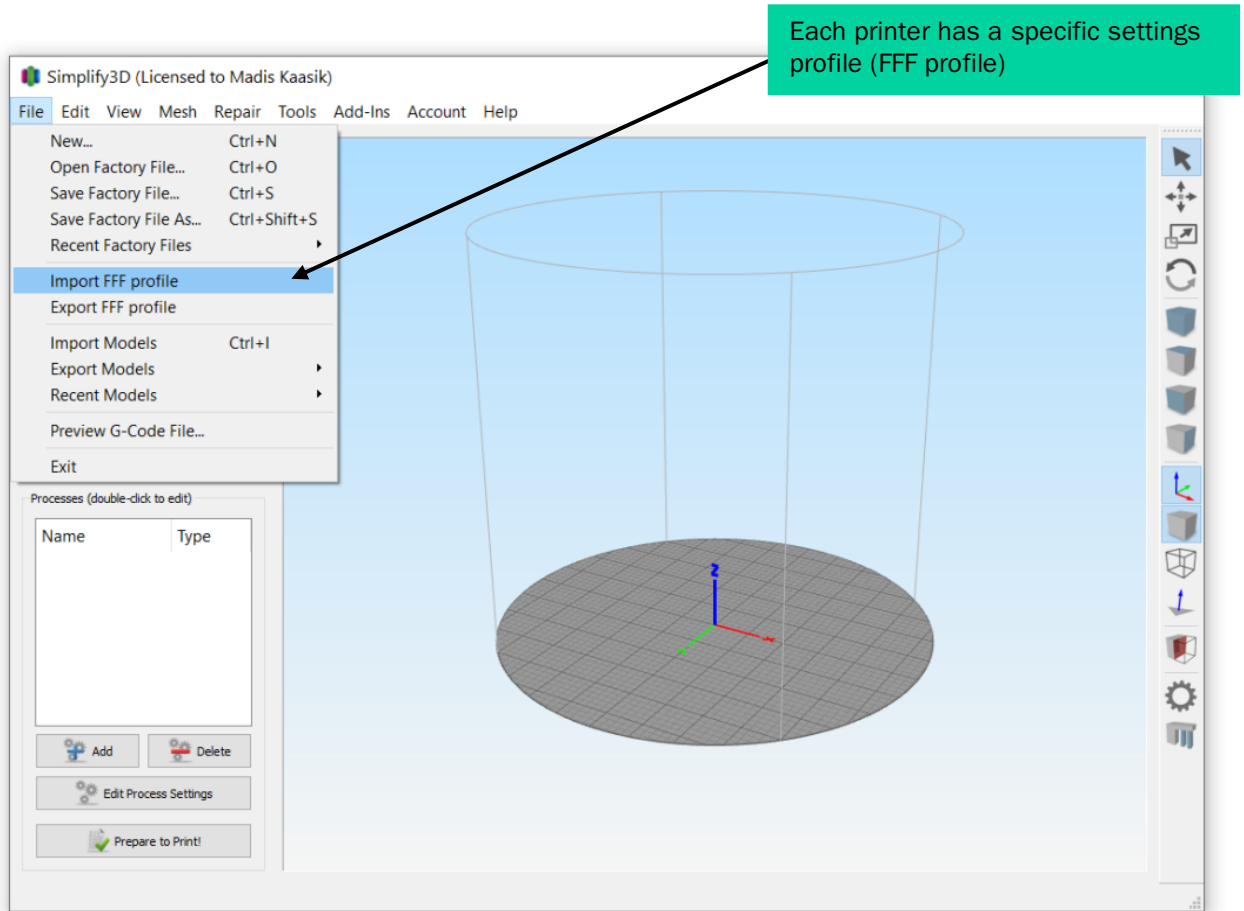


**Delta 900 3D printer
user guide for Simplify3D**

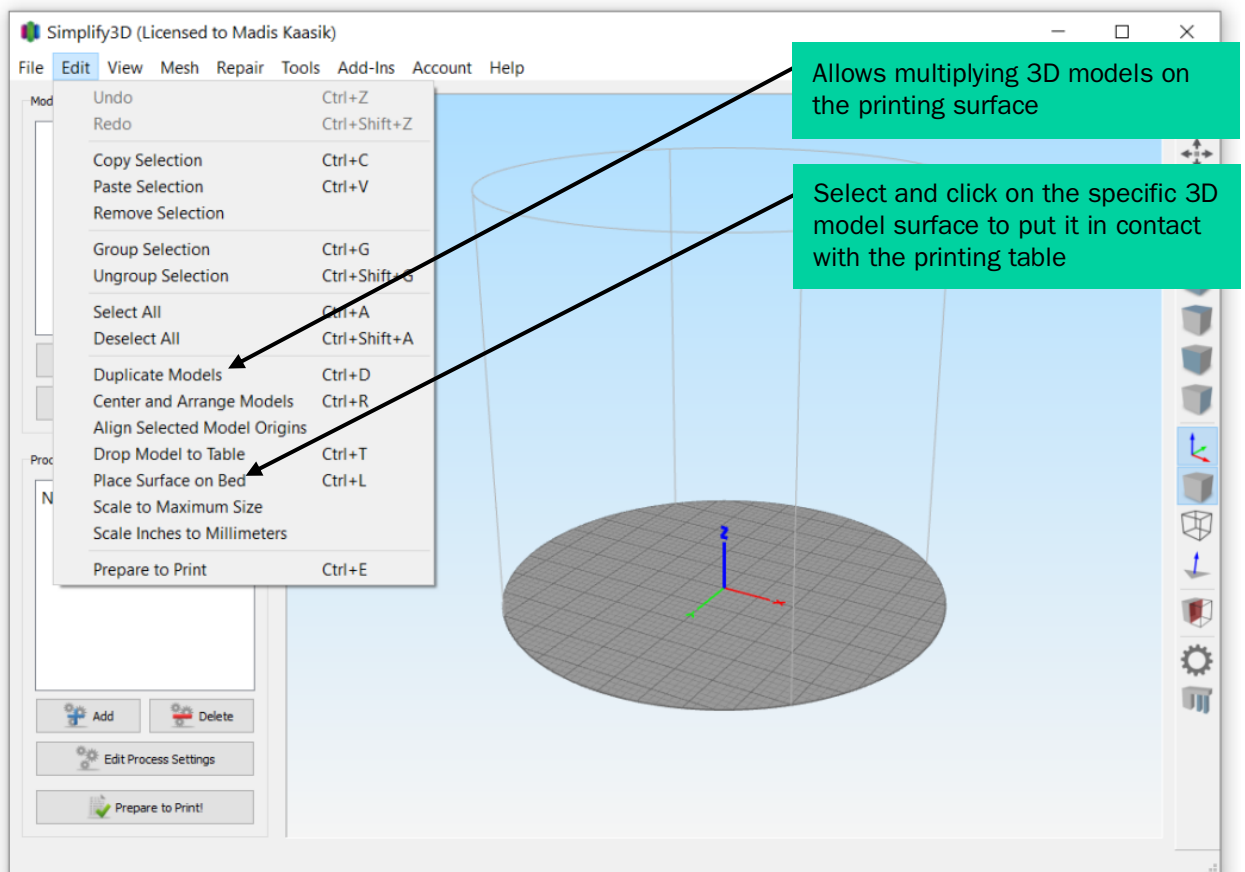
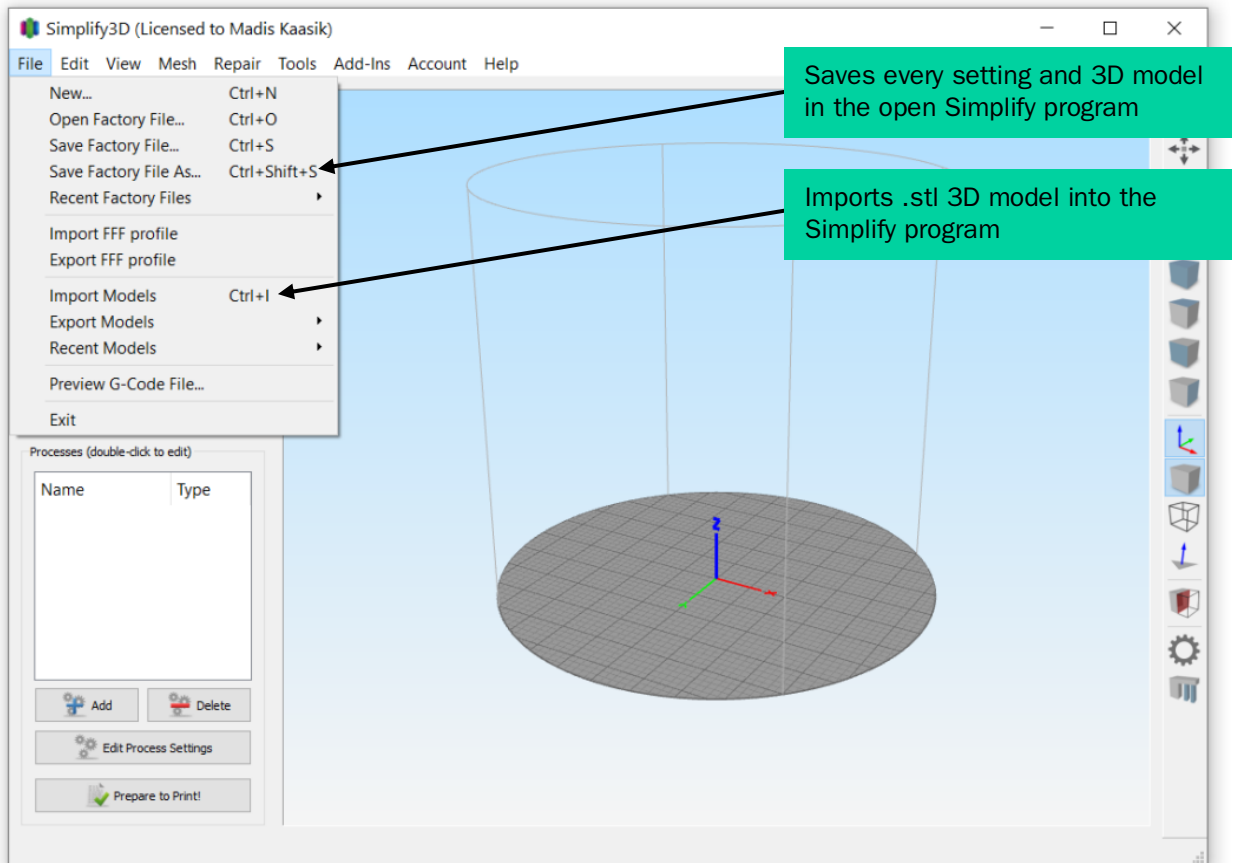
In this document:

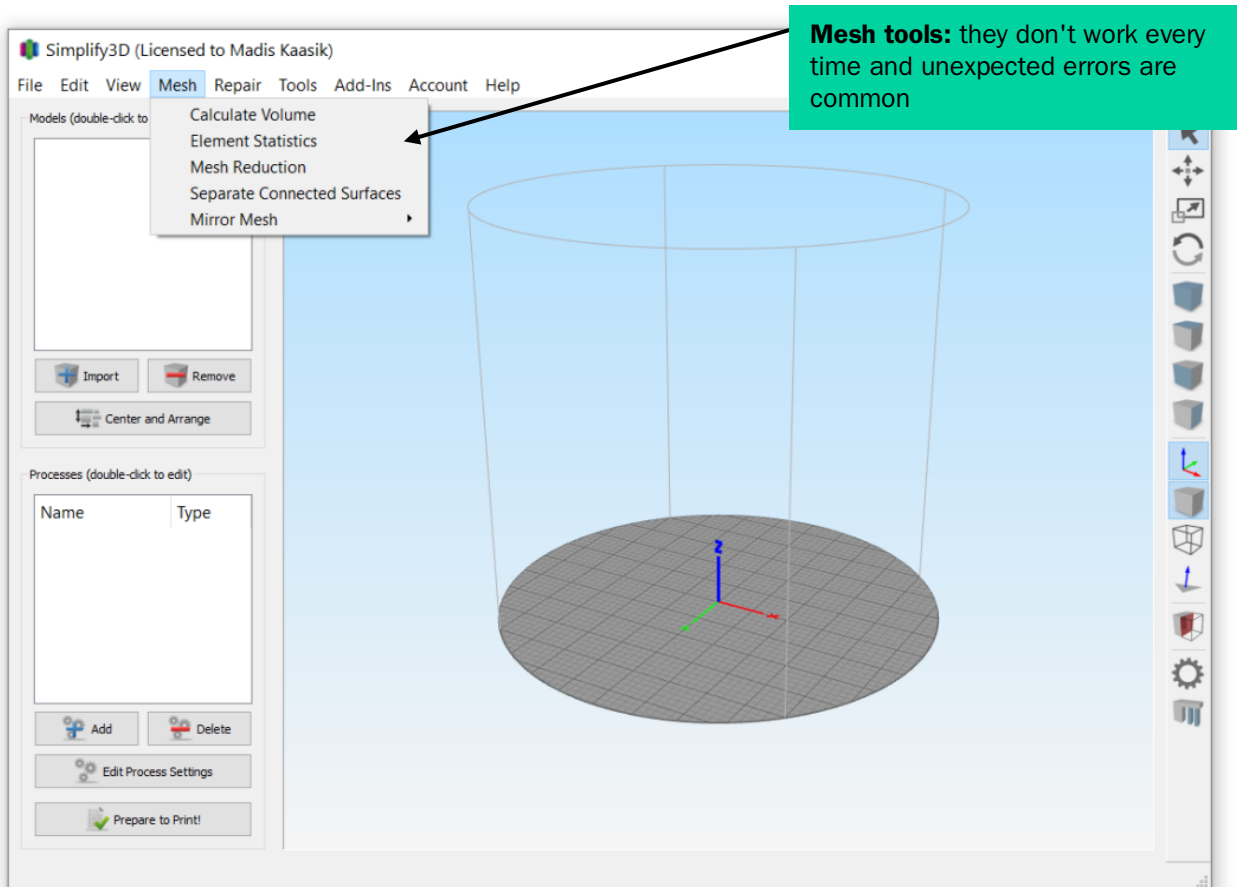
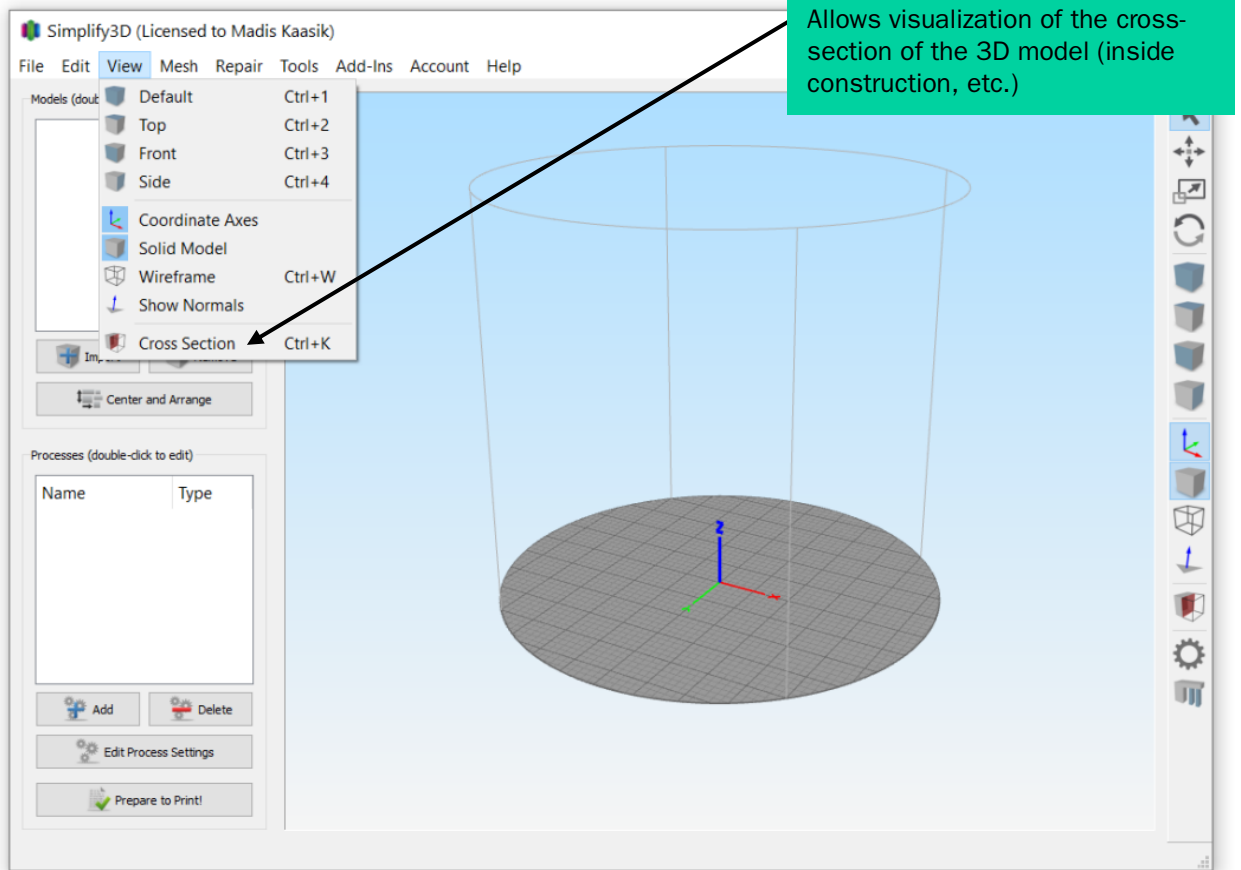
- 1.** How to set up a new printer for the first time (page 3)
- 2.** Simplify3D most used buttons and tabs (pages 4–8)
- 3.** Step-by-step printing guide (pages 9–23);
skip to page 23 if you are printing by importing the G-code)
- 4.** Machine control panel guide (pages 24–26)

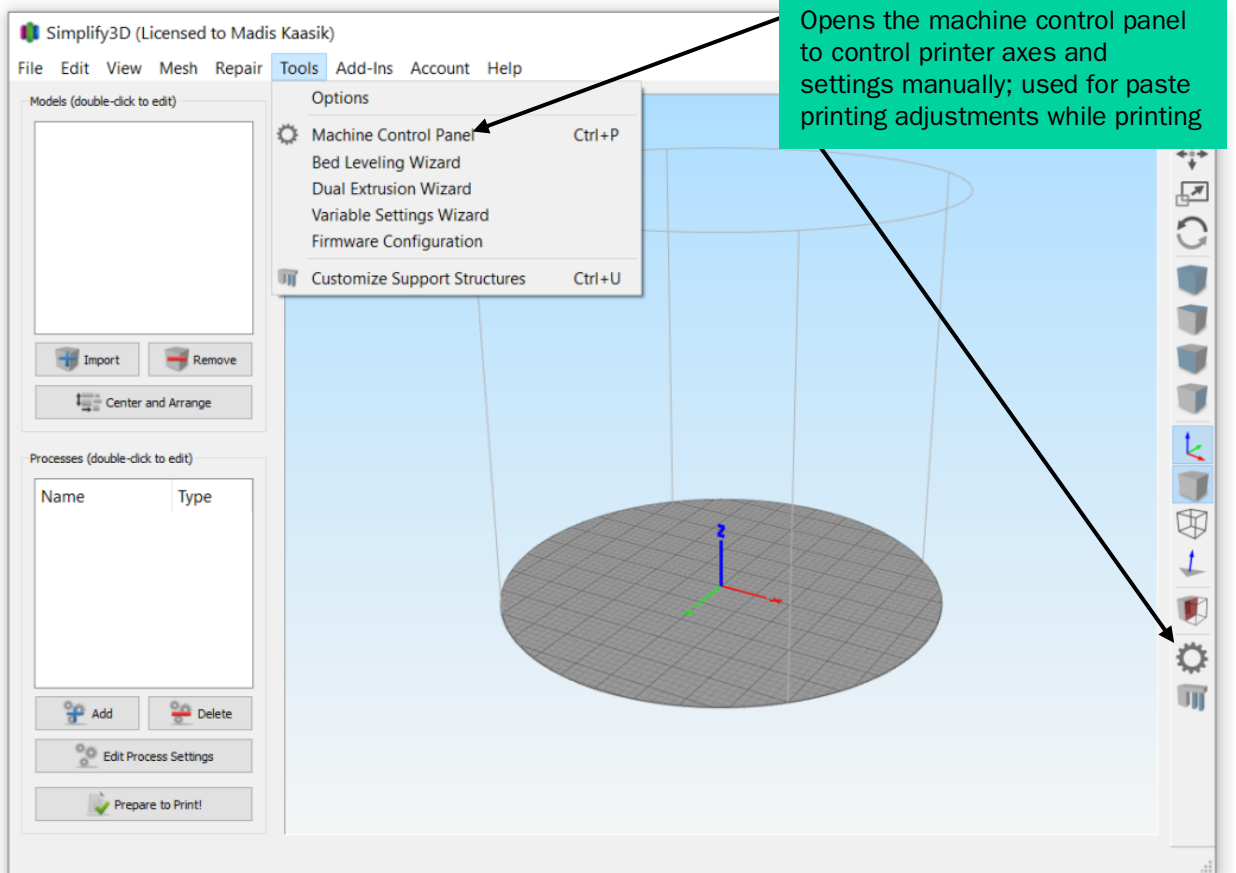
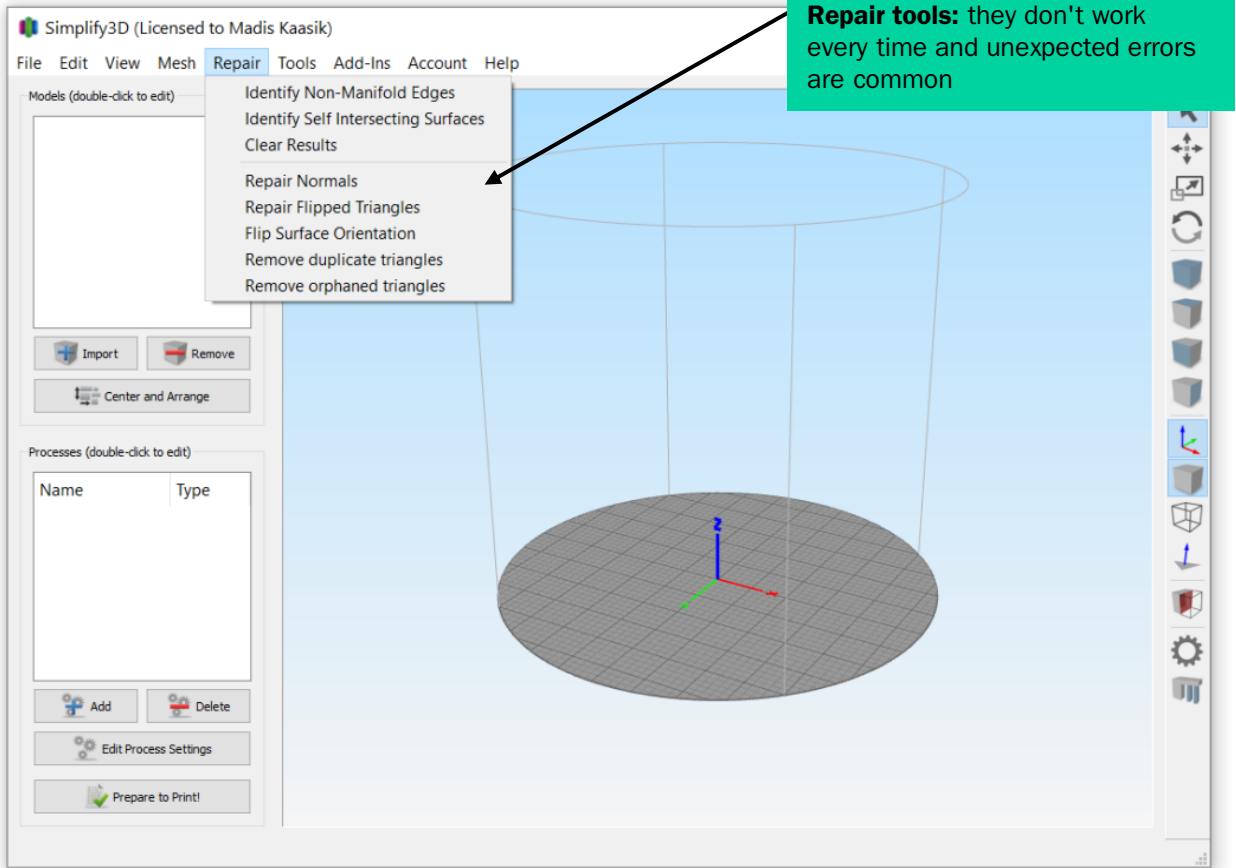
1. How to set up a new printer for the first time

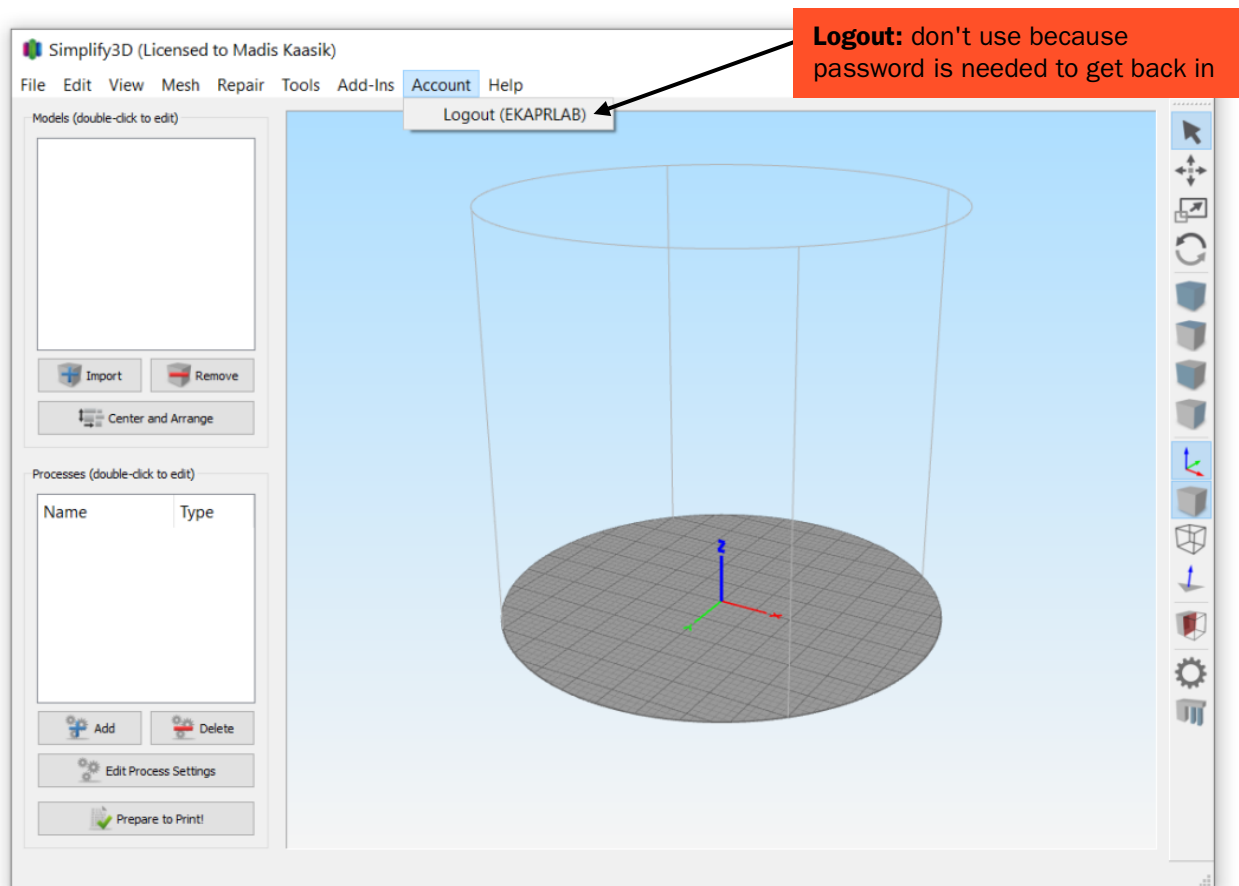
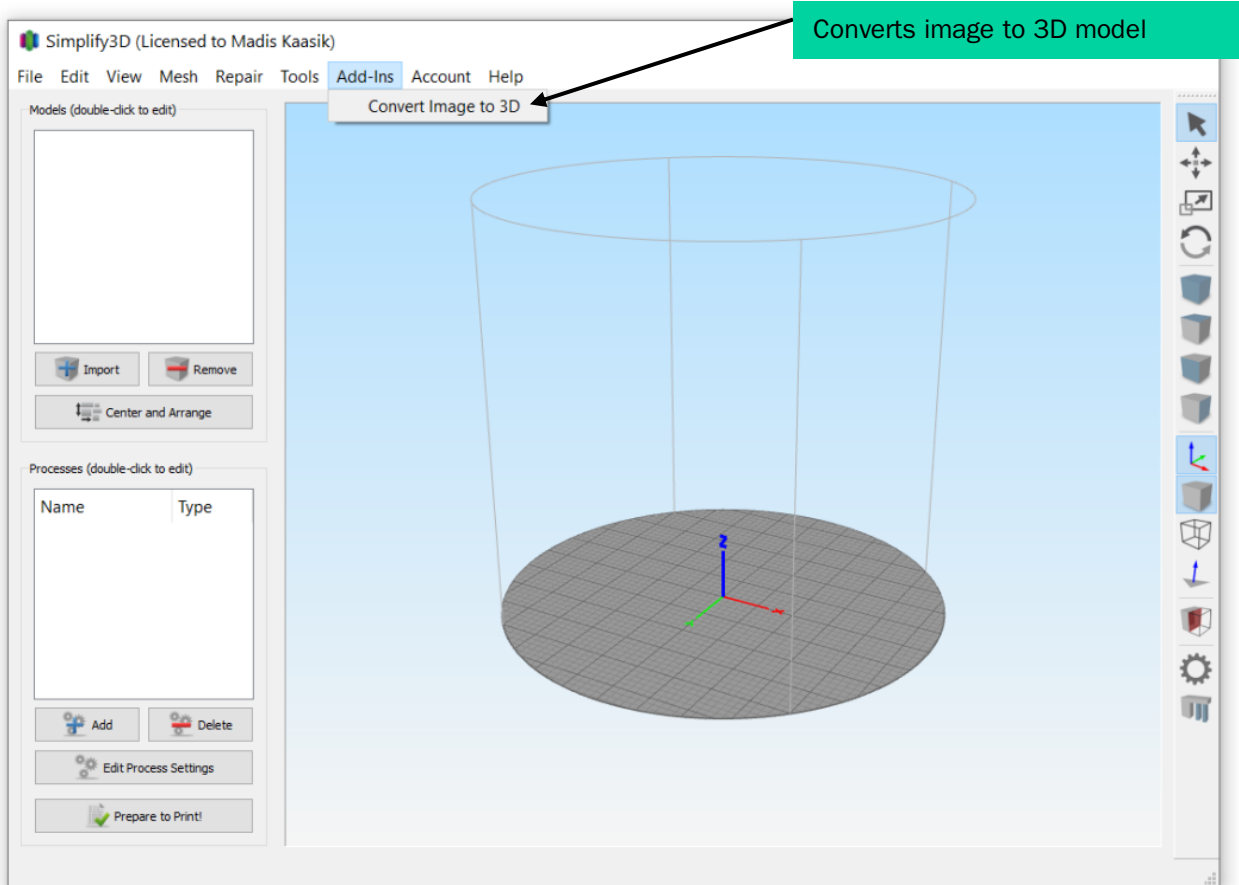


2. Simplify3D most used buttons and tabs

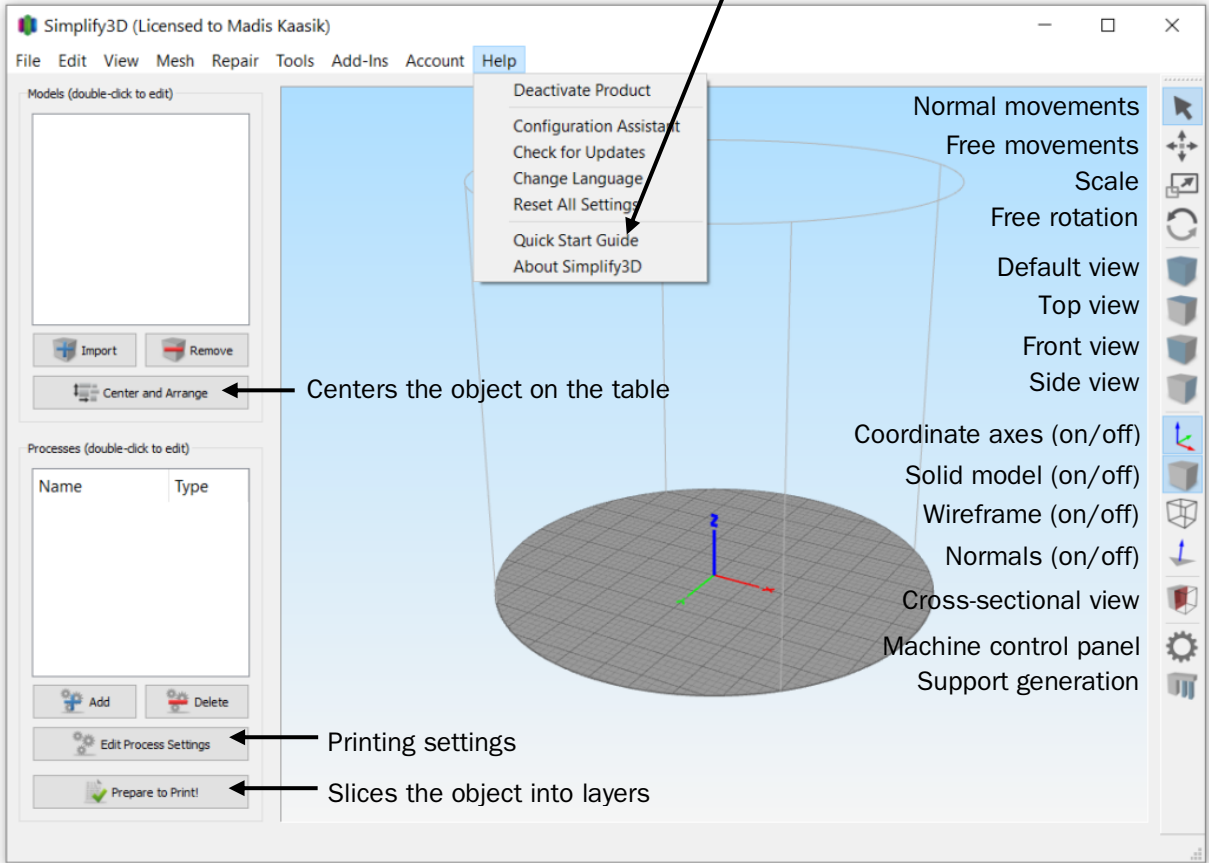








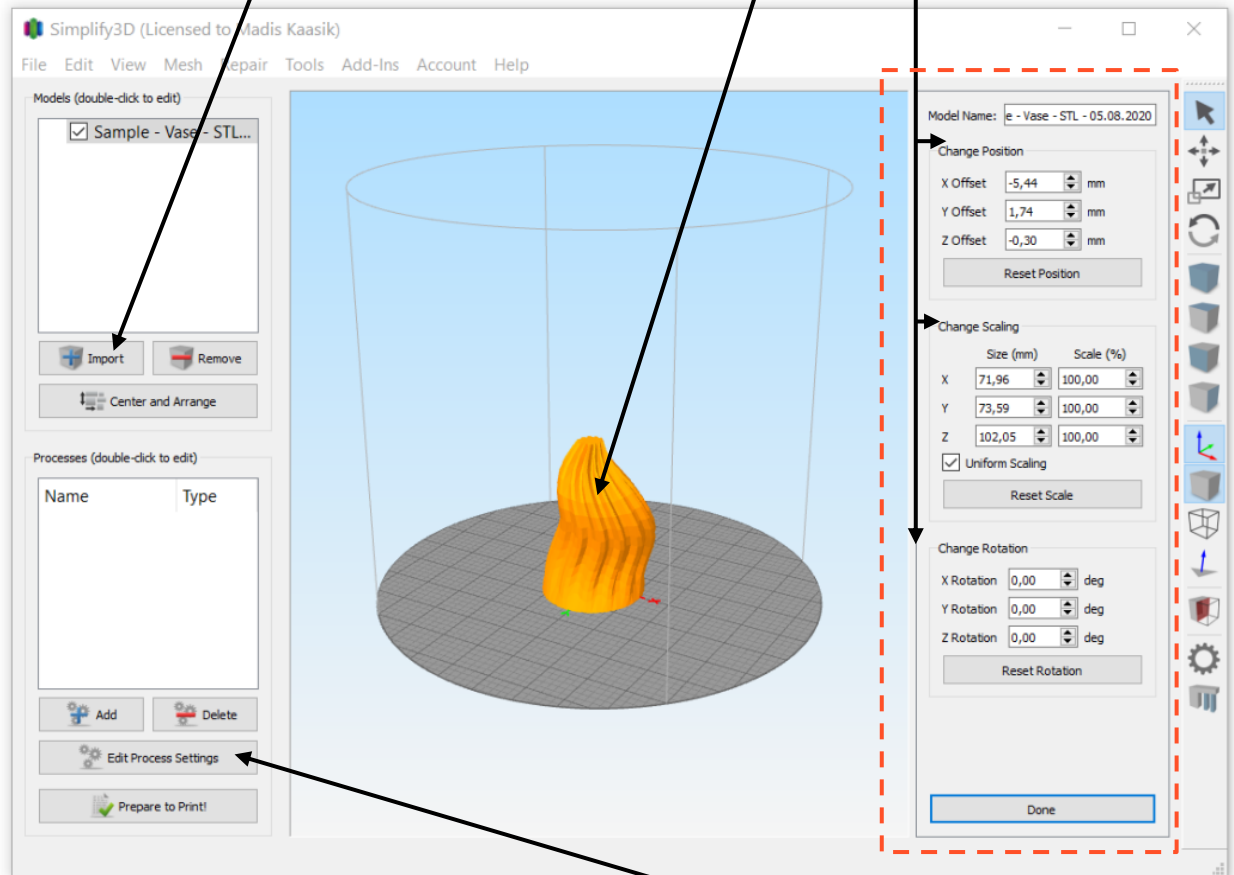
Quick start guide for more info



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

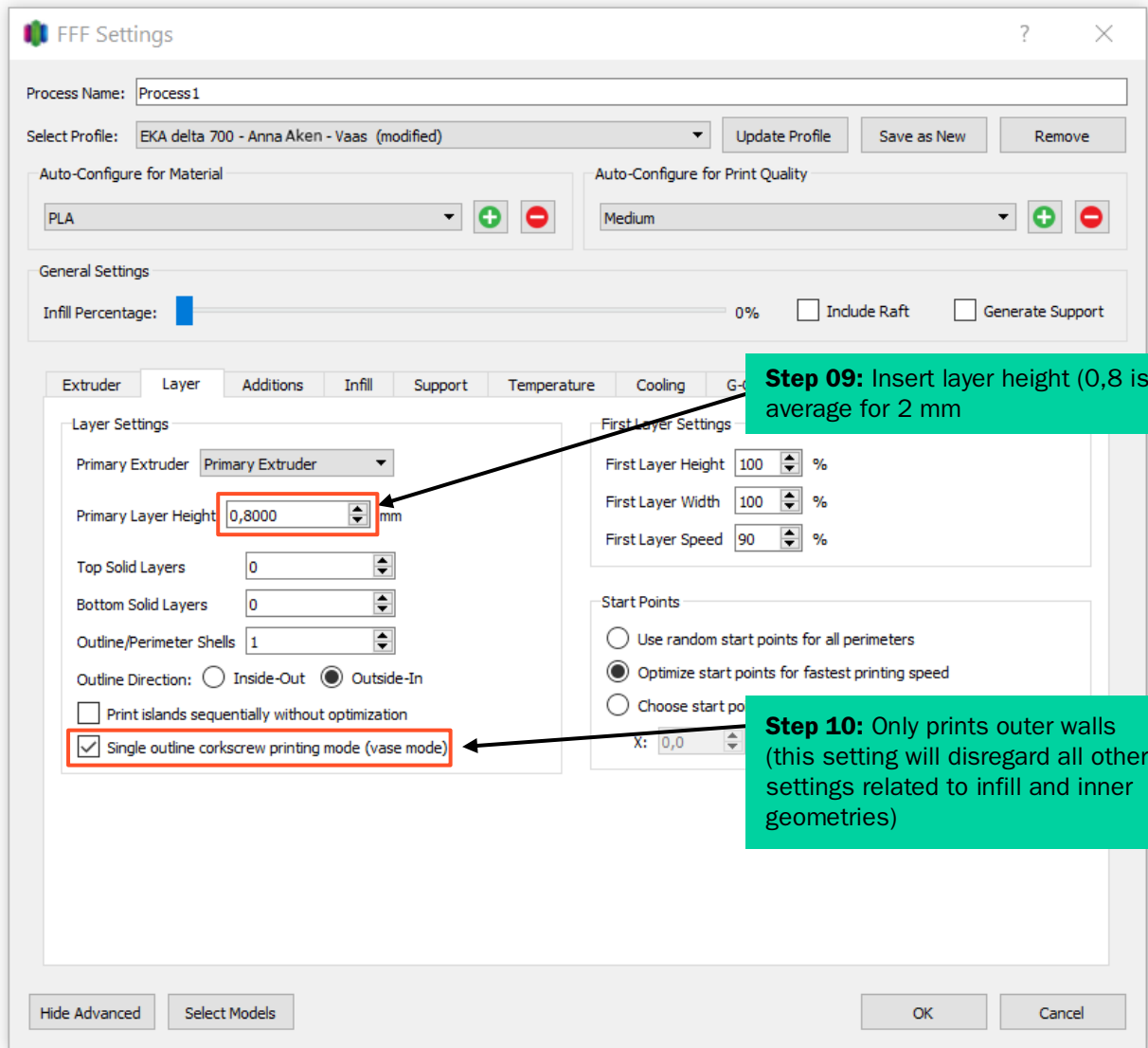
The screenshot shows the 'FFF Settings' dialog box. At the top, the 'Process Name' is 'Process 1'. The 'Select Profile' dropdown menu is open, showing 'EKA delta 700 - original - 05082020' as the selected option. Below it, the 'Auto-Configure' dropdown is also open, showing 'EKA delta 700 - original - 05082020'. The material is set to 'PLA' and the print quality is 'Medium'. The 'General Settings' section shows 'Infill Percentage' at 100%. The 'Primary Extruder Toolhead' section is visible, showing 'Extruder Toolhead Index' as 'Tool 0', 'Nozzle Diameter' as '6,00 mm', 'Extrusion Multiplier' as '0,90', and 'Extrusion Width' as 'Manual 0,40'. The 'Ooze Control' section has 'Retraction' checked with a distance of '1,00', 'Extra Restart Distance' of '0,00', 'Retraction Vertical Lift' of '0,00 mm', 'Retraction Speed' of '1800,0 mm/min', 'Coasting Distance' of '0,20 mm', and 'Wipe Distance' of '5,00 mm'. Two 'Profile Name' dialog boxes are overlaid on the main window. The first dialog box has 'EKA delta 700 - original - 05082020' in the input field, with a red box around the text and an orange callout that says 'Delete this part'. The second dialog box has 'EKA delta 700 Anna Aken - Vaas' in the input field, with a red box around the text and an orange callout that says 'Add your name and project'. The main dialog box has 'OK' and 'Cancel' buttons at the bottom right.

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', with an arrow pointing to it from a callout box. Below this are '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 and an arrow from a callout), 'Extrusion Multiplier' is '0,90', and 'Extrusion Width' is 'Auto' (highlighted with an arrow from a callout). The 'Ooze Control' section has checkboxes for 'Retraction', 'Coast at End', and 'Wipe Nozzle', each with associated numerical settings. At the bottom are buttons for 'Hide Advanced', 'Select Models', 'OK', and 'Cancel'.

Step 06: Make sure that the profile you previously made has been selected

Step 07: Insert nozzle diameter

Step 08: Width auto (manual is the option for lines thattouch)



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

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:

Dense Support

Dense Support Extruder:

Dense Support Layers:

Dense Infill Percentage: %

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 Delta 900

For Delta 900 printer = 400mm

The screenshot shows the 'FFF Settings' dialog box with the 'G-Code' tab selected. A red rectangular box highlights the 'Update Machine Definition' section. Within this section, the 'Machine type' is set to 'Delta robot (cylindrical build volume)'. Below this, there are three columns for 'X-Axis', 'Y-Axis', and 'Z-Axis'. The 'Build volume' row shows values of 200,0 for X, 200,0 for Y, and 260,0 for Z, followed by 'mm'. The 'Origin offset' row shows 100,0 for X, 100,0 for Y, and 0,0 for Z, followed by 'mm'. The 'Homing dir' row shows 'Max' for all three axes. Below these are checkboxes for 'Flip build table axis' (X, Y, Z) and 'Toolhead offsets' (Tool 0, X: 0,00, Y: 0,00). The 'Update Firmware Configuration' section is also visible, with 'Firmware type' set to 'RepRap (Marlin/Repetier/Sprinter)', 'GPX profile' set to 'Replicator 2 (default config)', and 'Baud rate' set to '250000 bits/sec'. A green callout box at the top right points to the Z-Axis build volume field with the text 'Step 16 OPTIONAL: G-code settings for Delta 900'. Another green callout box on the right points to the Z-Axis field with the text 'For Delta 900 printer = 400mm'. At the bottom of the dialog are buttons for 'Hide Advanced', 'Select Models', 'OK', and 'Cancel'.

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

The image 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', 'Layer', '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 its text area contains the command 'G28 ; home all axes'. Below the G-Code section is a 'Post Processing' section with a dropdown for 'Export file format' (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 a 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 'Adjust printing speed for layers below' checkbox unchecked, a value of 15,0 sec, and 'Allow speed reductions down to' set to 20 %.

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

FFF Settings

Process Name:

Select Profile:

Auto-Configure for Material:

Auto-Configure for:

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 sq mm

Extra inflation distance mm

Bridging extrusion multiplier %

Bridging speed multiplier %

Use fixed bridging infill angle deg

Apply bridging settings to perimeters

Dimensional Adjustments

Horizontal size compensation mm

Filament Properties

Filament Toolhead Index

Filament diameter mm

Filament price price/kg

Filament density grams/cm³

Tool Change Retraction

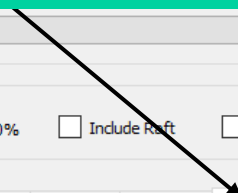
Tool change retraction distance mm

Tool change extra restart distance mm

Tool change retraction speed mm/min

Step 19 OPTIONAL

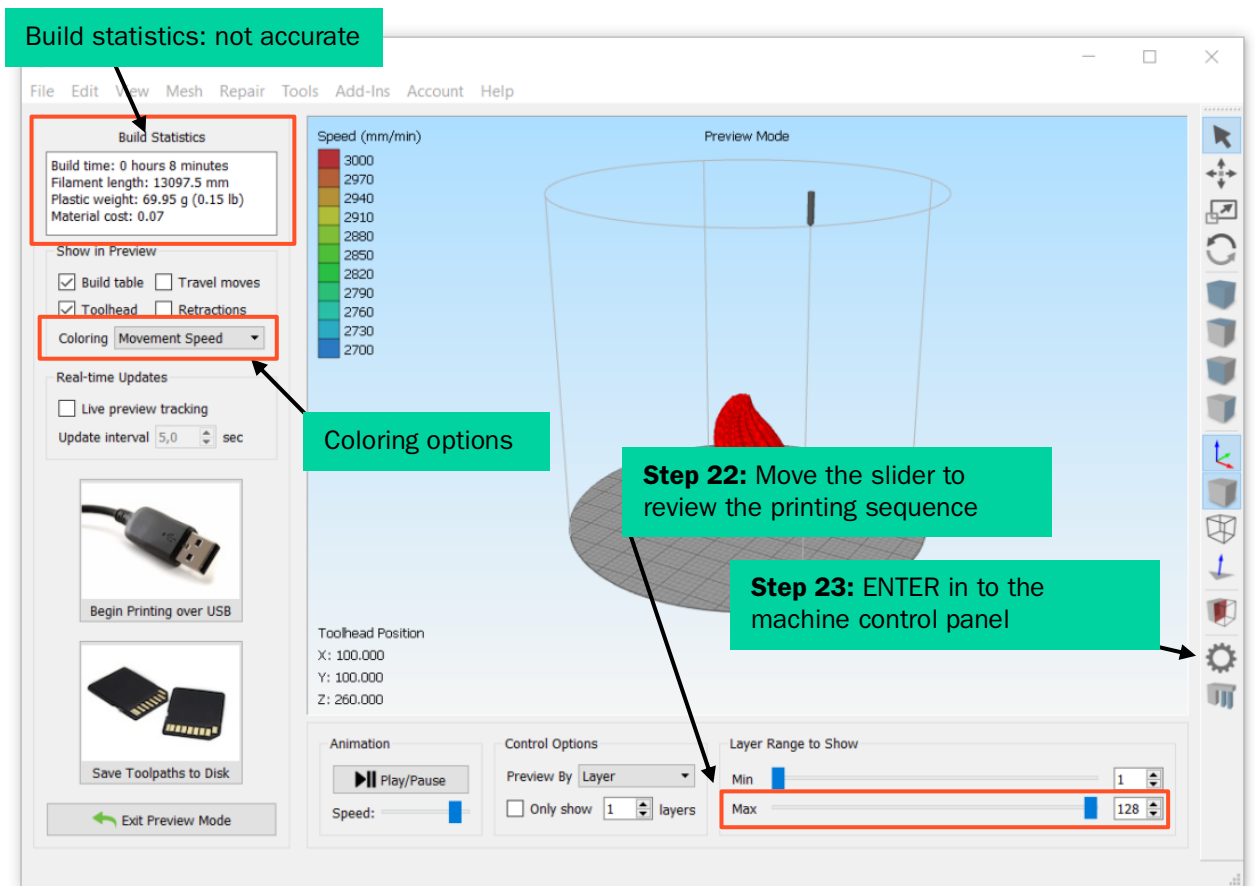
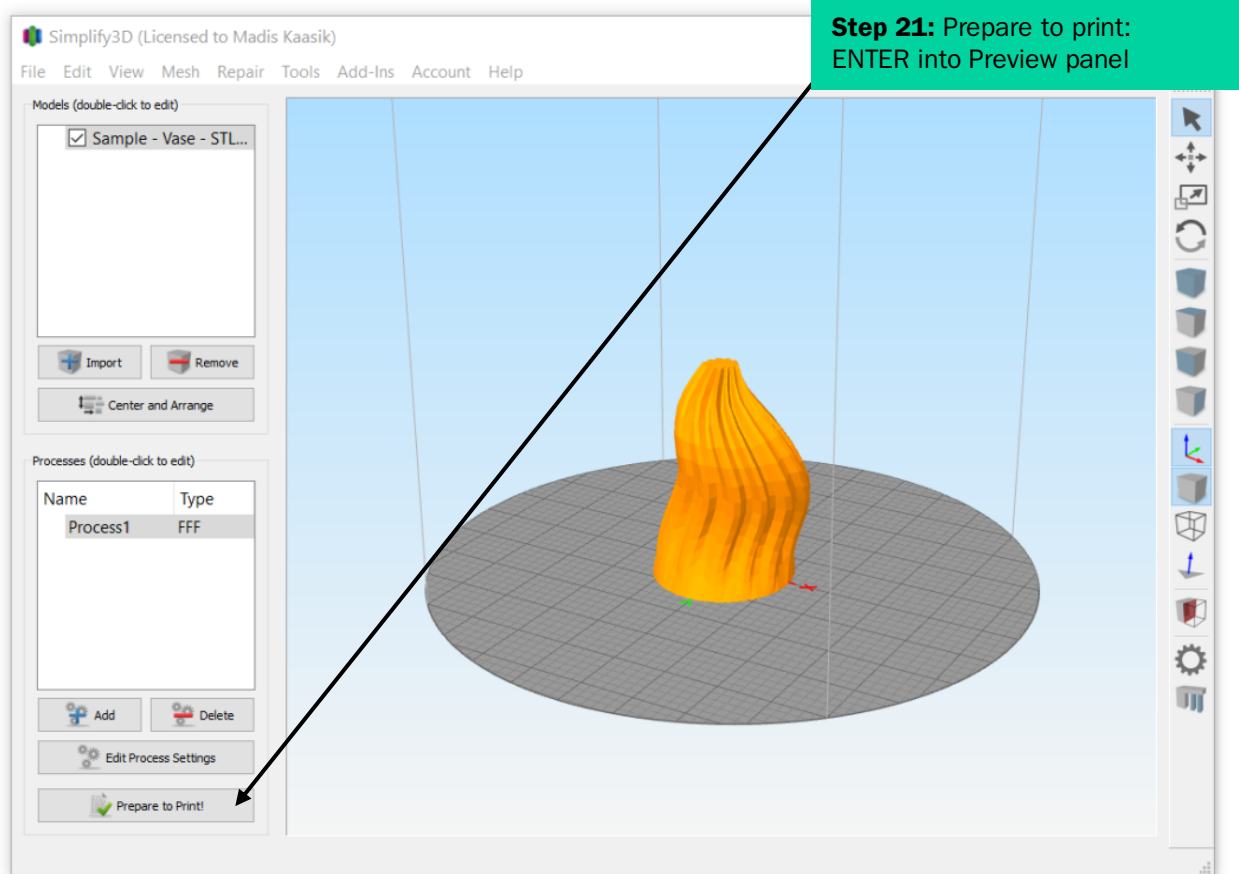
1. Bridging is usually not used
2. Filament properties do not apply
3. Tool change retraction is not used
4. Dimensional adjustments are usually not used



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 red in the original image, with an arrow pointing to it from the callout box.



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, a 'Refresh' button, and a 'Verbose' checkbox. The 'Baud Rate' is set to 250000 bits/sec. To the right, 'Position Readout' shows X, Y, and Z coordinates. The bottom section has tabs for 'G-Code Library', 'Communication', 'Temperature Plot', and 'Jog Controls'. The 'G-Code Library' tab is active, showing a table with columns for 'Filename', 'Run Time', and 'Material Usage'. Below the table are 'Add to Library', 'Remove from Library', and 'Run Selected G-Code' buttons. On the right side, there are 'Accessory Control' settings for 'Active Toolhead' (Tool 0), 'Extruder' (190 °C), and 'Heated Bed' (60 °C), each with 'On' and 'Off' buttons. 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 are 'Override Settings' for 'Movement' and 'Extrusion', each with a dial and a percentage input field.

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

Step 02: Baud rate for Delta 900 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*

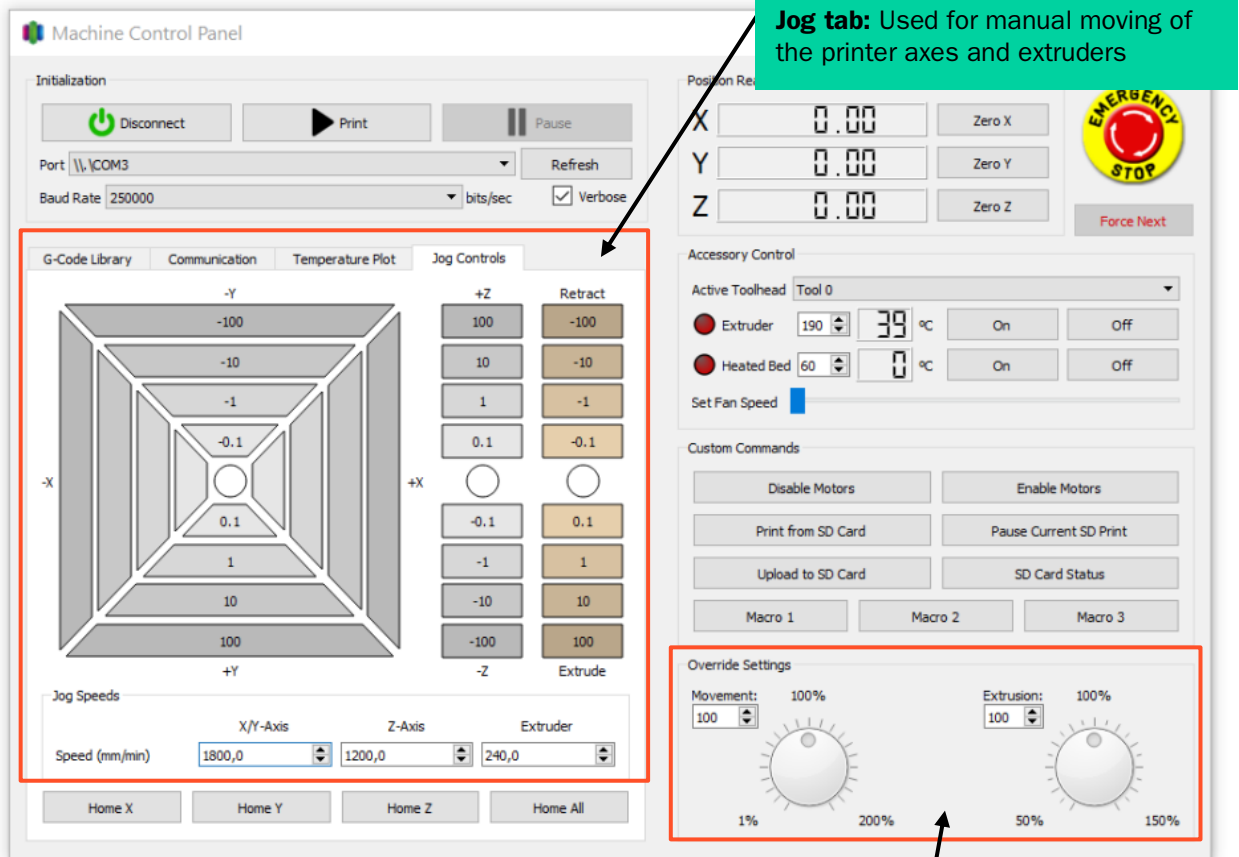
Step 04: START

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, labeled 'Step 04: START'. Another green callout box points to the 'Pause' button, labeled 'PAUSE PRINT'. A red callout box points to the 'EMERGENCY STOP' button, labeled 'EMERGENCY STOP' with the note 'It's very important to press this if the printer has an error'. A green callout box points to the communication log, labeled 'Communication tab: Shows info and allows you to send commands to the printer'. The interface includes sections for Position Readout (X, Y, Z coordinates), Accessory Control (Extruder and Heated Bed status), Custom Commands, and Override Settings.

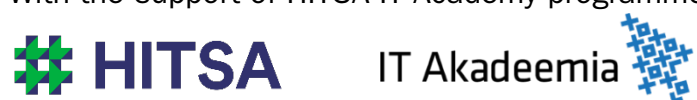
The screenshot shows the Machine Control Panel interface with the 'Temperature Plot' tab selected. A green callout box points to the 'Print' button, labeled 'Step 04: START'. Another green callout box points to the 'Pause' button, labeled 'PAUSE PRINT'. A red callout box points to the 'EMERGENCY STOP' button, labeled 'EMERGENCY STOP' with the note 'It's very important to press this if the printer has an error'. A green callout box points to the temperature plot, labeled 'Temperature tab: Temperature info is not relevant'. A red callout box points to the 'Custom Commands' section, labeled 'Custom commands: rarely used'. The temperature plot shows a line graph of temperature (C) over 30 samples, with 'Bed Setpoint' and 'Extruder Setpoint' indicated. The 'Custom Commands' section includes buttons for 'Disable Motors', 'Enable Motors', 'Print from SD Card', 'Pause Current SD Print', 'Upload to SD Card', 'SD Card Status', 'Macro 1', 'Macro 2', and 'Macro 3'. The interface also includes sections for Position Readout, Accessory Control, and Override Settings.



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