



B9Create
QUICK START GUIDE

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B9Create Introduction

Welcome to FAST™ Technology powered by B9Create!

Our patent-pending FAST™ technology powered by B9Create will optimize your 3D print processes like never before – with fewer supports, better surface finish, pinpoint accuracy, and painless post processing.

Full of features designed to streamline your workflow, you'll benefit from mirroring supports, part template libraries, faster slicing time, and more.

You will find help menus throughout the software that explain features in both Design Mode, engineered for more experienced users, and Workflow Mode, which offers a step-by-step process optimized for users new to print-preparation software.

To create printable models for the **B9Creations Core Series**, the **B9Create** software package must be loaded on a laptop or desktop computer. The software allows the operator to import .stl files. It also allows the operator to manage and adjust the associated models that will be printed on the **B9Creations Core Series**.

Here are some helpful tutorials to get started:

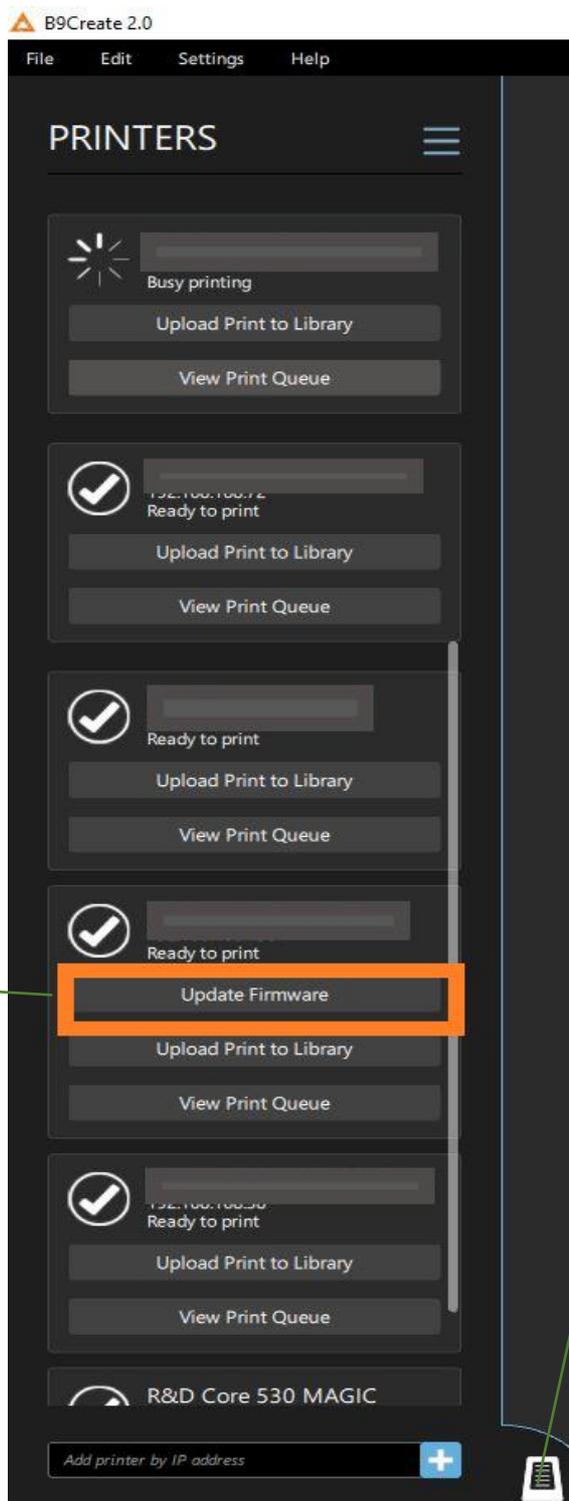
- [B9Create Overview](#)
- [Design Mode Overview](#)
- Workflow Mode Overview
 - [Step 1: Import Part](#)
 - [Step 2: Lay Out](#)
 - [Step 3: Support](#)
 - [Step 4: Slicing](#)

If you have questions at any time or run into issues, please [submit a Support Ticket](#).

Have suggestions for improvements or features for future releases of B9Create? We'd love to hear from you! [Give us feedback here](#).

B9Create Workflow Mode

Updating Firmware



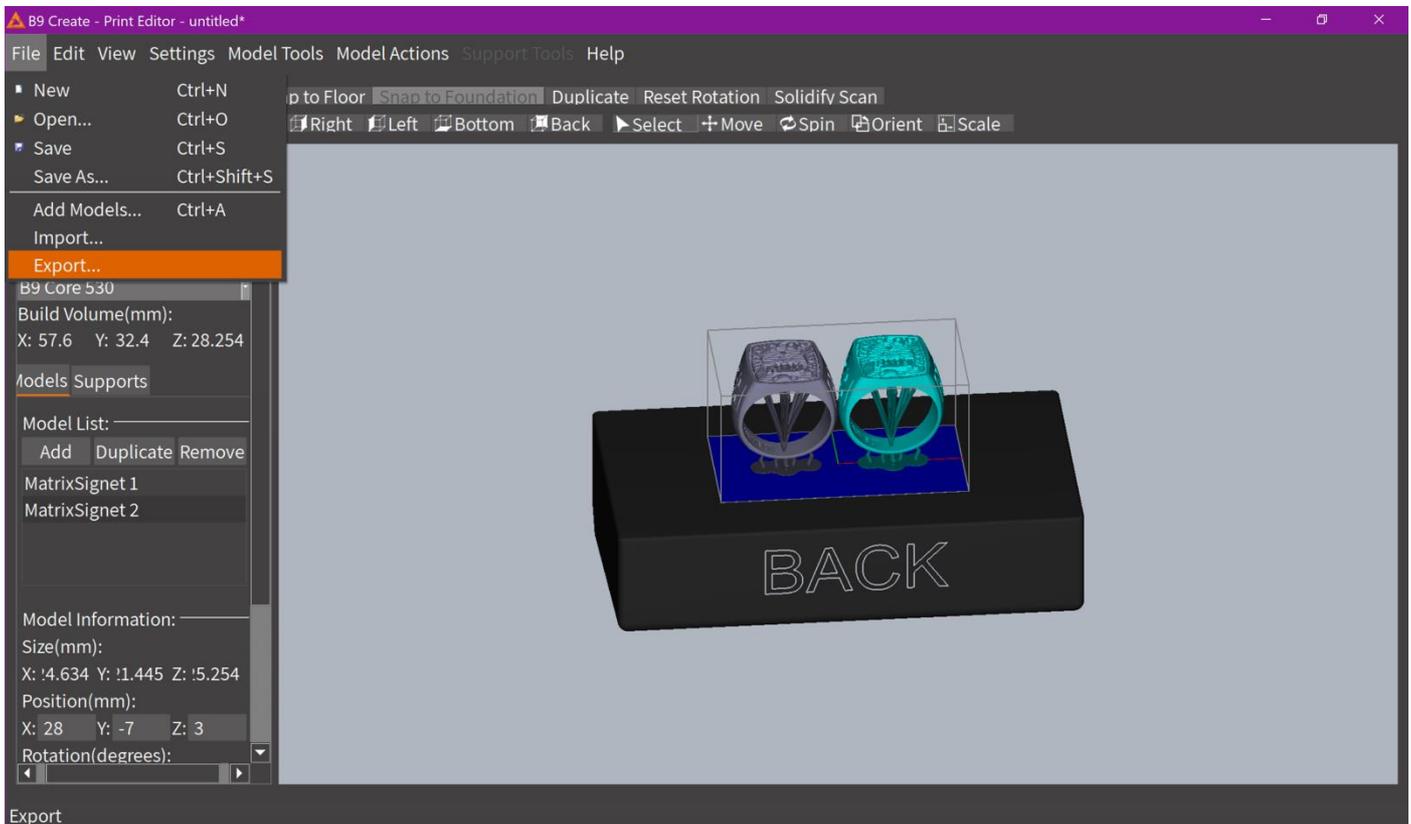
2. Select Update Firmware

1. Select Open Printer

Importing a B9Create 1.0 file into B9Create

NOTE: A B9Create 1.0 cpj file cannot be directly imported into B9Create

Open B9Create 1.0 and load the cpj file you wish to export to B9Create

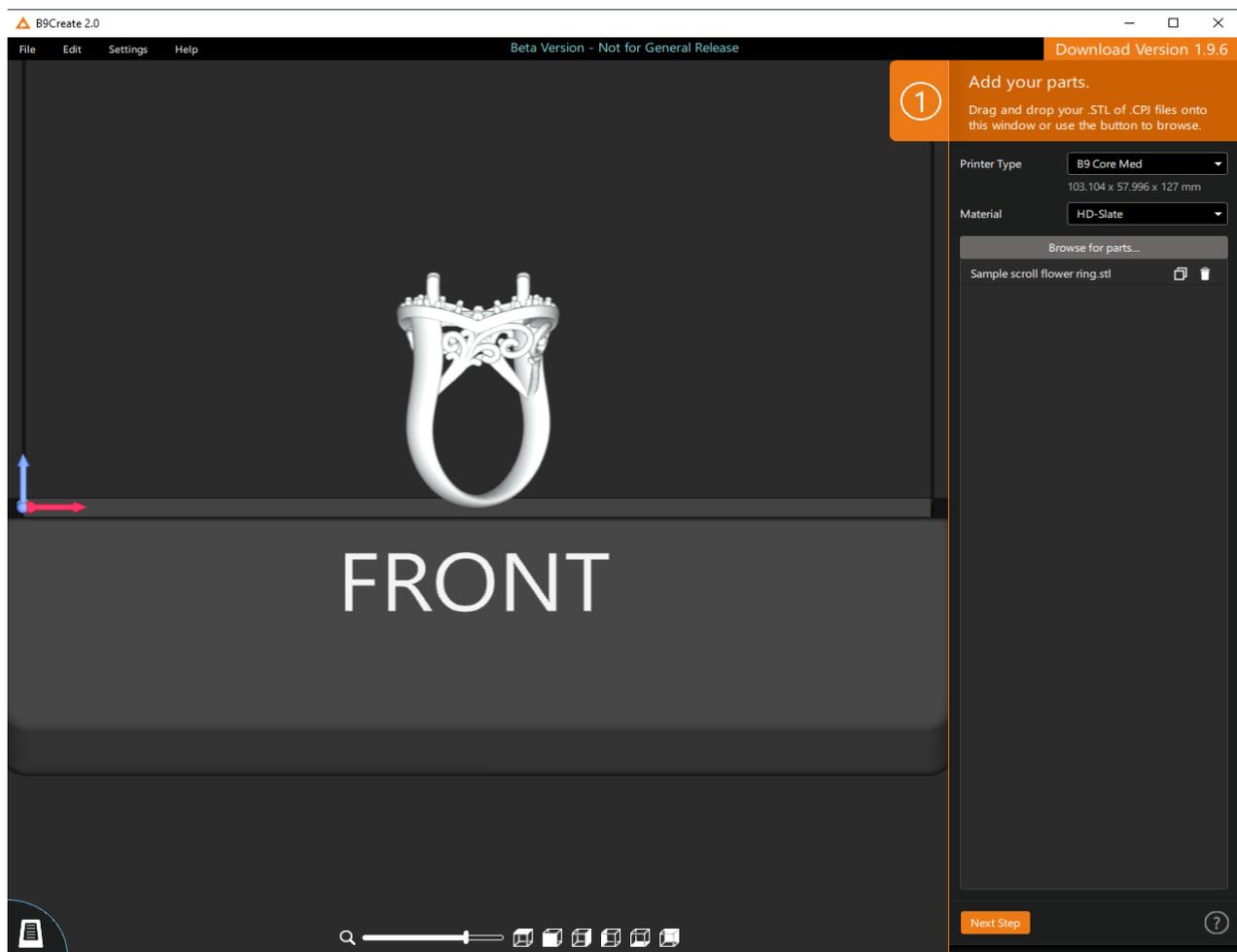
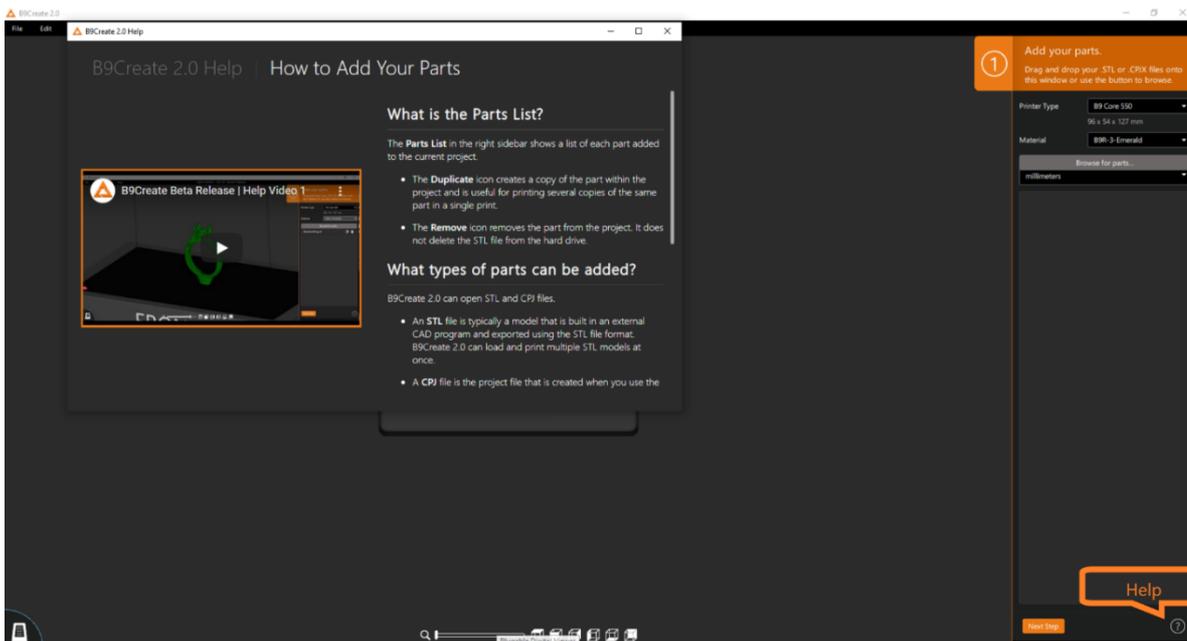


Select File > Export. The File will be exported as a binary.stl (*.stl). The exported file will include the supports if used.

This exported .stl can then be imported into B9Create like any new file.

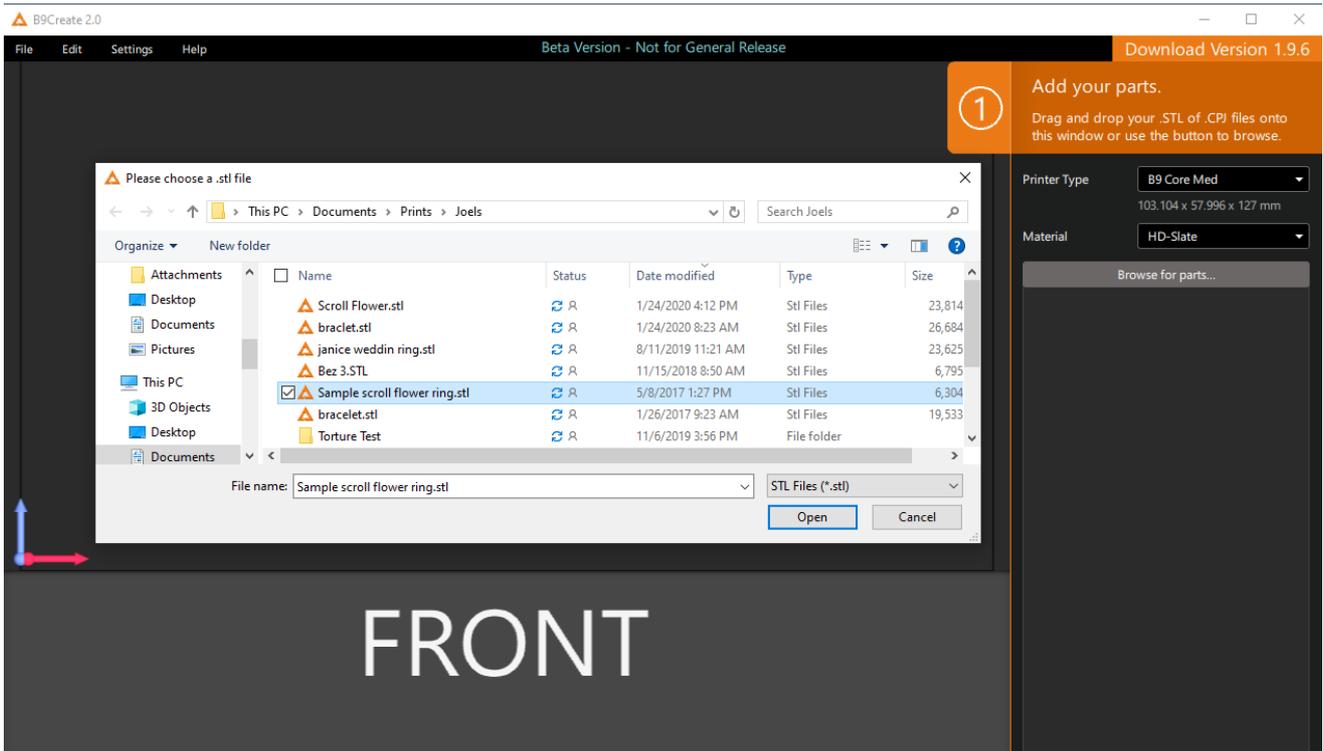
Workflow Mode – Add Your Parts

Open B9Create and Select the Printer Type.



Select "Browse for parts..." and navigate to the .stl you wish to import. You can also add the binary.stl (*.stl) you exported from B9Create, select Open.

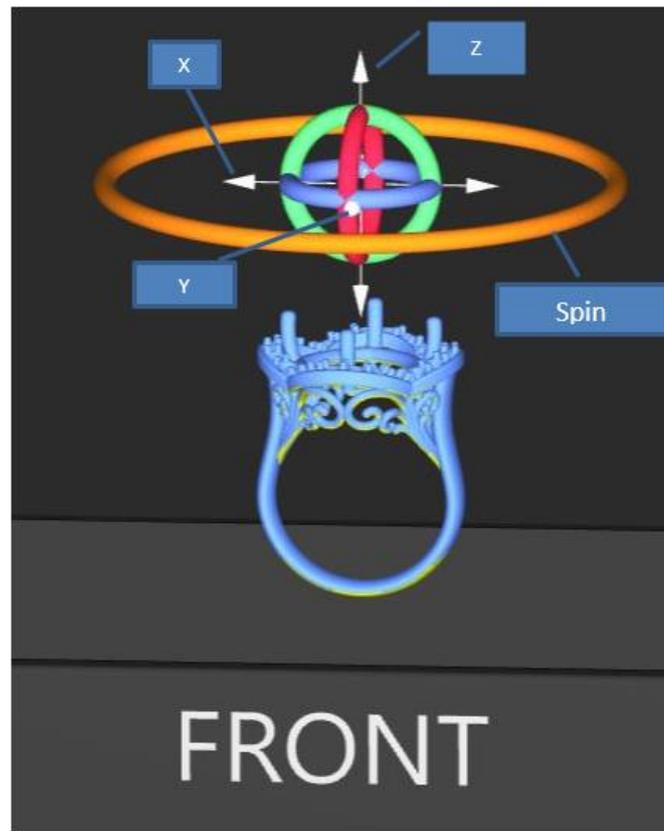
The .stl will be then be added to the Build Table. You can now add additional .stl's to the Build Table, Duplicate or Delete .stl's.



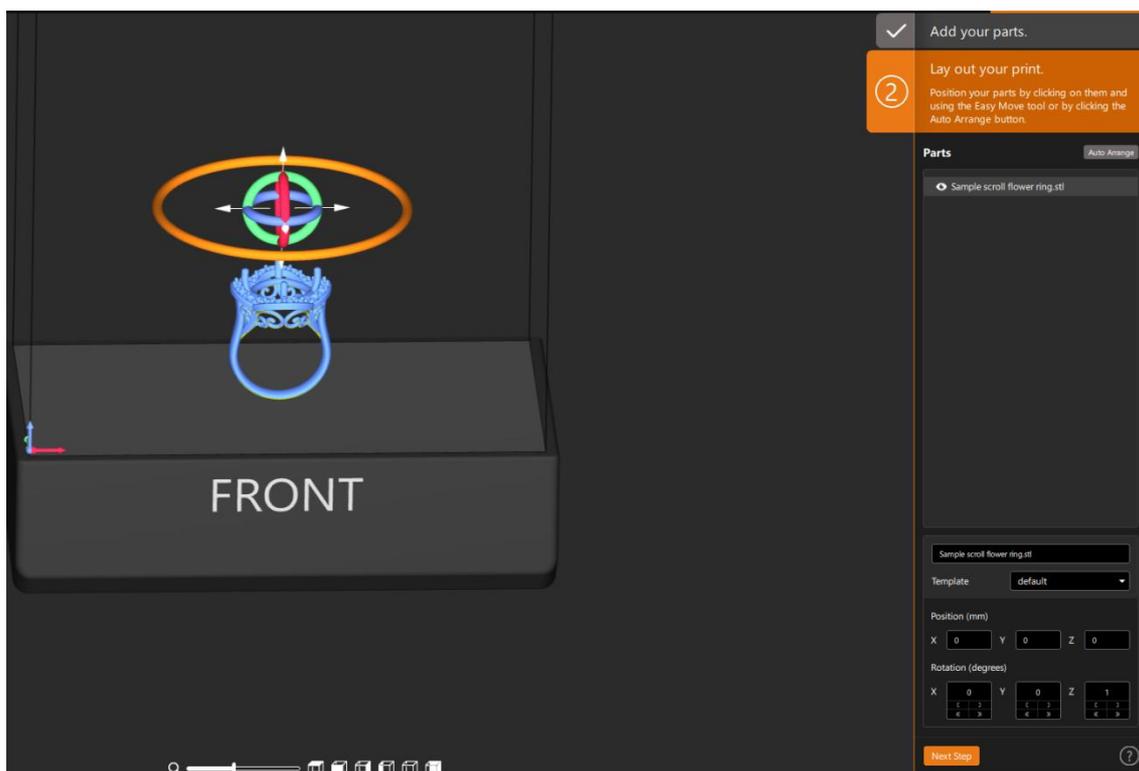
NOTE: During stl files import the files are repaired to improve print accuracy.

Workflow Mode – Lay Out Your Print

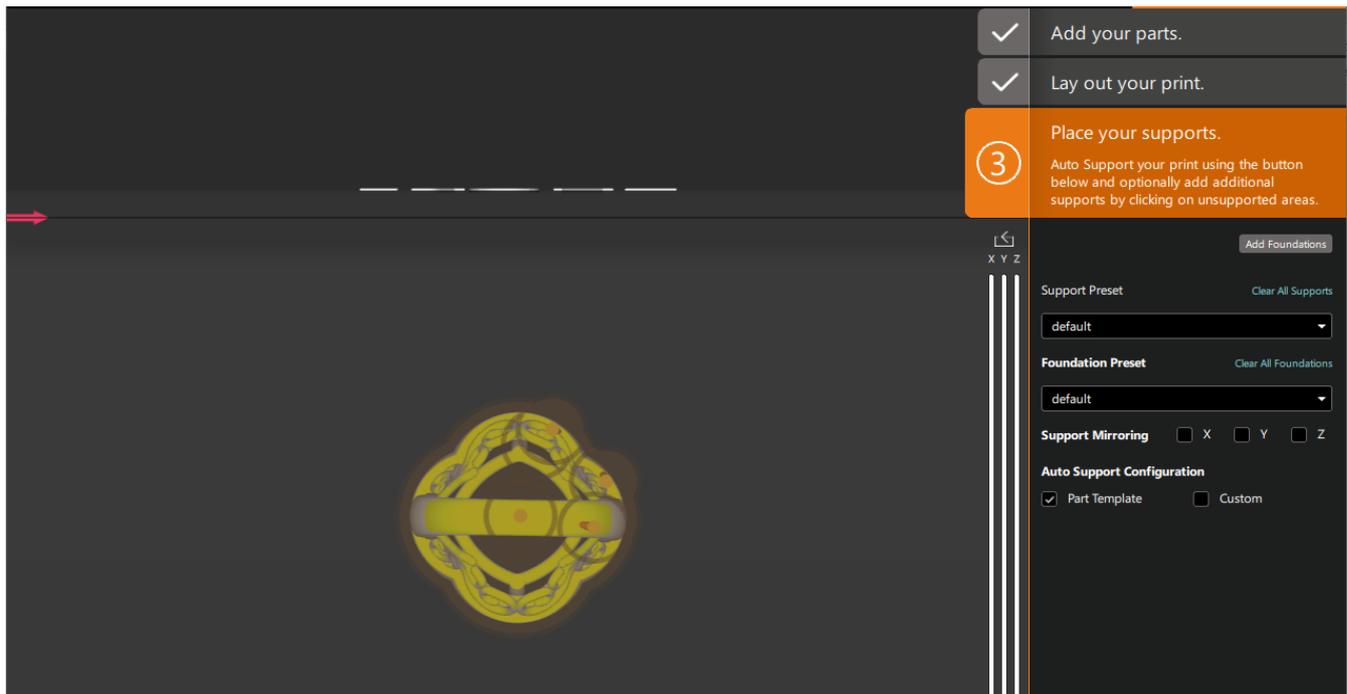
Select “Next Step” to layout your prints on the Build Table.



Select the print to Orientate, Position or Spin. Print position and Rotation (degrees) can also be adjusted manually. To allow negative Z locations, check the “Allow Negative Z” box



Workflow Mode – Place Your Supports



Select “Next Step” to Add Supports and a Foundation (if desired)

Select “Add Foundation” to add a Foundation and Foundation Presets are available.

To add supports, select the desired Support Preset Size, select a Bottom view or orientate to a bottom angle view.

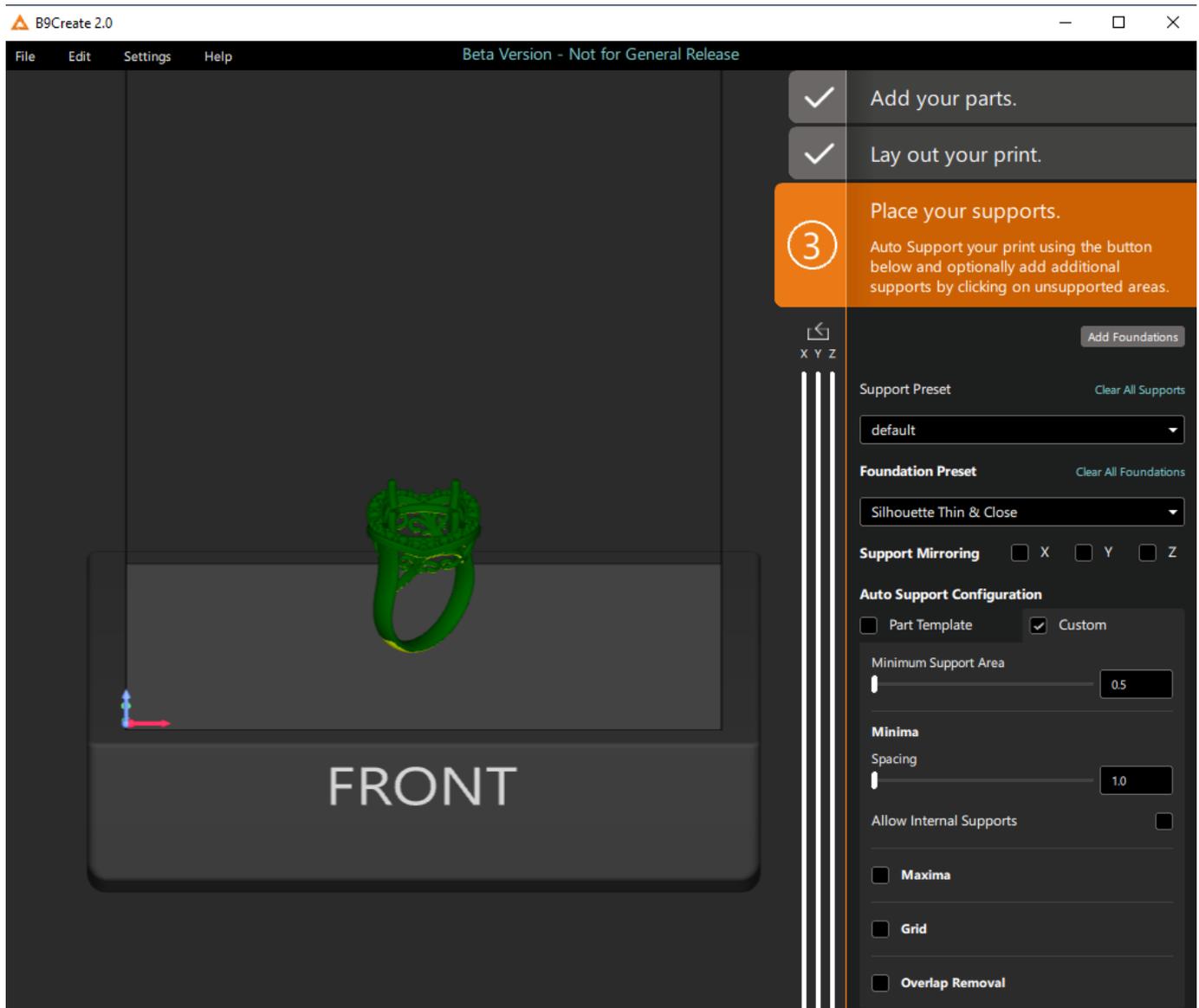
The yellow areas are the draft angle an indicator where you should consider supporting.

Converging circles as you move your mouse on the design indicate minima's and converging parallel lines indicate surfaces parallel to the Build Table. Both need to be supported.

Navigate to the desired support position and left mouse click to add the support. Side Sectioning X, Y, Z planes can be used to section the design to allow support of a specific location. These sliders can be used to show only a section of the build area and see inside your parts. This can be useful for placing supports in hard-to-see areas.

NOTE: To move the base supports in a bottom view you must adjust the Z slider to above the bases (hidden).

Auto Supports



Prior to generating auto supports, select the Support Preset desired. There are two auto support options: Parts Template or Custom. Selecting Custom will allow you to customize support parameters.

An Auto Support Angle can be set to determine the targeted areas of the model for auto supporting. This modifies the highlighted areas on the model.

Custom Auto Support Configurations

Minimum Support Area

The larger this value, the larger the highlighted area needs to be to receive auto supports.

Minima Spacing

Typically keep this value small.

Turning off internal supports for parts with very fine detail is usually beneficial.

Maxima Spacing

Works good for models that have longer protrusions primarily in the horizontal.
Combine with grid for large protrusions.

Grid

A uniform grid is created from the build plane with the spacing values.

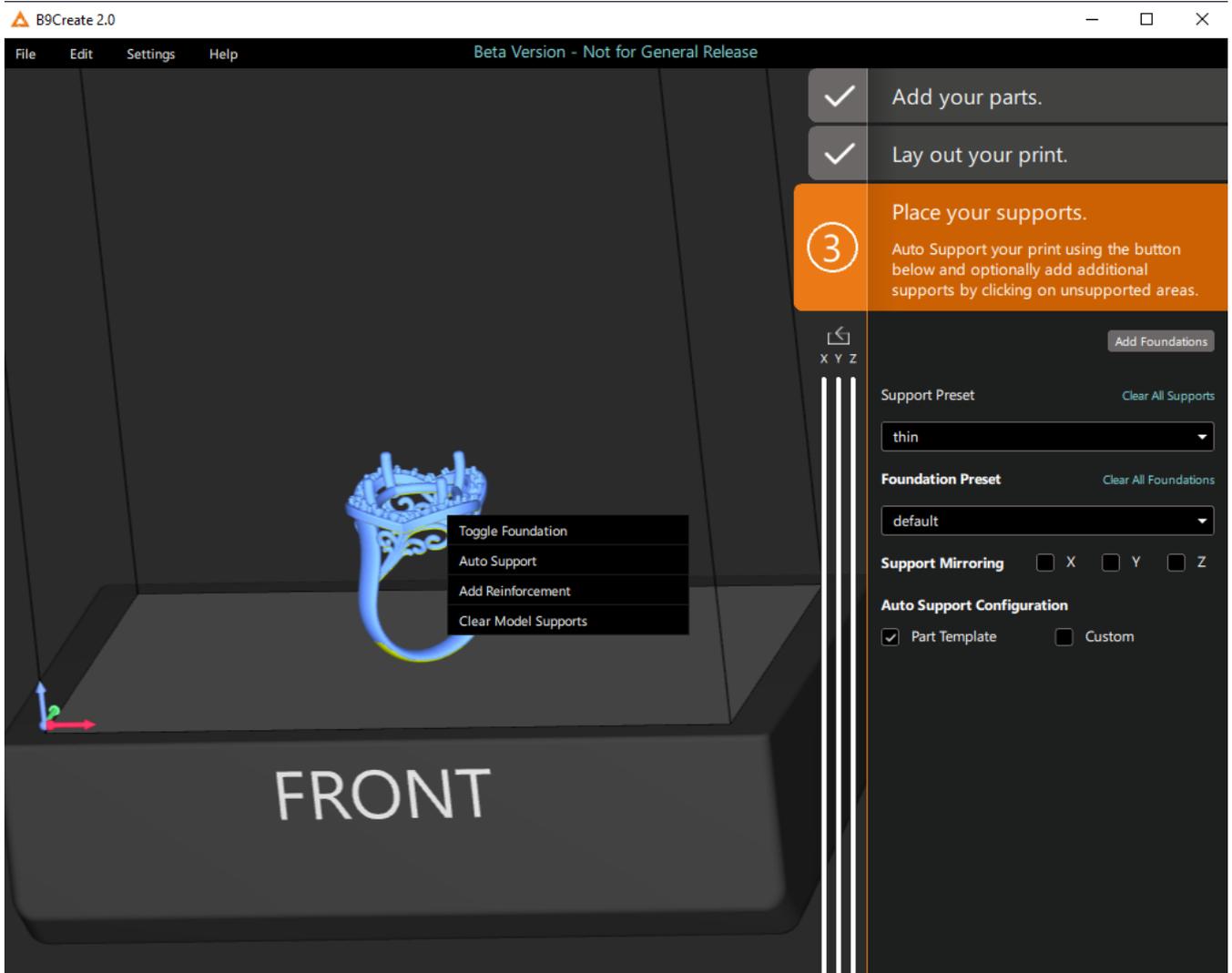
Overlap Removal

This option will attempt to space out supports that are overlapping or very close to each other. The overlap detection occurs at the top joint on the support shaft.

Parts Template

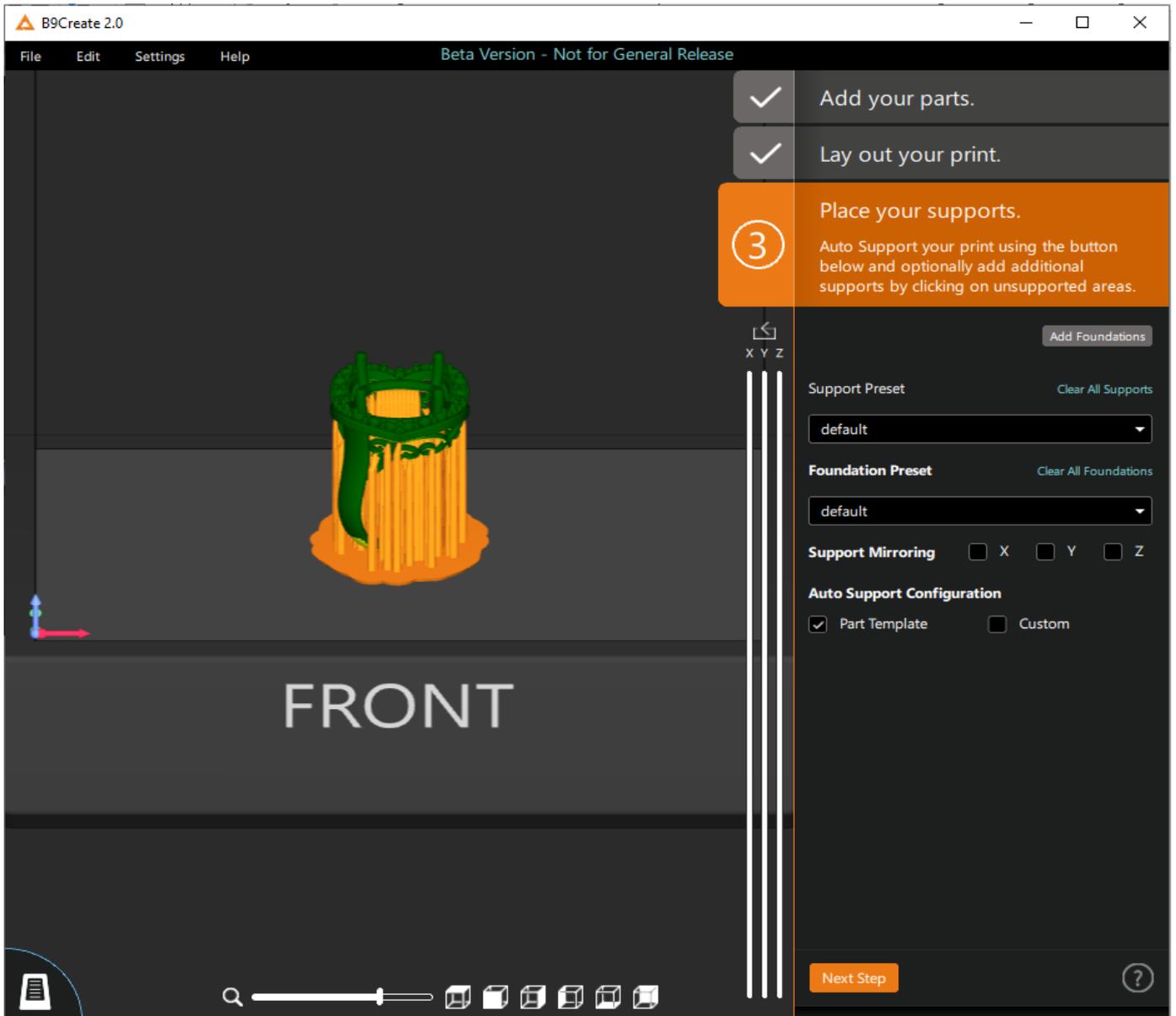
Right-mouse click on the model to reveal the support options.

NOTE: "Add Reinforcement" is a larger support to reinforce design elements.



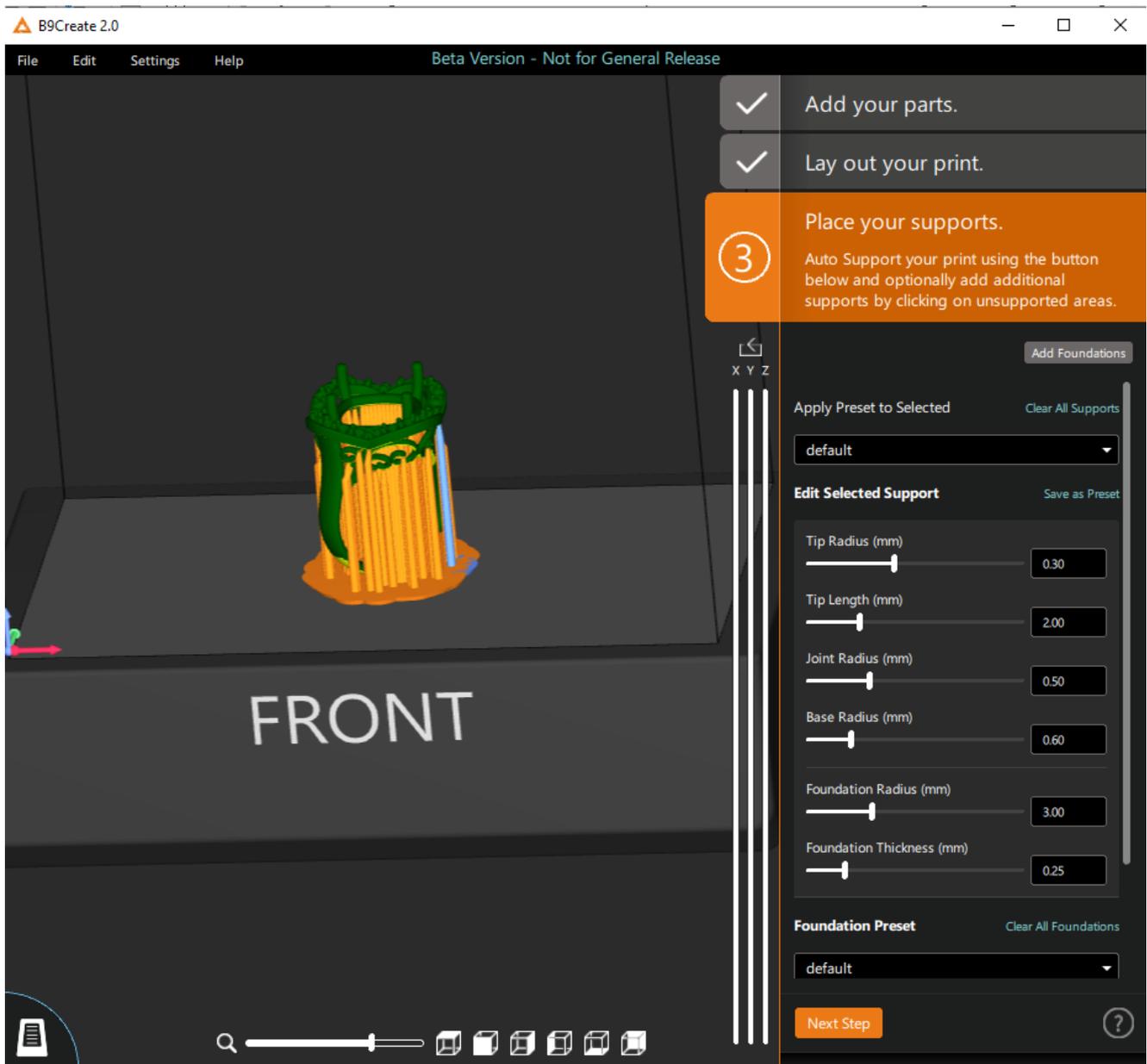
Select “Auto Support” to generate supports.

Other operations such as Toggle Foundation, Add Reinforcement and Clear Model Supports are also available.



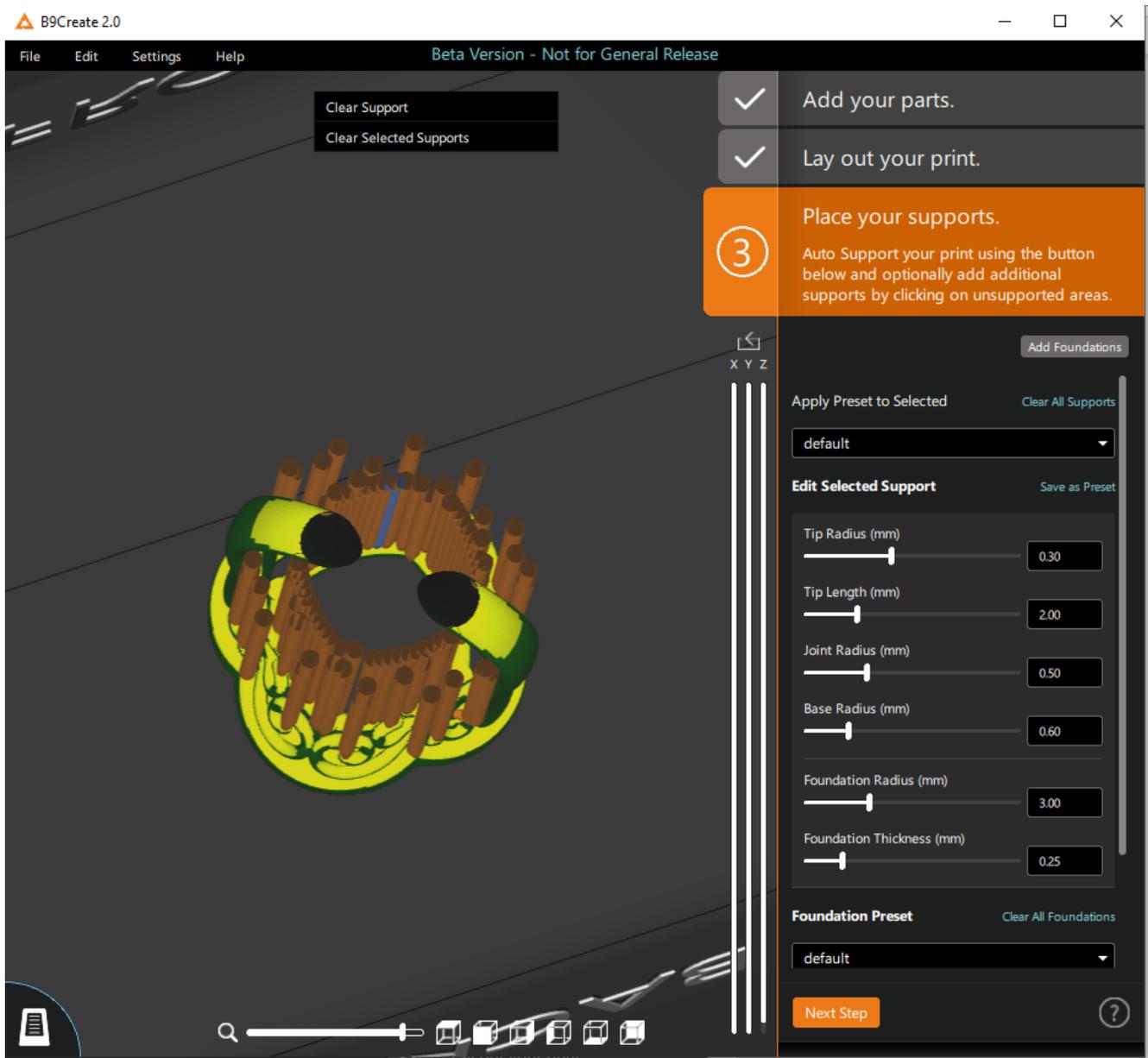
Selecting support(s) or modify presets

Simply select the support. To remove a support, select the keyboard Delete key.



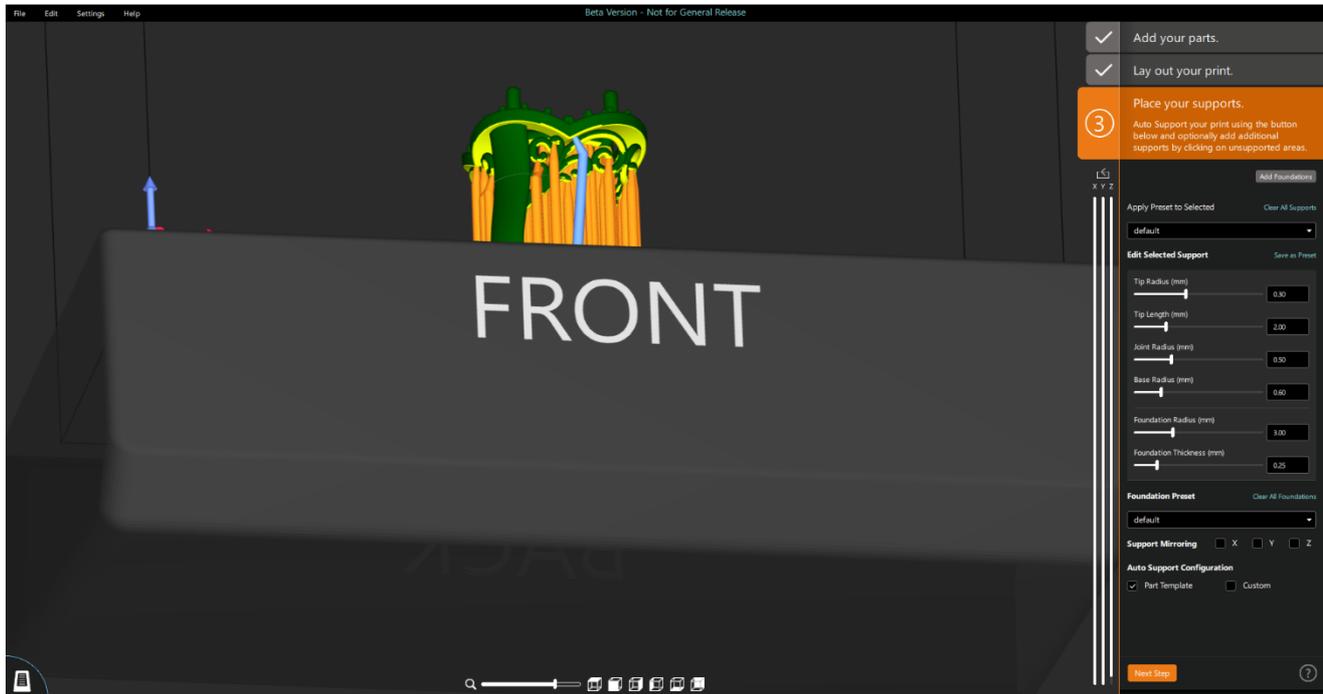
Select Multiple Supports.

In a bottom, view using the Z Sectioning tool to remove the support bases to allow the selection of additional supports. Hold down the Ctrl key and selecting the supports you wish to modify.



Moving support Tips or Bases

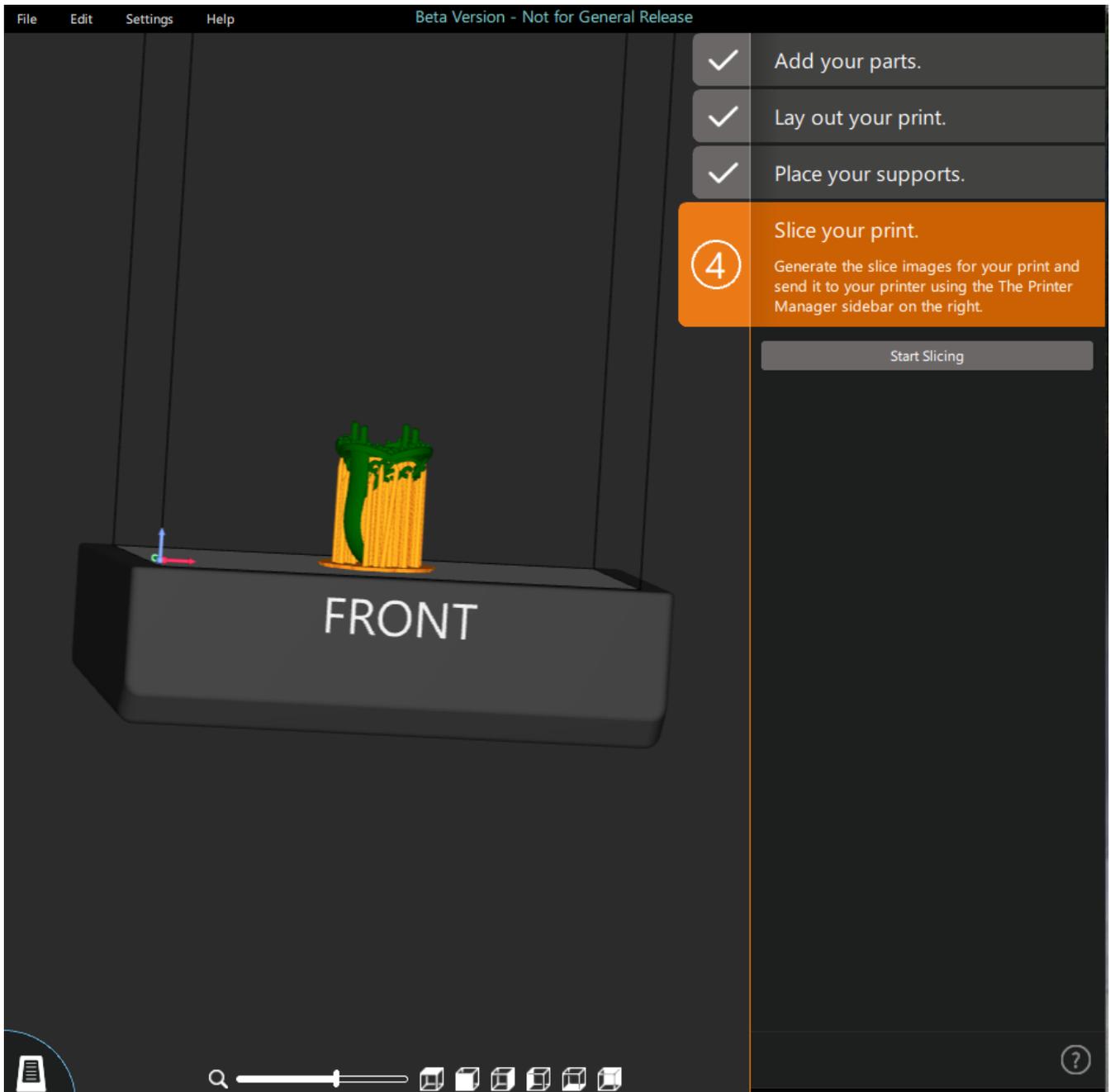
Select the support. Click the Support Tip or Base and Hold Left mouse and move to the desired location.



Slicing

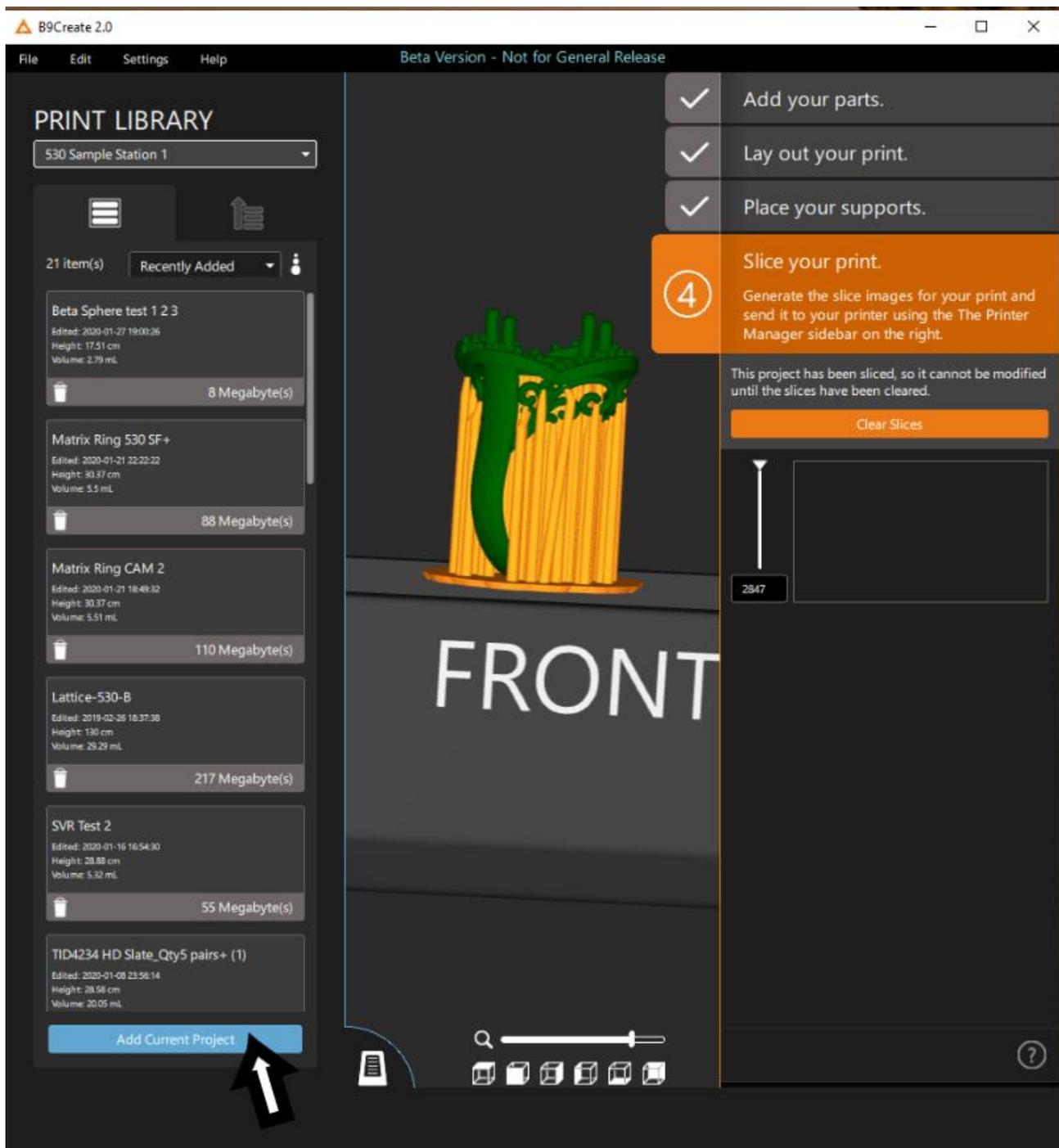
Select “Start Slicing” to slice the print.

NOTE: B9Create sliced file extension is .CPJX to distinguish files from the B9Create 1.0 .CPJ files.



Transfer the print to a printer.

NOTE: B9Create .cpj files can also be transferred.



B9Create Design Mode

Introduction

What is Design Mode?

B9Create has two approaches to setting up your prints: Workflow Mode and Design Mode.

- Workflow Mode is a streamlined, simplified process intended to guide you through the standard steps for printing a part.
- Design Mode is a technical view intended for more experienced users that removes the guided workflow.

You can switch between Workflow and Design Mode using Settings > Mode in the menubar at the top of the screen.

In Design Mode, the majority of the controls used to set up your print are located in the Controls Sidebar on the right side of the screen. The top of the Controls Sidebar has two sections: Slices and Info.

[Click to see an overview video of Design Mode.](#)

Printer and Material Dropdown Selection

The Printer Type dropdown should be set to the type of printer that will be used to print your parts for this project. Each printer has a differently sized Build Area, which is the rectangular space where you lay out your models for printing. A project can only be printed on printers that match the project's Printer Type.

The Material dropdown should be set to the type of resin that will be used to print your parts for this project. The chosen material affects what Parts Templates are available in the project, which is discussed later in this document.

The Info section can be expanded or contracted by clicking its header.

Add Parts and Parts List

The Parts List shows a list of each part added to the current project.

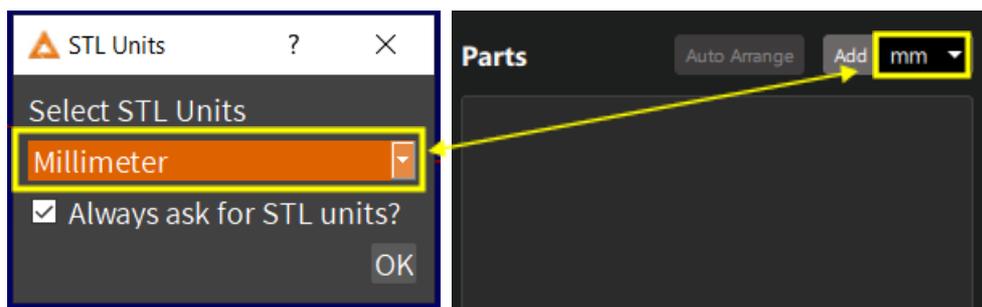
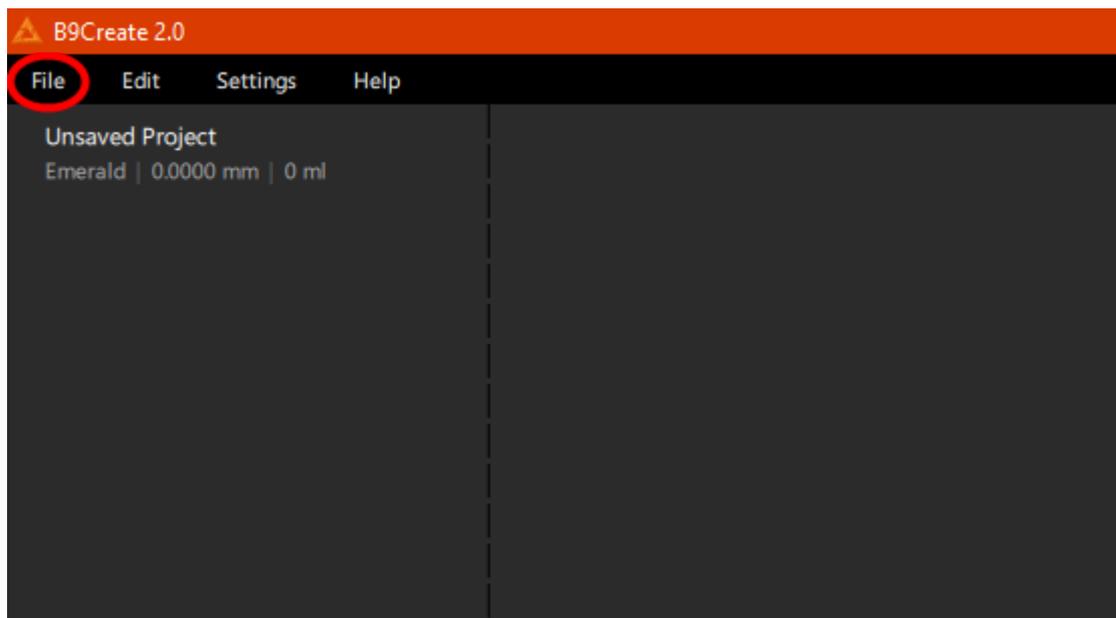
B9Create can open STL models and CPJx files, which is the project file that is created when you use the Save function in B9Create. You can load several STL files, customize their layout and supports, and save your work as a CPJx that can be opened and modified later.

Add STLs to a project by clicking the Add button above the Parts List. The Units dropdown

next to the Add button controls how imported STLs are scaled. Before adding an STL, set the value of the Units dropdown to the unit of measurement that was specified when you exported that STL.

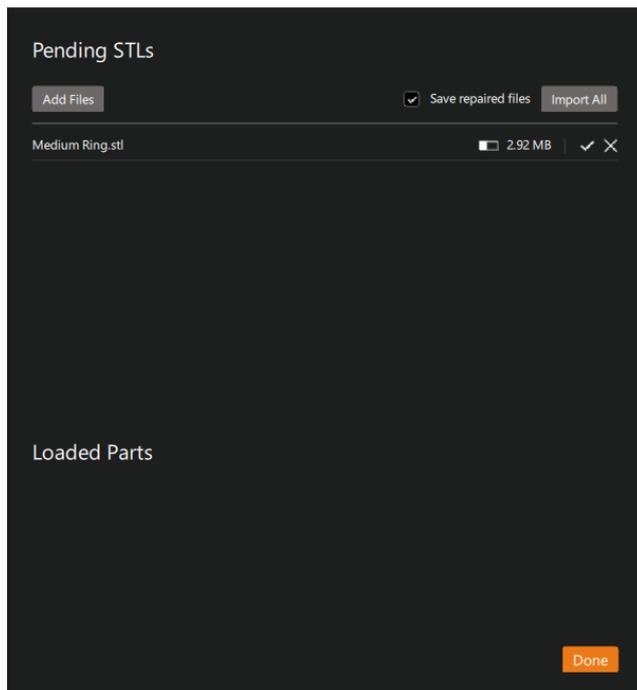


Open CPJxs by choosing File > Open Project from the menubar at the top of the screen.



Import STL Repair Window: In B9Create, STL's will go through an import window that has

the file repaired, if necessary, and shows the user if the file size will slow down the software's functionality. In this window you have the option to Add Files, Save Repaired Files, Import All, import models individually, or delete them from the Import Pending list.



Each part in the Parts List has the following functions.

- The Visibility icon controls the part's visibility, which can be useful during positioning or supporting.
- The Duplicate icon creates a copy of the part within the project and is useful for printing several copies of the same part in a single print.
- The Remove icon removes the part from the project. It does not delete the STL file from the hard drive.
- Double-clicking on a part's name allows you to type in a new name. Renaming a part only changes the name inside this B9Create project. The name of the STL file on your hard drive remains the same and is displayed when hovering your mouse over the part name in B9Create.

Clicking on a part in the Parts List selects it on the build table and opens the Information Panel. The part settings are separated into two tabs: Transform and Config.

Layout/Orient Files - Transform

The Layout tab of the Controls Sidebar is the top tab with a multi-direction arrow icon.

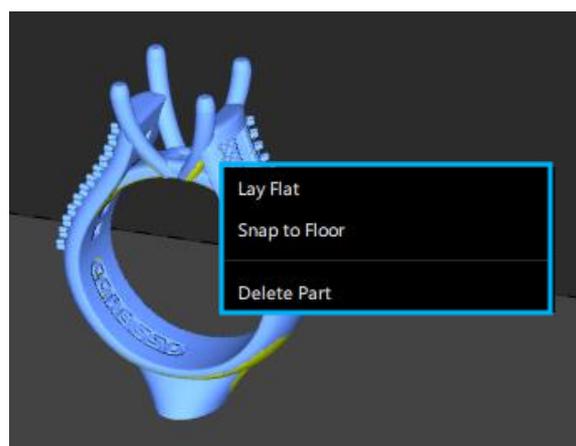
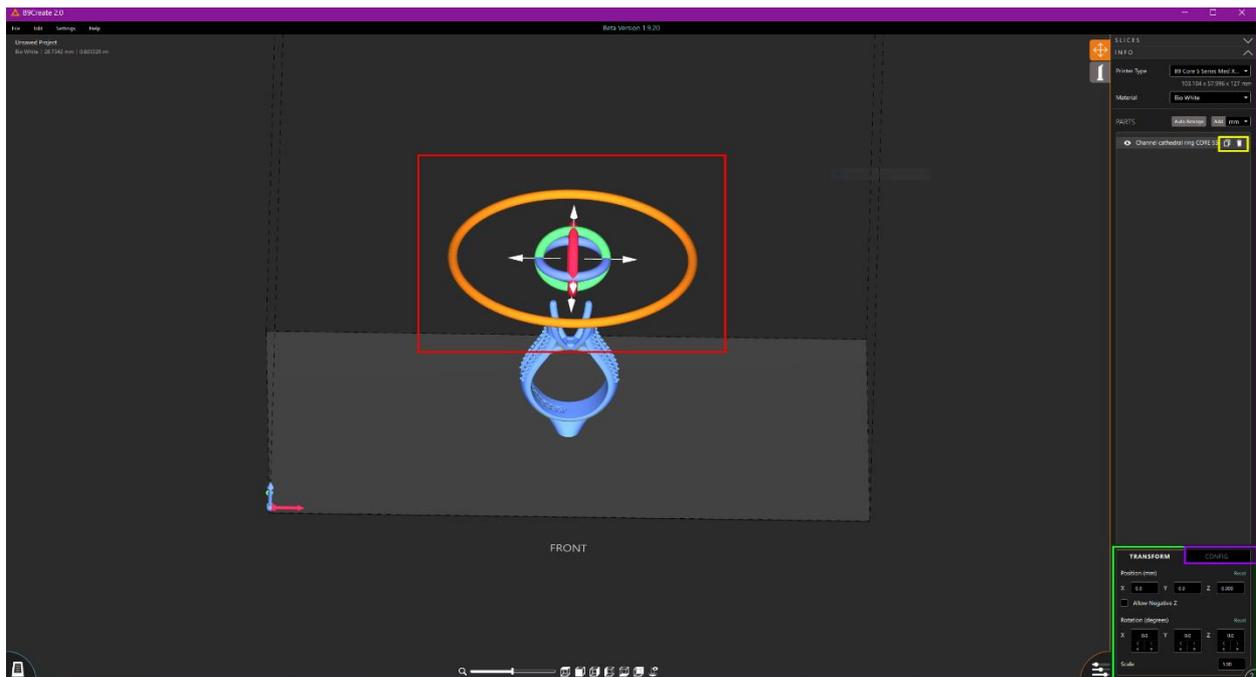
Position moves the part around the build table in millimeters. Checking the Allow Negative Z checkbox allows negative values to be entered for the Z position and is useful for sinking models into the build table to establish a solid connection.

Rotation rotates the part about its origin in degrees. The < and > arrows increment the rotation by -1/+1 and the << and >> increment the rotation by -90/+90.

Scale uniformly scales the selected parts, with 1.00 being the original size.

The Move, Spin, and Orient tools are accessible through the Movement and Rotation Rings (Red). The Duplicate and Remove buttons (Yellow) are located beside the individual models in the Model List. These can also be altered under the Position and Rotation sub-menu (Green).

Note: Submerging models into the BT (Build Table) is now an optional function and can be activated by checking the box beside Allow negative Z (Purple). The Snap to Floor function (Blue) has been moved to a right click on the model you want to snap to the floor.

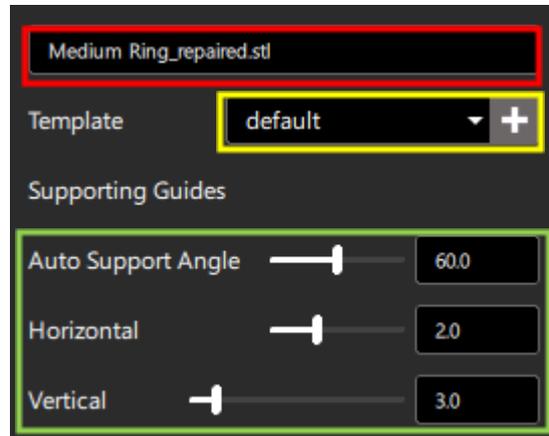


Configurable Options

You can name your STL files (Red), internally in the CPJX file, and select or create a new Part Template (Yellow). You can also select new Supporting Guides that show what is

being registered as supportable surface on your models and adjust the Horizontal and Vertical visualization of supported surfaces (Green).

Note: The Auto Support Angle shows as a yellow highlight on the models and, when switched to the Support Tab, the Horizontal and Vertical adjustments show as a green highlight on the model after a support is placed.



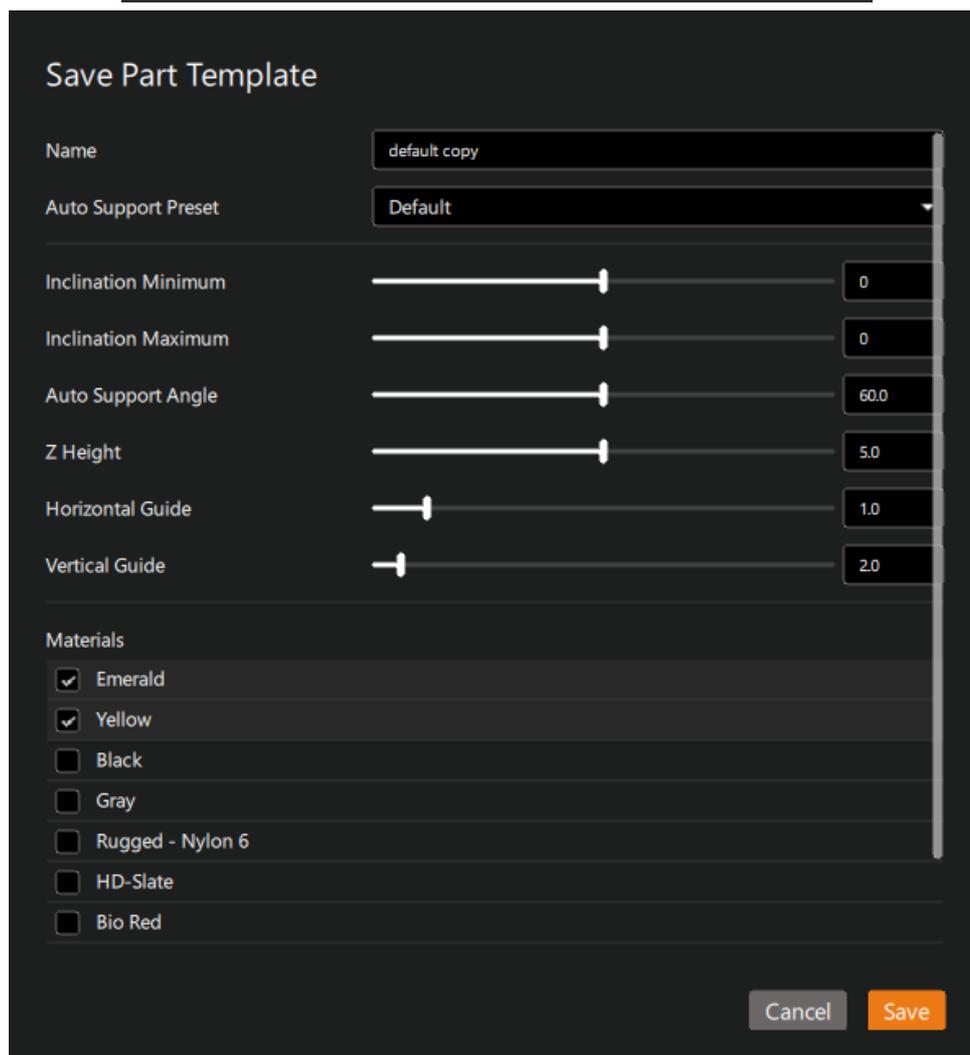
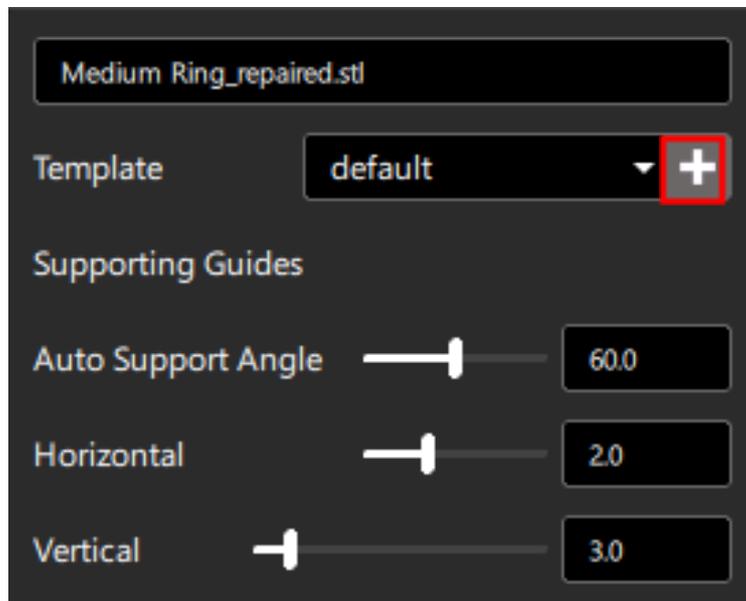
Template sets the Part Template for the selected part. A Part Template is a group of preselected settings that automatically preps a specific type of part for optimal orientation and auto supporting. Using a Part Template allows for easy repeatability in orienting and supporting parts that have similar shapes. If you are printing many designs that are shaped similarly, you can click the + button to build a custom Part Template and get a head start on orienting and auto supporting.

Auto Support Angle controls what surfaces of the part are able to be supported, as indicated by the yellow highlighted areas on the part. A supportable surface is any surface on the model that is angled less than the Auto Support Angle in relation to the build table.

Horizontal and Vertical set the horizontal and vertical radius of the green highlighted oval around support tips, which indicates the area that is considered supported. This is mostly resin dependent but can be still affected by the model design. The supporting guides are intended to be used as a visual aid for more consistent supporting. Supporting guides cannot predict print errors due to over or under supporting a model because they require user input to function properly.

Part Template

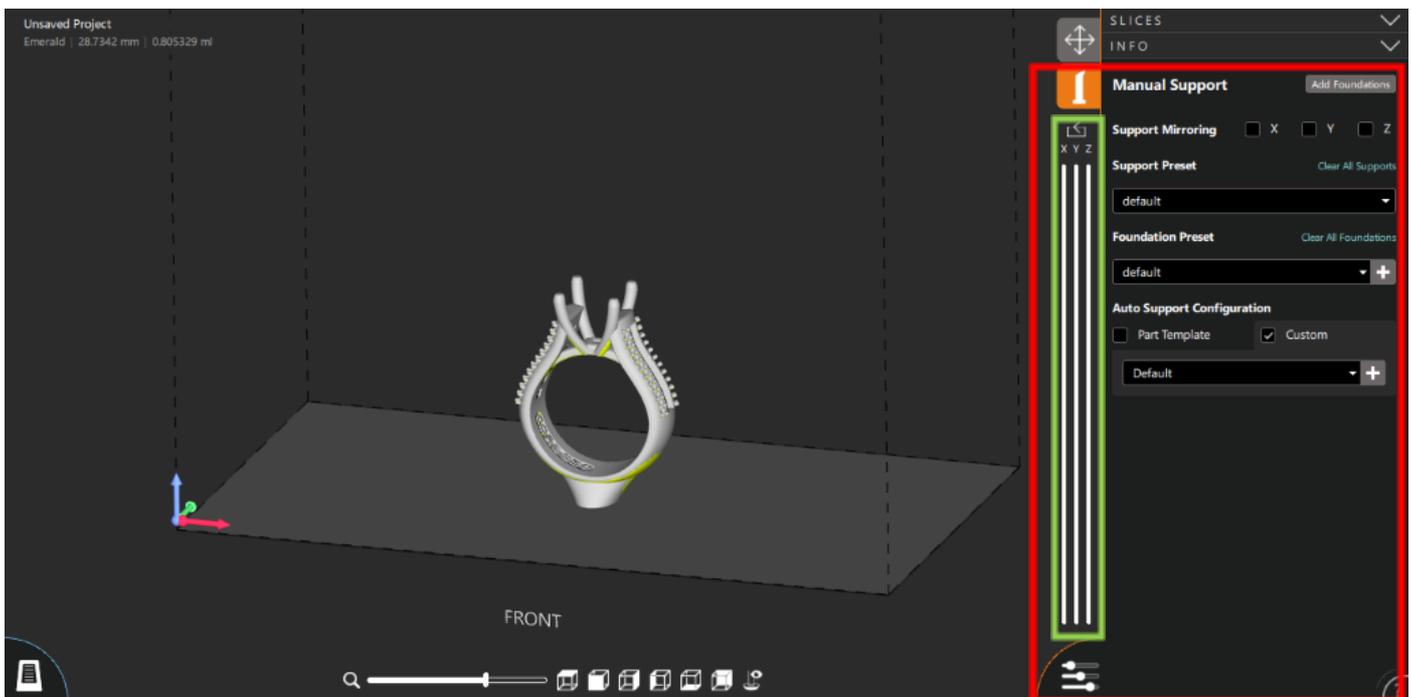
We have a tool called Part Template that is meant to create a template based on a set of similarly supported models using an auto support configuration, material selection, and other tools. The menu for Part Template Creation is accessible from the Layout Tab, clicking on the model, and selecting the Add Part Template button (Red).



Supporting

The Support tab of the Controls Sidebar is the bottom tab with a support icon.

The Support Tab (Red) is still separate from the Layout Tab, but you are not focused on just one model; all models on the BT are visible. The ability to Add, Delete, and Modify supports looks differently and will be addressed later in this document. A new feature we have that is similar than the X Ray Vision Slider is the set of Sectioning Tool sliders (Green). These can be used to separate and split models in the X, Y, and Z axes.



What is a Support?

A support is a structure that connects downward-facing surfaces of your part to the build table. Areas of your parts that need to be supported are highlighted in yellow, and clicking on a point in that yellow area places a support at that point, highlighting the supported area in green. Clicking on a non-highlighted area does not place a support there, since that point does not need to be supported.

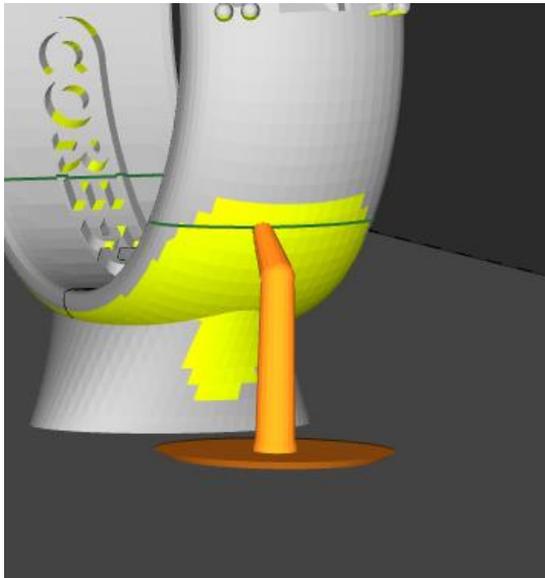
Clicking on a support selects it, and holding the Control key while clicking supports selects multiple. Supports can be removed by right-clicking a support and choosing Clear Support or Clear Selected Supports.

The Support Preset dropdown controls the thickness of supports that are created when you click an unsupported area. Existing supports can be changed to a different preset by selecting the existing supports and changing the preset in the dropdown.

When a support is selected, the Edit Selected Support section opens in the right sidebar. You can use the settings here to fine-tune the selected support, controlling its individual sections like tip, joints, and base. Clicking Save as Preset allows you to save the currently selected support's settings as a preset that appears in the Support Preset dropdown.

Adding Supports

Adding Supports: You are always on the “Add” tool and can place supports anywhere in the allotted yellow highlighted Auto Support Angle.

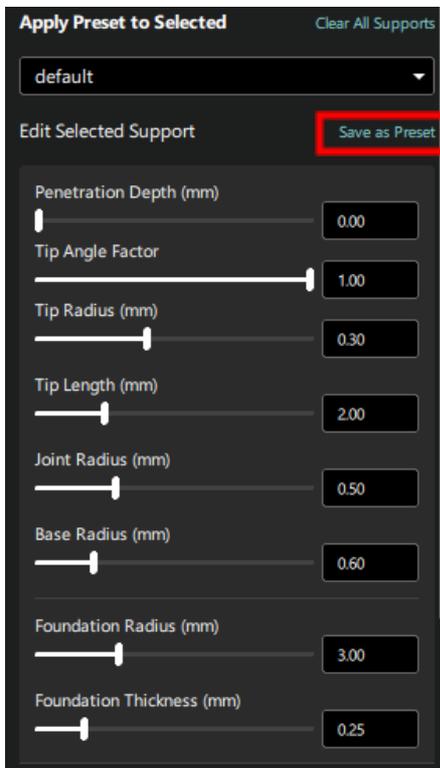


Modifying Supports

Modifying the supports involves left clicking on the support you want to alter.

Note: To select multiple supports, hold down the Ctrl key and left click on the other supports as needed) and a menu pops up, as shown below. You can save any preset you create using the Save as Preset button (Red).

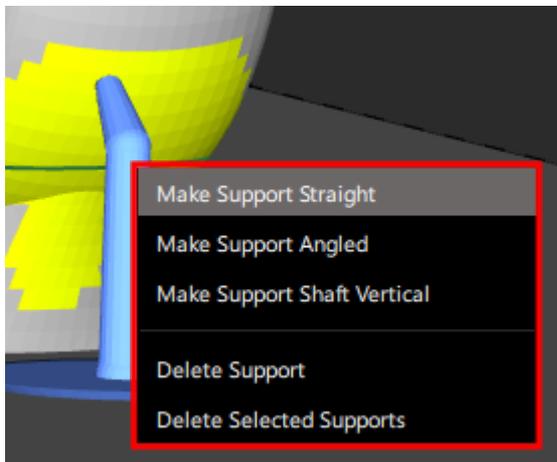
Note: For more information on Support Preset creation, see the Help Menu in the bottom left corner of the Support Tab.



Make Supports Straight or Vertical

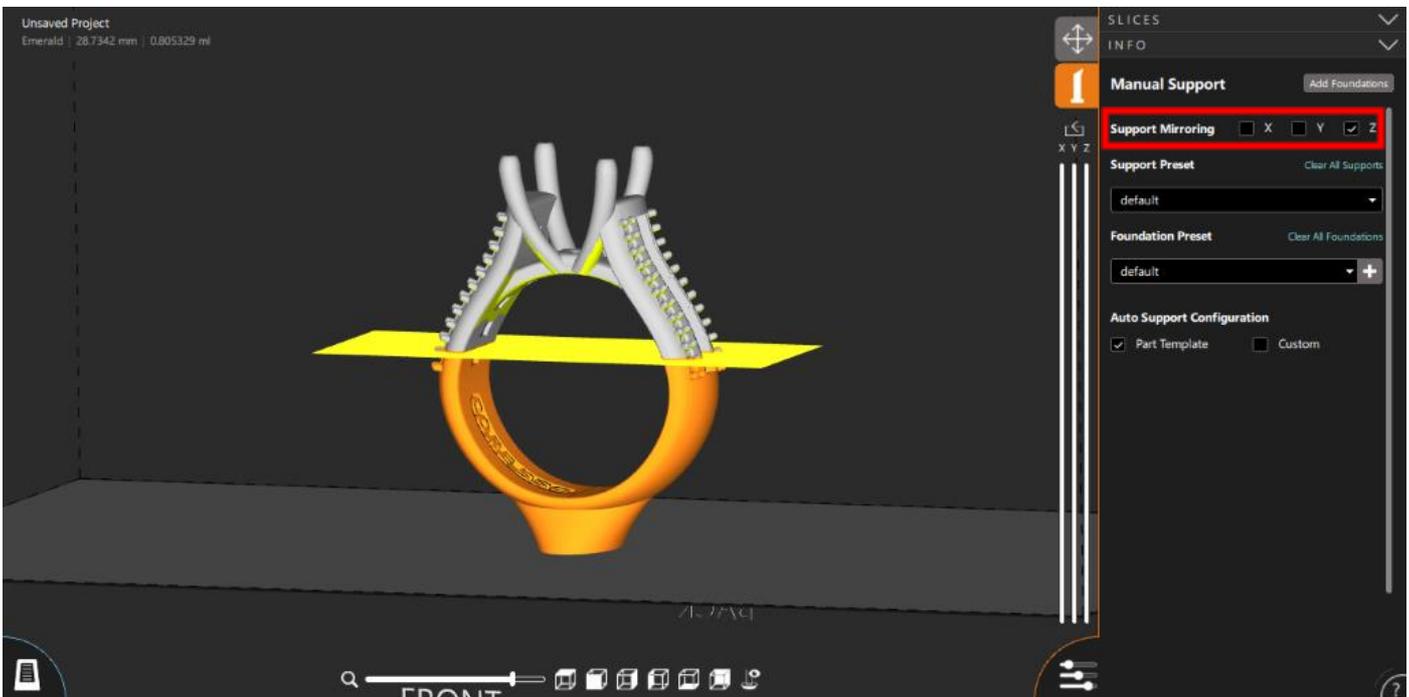
To make supports straight or vertical, you can right click on the support(s) that you want to alter and a pop-up will appear with those tools (Red). This pop-up allows you to Make Support Angled, Delete Support, and Delete Selected Supports as well.

Note: The Delete key on your keyboard can also be used to remove supports.



Mirroring Supports

You can mirror supports over a model's axes in the X, Y, and Z. The Support Mirroring check boxes (Red) are in the top right corner of the window.



What is Support Mirroring?

Support Mirroring makes manually supporting symmetrical parts easier by only requiring you to place supports on one half of the part.

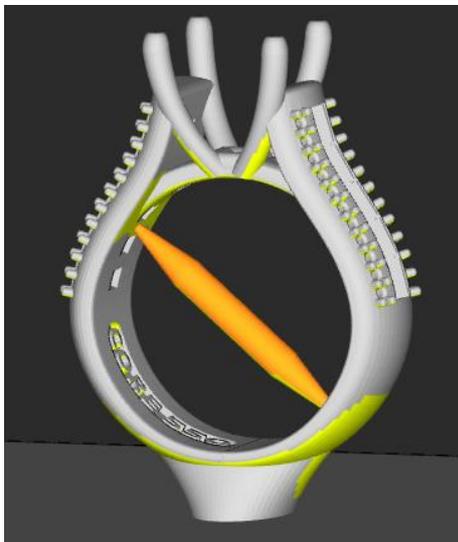
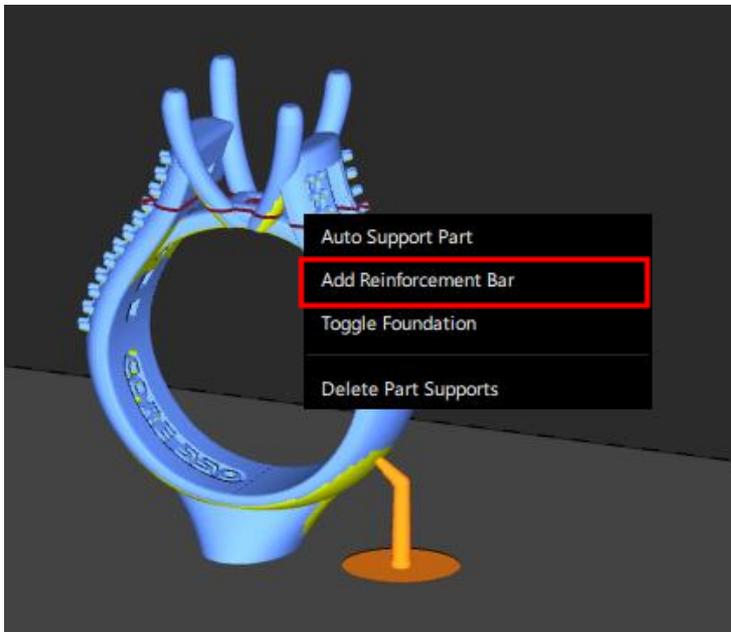
Turn on Support Mirroring by clicking one of the X, Y, or Z checkboxes in the right sidebar. When one of the checkboxes is checked, a transparent orange Mirror Plane for that axis will appear through the center of the parts and half of each part will be colored orange. Click the unsupported areas of the non-orange half to place supports and have them mirrored on the orange side.

Support Mirroring is intended for symmetrical parts that can be split into equal halves. If Support Mirroring is used on asymmetrical parts, the mirrored supports may be placed in poor locations.

Add Reinforcement Bar

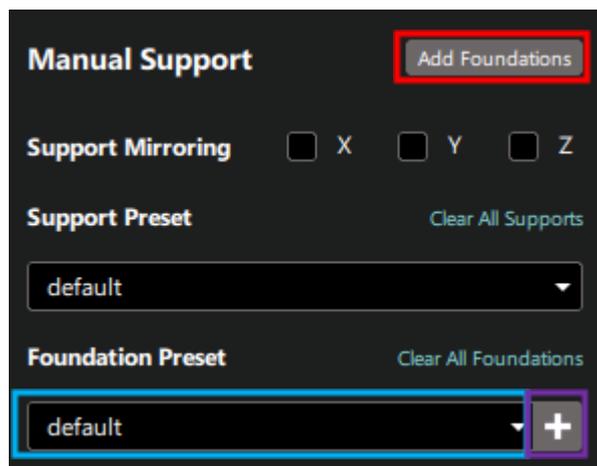
To place a Reinforcement Bar, right click on the model, select the Add Reinforcement Bar option (Red), left click on the model for the Bar's starting point, and then left click on the Bar's ending point.

Note: You can support the Reinforcement Bar and can right click on it and select Delete Reinforcement to remove the Bar.



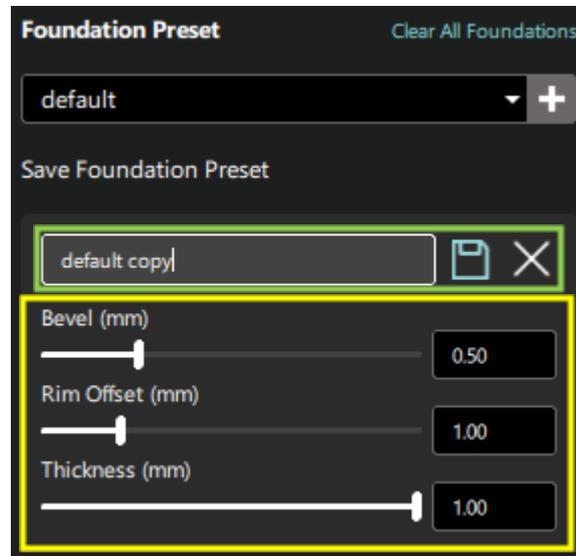
Foundation

Foundation Creation: In B9Create, you can add a foundation to your model(s) by selecting the Add Foundations (Red). To select a foundation preset, you can click on the Foundation Preset dropdown menu (Blue). To add a new Foundation Preset, you can click on the Add Foundation Preset Button (Purple).



After clicking on the Add Foundation Preset Button, you can Name the Preset and Save or Delete it (Green). You can also adjust the Bevel (distance between the foundation's first layer and last layer), Rim Offset (distance between the model and the edge of the foundation), and the Thickness of the foundation.

Note: The foundation is always a silhouette foundation type.



What is a Foundation?

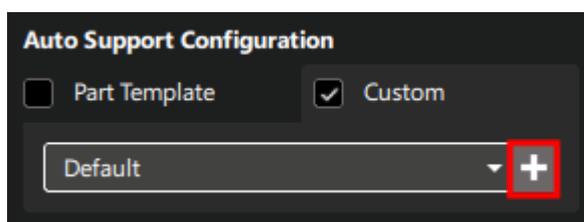
A Foundation is a thin platform under your part that unifies the bases of all supports. This can make it easier to remove your print from the build table after it has been printed.

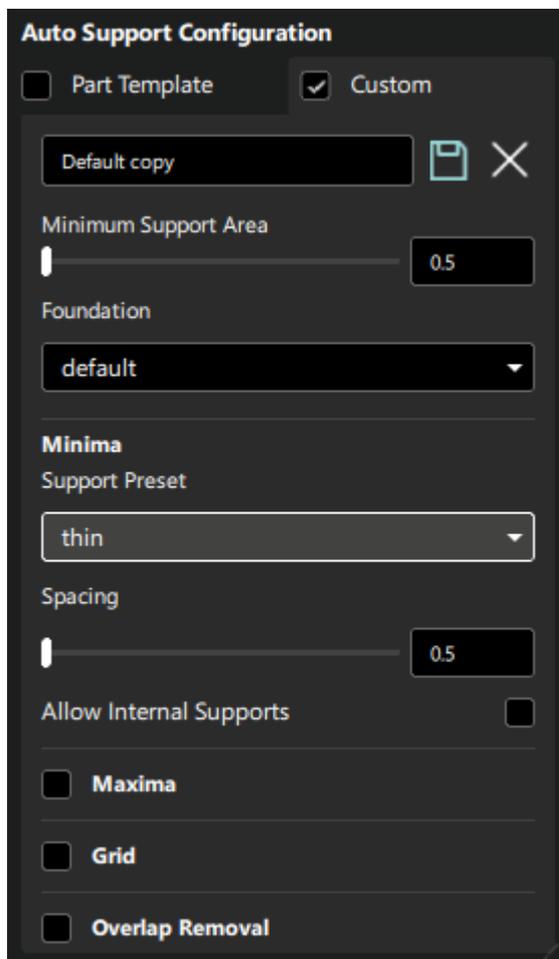
The Foundation Preset dropdown in the right sidebar controls what type of foundation is created. Foundations can be added to all parts by clicking the Add Foundations button.

Auto Supporting

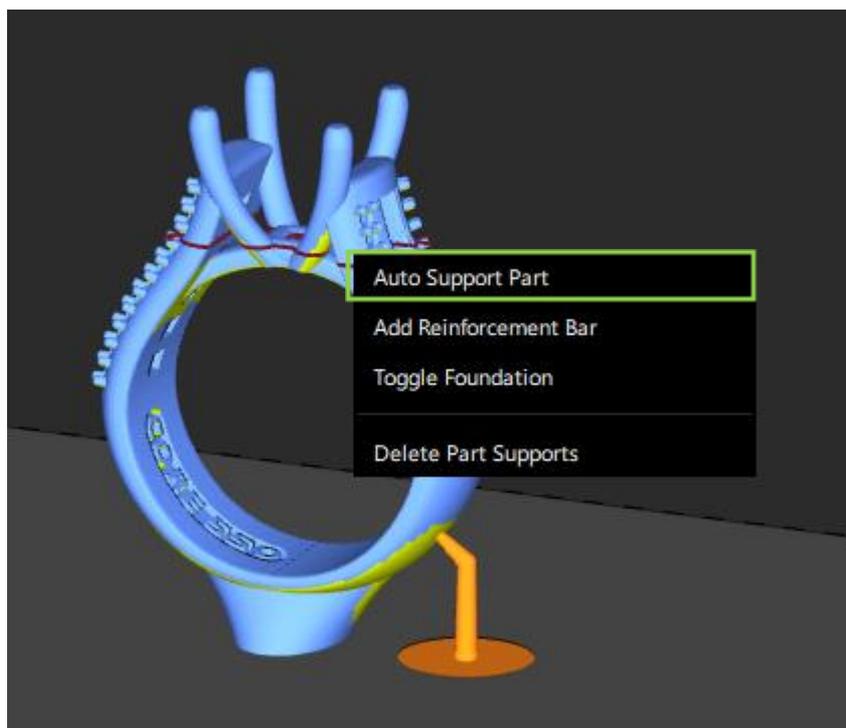
You have the option to choose Auto Supporting Configurations based on a previously made Part Template or to make a new Custom Configuration. To make a new configuration, you can select the Add Configuration button (Red) or select an existing configuration in the dropdown menu. You can alter the Auto Support Configuration and test it out on your models before saving and using the configuration in the future.

Note: For more information on Auto Support Configuration, see the Help Menu in the bottom left corner of the Support Tab.





To auto support the model, you can right click on the model and a pop-up appears with the Auto Support Part option (Red). This also allows you to Add Reinforcement Bar (**Note:** See subsection New Features in Supporting your Models for more information on the Reinforcement Bar tool), Toggle Foundation, and Delete Part Supports.



What is Auto Supporting?

The Auto Support function calculates where your parts need support and automatically places supports there. Auto supporting can speed up the support process, reduce failed prints, and give you a better idea of how to manually support your prints in the future.

In the Auto Support Configuration section, the auto supporting rules can be customized to give you control over the placement and density of the generated supports. Click the ? icon in that section for a more detailed explanation of auto supporting.

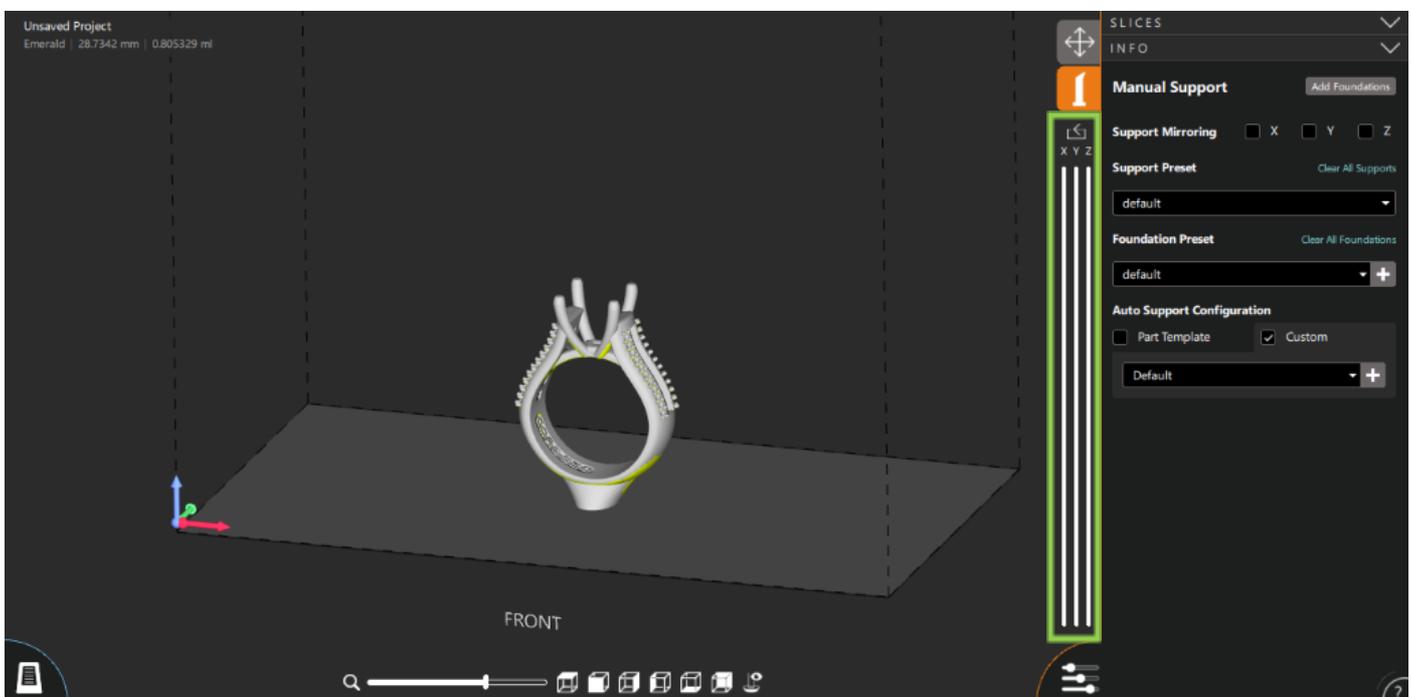
To auto support a part, right-click it and choose Auto Support.

What is the Sectioning Tool?

The Sectioning Tool next to the right sidebar shows three sliders for the X, Y, and Z axes. These sliders can be used to show only a section of the build area and see inside your parts. This can be useful for placing supports in hard-to-see areas.

Hovering your mouse over the top of the X slider shows a circular handle that can be used to drag the top sectioning plane up or down. As you drag, the parts will become sectioned on the build table. The bottom of the X slider and the Y and Z sliders work in the same way.

Clicking the icon above the X, Y, and Z labels resets the sectioning to show the entire build area.



Slicing

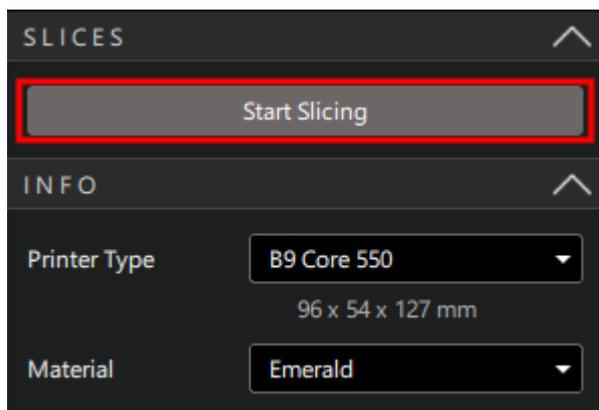
The Slices section allows you to start the slicing process or preview the project if it has already been sliced. A project needs to be sliced before it can be added to a printer and

printed. Once a project has been sliced, it cannot be edited until the slices have been cleared.

The Slices section can be expanded or contracted by clicking its header.

All CPJX Files are sliced in the FAST slicing technique and can be sliced by selectin the Start Slicing button (Red) in the top right of the window of either the Layout or Support Tab.

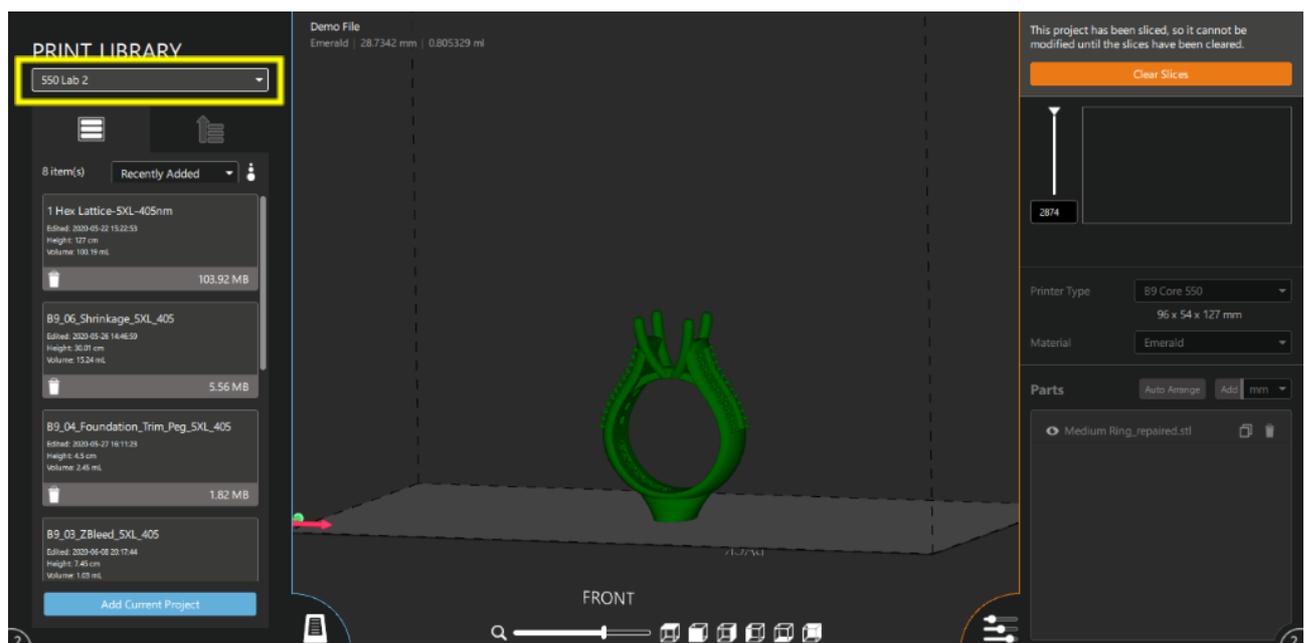
Note: Slices can be previewed after via the slider that appears in the top right corner of the window.



Uploading Files

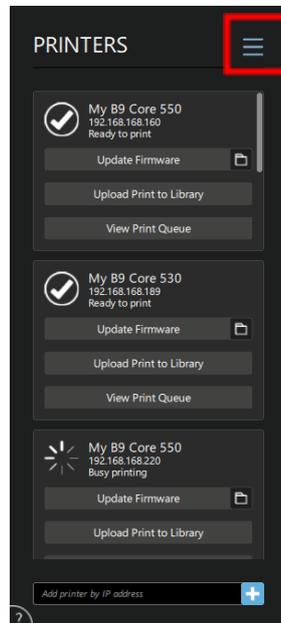
Uploading Files to Printers: In B9Create, once the file has completed slicing, you can upload the file directly to the printer using the Printer Manager drawer (Red). You can select the printer you are sending the file to by clicking on the Printer dropdown menu (Yellow).

Note: The printer's Queue can be located by clicking on the Queue tab (Green).



Data Management, Software Updates, and Printer Status

There is a Dashboard (Red) located at the top right of the Printer Manager drawer that allows you to see all the data on previous prints completed on all connected printers. To save all the data, click on the Save button (Yellow) at the top right of the Dashboard. To see the data for the associated printer, click on the dropdown arrows (Green) to the left of the printer names. Use the vertical and horizontal scroll bars (Blue) to explore the data provided.

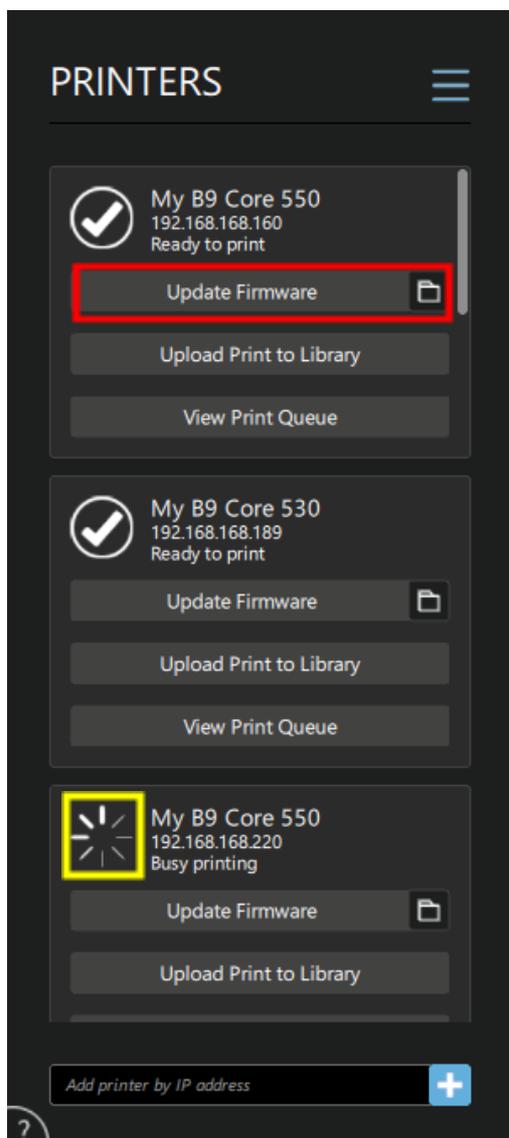


Printer	IP	Model	Firmware Version Num...	GUID	Printer State	Prints Finished
My B9 Core 550	192.168.168.160	B9 Core 550	74	550 Sample Station 1	Asleep	24
My B9 Core 530	192.168.168.189	B9 Core 530	74	Sample530	Asleep	214
My B9 Core 550	192.168.168.220	B9 Core 550	74	Core_000550	Printing	2243
Pepe (Peppy)	192.168.168.221	Unknown Printer Model	67	EricR&D	Asleep	768
Core 550 SN	192.168.168.210	B9 Core 550	76	test530Thing	Asleep	3
530 (Z Motor Mod) Lab 2	192.168.168.88	B9 Core 530	74	2026A100647	Print Finished	9
B9 5XL 405 Proto_4	192.168.168.110	B9 Core 5XL (405)	76	405nm Proto 4	Asleep	11
B9 5XL 385 Proto_2	192.168.168.24	B9 Core 5XL (385)	76	B9_5XL385_Proto_02	Asleep	18

Print Name	Date Edited	Print Outcome	Firmware Number	Material	Quality Level	Average Speed
Sample Print 5XL (55...	2020-05-19T14:54:30	Print Completed Successfully	76	B9R-3-Emerald-Core5XL-40...	50 µm Recommended	12.82
Sample Print 5XL (55...	2020-05-19T14:54:30	Print Completed Successfully	76	B9R-3-Emerald-Core5XL-40...	50 µm Recommended	12.82
E-ChannelRings-5XL-...	2020-06-23T22:07:18	Print Completed Successfully	76	B9R-3-Emerald-Core5XL-40...	50 µm Recommended	15.28
E-ChannelRings-5XL-...	2020-06-23T22:07:18	Print Completed Successfully	76	B9R-3-Emerald-Core5XL-40...	50 µm Recommended	15.27
B-Rooks-5XL-405nm	2020-06-23T21:56:54	Print Completed Successfully	76	B9R-3-Emerald-Core5XL-40...	50 µm Recommended	15.35
B-Rooks-5XL-405nm	2020-06-23T21:56:54	Print Completed Successfully	76	B9R-3-Emerald-Core5XL-40...	50 µm Recommended	15.35
Sample Print 5XL (55...	2020-05-19T14:54:30	Print Completed Successfully	76	B9R-2-Black-Core5XL-405n...	50 µm Recommended	27.35
Sample Print 5XL (55...	2020-05-19T14:54:30	Print Completed Successfully	76	B9R-2-Black-Core5XL-405n...	50 µm Recommended	27.38
Sample Print 5XL (55...	2020-05-19T14:54:30	Print Aborted by user	76	B9R-2-Black-Core5XL-405n...	50 µm Recommended	18.39
B-Rooks-5XL-405nm	2020-06-23T21:56:54	Print Completed Successfully	76	B9R-2-Black-Core5XL-405n...	50 µm Recommended	30.87
MSCP_5XL_405	2020-04-22T18:25:36	Print Completed Successfully	76	Emerald_5XL_MSCP	50 um	23.14
MSCP_5XL_405	2020-04-22T18:25:36	Print Completed Successfully	76	Emerald_5XL_MSCP	50 um	23.17
MSCP_5XL_405	2020-04-22T18:25:36	Print Aborted by user	76	Emerald_5XL_MSCP	50 um	0
Test Print	2020-05-12T05:16:49	Print Aborted by user	76	B9R-2-Black-Core5XL-405n...	50 µm Recommended	4.19
Test Print	2020-05-12T05:16:49	Print Aborted by hardware	76	B9R-2-Black-Core5XL-405n...	50 µm Recommended	5.96
Test Print	2020-05-12T05:16:49	Print Aborted by user	76	B9R-2-Black-Core5XL-405n...	50 µm Recommended	5.96

Printer Update and Status

The printers can be updated by click on the Update Firmware buttons (Red) for the designated printers and their statuses (Yellow) are listed beside and below the printer's name.



4.0 Document History

Edition	Date	Comments
A		Initial release
B	09/01/2022	B9Create new release