		ON OFF
Fill Angle	°	The starting angle of infill pattern **Fill Angle** **45°** **90°**
Angle Increase	°	Fill Angle increase after each layer
		Angle Increase = 30° Layer 1 Layer 2 Layer 3 Final Pattern
		Angle Increase = 45° Layer 1 Layer 2 Layer 3 Final Pattern
		Angle Increase = 90° Layer 1 Layer 2 Layer 3 Final Pattern
Support Angle 1	°	Angle of support infill
Support Angle 2	°	Angle of sparse support infill
Profile/Fill Overlap	N/A	Overlap ratio between Perimeter and Infill
Bottom Overlap	N/A	Overlap ratio between Perimeter and infill for the bottom layer

3.Special

Special Options		
Fill Mode	N/A	Fill = Perimeter+infill+top/bottom Shell = Perimeter+top/bottom (no infill) Vase = Perimeter only (no infill, no top/bottom) **Fill Mode** **Fill**　　　**Shell**　　　**Vase**
Tolerance	mm	+0.1 = X and Y plane both increase 0.1mm in size
Fuse Gap	mm	Radius for small gap to be fused.
Hole Shrink (only applied to <u>vertical holes</u> on a part, expand small holes to counter the hole shrink effect)		
Max. Radius	mm	Threshold for applying shrink compensation, holes larger than this diameter value will be ignored.
Ratio	N/A	The bigger this value the more compensation for small holes Scale of shrink and radius, shrink scale = ratio * (1 - radius / max radois)
Max Shrink	N/A	Set max. Shrink ratio for compensation
Entity ID		
Profile	different regions of a print, are marked with an entity ID, so that they can be assign to different extruders to print. The entity IDs are used in the Extruder Settings.	
Inner Profile		
Top		
Bottom		
Infill		
Support		
Support Hatch		
Raft		

Speed

Profile	mm/s	Print speed of Perimeters
Inner Profiles	mm/s	Print speed of Inner Perimeters
Bottom and Top	mm/s	Print speed of Bottom and Top
Fill	mm/s	Print speed of Fill
Support	mm/s	Print speed of Support
Support Hatch	mm/s	Print speed of Support Fill
Jerk	?	Print speed of Short path
Jerk Length	mm	Define Max. Length of short path

Raft	mm/s	Print speed of raft layers
Raft Base	mm/s	Print speed of first layer of raft
Jump	mm/s	Speed of jumps (non- printing movements of extruder)

Temperature

Temperature Tune		
Profile Tune	℃	Set increase/decrease of nozzle temperature when printing Perimeters
Infill Tune	℃	Set increase/decrease of nozzle temperature when printing Infill
Support Tune	℃	Set increase/decrease of nozzle temperature when printing Support
Raft Tune	℃	Set increase/decrease of nozzle temperature when printing Raft
Support Peel		
Bond Strength	%	Define the bond strength between part and support.
Extrude Scale		
Profile	N/A	Extrusion scale of perimeter, value larger than 1 means increasing extrusion amount, value smaller than 1 means reducing extrusion.
Inner Profile	N/A	Set extrusion scale of inner profile
Top	N/A	Set extrusion scale of top layer
Bottom	N/A	Set extrusion scale of bottom layers
Support	N/A	Set extrusion scale of support
Jerk	N/A	Set extrusion scale of short paths
Raft	N/A	Set extrusion scale of raft
Raft Base	N/A	Set extrusion scale of first layer of raft

Start Optimize		
Layer Start		Preference for layer start point
Fixed Start X		Define start point on X coordinate.
Fixed Start Y		Define start point on Y coordinate.
Profile Start		Preference of Start base perimeter features
Join Size	%	Size of join
Join Extend	mm	How much the join extend and reach into infill area.
Join Cross		Whether make the join to cross-path
Speed Down		
Slowest Speed	mm/s	Define slowest speed for short perimeter
Short Profile	mm/s	Define length of short perimeter for applying speed down
Min. Layer Time	s	Define the minimum duration a layer must spend. Ensure enough cooling time for part.
Firsts Layer Speed	%	Speed down percentage for the 1st layer. Slow down for first layer could improve layer adhesion to platform, increase print success rate.
Other Options		

Platform Preheat		Preheat platform for max.15 minutes before printing starts. Within 15 minutes, printing will start as soon as target temp reach.
Sleep		De-initialize the printer when current print job finishs. When De-initialized, the printer consume less power and produce lower noise.

Printer

Printer Configuration		
Manufacturer		Brand/Producer of printer
Model ID		Printer Model
Origin		
X	N/A	X-coordinate for origin
Y	N/A	Y-coordinate for origin
Z	N/A	Z-coordinate for origin
Build Size		
X	mm	X-axis range
Y	mm	Y-axis range
Z	mm	Z-axis range
Acceleration		
Profile	mm/s^2	Acceleration for Perimeters
Infill	mm/s^2	Acceleration for Infill
Support	mm/s^2	Acceleration for Support
Jump	mm/s^2	Acceleration for non-printing movements

Extruder

Extruder 1	
Filament	Choose material profiles, from Mat Lib
Nozzle Diameter	Select the nozzle diameter
Scale Factor	Extrusion Scale for the extruder (Result similar to E steps)
Entity ID	Input the entites assigned for this extruder
X Offset	Offset value for X axis, use for nozzle alignment for multiple extruders
Y Offset	Offset value for Y axis, use for nozzle alignment for multiple extruders
Z Offset	Offset value for Z axis, use for nozzle alignment for multiple extruders
Switch Code	Gcode used for switching extruder
Extruder 2	Switch on/off extruder 2

Script

Print Start	Script insertion locations. User could insert Gcodes at these

Print End	location for customized functions. Accepted Gcodes:	
Layer Start		
Layer End		
Profile Start		
Profile End		
Infill Start		
Infill End		
Support Start		
Support End		
Path Start		
Path End		

Mat Lib (Material Library)

Filament		Select material profile
Type		Material Type: can only choose from preset types
Material ID		A unique number for matching materials. E.g..Tsk file's material ID must match printer's material ID in order to print.
Manufacturer		Name of Material manufacturer
Fila. Dia.	mm	Filament Diameter, this value will affect the extrusion scale
Density	g/cm^3	Density of material, use for estimate
Cost/Kg	$/kg	User defined for their own reference
Print		
Speed Ratio	N/A	A ratio to adjust the all the speed settings at the same time.
Max Raft Speed	mm/s	Max first layer speed of raft. If faster than this value, will be override by this value.
Retract		
Speed	mm/s	Speed for retraction, the faster the retraction the less likely to have stringing effect during jumping. But it will also put stress on extrusion mechanism and the optimal speed depends on hardware.
Max Length	mm	Max possible length for a single retraction
Min Travel	mm	The distance threshold for retraction, if movement is smaller than this value, retraction will not be applied.
Ratio	N/A	Actual retraction length = Ratio* Travel.
Temperature		
Print	℃	Base temperature for printing
Standby	℃	Temperature when standby (during dual extrusion)
Platform	℃	Platform temperature
Shrink		
X	%	X-axis compensation for material shrinkage after cooling
Y	%	Y-axis compensation for material shrinkage after cooling
Z	%	Z-axis compensation for material shrinkage after cooling

Part Sub-setting

Basic Info

Save Mesh

Add Child Model

Delete Model

Model Print Profile

Link to Main Setting

Add Child Profile

cube.up3
- Triangle: 12 Vertex: 8
- Size: 80.00, 80.00, 80.00
- Volum: 512.0 cm³ Area: 384.0 cm²
≡-0.1mm
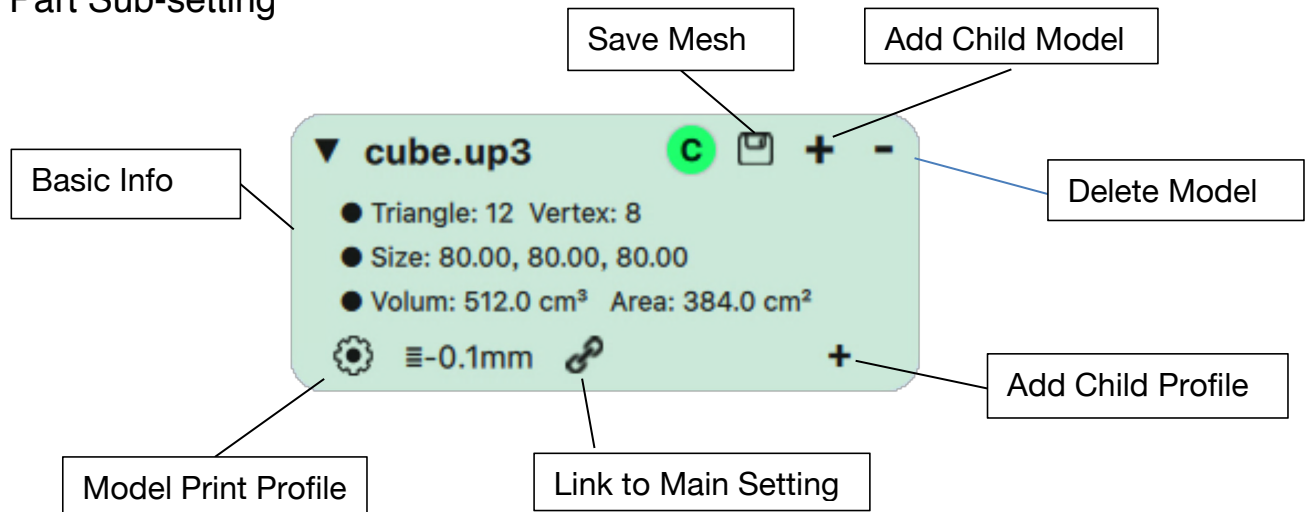
Save Mesh	Save the model to .UP3 format
Delete Model	Delete the model from the part list
Add Child Model	Add a child model, please refer to "Part Optimization"
Model Print Profile	Click to edit the print profile for the model, settings changed only apply to this model and will not be affecting other models on the list.
Add Child Profile	Set height range and specify the print profile for the section, please refer to "Part Optimization".
Link to Main Setting	Chain icon means, main setting will affect the value of the print profile of this model. Broken chain means

Part Optimization

1. Optimize along Z axis
User could add child print profile to customize settings just for a particular height range.

End point

Start point

Height range

≡-0.1mm
1: 0.1mm (0.00~10.00)
2: 0.1mm (10.00~20.00)
3: 0.1mm (2.00~30.00)

Click the ⚙ gear button to modify print profile for the height range.

Use 🔗 chain button to link or unlink from the part profile.
Use ✕ cross button to delete the child profile.

Setting child profile is same setting of main profile. However some settings are not available in child profiles, eg. Layer thickenss. Child profile allow user to adjust print speed, temperature, extrusion scale, infill density, and etc for a particular vertical section of the part

2. Optimize on X-Y plane
Use child model could allow user to optimize the part on another dimension.

1. Click "+" button add child model. 2. Select the type of child model and define the dimensions. 	a cylinder is added as a child model for the cube.
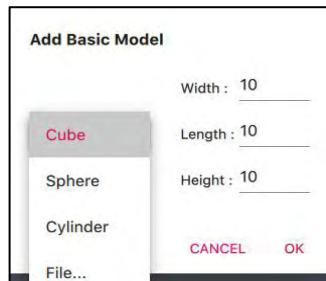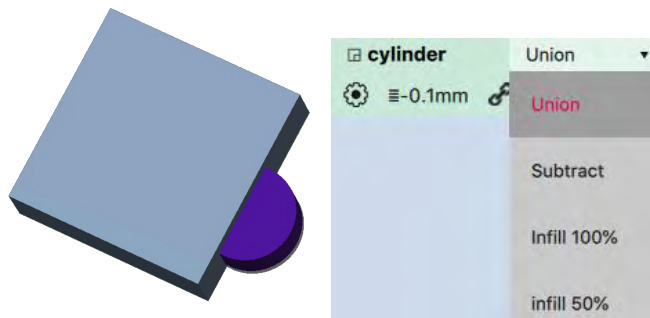
For the child model, user could define the property as union, subtract or select a infill density.

Union: fuse child model into the main model.	Subtract: child model is subtracted from the main model.	Infill: modify the infill percentage of at the overlapped region.
		 15% (main model) 100% (child model)
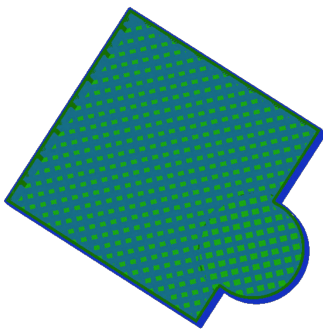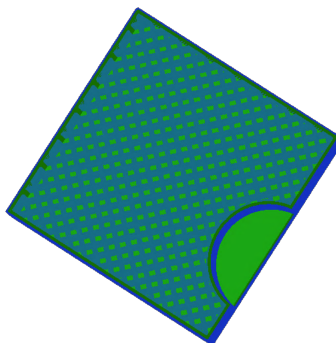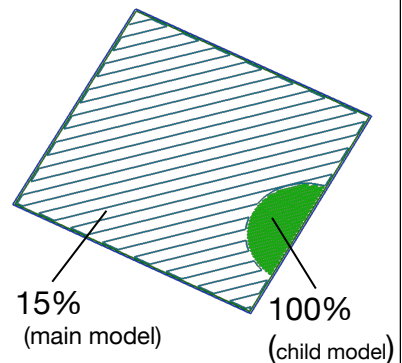
Support and Raft generation do not apply to child models.
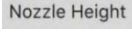
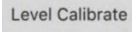# 7. Wand - the Printer Hosting Software
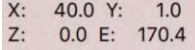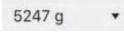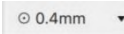
UP Studio 3.0 is a package that includes two softwares; UP Studio now become an independent slicer and the printer hosting functions were spin off into a new software called "Wand"

UP Studio 3.0 only handle modeling slicing and all printer communication, operation and maintenance functions are moved to Wand. Therefore when after slicing, user need to save the sliced data (.tsk) to hard drive and then use Wand to send the .tsk file to the printer.

7.1 Wand Interface
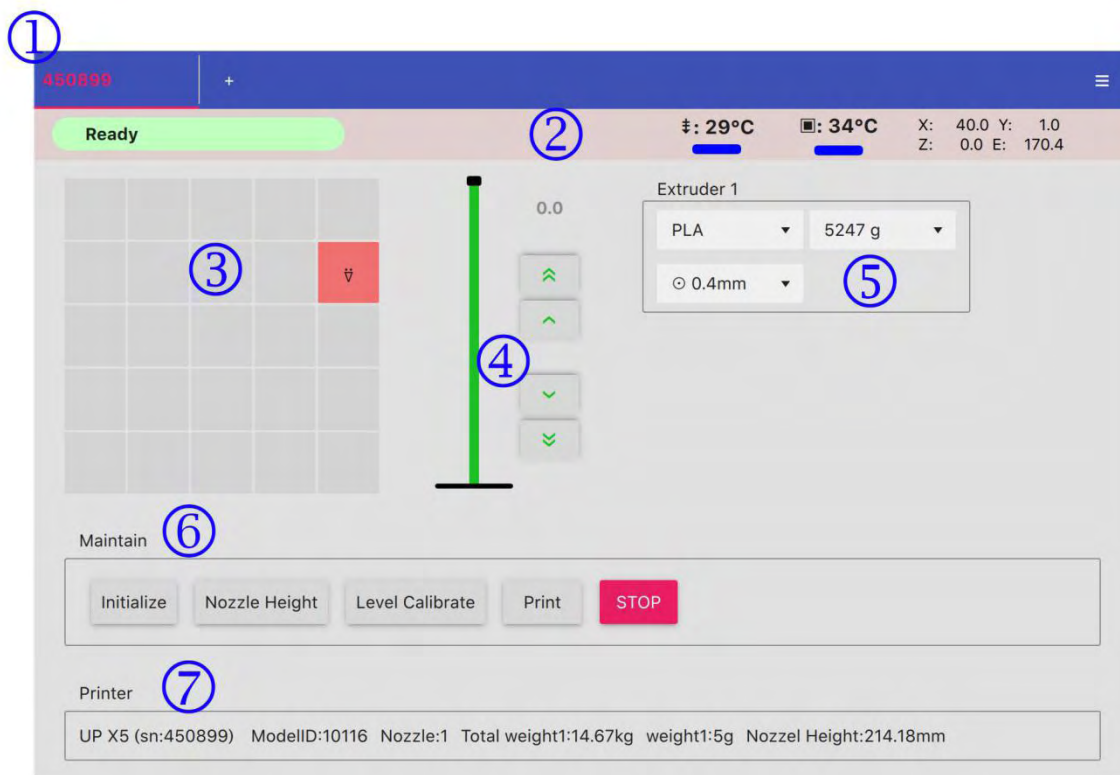
1. Printer connection	Machine Connection, show serial number (default)/printer name of connected machines. User could select auto connect with the top right button. Click + to connect or click X to disconnect printer

2. Printer Status	:Printer Status
	
	  :nozzle temperature
	
	  :platform temperature

|	
	X: 40.0 Y: 1.0 Z: 0.0 E: 170.4 :current axial coordinates.
3. X-Y axes Control	Platform Map, click the squares to move the print head to corresponding X-Y location on the platform. Red square( ) indicate current location
4. Z-axis Control	Z axis indicator: black dot indicate current Z location of print head. ∧ ∨ click to move print head long Z axis for a small distance ⩘ ⩗ click to move the print head long Z axis continuous until reach the end
5. Extruder Settings	PLA ▾ : current material setting use for the extruder 5247 g ▾ : current material weight left in spool that loaded to the extruder ⊙ 0.4mm ▾ : current nozzle setting for the extruder
6. Maintenance	Initialize : click to initialize printer Nozzle Height : Setup nozzle height value Level Calibrate : Setup leveling of printer platform Print : load a file to print STOP :Stop printer action immediately.
7. Printer Info	

7.4 Ethernet Connection

Find a Ethernet cable. Insert the connector into the LAN socket on the back of your UP300D, and a LAN icon will appear on the touchscreen.

To edit the Ethernet Network Settings in UP Studio: Open Up Studio in you computer, and go to Settings, find the printer under Printer section, then click Information button to make further changes.
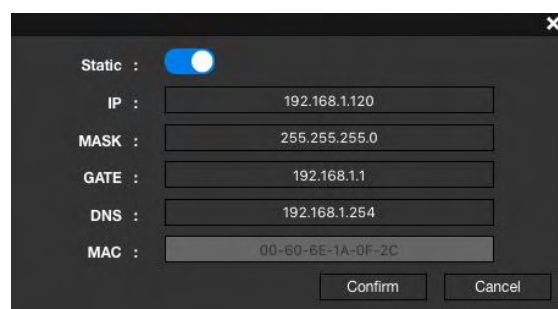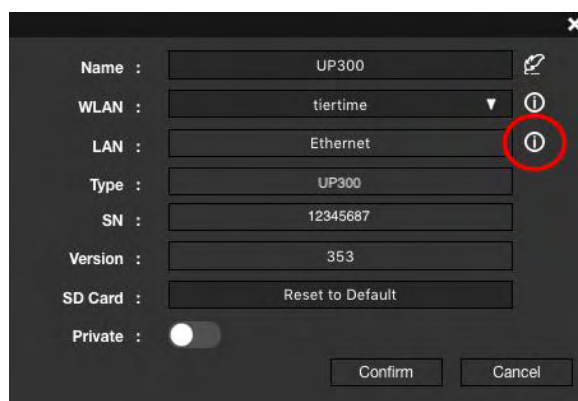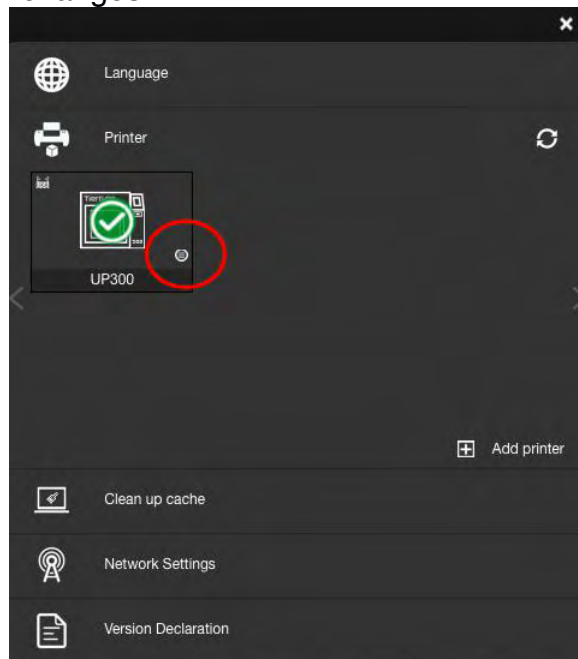
7.6 Wi-Fi Connection

To connect your UP300D, you can set it up through UP Studio on your computer or use the touchscreen on the UP300D.

Use the UP Studio on the computer:
1, Connect your UP300D with a USB cable to your computer,
2. Open UP Studio on your computer, go to **Settings**, choose **Printer**.
3. The connected UP300D will appeared with a green tick on top, click **More (circled in the red).**
4, Click the down drop down menu, and then select the desired Wi-Fi network to connect. You may be asked to enter the password of the Wi-Fi network.

You can make further changes for the Wi-Fi network by clicking Information icon.
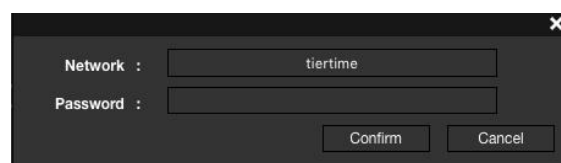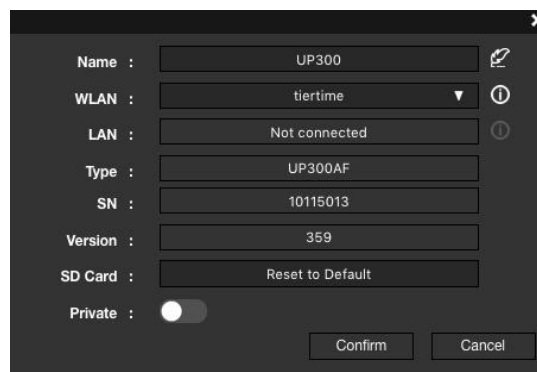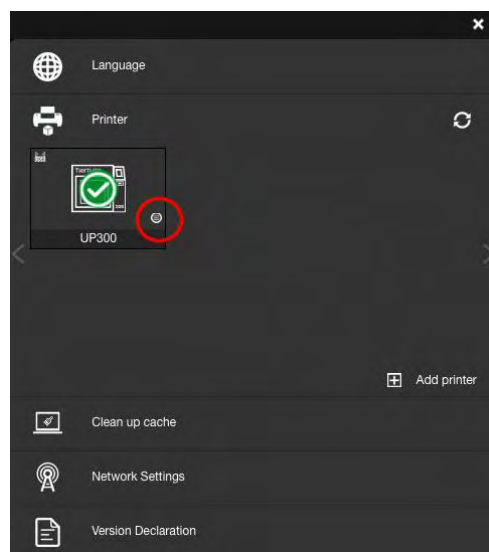
5. You can now unplug the USB cable, and connect your computer to the Wi-Fi network that you set for the UP300D.
6. Open UP Studio, go to **Settings**, click **Printer**, click Add Printer, find your UP300D on the All Printer list, and click + to add your UP300D.

If you cannot find your UP300D in the printer list, click **Refresh.**
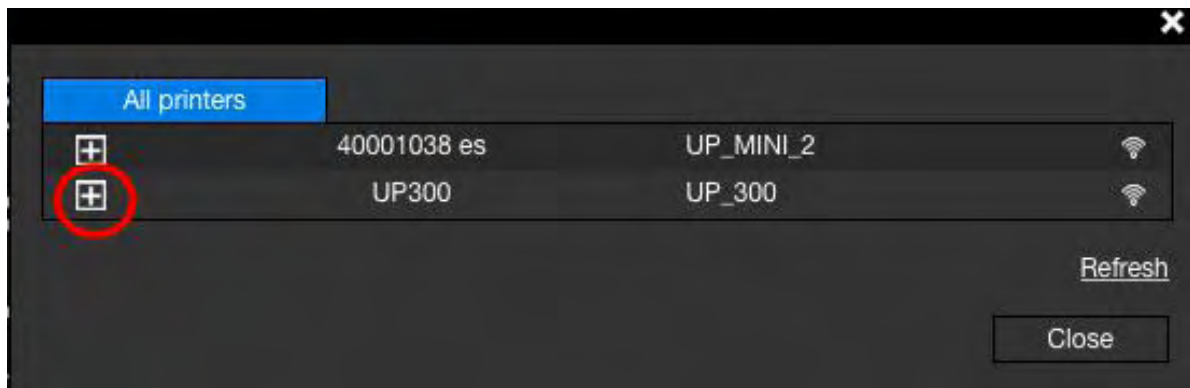
7, An icon of your UP300D will appear in the **Printer** section, Click the icon, a green check mark representing your UP300D is connected via Wi-Fi successfully will appear on top of the UP300D icon.
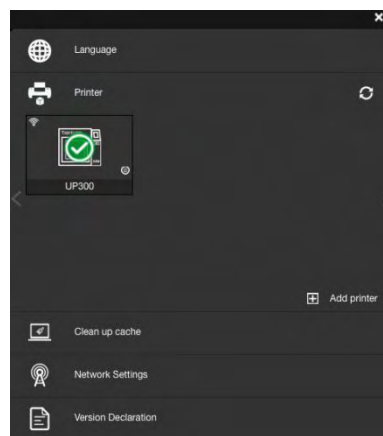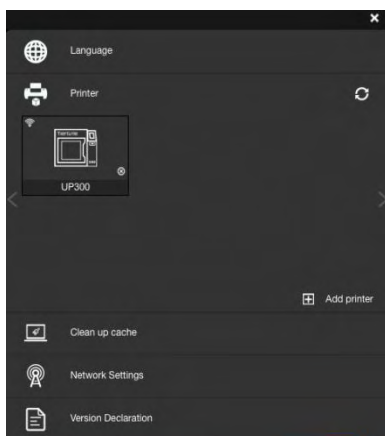
Using the touchscreen on the UP300D to setup the Wifi connection:

Go to **Config**, click **Network Settings.** Select network name on the list, type in password if required, and press return. A lock icon appears which means your UP300D is connected to the desired Wi-Fi network.

You can make further changes in the configurations of the Wi-Fi network by clicking the Information icon.