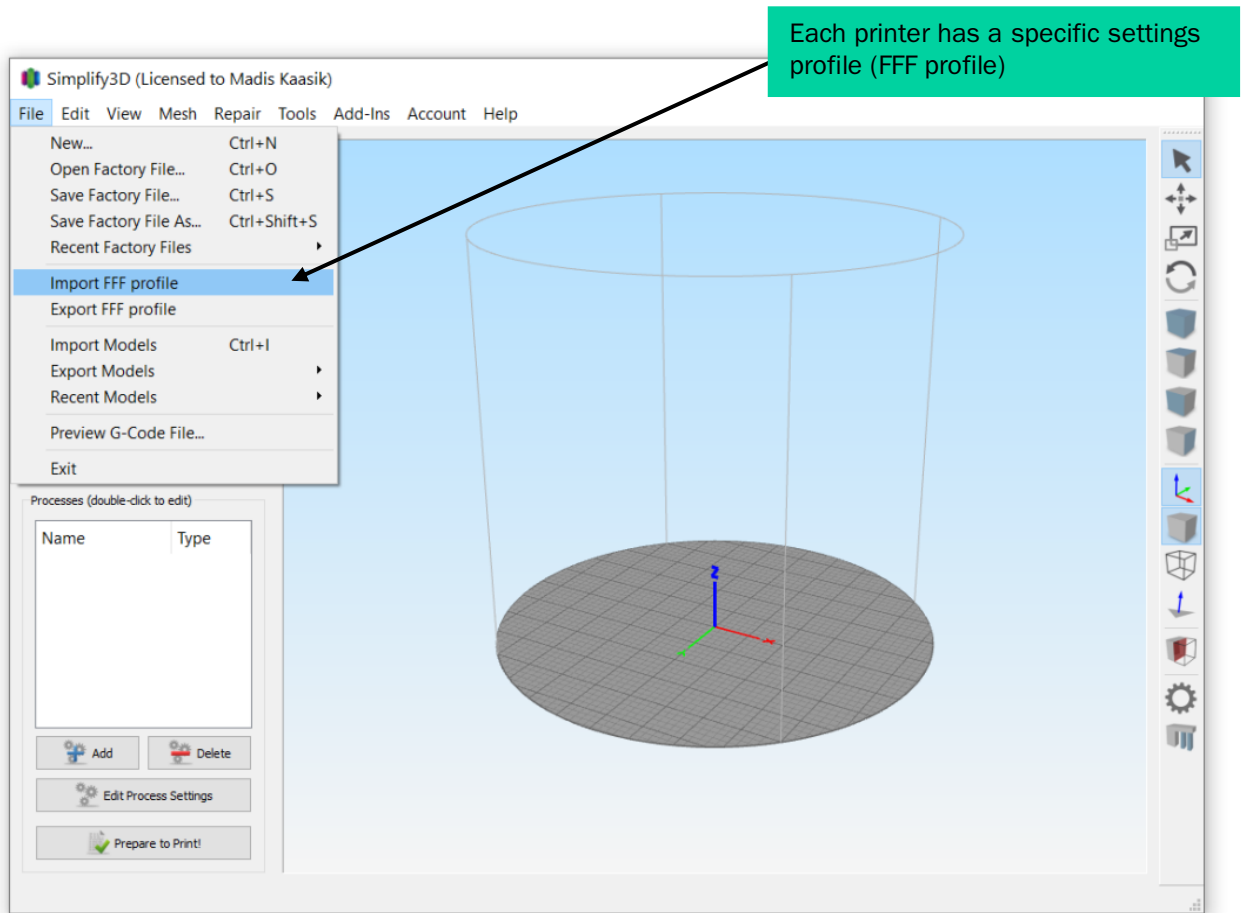


**WASP 2040 3D printer
user guide for Simplify3D**

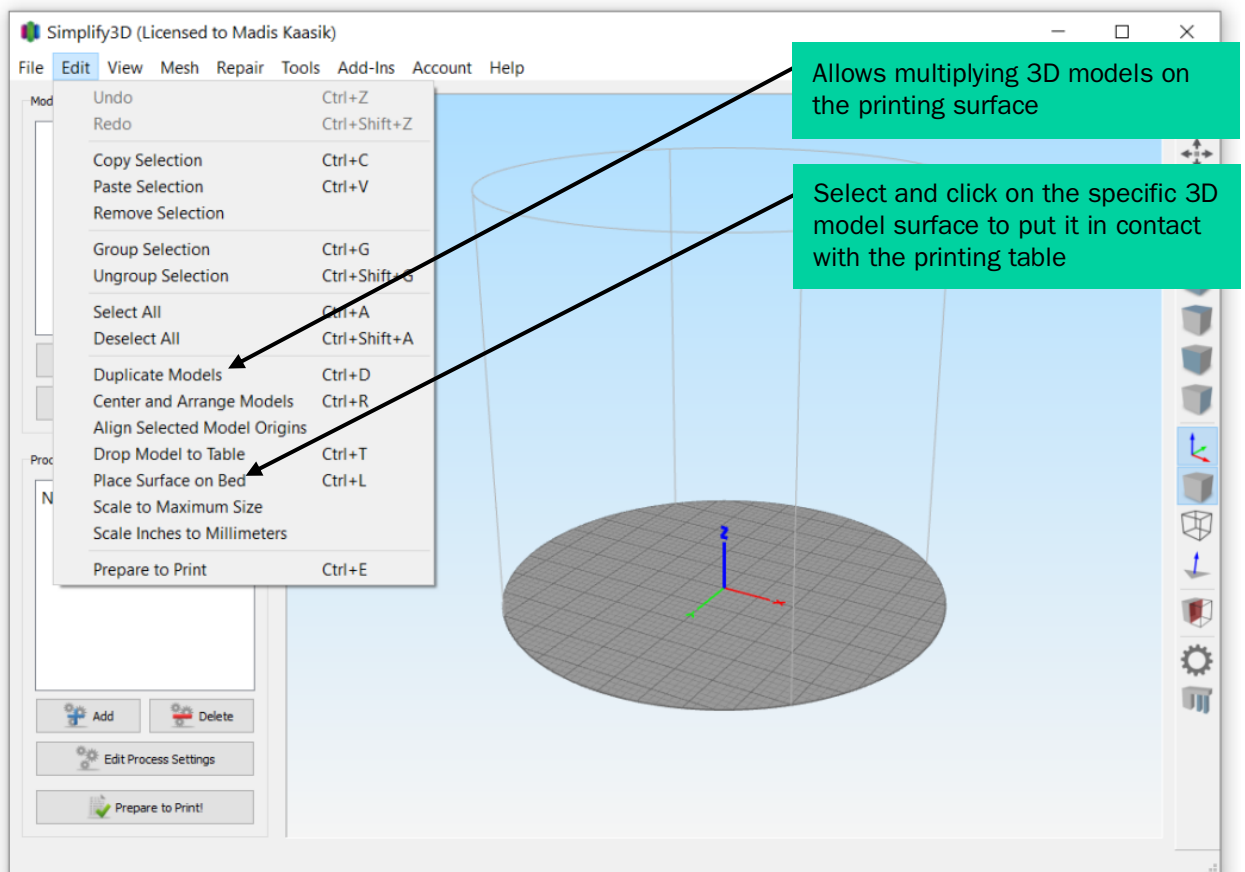
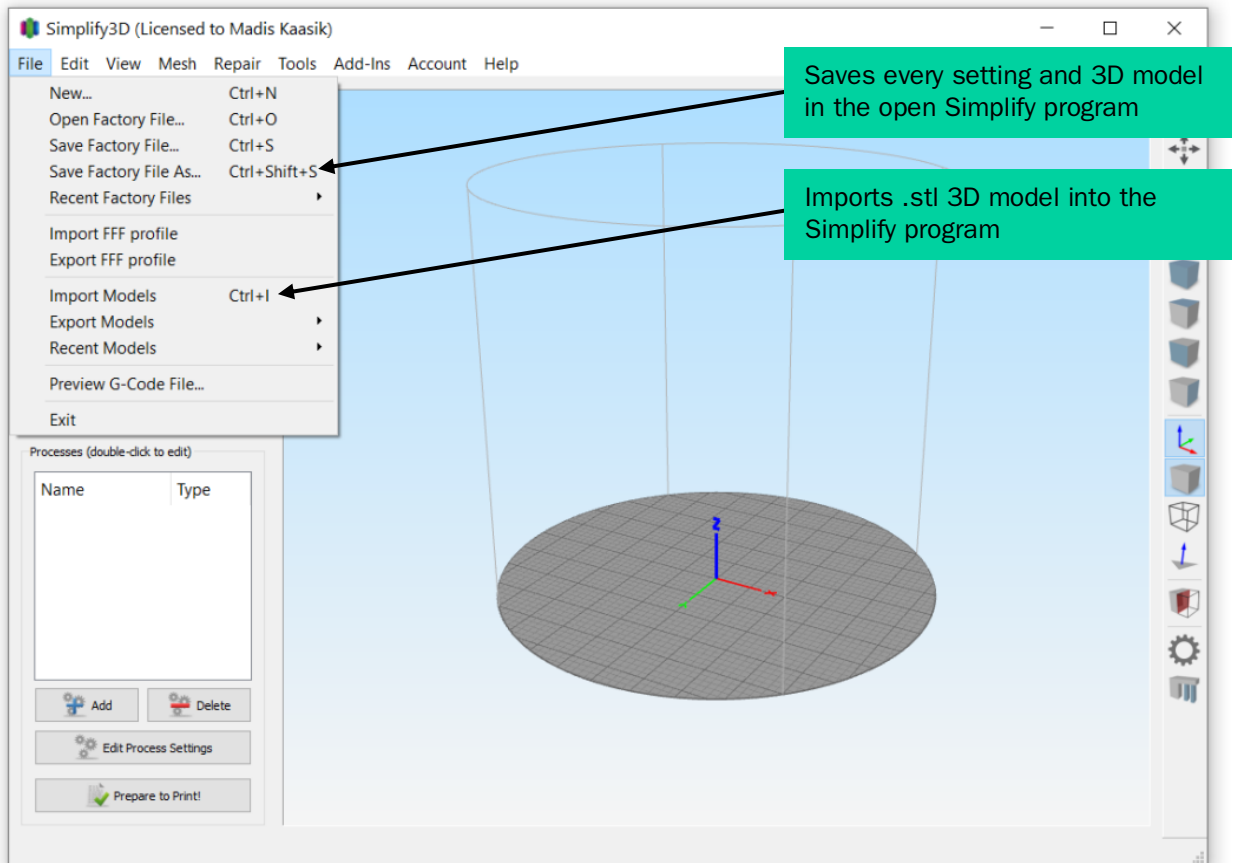
In this document:

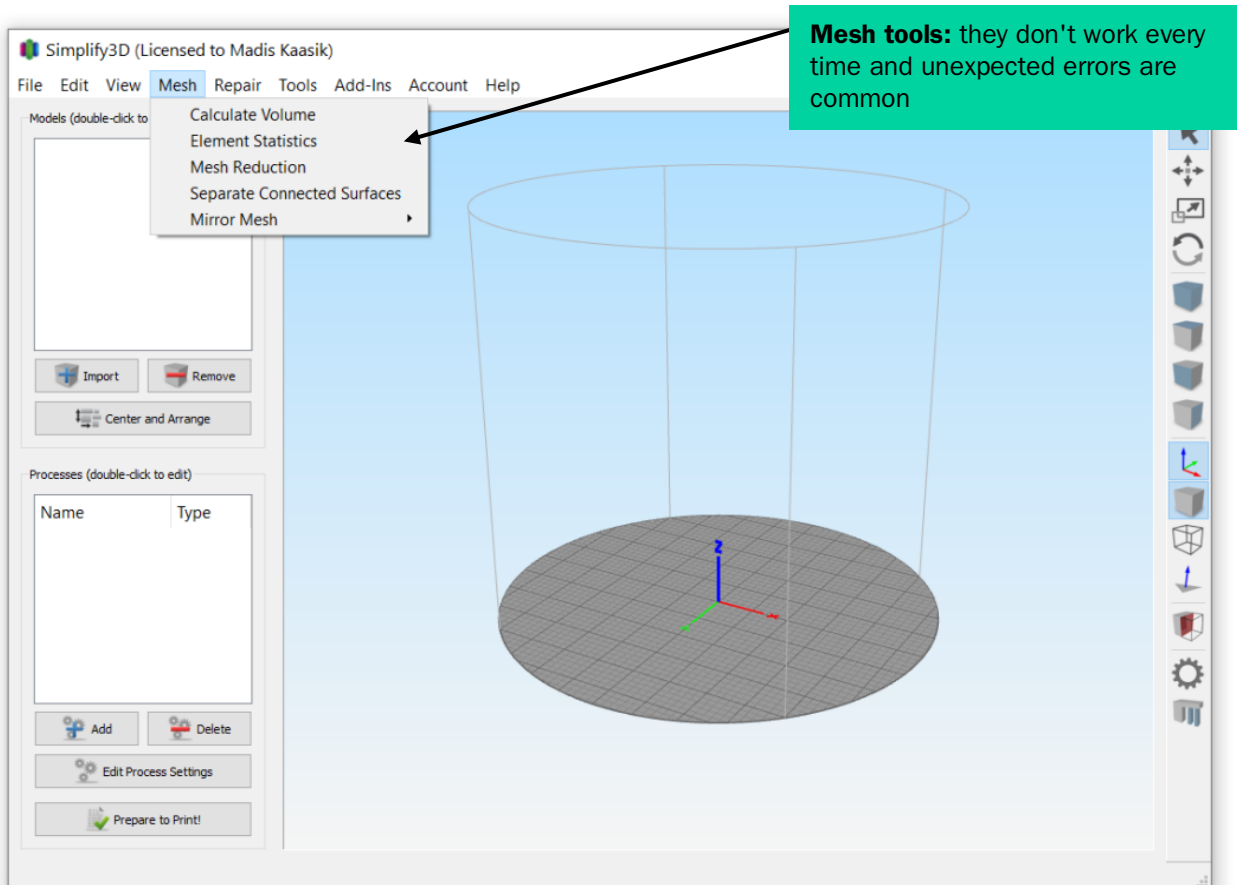
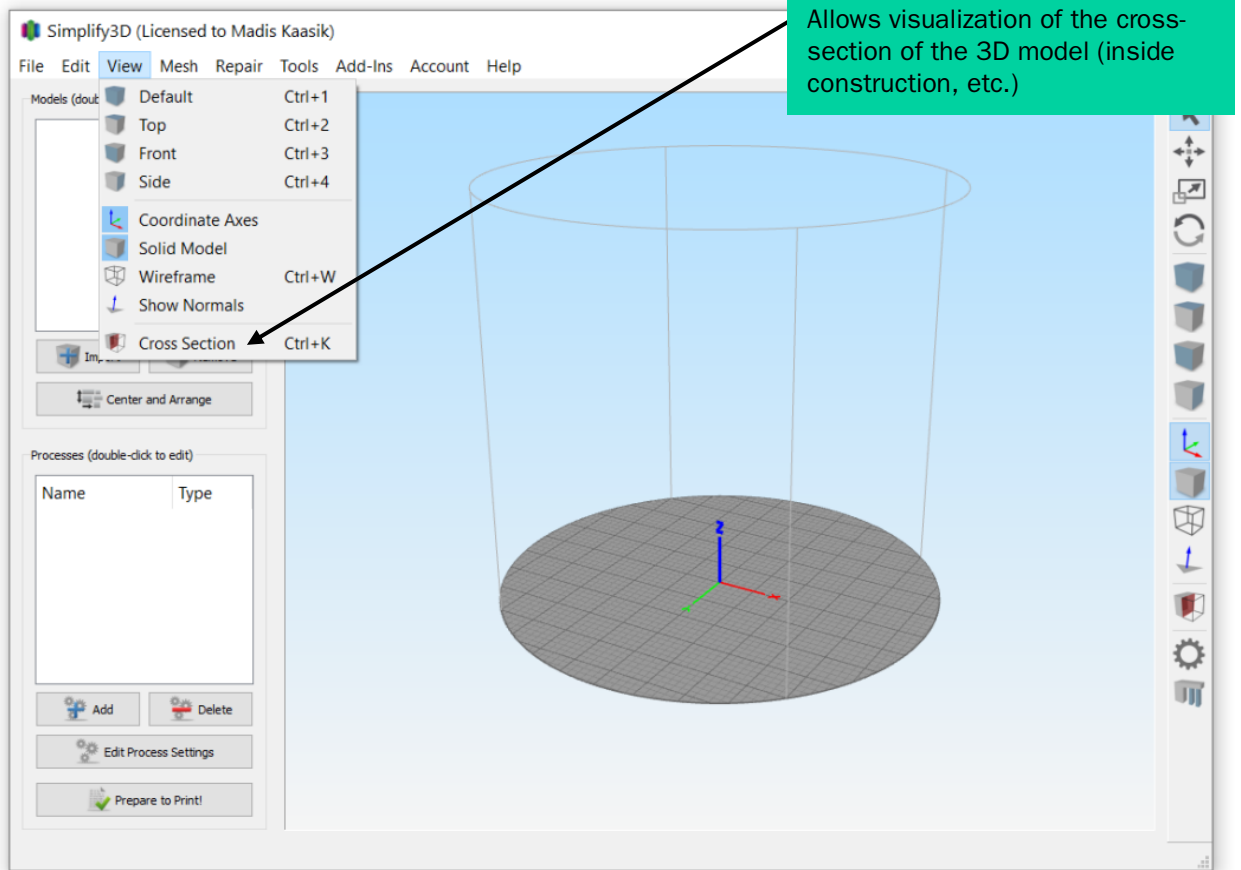
- 1.** How to set up a new printer for the first time (page 3)
- 2.** Simplify3D most used buttons and tabs (pages 4–8)
- 3.** Step-by-step printing guide (pages 9–23);
skip to page 23 if you are printing by importing the G-code)
- 4.** Machine control panel guide (pages 24–26)

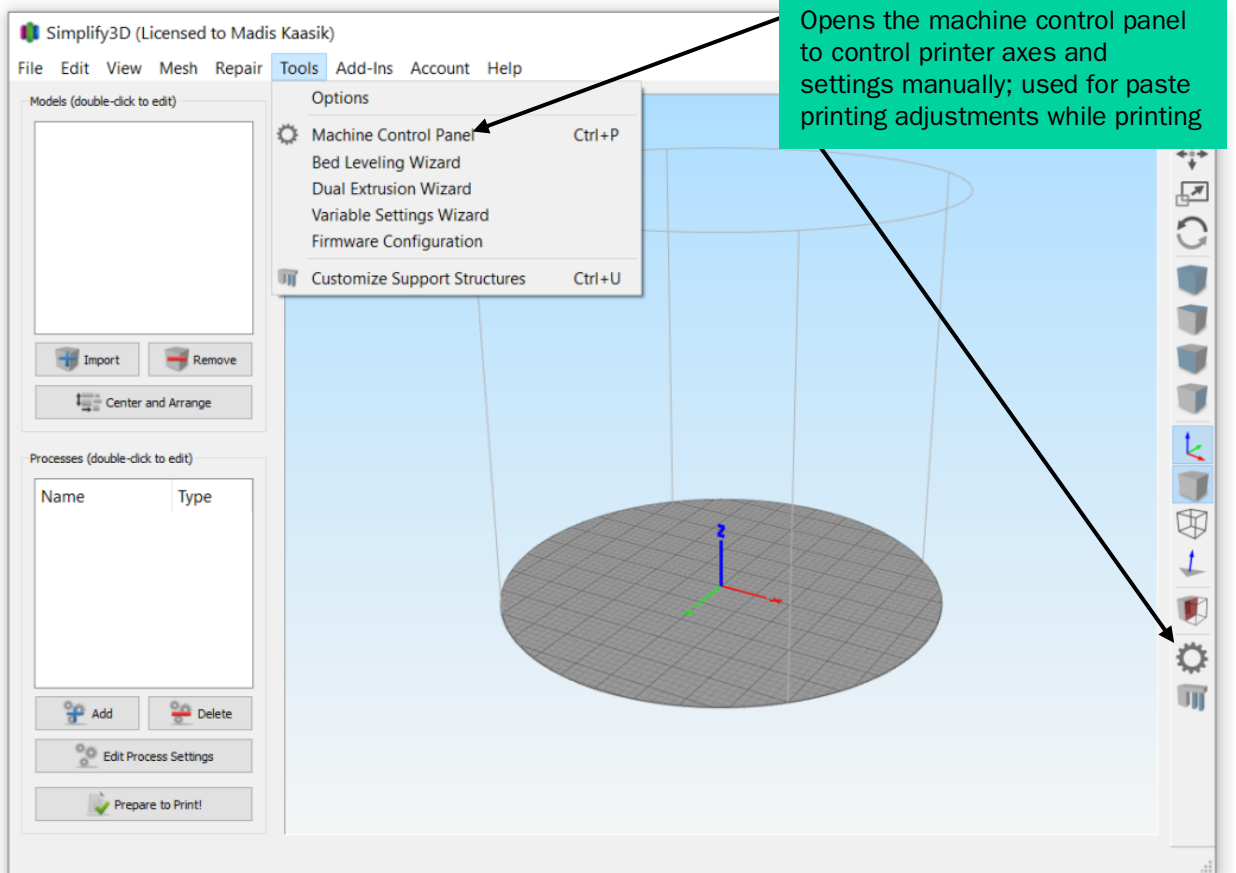
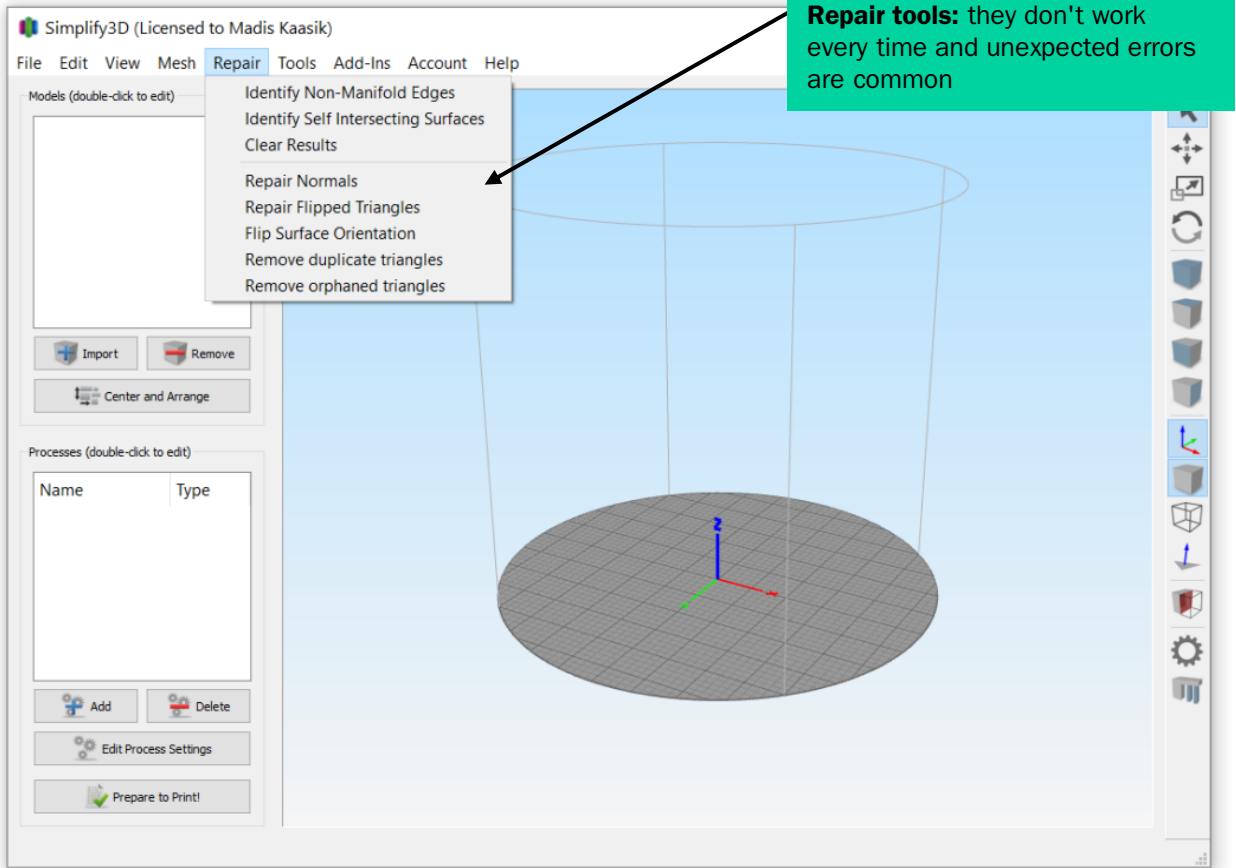
1. How to set up a new printer for the first time

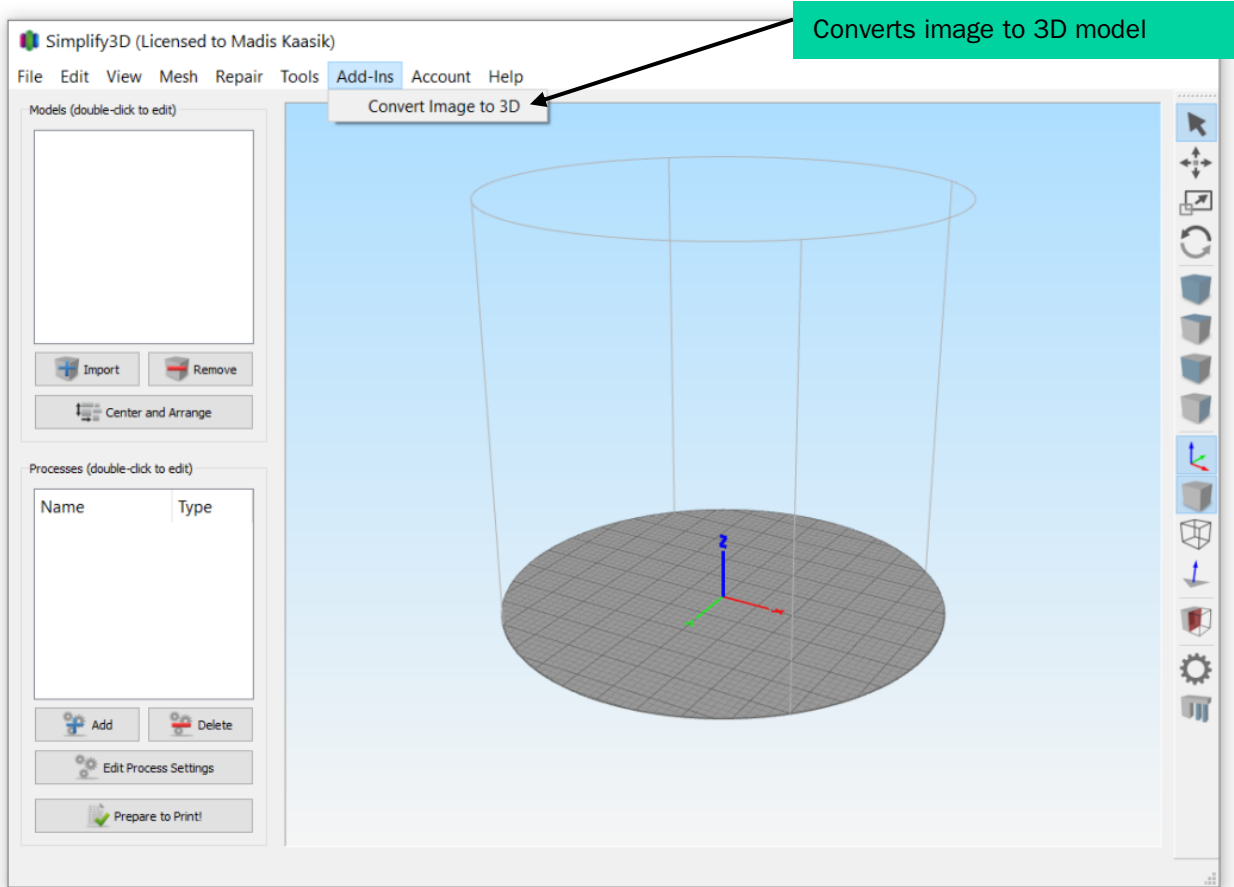


2. Simplify3D most used buttons and tabs

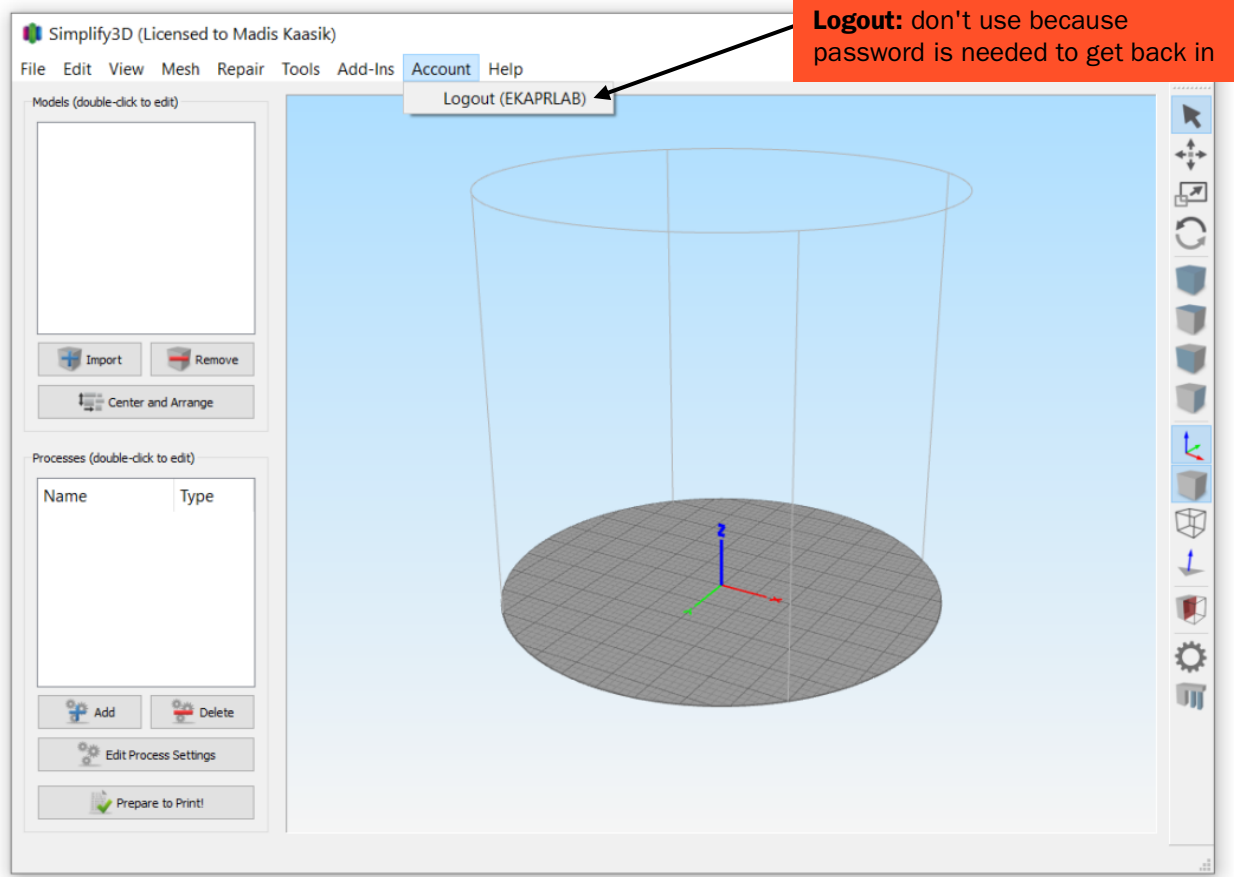






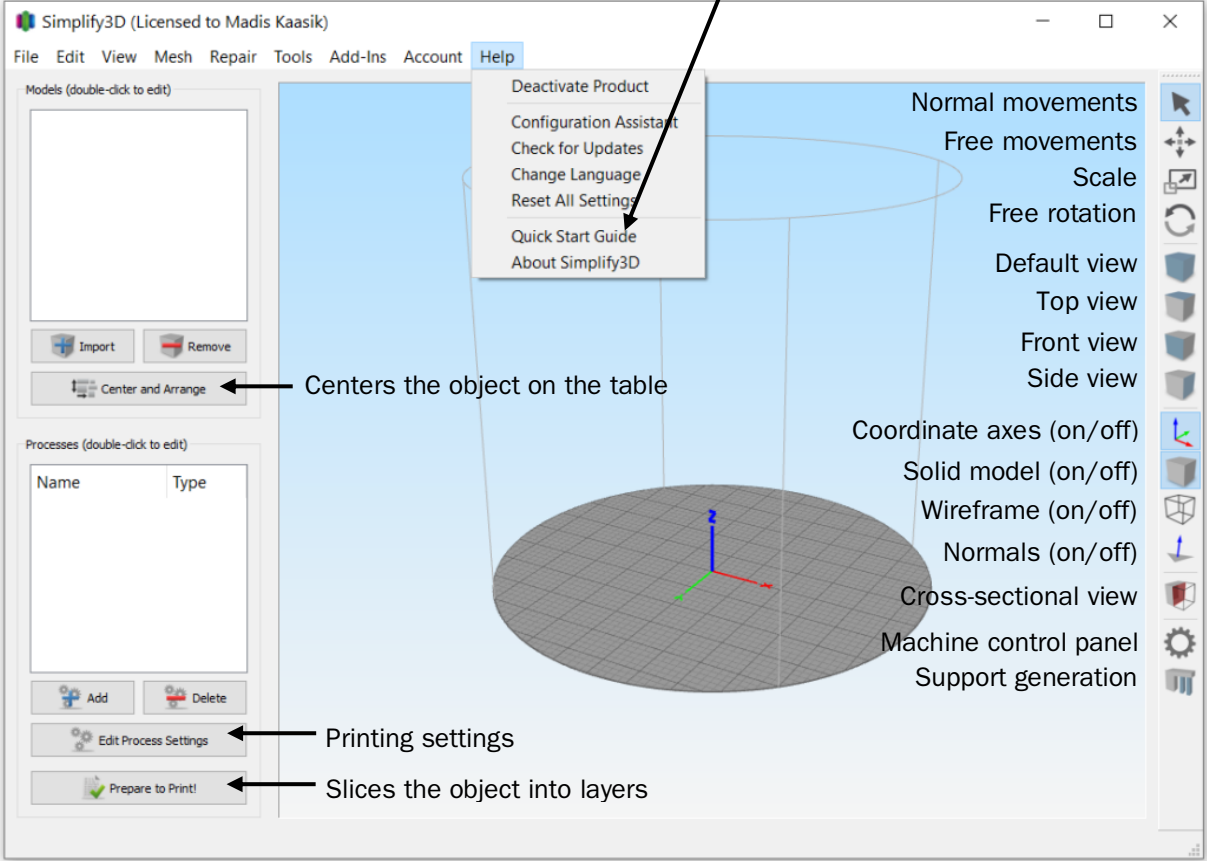


Converts image to 3D model



Logout: don't use because password is needed to get back in

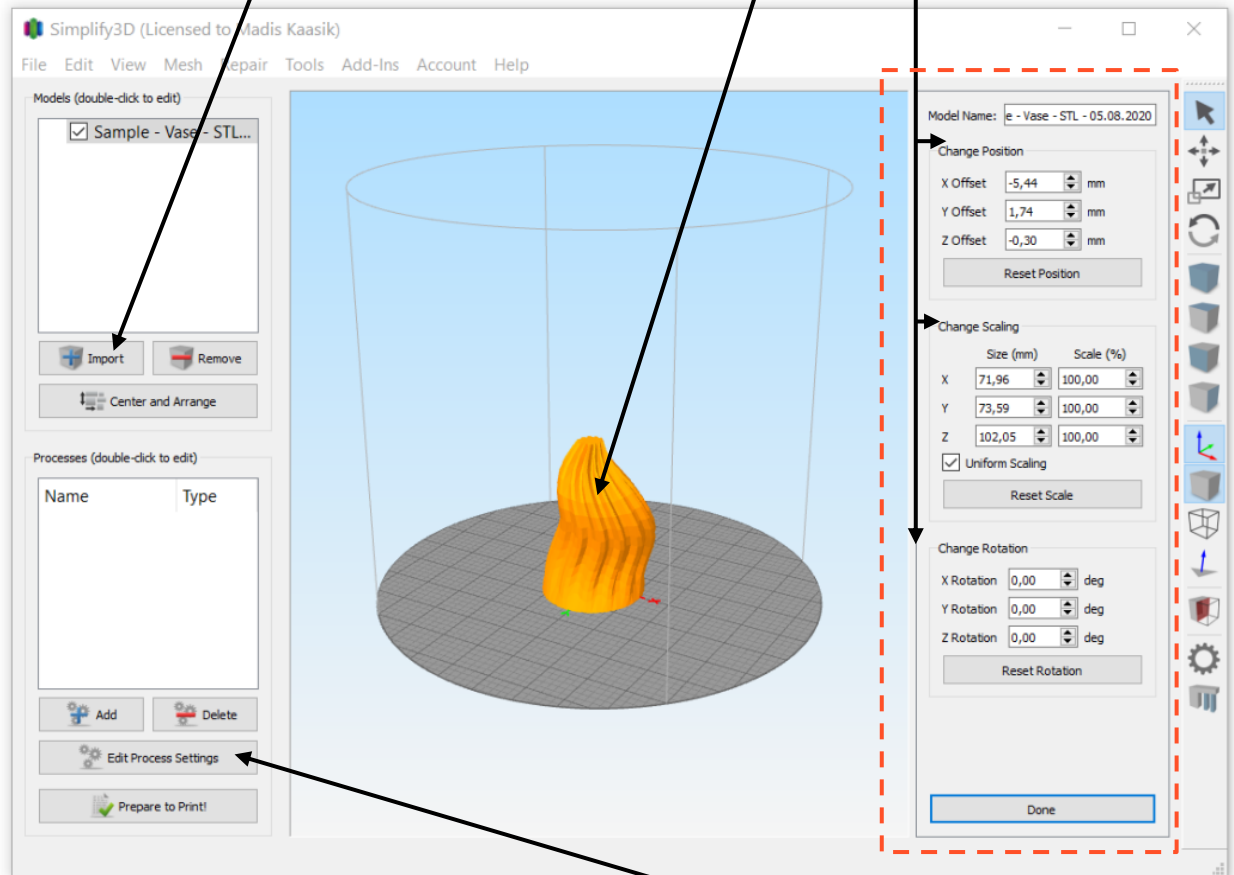
Quick start guide for more info



3. Step-by-step printing guide (skip to page 24 if you are printing by importing the G-code).

Step 01: Import the .stl file

Step 02: Double click on the model to open the settings panel
(change: **rotation, scale, position**)



Step 03: Open printing settings

Step 04: Select the printer from the drop down menu
'Original' means that the printer profile is working well with the best settings for the printer

Step 05: Save over the 'Original' printer profile with your name and project name

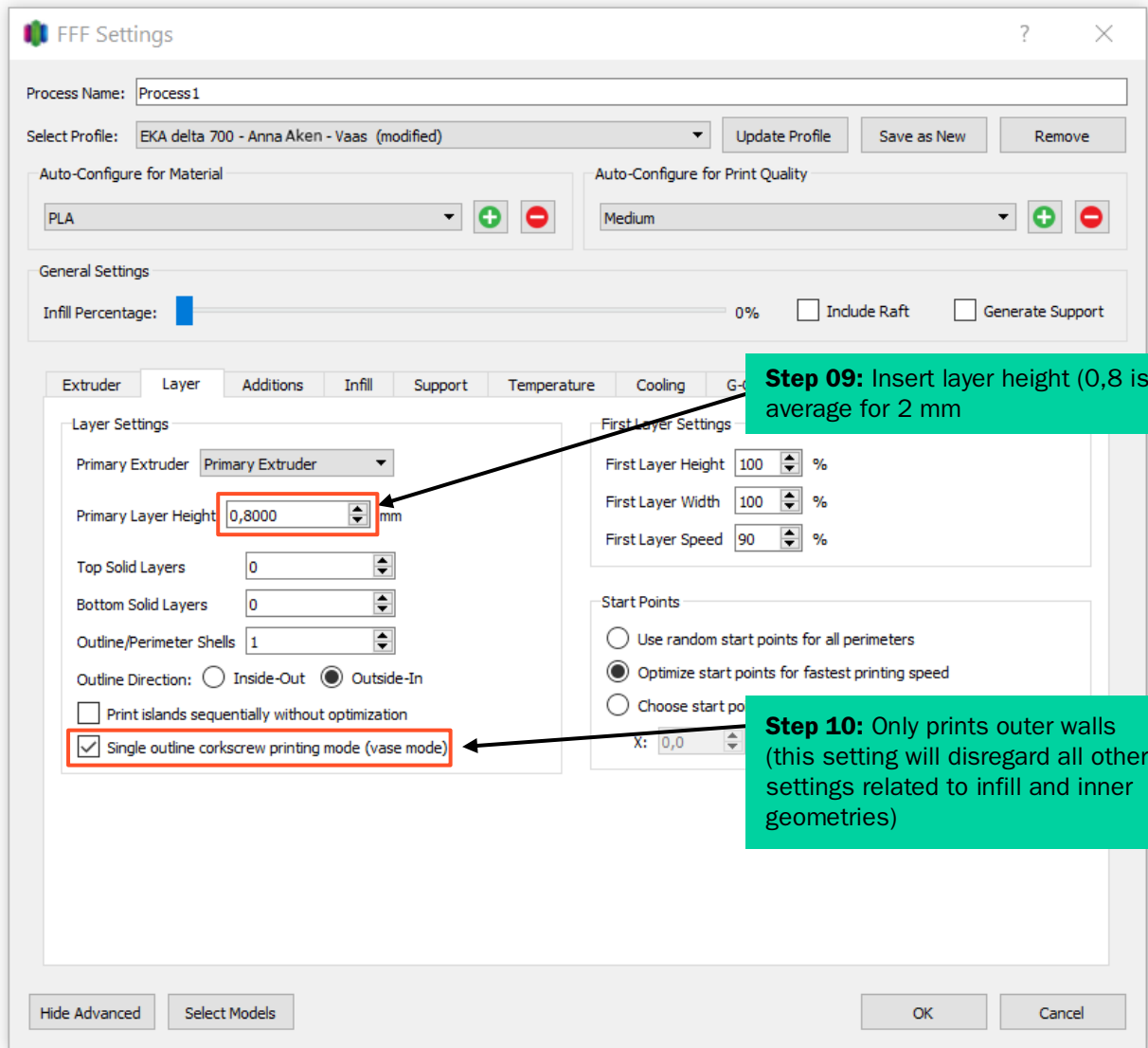
The screenshot shows the 'FFF Settings' window with the following elements:

- Process Name:** Process 1
- Select Profile:** A dropdown menu with 'EKA delta 700 - original - 05082020' selected. An arrow points to this menu from the Step 04 callout.
- Auto-Configure:** A dropdown menu with 'EKA delta 700 - original - 05082020' selected.
- Material:** PLA
- Print Quality:** Medium
- General Settings:** Infill Percentage slider.
- Primary Extruder Toolhead:** Overview section with fields for Nozzle Diameter (6,00 mm), Extrusion Multiplier (0,90), and Extrusion Width (Manual, 0,40).
- Ooze Control:** Retraction (checked) with Retraction Distance (1,00), Extra Restart Distance (0,00), Retraction Vertical Lift (0,00 mm), and Retraction Speed (1800,0 mm/min). Other options include Coast at End and Wipe Nozzle.
- Buttons:** Update Profile, Save as New, Remove, Add Extruder, Remove Extruder, Hide Advanced, Select Models, OK, Cancel.

Two 'Profile Name' dialog boxes are overlaid on the main window:

- The first dialog box shows the text 'EKA delta 700 - original - 05082020' in the input field, with a red box around the word 'original'. An orange callout box next to it says 'Delete this part'. An arrow points from the Step 05 callout to this dialog.
- The second dialog box shows the text 'EKA delta 700 Anna Aken - Vaas' in the input field, with a red box around 'Anna Aken - Vaas'. An orange callout box next to it says 'Add your name and project'. An arrow points from the Step 05 callout to this dialog.

The image shows the 'FFF Settings' dialog box. At the top, 'Process Name' is 'Process1'. The 'Select Profile' dropdown is set to 'EKA delta 700 - Anna Aken - Vaas'. Below this are sections for 'Auto-Configure for Material' (set to 'PLA') and 'Auto-Configure for Print Quality' (set to 'Medium'). The 'General Settings' section shows 'Infill Percentage' at 10%, with checkboxes for 'Include Raft' and 'Generate Support'. The 'Extruder' tab is active, showing an 'Extruder List' with 'Primary Extruder' selected. The 'Primary Extruder Toolhead' settings are shown in the 'Overview' section: 'Extruder Toolhead Index' is 'Tool 0', 'Nozzle Diameter' is '2,00 mm' (highlighted with a red box), 'Extrusion Multiplier' is '0,90', and 'Extrusion Width' is 'Auto'. The 'Ooze Control' section has several options: 'Retraction' (checked) with 'Retraction Distance' at 1,00, 'Extra Restart Distance' at 0,00 mm, 'Retraction Vertical Lift' at 0,00 mm, and 'Retraction Speed' at 1800,0 mm/min; 'Coast at End' (unchecked) with 'Coasting Distance' at 0,20 mm; and 'Wipe Nozzle' (unchecked) with 'Wipe Distance' at 5,00 mm. Annotations include: 'Step 06: Make sure that the profile you previously made has been selected' pointing to the 'Select Profile' dropdown; 'Step 07: Insert nozzle diameter' pointing to the 'Nozzle Diameter' field; and 'Step 08: Width auto (manual is the option for lines thattouch)' pointing to the 'Extrusion Width' radio buttons. Buttons at the bottom include 'Hide Advanced', 'Select Models', 'OK', and 'Cancel'.



FFF Settings

Process Name: Process1

Select Profile: EKA delta 700 - Anna Aken - Vaas (modified)

Auto-Configure for Material: PLA

Auto-Configure for Print Quality: Medium

General Settings

Infill Percentage: 0% Include Raft Generate Support

Extruder Layer Additions Infill Support Temperature Cooling G-Code Scripts Speeds Other

Use Skirt/Brim

Skirt Extruder: Primary Extruder

Skirt Layers: 1

Skirt Offset from Part: 4,00 mm

Skirt Outlines: 2

Use Prime Pillar

Prime Pillar Extruder: All Extruders

Pillar Width: 12,00 mm

Pillar Location: North-West

Speed Multiplier: 100 %

Use Raft

Raft Extruder: Primary Extruder

Raft Top Layers: 3

Raft Base Layers: 2

Raft Offset from Part: 3,00 mm

Separation Distance: 0,14 mm

Raft Top Infill: 100 %

Above Raft Speed: 30 %

Use Ooze Shield

Ooze Shield Extruder: All Extruders

Offset from Part: 2,00 mm

Ooze Shield Outlines: 1

Sidewall Shape: Waterfall

Sidewall Angle Change: 30 deg

Speed Multiplier: 100 %

Hide Advanced Select Models OK Cancel

Step 11 OPTIONAL: Allows printing line around the model on the printing bed before starting to print the object. Good option to get the paste flow going

FFF Settings

Process Name:

Select Profile:

Auto-Configure for Material:

Auto-Configure for Print Quality:

General Settings

Infill Percentage: 0% Include Raft Generate Support

Extruder Layer Additions **Infill** Support Temperature Cooling G-Code Scripts Speeds Other

General

Infill Extruder:

Internal Fill Pattern:

External Fill Pattern:

Interior Fill Percentage: %

Outline Overlap: %

Infill Extrusion Width: %

Minimum Infill Length: mm

Combine Infill Every: layers

Include solid diaphragm every layers

Internal Infill Angle Offsets

deg

Print every infill angle on each layer

External Infill Angle Offsets

deg

Step 12 OPTIONAL: Infill is usually not used. It can be used for printing supported structures inside the object

FFF Settings

Process Name:

Select Profile:

Auto-Configure for Material:

Auto-Configure for Print Quality:

General Settings

Infill Percentage: 0% Include Raft Generate Support

Extruder | Layer | Additions | Infill | **Support** | Temperature | Cooling | G-Code | Scripts | Speeds | Other

Support Material Generation

Generate Support Material

Support Extruder:

Support Infill Percentage: %

Extra Inflation Distance: mm

Support Base Layers:

Combine Support Every: layers

Dense Support

Dense Support Extruder:

Dense Support Layers:

Dense Infill Percentage: %

Automatic Placement

Only used if manual support is not defined

Support Type:

Support Pillar Resolution: mm

Max Overhang Angle: deg

Separation From Part

Horizontal Offset From Part: mm

Upper Vertical Separation Layers:

Lower Vertical Separation Layers:

Support Infill Angles

deg

Step 13 OPTIONAL: Support is usually not used

FFF Settings

Process Name:

Select Profile:

Auto-Configure for Material:

Auto-Configure for Print Quality:

General Settings

Infill Percentage: 0% Include Raft Generate Support

Extruder Layer Additions Infill Support **Temperature** Cooling G-Code Scripts Speeds Other

Temperature Controller List (click item to edit settings)

Primary Extruder

Primary Extruder Temperature

Overview

Temperature Identifier:

Temperature Controller Type: Extruder Heated build platform

Wait for temperature controller to stabilize before beginning build

Per-Layer Temperature Setpoints

Layer	Temperature
1	20

Layer Number:

Temperature: °C

Step 14 OPTIONAL: Temperature setting should be 20 °C

Step 15 OPTIONAL: Cooling is not used

FFF Settings

Process Name:

Select Profile: Update Profile Save as New Remove

Auto-Configure for Material: + -

Auto-Configure for Print Quality: + -

General Settings

Infill Percentage: Include Raft Generate Support

Extruder Layer Additions Infill Support Temperature **Cooling** G-Code Scripts Speeds Other

Per-Layer Fan Controls

Layer	Fan Speed
1	0
2	0

Add Setpoint Remove Setpoint

Layer Number: Fan Speed: %

Fan Options

Blip fan to full power when increasing from idle

Fan Overrides

Increase fan speed for layers below sec

Maximum cooling fan speed: %

Bridging fan speed override: %

Hide Advanced Select Models OK Cancel

Step 16 OPTIONAL: G-code settings for WASP 2040

FFF Settings

Process Name:

Select Profile:

Auto-Configure for Material:

Auto-Configure for Print Quality:

General Settings

Infill Percentage: % Include Raft Generate Support

Extruder | Layer | Additions | Infill | Support | Temperature | Cooling | **G-Code** | Scripts | Speeds | Other

G-Code Options

- SD firmware (include E-dimension)
- Relative extrusion distances
- Allow zeroing of extrusion distances (i.e. G92 E0)
- Use independent extruder axes
- Include M101/M102/M103 commands
- Firmware supports "sticky" parameters
- Apply toolhead offsets to G-Code coordinates

Global G-Code Offsets

	X-Axis	Y-Axis	Z-Axis
Offset	<input type="text" value="0,00"/>	<input type="text" value="0,00"/>	<input type="text" value="0,00"/>

Update Machine Definition

Machine type:

	X-Axis	Y-Axis	Z-Axis
Build volume	<input type="text" value="200,0"/>	<input type="text" value="200,0"/>	<input type="text" value="260,0"/>
Origin offset	<input type="text" value="100,0"/>	<input type="text" value="100,0"/>	<input type="text" value="0,0"/>
Homing dir	<input type="text" value="Max"/>	<input type="text" value="Max"/>	<input type="text" value="Max"/>

Flip build table axis X Y Z

Toolhead offsets: X Y

Update Firmware Configuration

Firmware type:

GPX profile:

Baud rate: bits/sec

Step 17 OPTIONAL: Possibility to add commands into the START and END of the generated G-code for a specific printer

The screenshot shows the 'FFF Settings' dialog box. At the top, there are fields for 'Process Name' (Process 1) and 'Select Profile' (EKA delta 700 - Anna Aken - Vaas (modified)). Below these are sections for 'Auto-Configure for Material' (set to PLA) and 'Auto-Configure for Print Quality' (set to Medium). The 'General Settings' section includes an 'Infill Percentage' slider at 0% and checkboxes for 'Include Raft' and 'Generate Support'. A horizontal tab bar at the bottom of the main settings area includes 'Extruder', 'Layers', 'Additions', 'Infill', 'Support', 'Temperature', 'Cooling', 'G-Code', 'Scripts', 'Speeds', and 'Other'. The 'G-Code' tab is active, showing sub-tabs for 'Starting Script', 'Layer Change Script', 'Retraction Script', 'Tool Change Script', and 'Ending Script'. The 'Starting Script' sub-tab is selected, and a text area contains the text 'G28 ; home all axes'. Below this is a 'Post Processing' section with an 'Export file format' dropdown set to 'Standard G-Code (.gcode)', a checkbox for 'Add celebration at end of build (for .x3g files only)', and a dropdown for 'Random Song'. At the bottom of the dialog are buttons for 'Hide Advanced', 'Select Models', 'OK', and 'Cancel'. Two black arrows point from the green callout box to the 'Starting Script' and 'Ending Script' sub-tabs.

Step 18 OPTIONAL: It's recommended to keep the speeds constant for the entire print

The screenshot shows the 'FFF Settings' dialog box. The 'Process Name' is 'Process 1'. The 'Select Profile' is 'EKA delta 700 - Anna Aken - Vaas (modified)'. The 'Auto-Configure for Material' is set to 'PLA' and 'Auto-Configure for Print Quality' is set to 'Medium'. The 'General Settings' section shows 'Infill Percentage' at 0%, with 'Include Raft' and 'Generate Support' checkboxes. The 'Speeds' tab is selected and highlighted with a red box. The 'Speeds' section contains the following settings:

Setting	Value	Unit
Default Printing Speed	3000,0	mm/min
Outline Underspeed	100	%
Solid Infill Underspeed	100	%
Support Structure Underspeed	100	%
X/Y Axis Movement Speed	3000,0	mm/min
Z Axis Movement Speed	3000,0	mm/min

The 'Speed Overrides' section is also visible, with the following settings:

- Adjust printing speed for layers below 15,0 sec
- Allow speed reductions down to 20 %

Buttons at the bottom include 'Hide Advanced', 'Select Models', 'OK', and 'Cancel'.

FFF Settings

Process Name: Process1

Select Profile: EKA delta 700 - Anna Aken - Vaas (modified)

Auto-Configure for Material: PLA

Auto-Configure for: Medium

General Settings

Infill Percentage: 0% Include Raft Generate Support

Extruder Layer Additions Infill Support Temperature Cooling G-Code Scripts Speeds **Other**

Bridging

Unsupported area threshold 50,0 sq mm

Extra inflation distance 0,00 mm

Bridging extrusion multiplier 100 %

Bridging speed multiplier 100 %

Use fixed bridging infill angle 0 deg

Apply bridging settings to perimeters

Dimensional Adjustments

Horizontal size compensation 0,00 mm

Filament Properties

Filament Toolhead Index Tool 0

Filament diameter 2,0000 mm

Filament price 1,00 price/kg

Filament density 1,70 grams/cm³

Tool Change Retraction

Tool change retraction distance 12,00 mm

Tool change extra restart distance -0,50 mm

Tool change retraction speed 600,0 mm/min

Hide Advanced Select Models OK Cancel

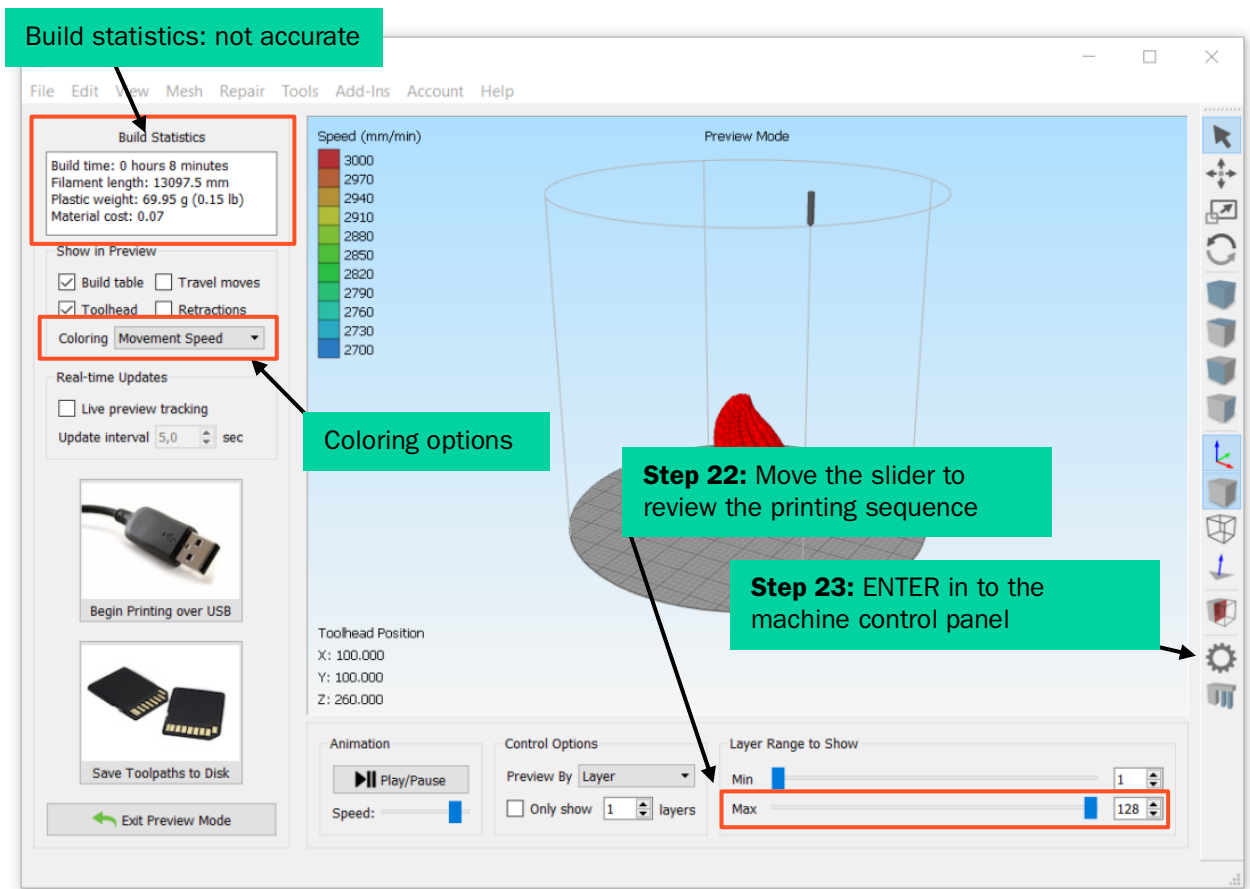
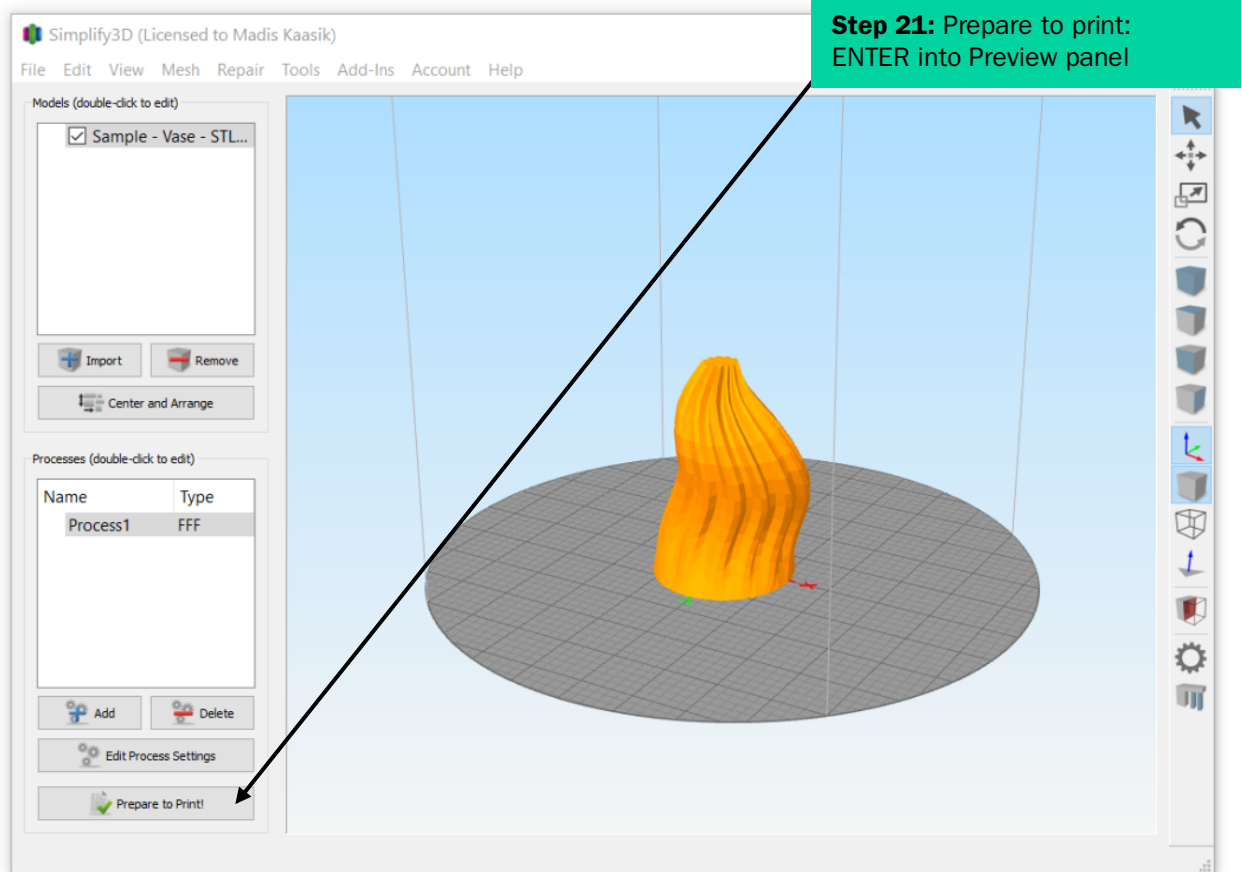
Step 19 OPTIONAL

1. Bridging is usually not used
2. Filament properties do not apply
3. Tool change retraction is not used
4. Dimensional adjustments are usually not used

Step 20 OPTIONAL

1. Layer modifications: fast option to start/end prints from specific heights
2. Thin wall behavior: experimental setting, not tested
3. Single extrusion: not used
4. Ooze control: not used
5. Movement behavior: avoid crossing
6. Slicing behavior: experimental setting, not tested

The screenshot shows the 'FFF Settings' dialog box with the 'Advanced' tab selected. The 'Layer Modifications' section has 'Start printing at height' and 'Stop printing at height' both set to 0,00 mm. 'Thin Wall Behavior' has 'External Thin Wall Type' and 'Internal Thin Wall Type' set to 'Perimeters only' and 'Allowed perimeter overlap' set to 10%. 'Single Extrusions' has 'Minimum Extrusion Length' at 4,00 mm, 'Minimum Printing Width' at 100%, 'Maximum Printing Width' at 100%, and 'Endpoint Extension Distance' at 0,20 mm. 'Ooze Control Behavior' has all options unchecked. 'Movement Behavior' has 'Avoid crossing outline for travel movements' checked and 'Maximum allowed detour factor' at 1,0. 'Slicing Behavior' has 'Non-manifold segments' set to 'Heal' and 'Merge all outlines into a single solid model' checked. The 'Advanced' tab is highlighted in the tab bar, and a red callout box points to it from the top right.



4. Machine control panel guide

The screenshot shows the Machine Control Panel interface. The top section is titled 'Initialization' and contains a 'Connect' button (a red power icon), 'Print', and 'Pause' buttons. Below these are 'Port' and 'Baud Rate' dropdown menus. The 'Baud Rate' is currently set to '250000 bits/sec'. A 'Refresh' button is to the right of the 'Port' dropdown. On the right side, there are 'Position Readout' fields for X, Y, and Z. Below the 'Initialization' section is the 'G-Code Library' tab, which has a table with columns for 'Filename', 'Run Time', and 'Material Usage'. At the bottom of this tab are 'Add to Library', 'Remove from Library', and 'Run Selected G-Code' buttons. To the right of the G-Code Library is the 'Accessory Control' section, which includes 'Active Toolhead' (Tool 0), 'Extruder' (190 °C), 'Heated Bed' (60 °C), and 'Set Fan Speed'. Below that are 'Custom Commands' buttons like 'Disable Motors', 'Enable Motors', 'Print from SD Card', 'Pause Current SD Print', 'Upload to SD Card', 'SD Card Status', and 'Macro 1-3'. At the bottom right is the 'Override Settings' section with 'Movement' and 'Extrusion' knobs and input fields.

Step 01: Select port (port will appear when you connect the printer USB)

Step 02: Baud rate for WASP 2040 is 250,000

Step 03: Press connect (button goes green when connected)

G-Code tab:
G-code appears after slicing the model or you can *import G-code*

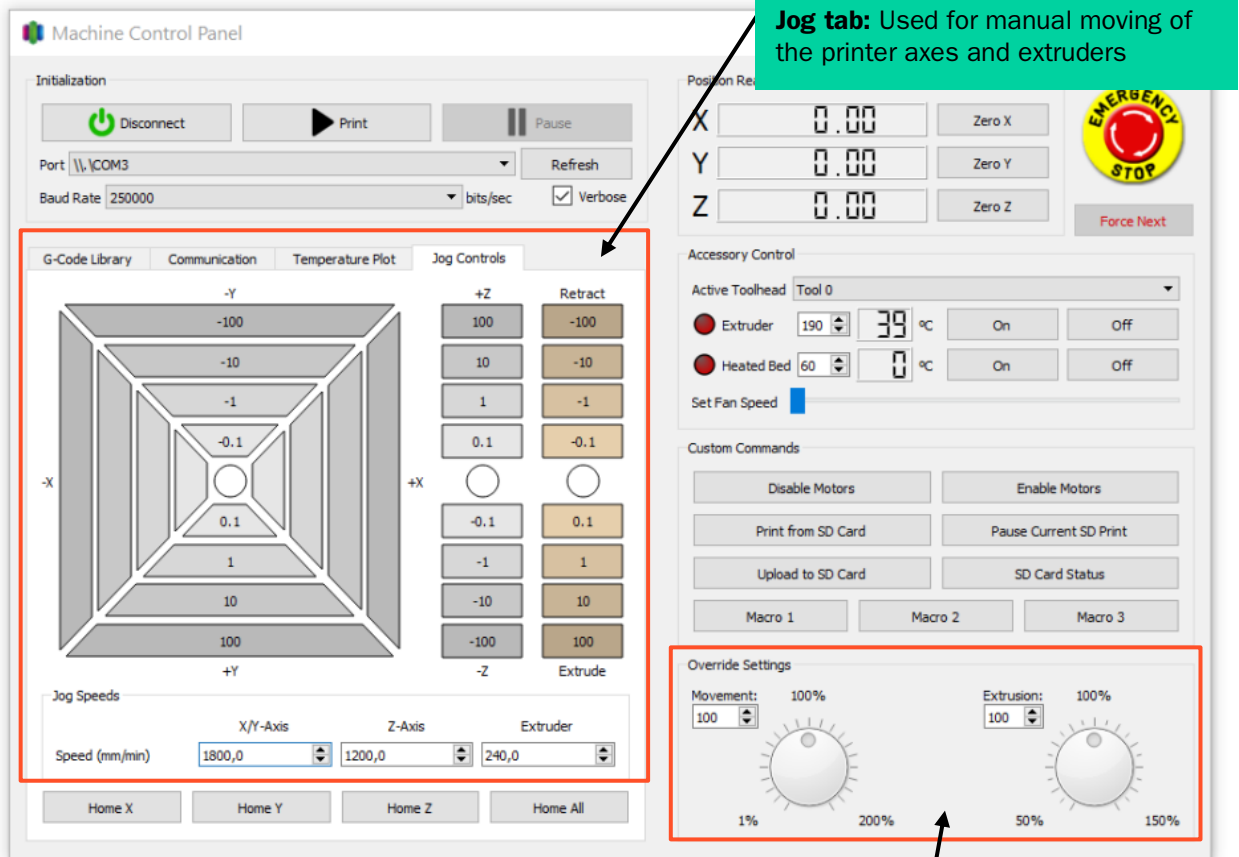
Step 04: START

PAUSE PRINT

EMERGENCY STOP
It's **very important** to press this if the printer has an error

The screenshot shows the Machine Control Panel interface. The 'Communication' tab is selected, displaying a log of G-code commands and responses. A green callout box points to the 'Print' button in the 'Initialization' section and the 'Communication' tab. Another green callout box points to the log text, stating: **Communication tab:** Shows info and allows you to send commands to the printer. A red callout box points to the 'EMERGENCY STOP' button, stating: **EMERGENCY STOP** It's **very important** to press this if the printer has an error. The interface also shows 'Position Readout' (X: 0.00, Y: 0.00, Z: 0.00), 'Accessory Control' (Extruder at 39°C, Heated Bed at 0°C), and 'Custom Commands' (Disable Motors, Enable Motors, etc.).

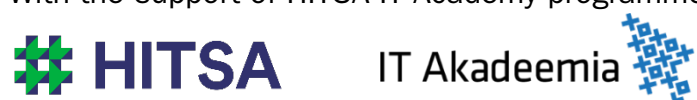
The screenshot shows the Machine Control Panel interface with the 'Temperature Plot' tab selected. A green callout box points to the 'Print' button in the 'Initialization' section and the 'Temperature Plot' tab, stating: **Temperature tab:** Temperature info is not relevant. A red callout box points to the 'EMERGENCY STOP' button, stating: **EMERGENCY STOP** It's **very important** to press this if the printer has an error. Another red callout box points to the 'Custom Commands' section, stating: **Custom commands:** rarely used. The 'Temperature Plot' shows a graph of Temperature (C) vs Samples, with a red line indicating the temperature. The 'Custom Commands' section is highlighted with a red border. The interface also shows 'Position Readout' (X: 0.00, Y: 0.00, Z: 0.00), 'Accessory Control' (Extruder at 39°C, Heated Bed at 0°C), and 'Override Settings' (Movement: 100%, Extrusion: 100%).



Jog tab: Used for manual moving of the printer axes and extruders

Override settings: For adjusting the movement and extruder speeds before the print or while printing

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Compiled by **Madis Kaasik and Lauri Kilusk, Estonian Academy of Arts**, January 2021