, and the user can modify them according to personal preference.

- "+Platform": Support can be automatically added from the platform;

- "+All": Support can be automatically added from the platform and the model itself;
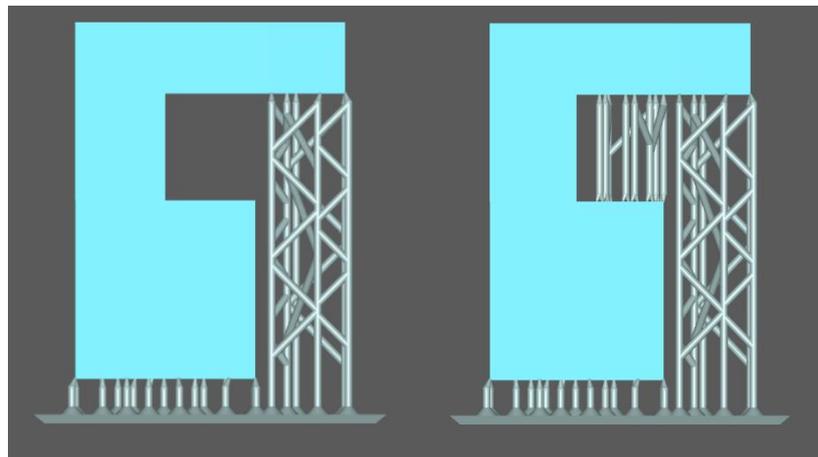

Platform support   All supports

4) Add support: manually add support at any position on the model;

5) Delete support: manually delete the existing support at any position on the model;

6) Edit support: manually edit existing supports at any position on the model;

7) Remove all: remove all existing supports;

8. Slicing

1) Slice: After setting all parameters, click "Slice" to slice the model, or you can interrupt it.
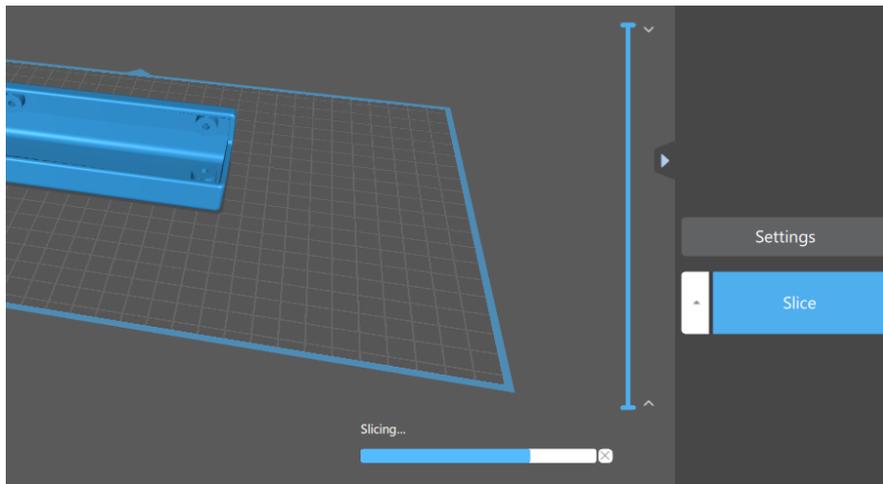
2) After the slicing is completed, the volume, weight, estimated price of the resin and estimated time for printing will be displayed in the upper right corner of the interface. Preview through the window on the left to check whether the support and slicing are feasible. If it is not feasible, you can click "Back" to return to the previous step to reset and re-slice; if feasible, you can click "Save" to save the sliced model to the computer or directly to the USB. In the middle window, you can adjust the position of the layer height up and down to preview the exposure of each layer.
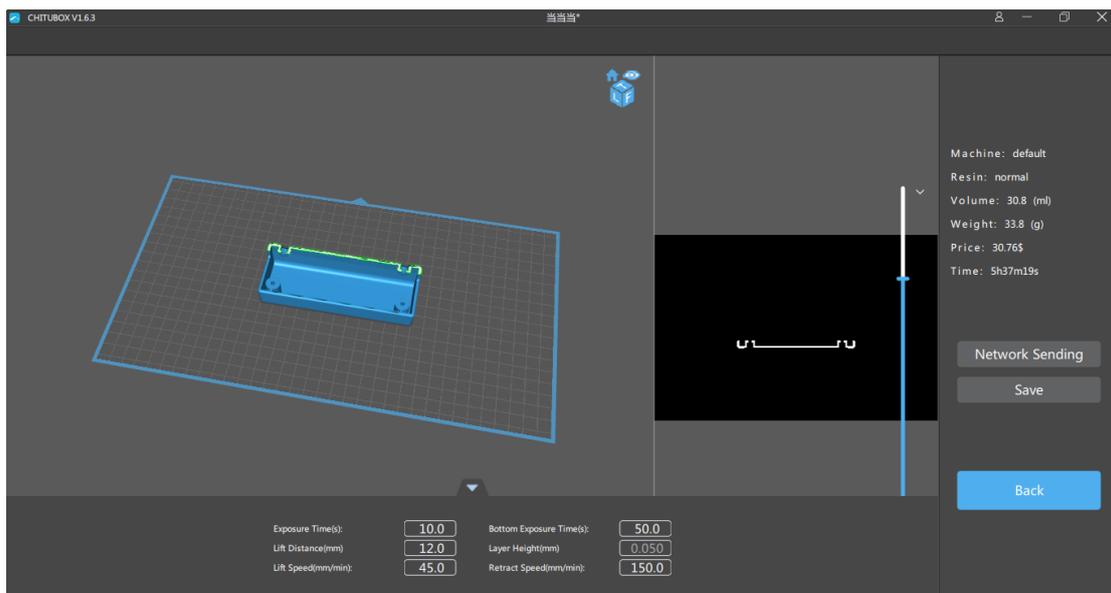
3) Save: save the sliced model to the computer or directly to the USB for printing.