Cetus

User Manual V 0.1

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Precautions

1 Cetus 3D printer only works with the power adapter provided by the original manufacturer, otherwise the machine could become damaged or even cause a fire hazard. Keep the power adapter away from water and high temperature environments.

2 During printing, the temperature of the nozzle of Cetus could reach 260°C and the print platform could reach 100°C. Do not touch these parts with your bare hands while they are hot—not even with the heat resistant gloves included with the machine—as the temperature could damage the gloves and injure your hands.

Warning label on printer:
High Temperature,
do not touch!

3 During printing, the nozzle and the print platform could be moving at high speeds. Do not touch these parts while they are moving.

Warning label on printer:
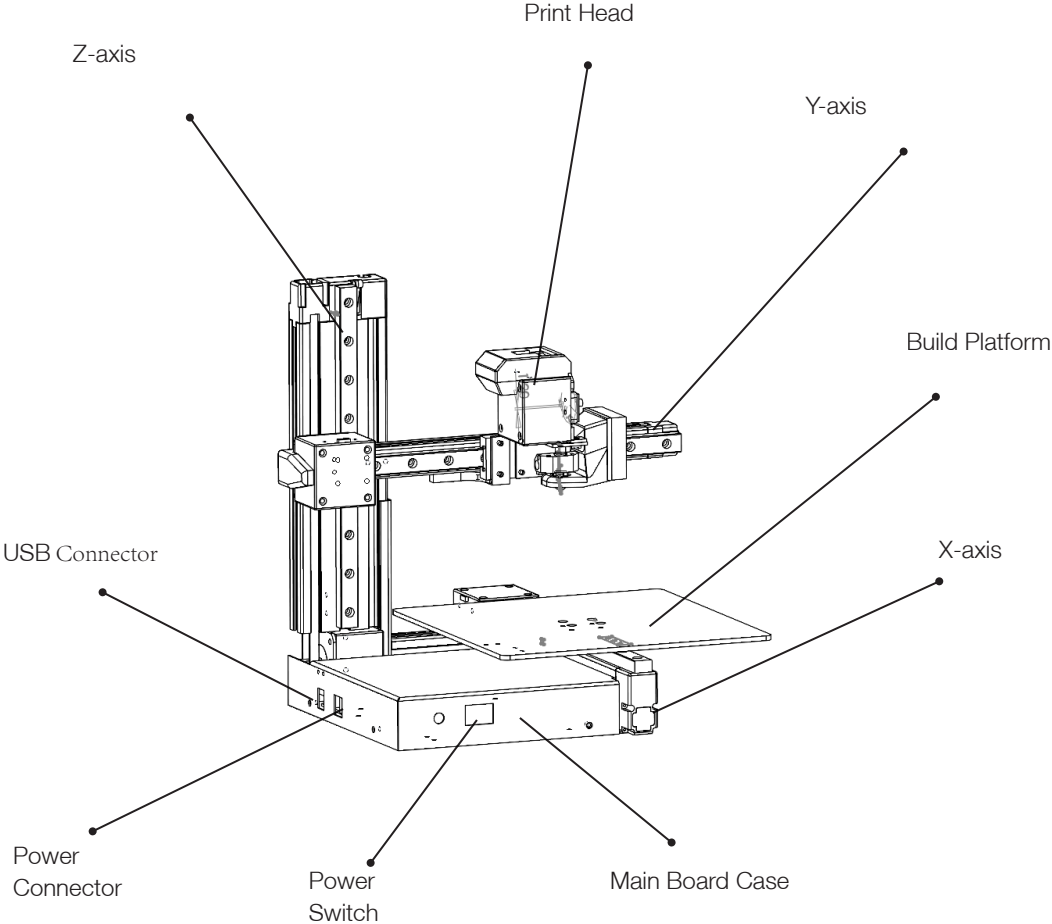Moving Parts, do not touch!

4 Wear goggles when removing the supporting material from models, or detaching models from the print board.

5 When printing with ABS or PLA, the plastics will generate a slight odor. Run the printer in a well-ventilated environment. We also suggest you put the printer in an environment with a stable temperature as unwanted cooling could cause adverse effects to the print quality.
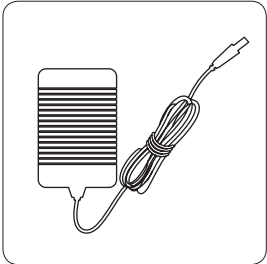
6 When the UP software is sending data to the printer—indicated on the status bar on the left bottom corner of the software interface with the text "sending layers"—do not unplug the USB cable as this will disrupt the data transfer and result in a printing failure. The USB cable can be unplugged after the data transfer is finished.

7 The Cetus's ideal working temperature is between 15°C and 30°C with relative humidity between 20–50%. Users are recommneded to discharge any static charge from the body before touching the machine to prevent interruption of printing and any potential damage to the printer.
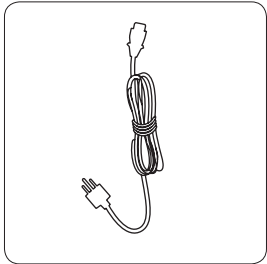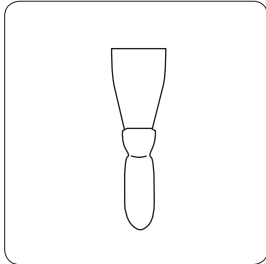
Cetus

Printer Body

Print Head

Z-axis

Y-axis

Build Platform

USB Connector

X-axis
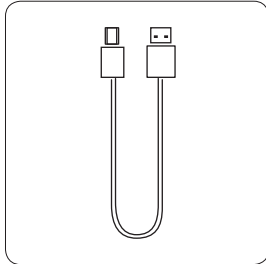
Power
Connector

Power
Switch

Main Board Case

Cetus

Accessories

Power Adapter
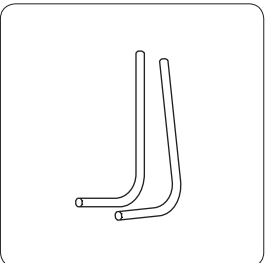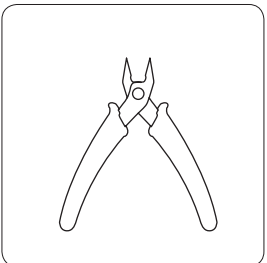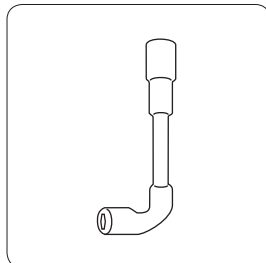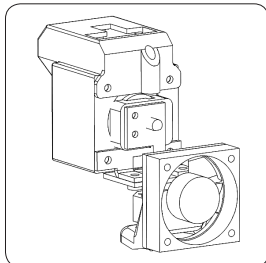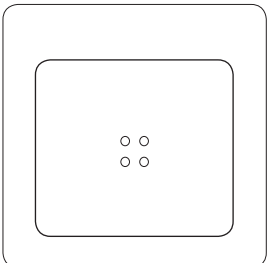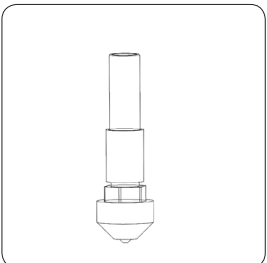
Power Cable

Scraper

USB Cable

Hex Keys
2.0mm, 2.5mm

Plier

Nozzle Wrench

Print Head

Build Plate

Nozzles
0.2mm
0.4mm

Cetus

Installing the Print Head
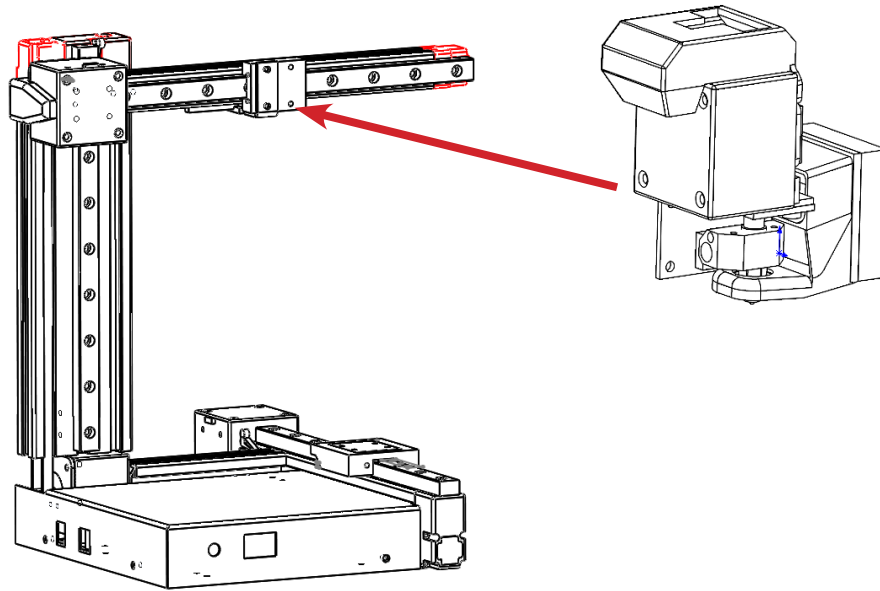
①
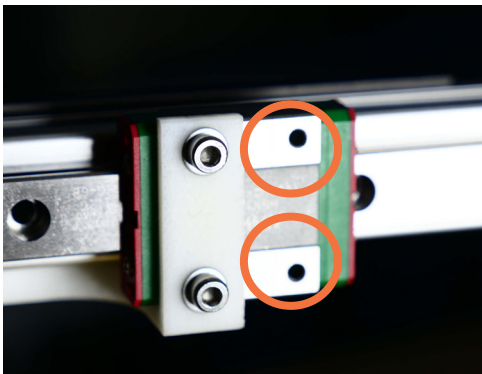
②
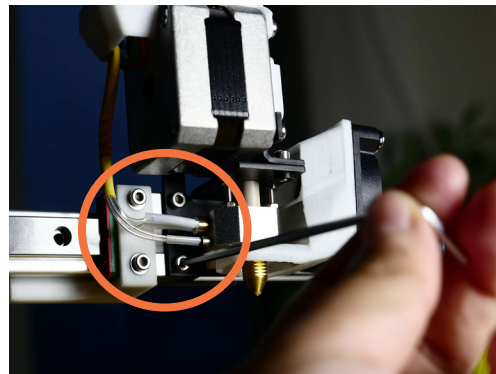
③
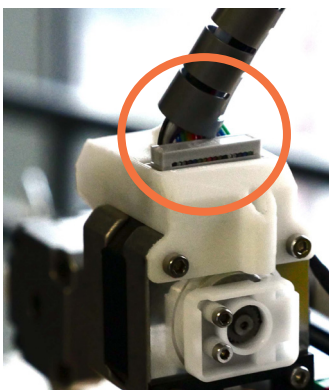
Plug in print head cable

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Installing the Build Platform
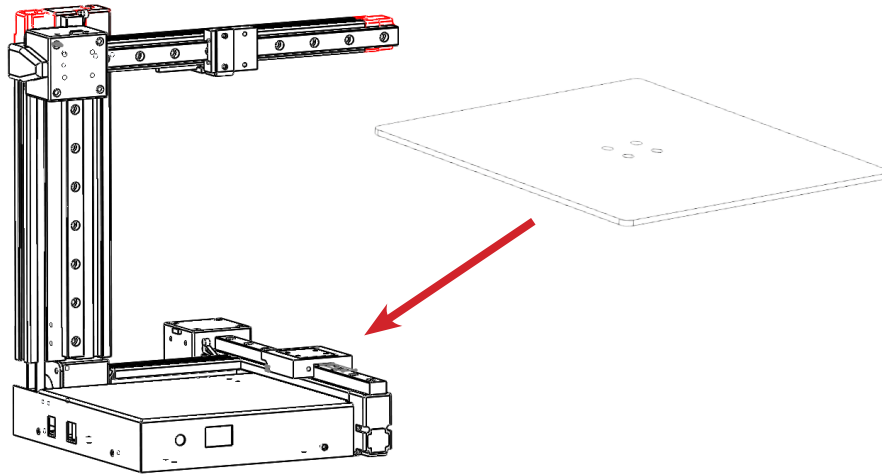
① ②
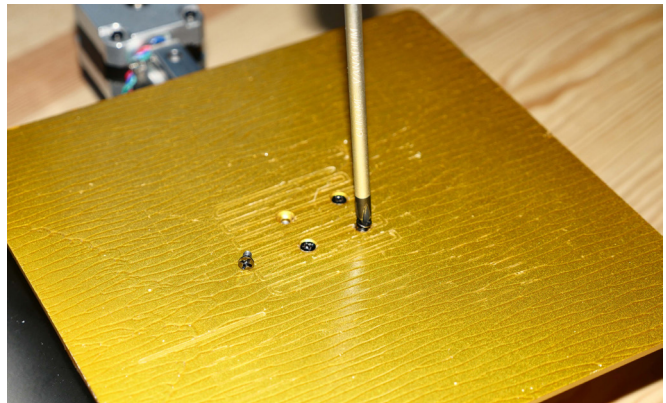
The machine is pre-leveled in factory.
There is no way and no need to level the build platform.

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Install the Software

Cetus temporarily use the UP Studio as its printing software.
Please go to **www.up3d.com** to download the latest version. Mac users could go to Mac
App Store to download the latest version.

Cetus

Software Interface

Account

UP (Print)

Library

Help

Printer name

Connection type

Nozzle & Platform Temperature

Current Material

Printer Status

Account Settings Share Skin

Back to home

Add a Model/ Picture

Print

Initialize

Calibration

Maintenance

Model Adjustment wheel

Build Space

Move

Rotate

Scale

Auto Place

To 2nd Level Menu

Undo

Perspectives

Mirror

Save

Fix Model

Delete

Undo

Restore to default

To 1st level Menu

Cetus

Starting Up the Printer

Connect to power and computer as shown in the photo on the right.

Turn on the machine using the power switch.

Initialize the machine by clicking the "Initialize" button in the software menu
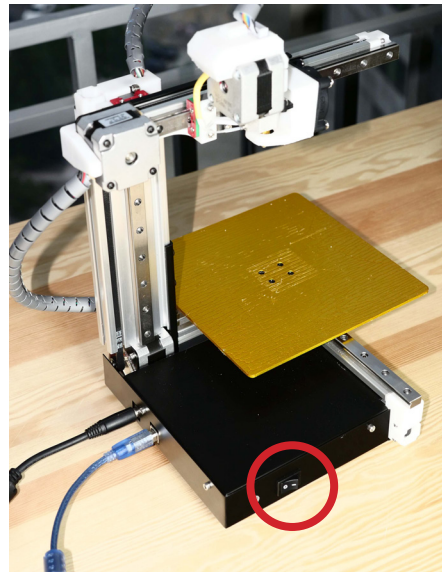
Initialization is required every time the machine is switched on. During initialization, the print head and the print platform move slowly and hit the endstops of the XYZ axes. This is essential as the printer needs to find the endpoints to each axis. Other software options will light up and become available for use only after initialization.

Initialize

Cetus
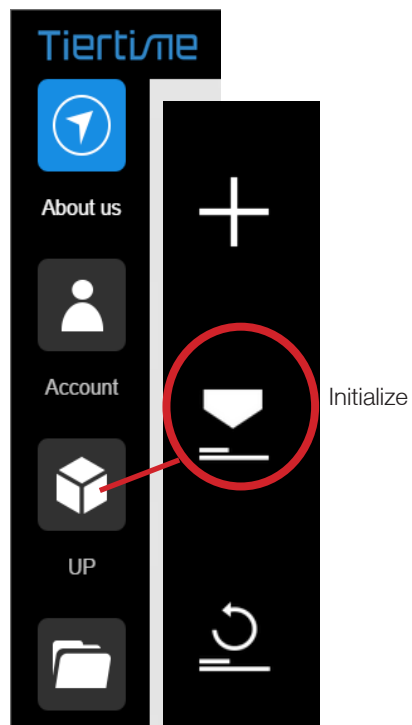
Setting the Nozzle Height

1. Go to Calibration.

2. Press button 5 to move print head to the middle of the build platform.

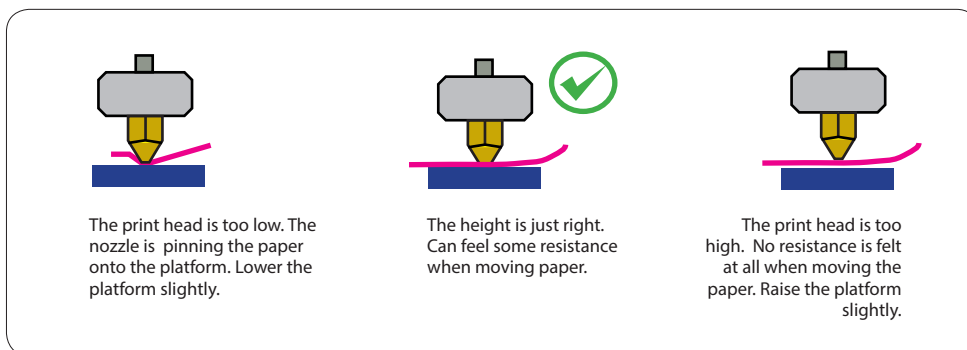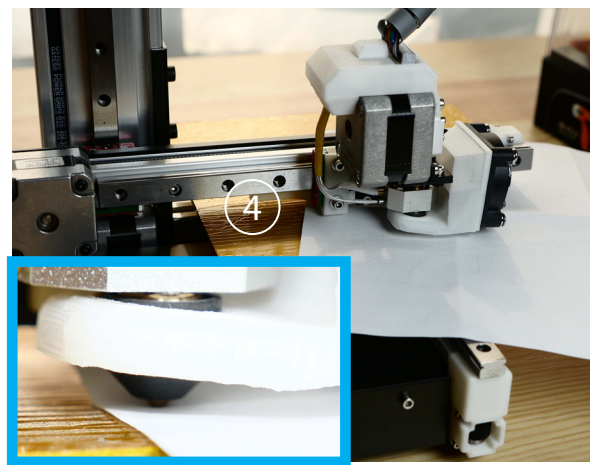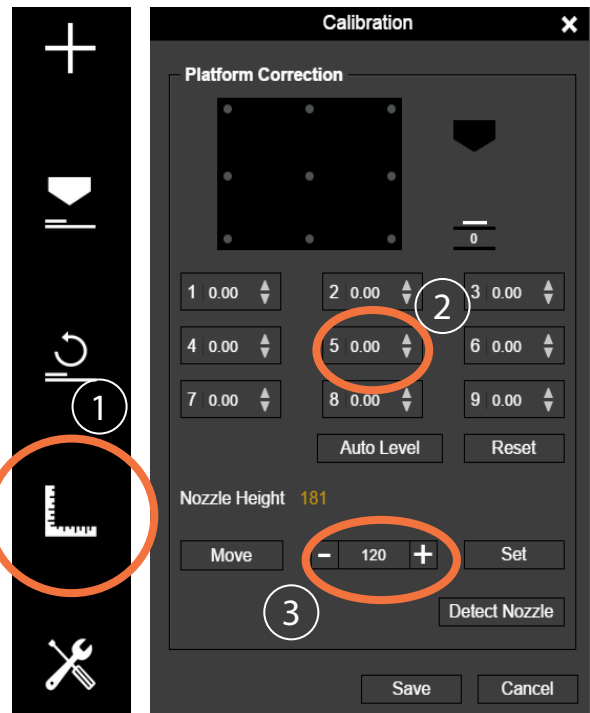3. Use the + button to lower the print head to close proximity of platform.

4. Put a piece of paper in between the nozzle and the platform.

5. Use the + and - buttons to adjust the print head to just touching the paper.

6. Move the paper back and forth to feel the drag between the nozzle and the platform. There should be a slight resistance but the paper could be moved freely. Refer to the figure at the bottom of this page.

7. When the correct distance is obtained, note the value of current print head position, deduct 0.5mm from the value, and click the "Set" button to set it as the Nozzle Height.

For example: If the print head position determined by the paper is 179. Then set the nozzle height to 178.5

The print head is too low. The nozzle is pinning the paper onto the platform. Lower the platform slightly.

The height is just right. Can feel some resistance when moving paper.

The print head is too high. No resistance is felt at all when moving the paper. Raise the platform slightly.
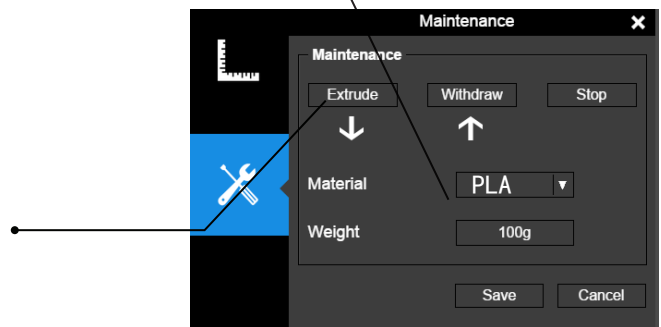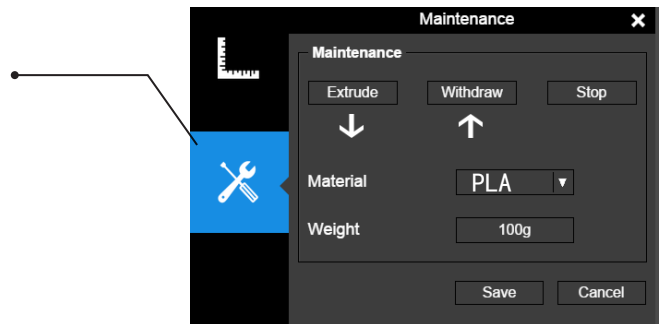
Cetus

Preparing for Printing

1. Make sure the printer switched on and connected to a computer. Click the "Maintenance" button in the software.

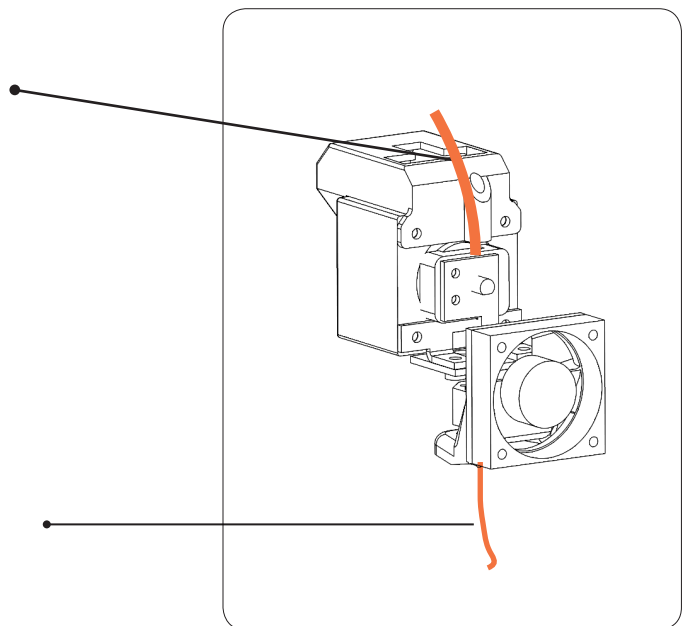2. Choose PLA or the material you choose from the dropdown material list, and input the filament weight.

3. Click "Extrude". The print head will start to heat up. About five minutes, the temperature of the print head will reach the melting temperature, e.g. for PLA, it is 210°C. The printer will buzz and the print head will start to extrude.

Although ABS and ABS+ are both available in the material list, Cetus currently does not support these materials.

4. Gently insert the filament into the small hole on the print head. The filament will be fed into the print head automatically when it reaches the extruder gear inside the print head.
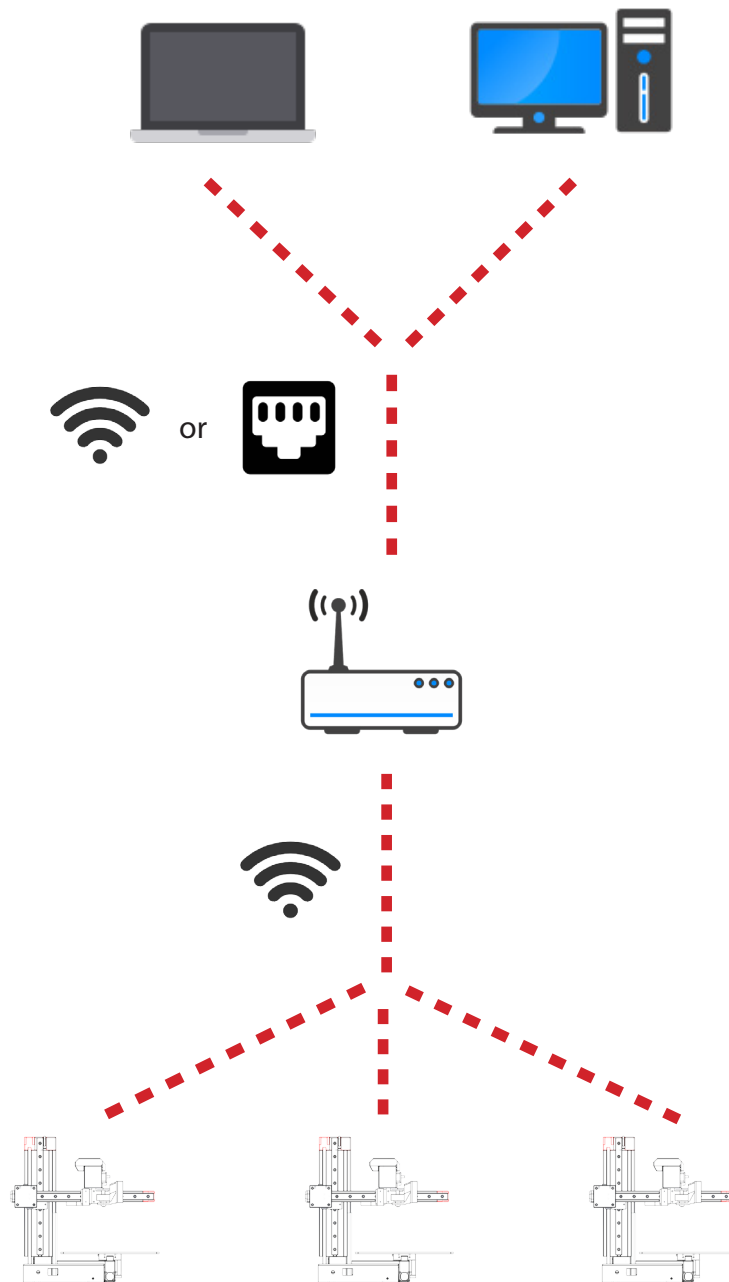
5. Check the nozzle for plastic extrusion. If plastic is coming out from the nozzle, it means the filament is loaded correctly and the printer is ready for printing. (The extrusion will stop automatically after a while.)
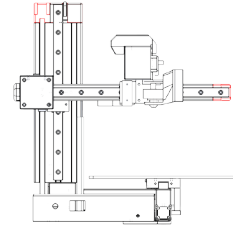
Cetus

Setting Up Wi-Fi

Connecting to Cetus through Wi-Fi requires a Wireless Local Area Network (WLAN). The computer and the printers must connect to the same WLAN (same SSID) before they can communicate.
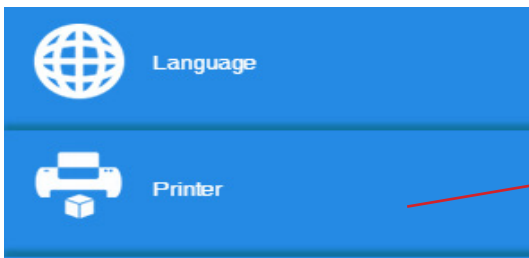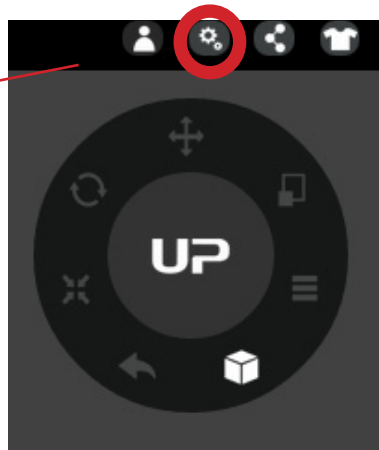
In order to achieve stable Wi-Fi connection, It is highly recommended to use the printer under a capacious Wi-Fi environment. A crowded network or an area with many Wi-Fi networks are known to cause interruption during data transfer.

Cetus

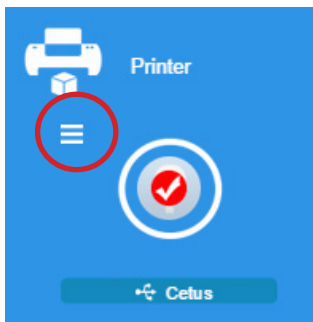# Wi-Fi Setup

1 Connect Cetus to a computer through USB.

2 At the top right corner click the printer tab
Click the "Printer Detail" button.

Language

Printer

Printer

Cetus

(3)

Name	Cetus
Network	tier-guest ▼
Type	UP Mars
I.P.	192.168.133.115
S.N	101110024
Version	353
Private	OFF

Click the dropdown menu to choose an available network.

Name	Cetus
Network	tier-guest ▼
Type	1703 📶
	tier 📶
I.P.	tier-guest 📶
S.N	TP888 📶
Version	AndroidAP 📶
Private	CTS-MEDIA 📶
	MIP online 📶
	dcci2.4GHz 📶

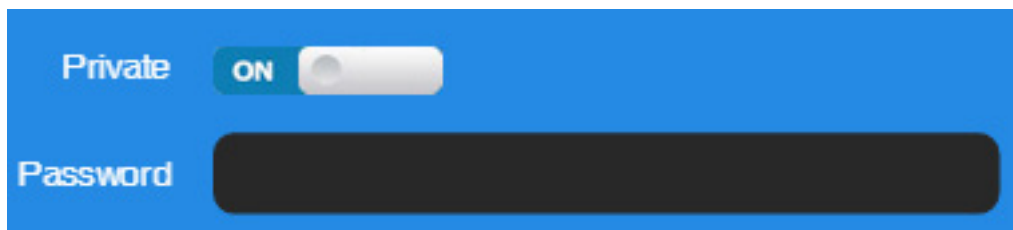Choose your network from the drop down list.

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**4**
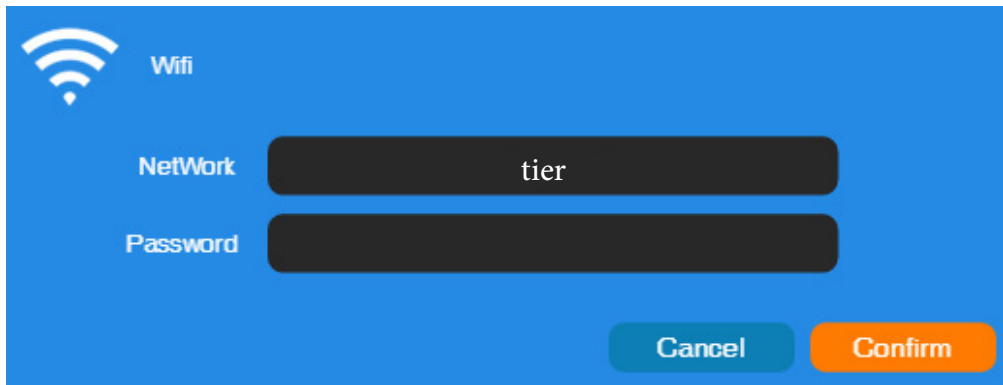
Input the password for the Wi-Fi network.

5

If "Private" is set to ON, a private password can be optionally added to limit the printer access via Wi-Fi to trusted users. Please note that the password for private access is a weak protection that anyone who can connect the printer through USB connection can disable or change the password without any limitation.

6

Printer Tab
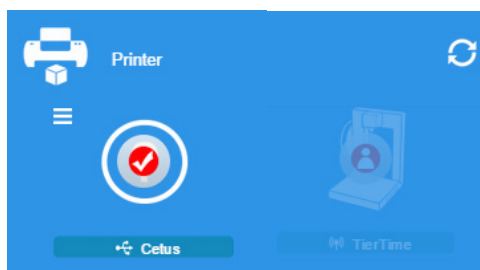
Disconnect USB and by clicking the available printer on the network to operate through Wi-Fi.

**Cetus**

Product Activation

It is highly recommended to activate Cetus as soon as possible to be able to access its unlimited printing power and the cloud based web functionality. The inactivated machine has limited printing times before the activation is done.
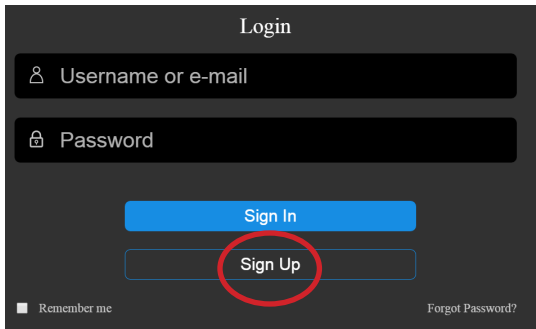
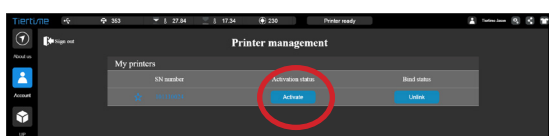① Press the "Account" button at the main menu

Click the "Sign UP" button.
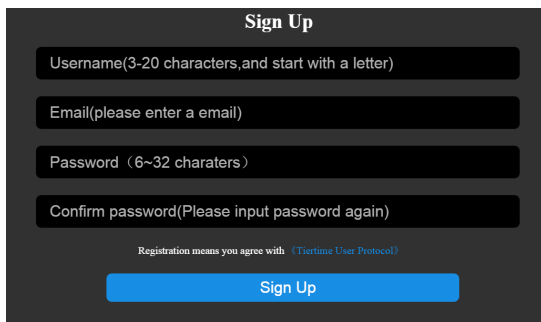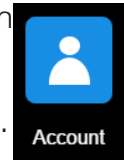
② Register an UP account. If a user account is already available, skip to step 5.
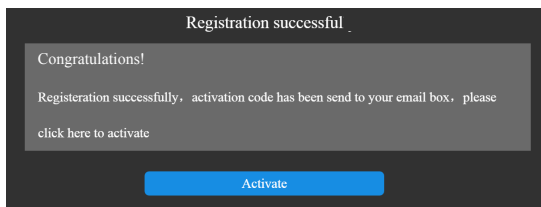
③ When finished the registration, go the registered mail box, activate the account through the activation email.
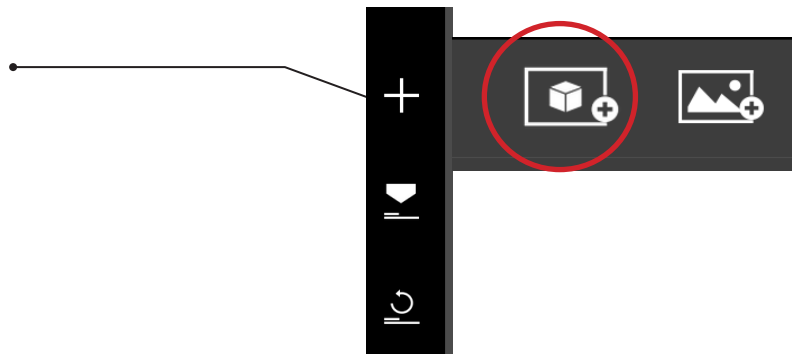

④ Connect the printer to a computer.

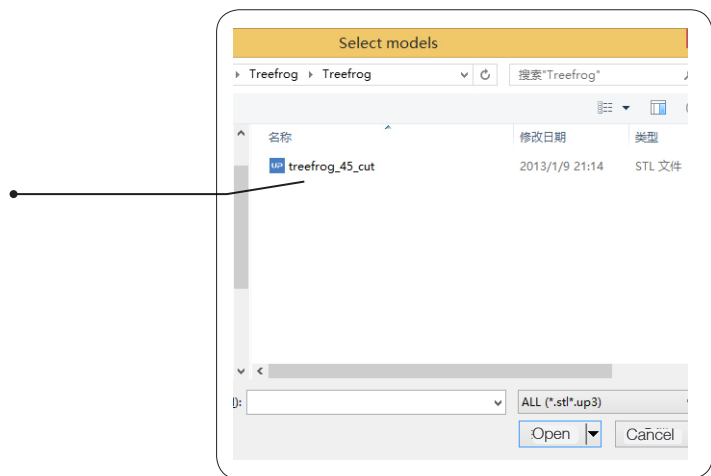⑤ Go to the account section and Sign In. User will see a printer management list. Find your printer in the list, and click the "Activate" button to activate your printer.
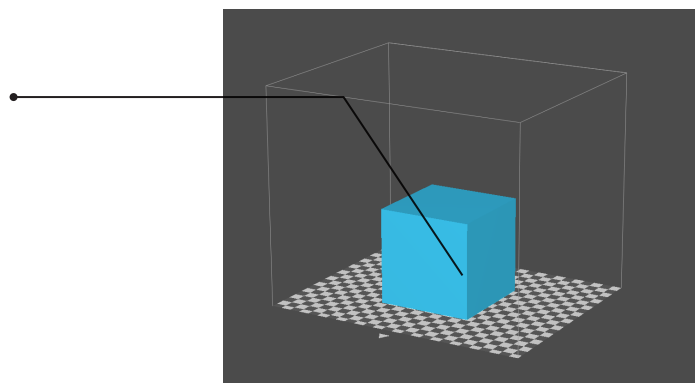
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Loading a Model

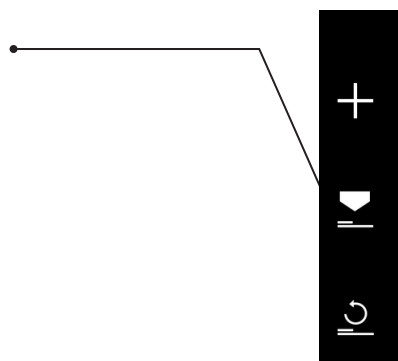(1) Click "Import Mode or Image", choose to open a 3D model.

(2) Choose your model.

(3) The loaded model will appear on the print plate.

(4) Click "Print" to open the print preview window.

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Printing a Model

Make sure the printer is connected to a computer throug USB or Wi-Fi (go to page 19 for details about Wi-Fi setting), and loaded a model.

(5) Click the print button to open the print interface

Printer Setting   ✕

Normal

Layer Thickness   0.2mm ▼

Fill

Quality   Normal ▼

Option   Preference

Preview   Print   Reprint

Set Layer Thickness

Please note that 0.05mm and 0.07mm layers are optimized for 0.2mm diameter nozzles, while 0.6mm nozzle is only for printing layer thickness of 0.3mm or above

Select Infill Type

Select Print Quality/Speed

Advanced Options

Surface: No top and bottom layers, no infill, single perimeter.

Shell: No infill, normal wall.

Big Hole

Hollow

Loose Infill

Solid Infill

(6) After sending the data, the program will show the amount of material and the time needed for the print job in a pop-up window. At the same time, the nozzle will start to heat up. The print will start automatically.
Now your are safe to disconnect the printer from computer.

Print: 0H 10M 2S
Material: 0.92 g

Cetus
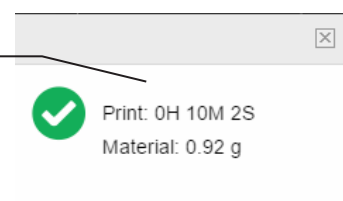
# Pausing a Print Job

An on-going print job can be paused by clicking the "Pause" button on the left hand side menu.

Click the "Resume Print" to resume the paused print job. Once the print job is paused, the other buttons on the maintenance interface will be enabled.

You can change filament using the "Withdraw" and "Extrude" buttons. At this point user could even change materials.
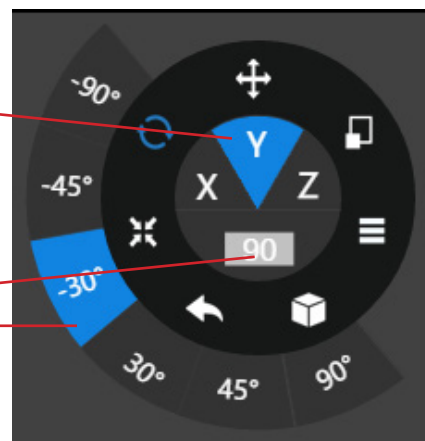
Cetus
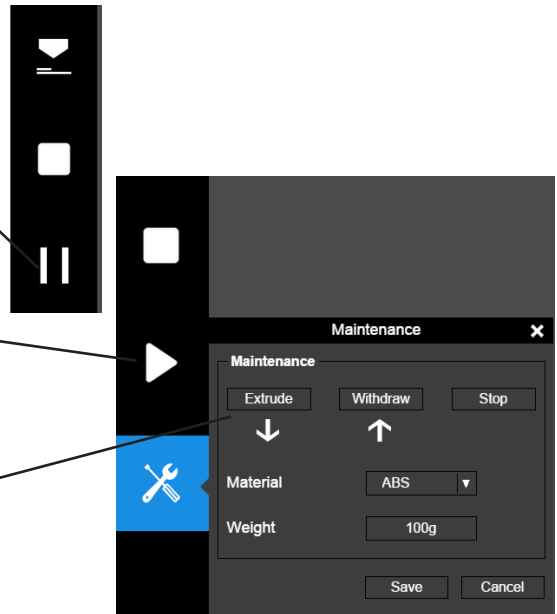
Rotating a Model
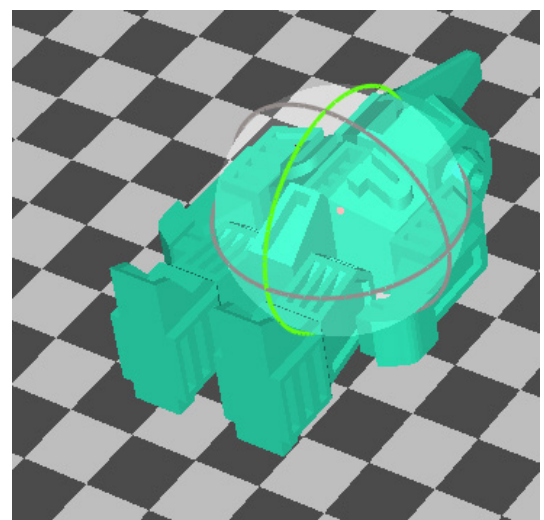
Choose the model and click the rotate button.

Choose the rotation axis

User could input a specific value or choose a preset value for rotation.

Alternatively, user may use the rotation guide to rotate the model in real time by click and drag using mouse.

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Scaling a Model

Choose the model and click scale button.
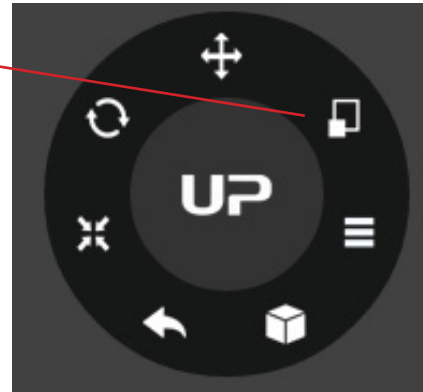
By default the scaling is in all axes. User could also choose a specific axis for scaling.

User may input a specific scaling factor or choose a preset value.
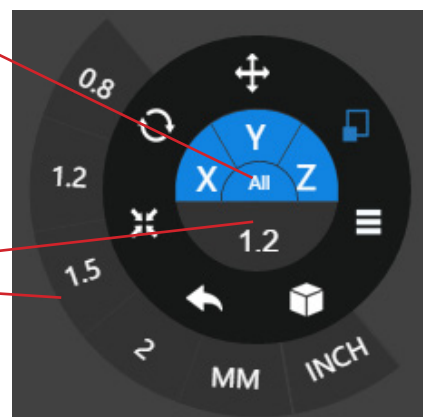
Click MM or INCH to convert the models to the size of corresponding units.

Alternatively, user may use the scaling guide on the model. User could scale in a specific axis or scale in all directions by click and drag using mouse.

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Move a Model

Choose the model and click the Move button.

Choose the direction of movement.

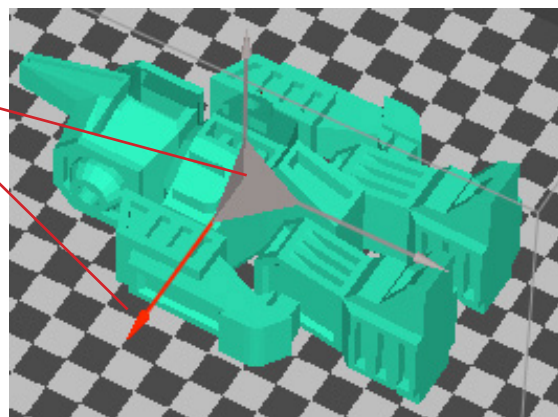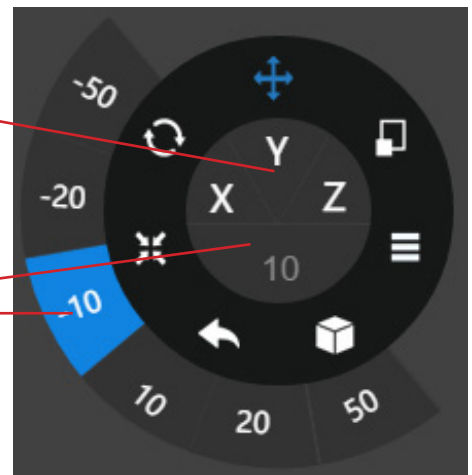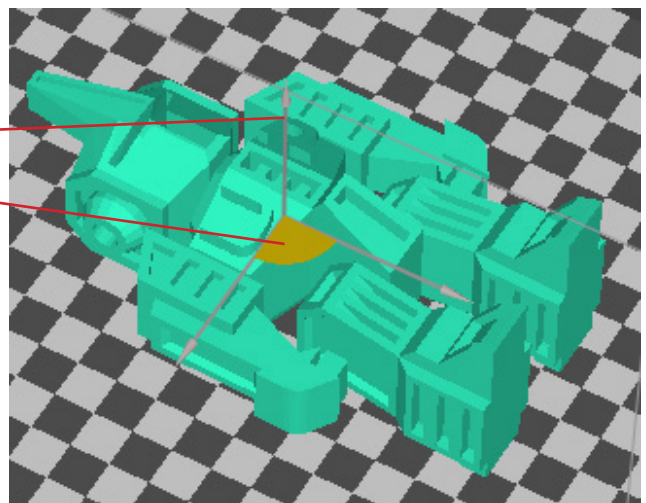User may input a specific value or choose a preset value for the distance of movement.

Alternatively, user may use the translational guide on the model to move on the X-Y plane or a single direction by click and drag using mouse.

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Making Copies
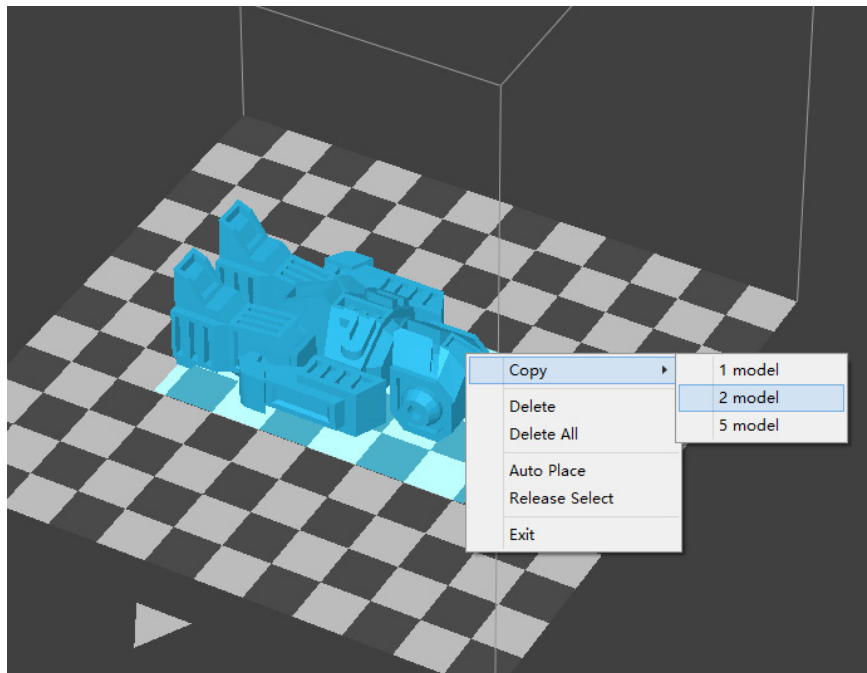
Choose the model by clicking it (hight lighted), then right-click to bring up the menu and select the number of copies.

Repairing a Model

1. If the model contains defective surfaces, the software will highlight the defective surfaces in red. Click the "More" button to reach the second level menu.
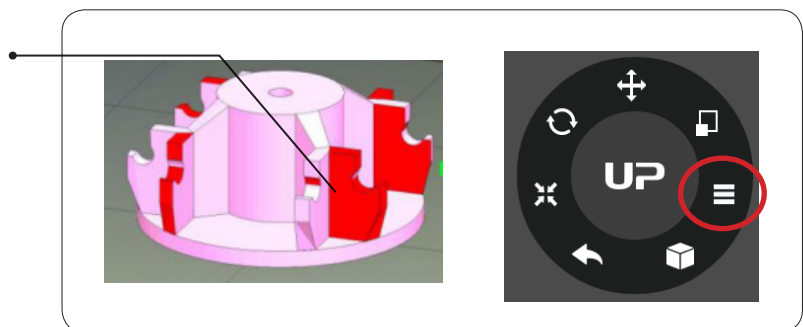
2. Click the "Fix" button to repair the model. The red defective surfaces will be changed to the normal color if the defects can be repaired.

Cetus
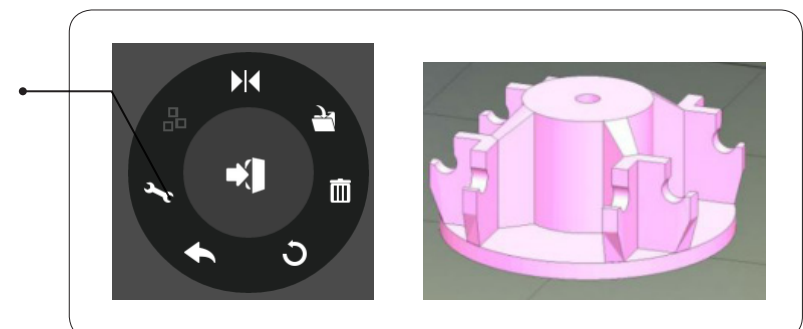
Merging and Saving Models

1. Ctrl/CMD-click all the models on the build plate.
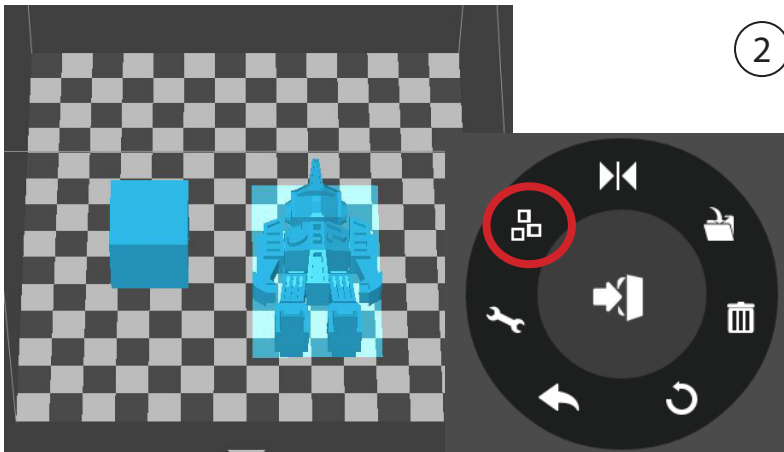
2. The Merge button on the second level of the adjustment wheel will become available. Click the "Merge" button to merge the models.
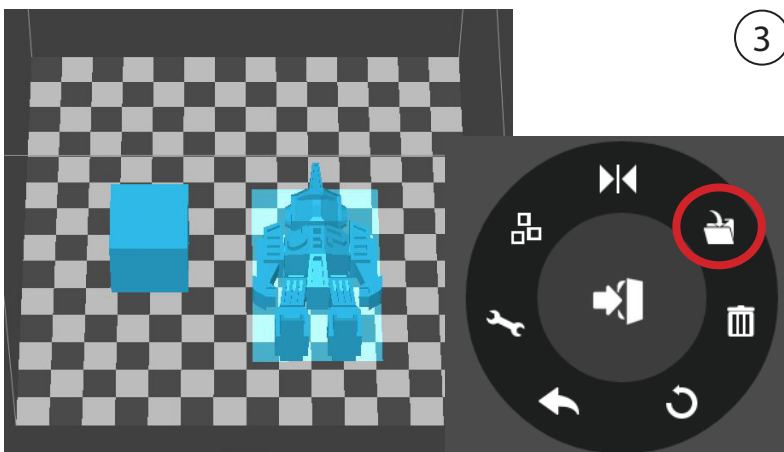
3. Click the "Save" button to save the merged models to the comptuer.

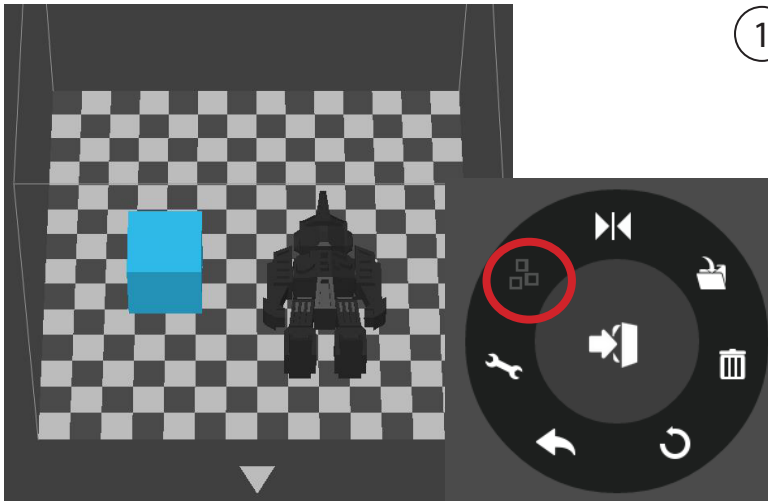If models place too closed together, their raft could overlap whcih could hinder extrusion. Merging convert all selected models into one single model, thus it raft would be calculated as a single models without overlapping. Merging could be a convenient option if user want to preserve the relative postions of a set of models.

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Print Preference
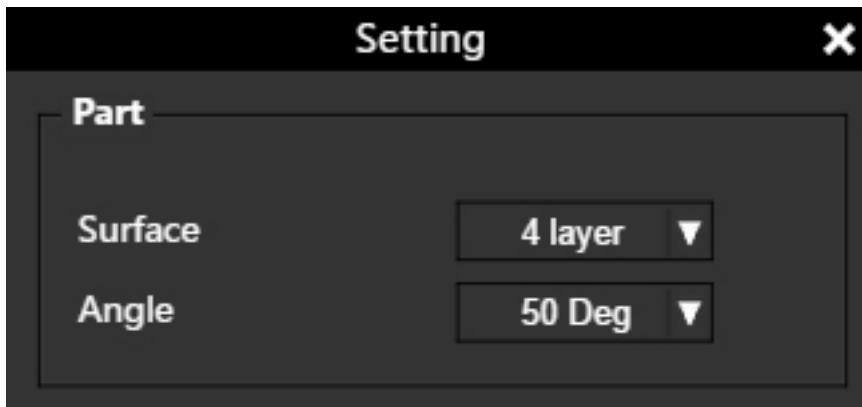
Surface: The number of layers that sealing the top and the bottom of the printed object.

Angle: This value determines at which angle the Surface layers start to be printed.
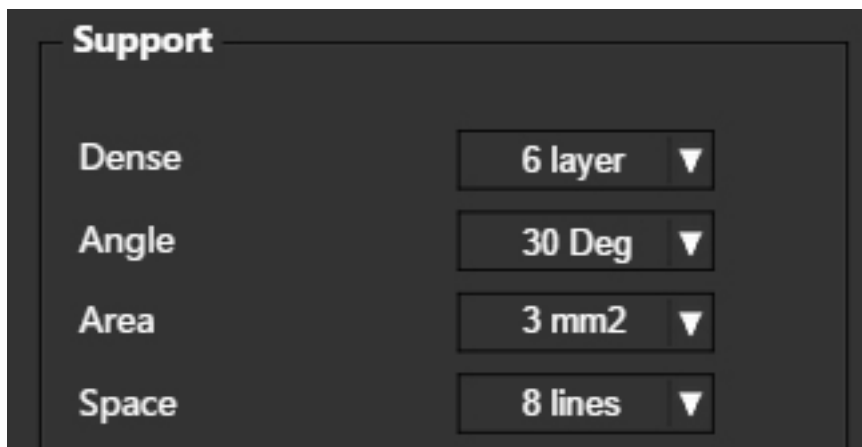
Dense: Choose the number of the dense layers between the support structure and the supported surfaces.
Angle: Determine the angle at which the support structure and the dense layers to be generated.
Area: Determine the minimal area of a surface that a support structure will be generated. The area smaller than this value will have no support structure generated.
Space: Determine how dense the support structure will be. The larger the value, the less dense the support.

Cetus

Print Preference

No Raft: Print without raft.
No Support: Print without support.
Stable Support: Support structure will be stronger but harder to be removed.

Unsolid Model: The software will autofix nonsolid models.
Thin Wall: The software will detect the wall thickness that is too thin to print and expand the wall to a printable size.
Preheat: Preheat the build plate for maximum 15 minutes before printing starts.

Cetus

Printing Parameters
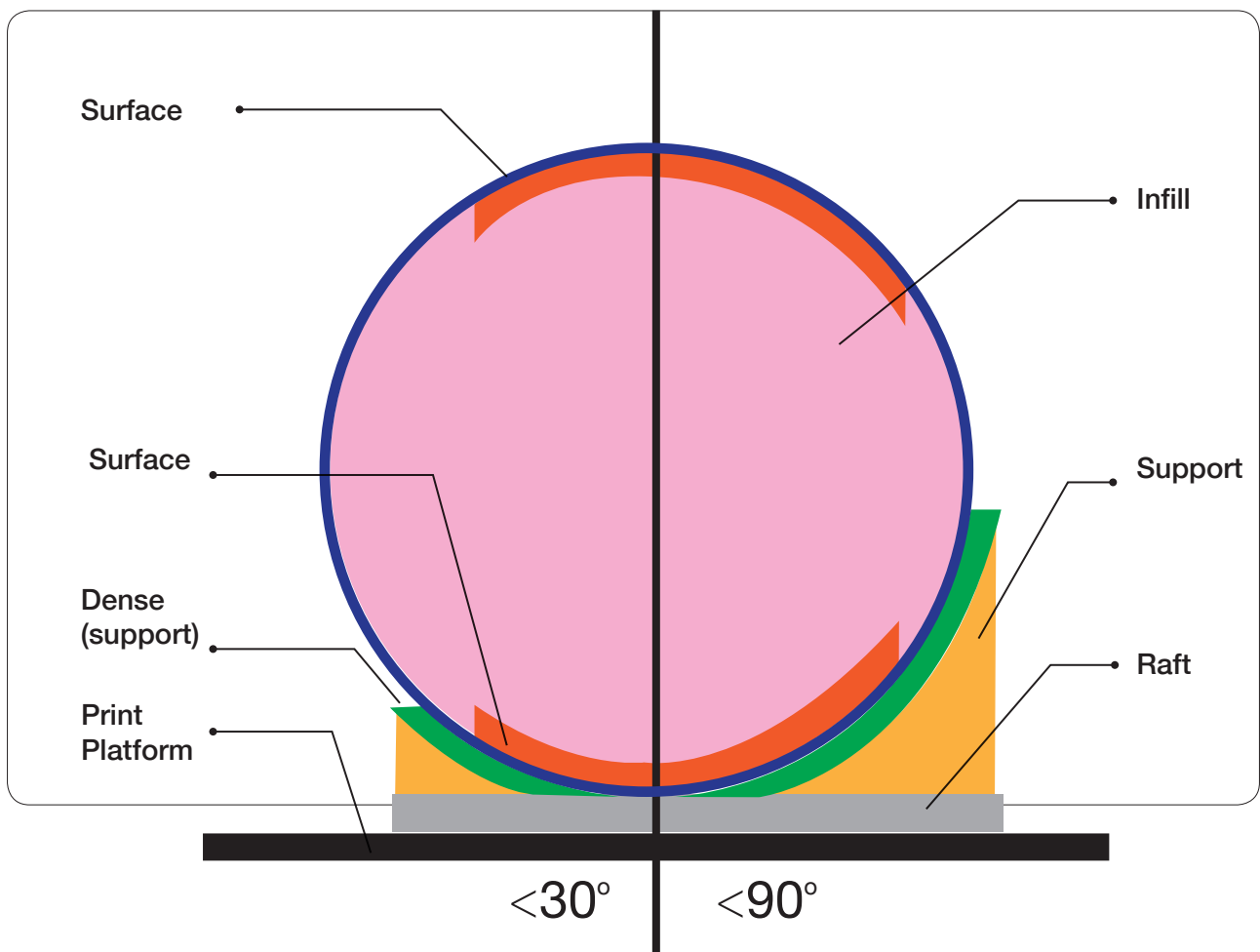
Dense: Solid support structure ensures that the surface being supported retains its shape and surface finish.

Infill: The inner structure of the printed object. The density of the infill can be adjusted.

Raft: The thick structure that assists with the adhesion of the object to the platform.

Surface: The top and the bottom layers of the printed object.

Cetus

Using Customized Material Profile

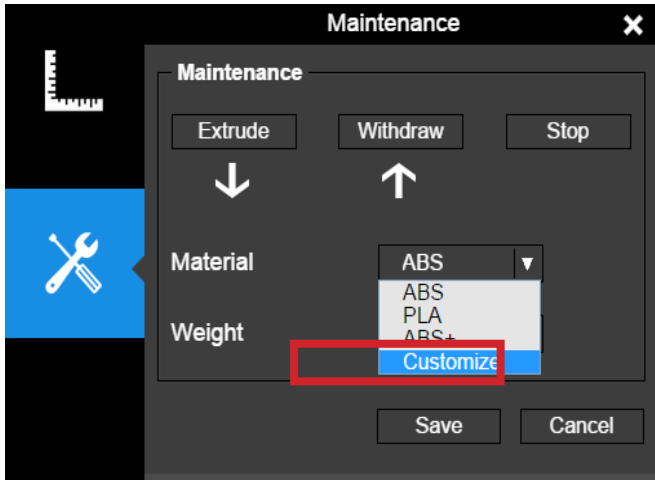

It is possible to use customized material profile to control the printing temperature and platform temperature. This function is very useful for using third party materials that cannot print well using the preset profiles.

The use the customized profile, go Maintenance and choose "Customize" in the material list.
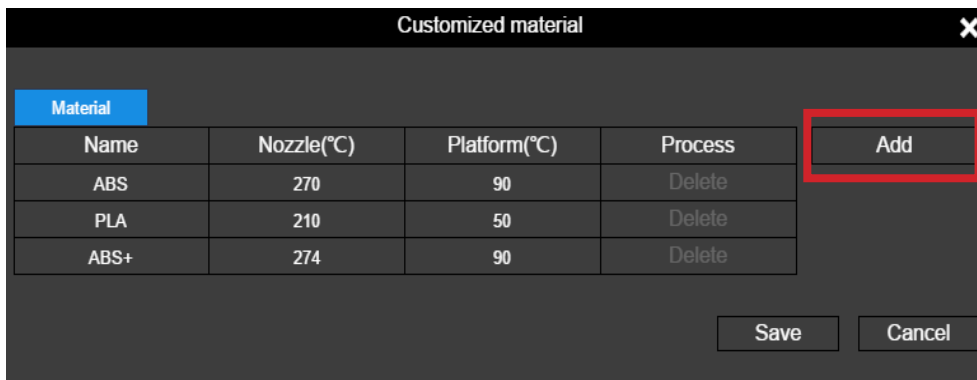
Click "Add" to add customized profile.

Input profile name, nozzle temperature and platform temperature.

Cetus

Converting a 2D Picture Into a 3D Model
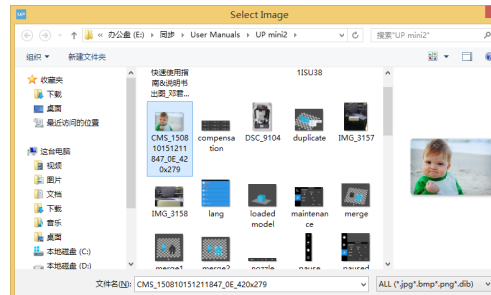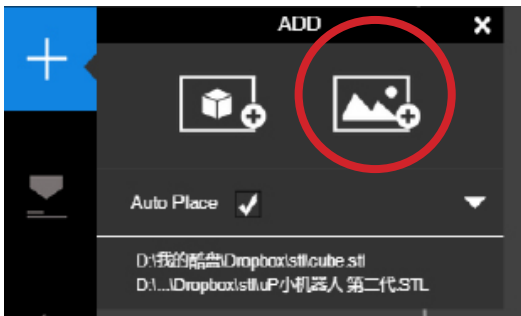
Click the "Add Picture" button and select a picture.
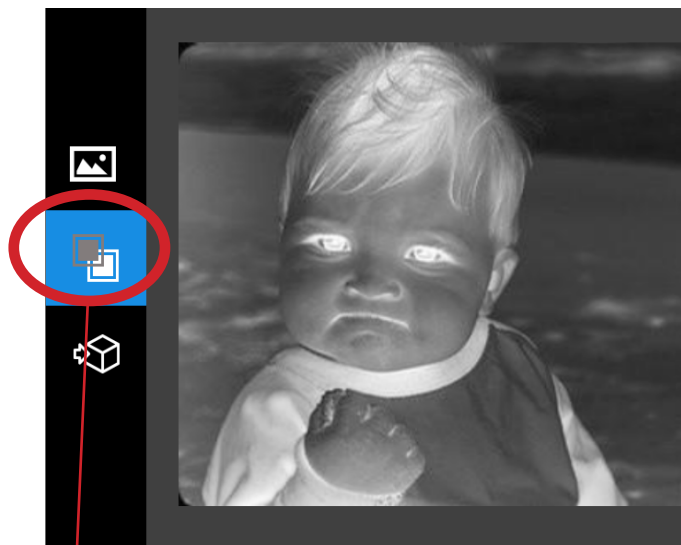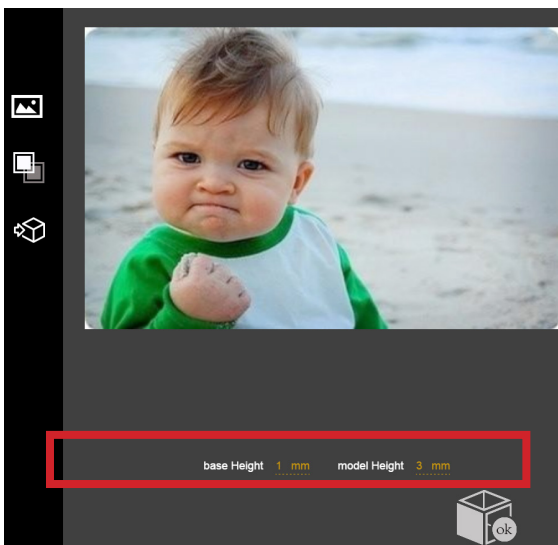
Base Height determines the thickness of a flat layer that holds the picture.

Model Height determines the contrast of the final print.

The "Convert Negative" button will reverse the pixel intensity so that user could choose the picture to be protruding from or sunken into the base.

Cetus

Converting a 2D Picture Into a 3D Model
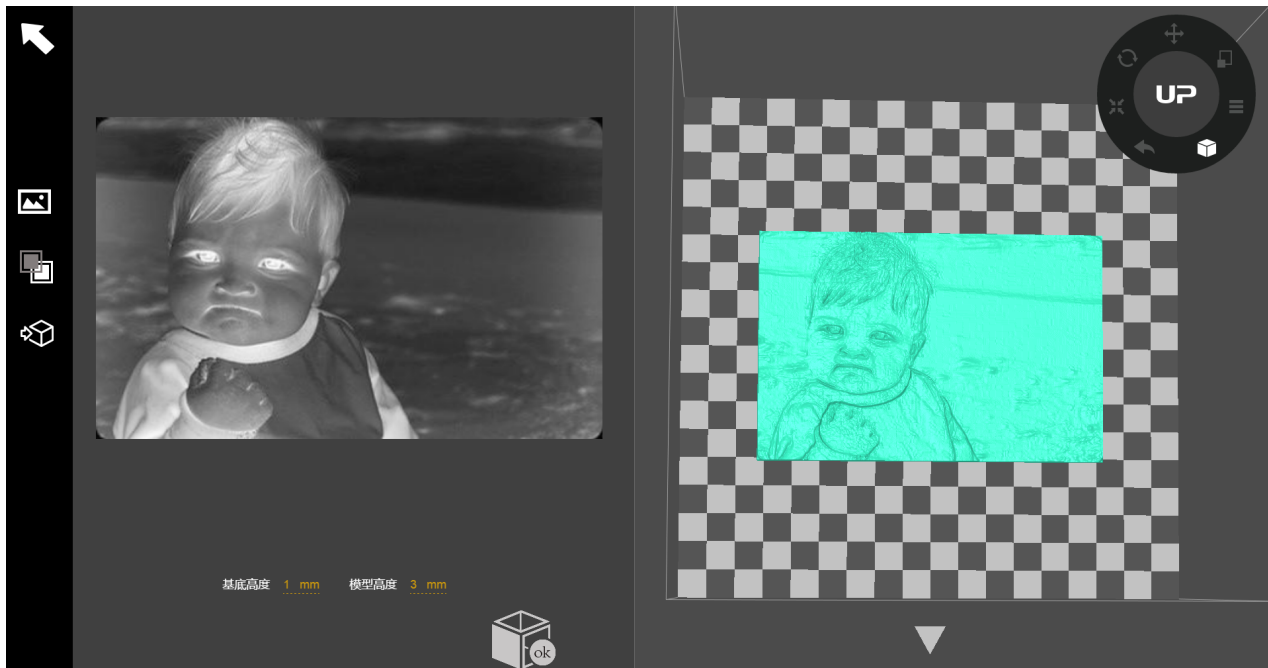
 Update 3D model button. This button will convert the modified picture on the left to a 3D rendering on the right.

 OK button sends the 3D rendering to the 3D printing interface for printing.

Cetus

Machine and Software Settings

Click the "Setting" button to bring up the menu

Choose a Language
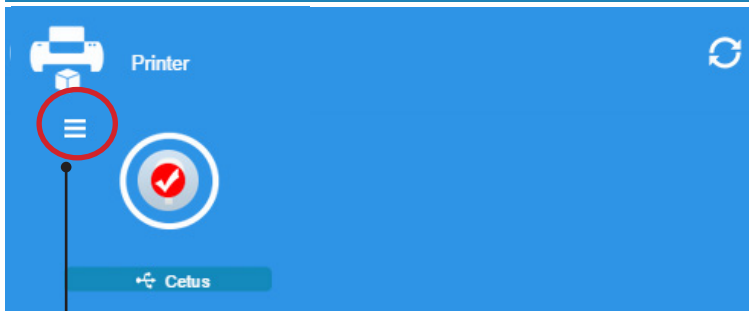
Choose and Set the Printer's Name

Name	JSX_BOX _02
Network	tier-guest
Type	UP BOX+
I.P.	192.168.133.100
S.N	10114025
Version	353
Private	OFF

Cancel   Confirm
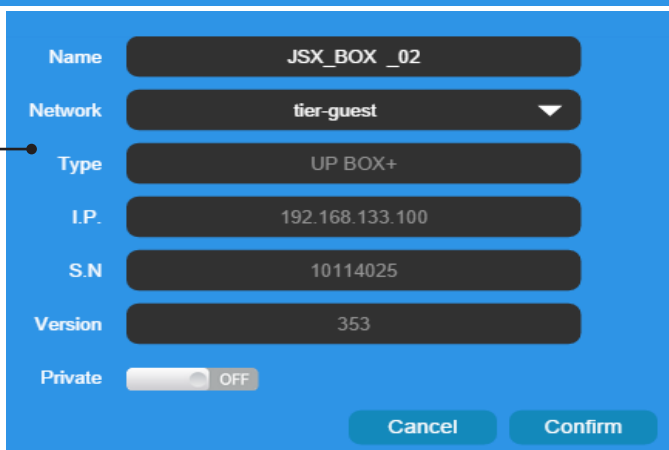
Printer Name and Wi-Fi Settings

Privacy Policy

Please read the Privacy Policy to know about the details of data collection of UP Studio. You can choose to turn on or off the data collection function base on your preference.

ON

Details

Privacy Setting

Update

Current V. 1.0.0.0

Your system is up to date

Please remind me of the new version ▪
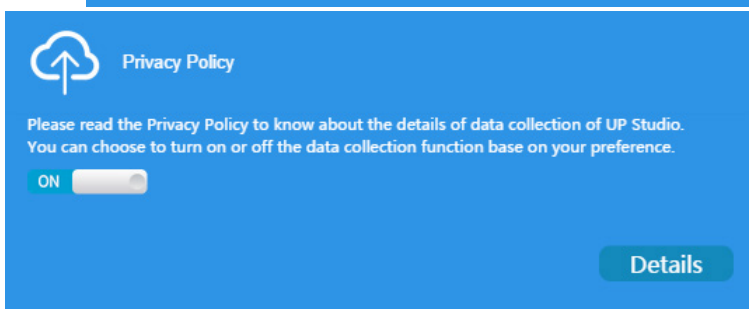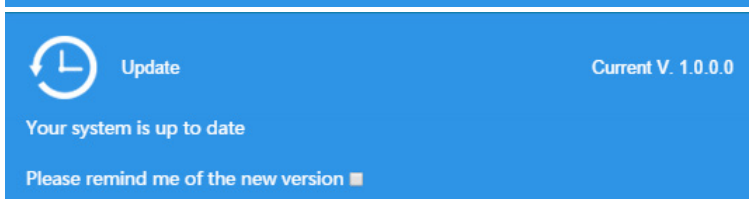
Auto Update Setting

Printer Info and Naming a Printer

User could rename the printer by clicking the printer name on the status bar.

Blackout Recovery

A print job could be resumed after an electricity cutoff. The next time when the printer connects to a computer and after an initialization, a pop up window will appear to let the user choose to resume the interrupted print job.

Cetus

Change nozzle

①
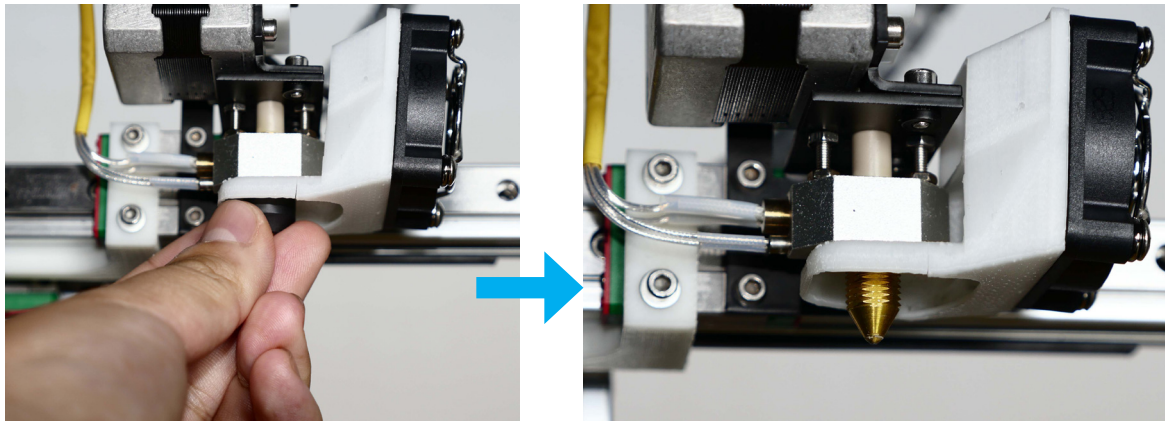
While the machien is cold, remove the peek cap by hand. If cannot remove by hand, use a plier.
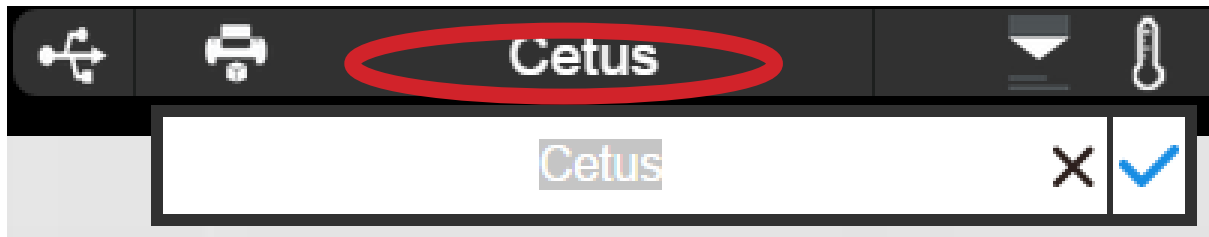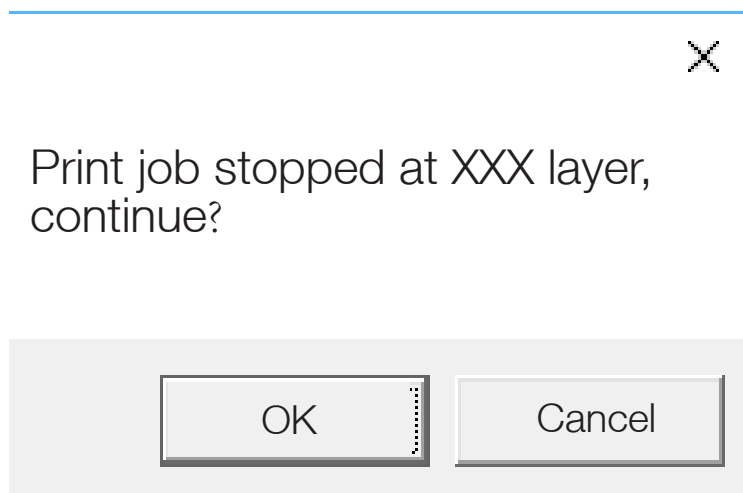
②
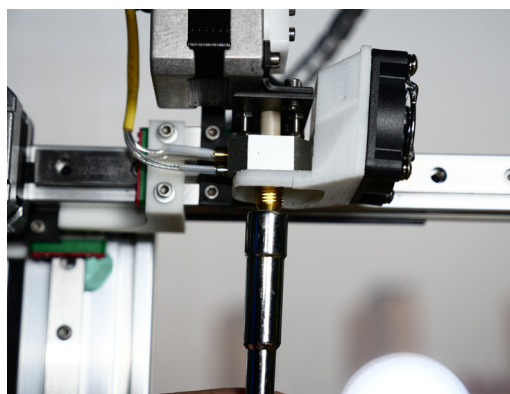
Use the nozzle wrench provided to remove the nozzle.

When install the new nozzle, just reverse the previous steps. Install the nozzle using the wrench, then put on the peek cap by hand, do not screw the cap too tight.

Please note that 0.05mm and 0.07mm layers are optimized for 0.2mm diameter nozzles, while 0.6mm nozzle is only for printing layer thickness of 0.3mm or above

Cetus

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

The distance between user and products should be no less than 20cm