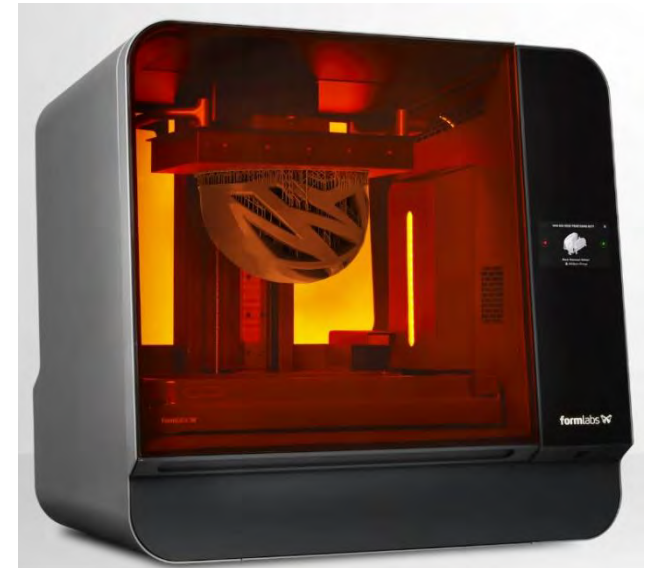


GUIDE:

SETTING UP FILES IN PREFORM

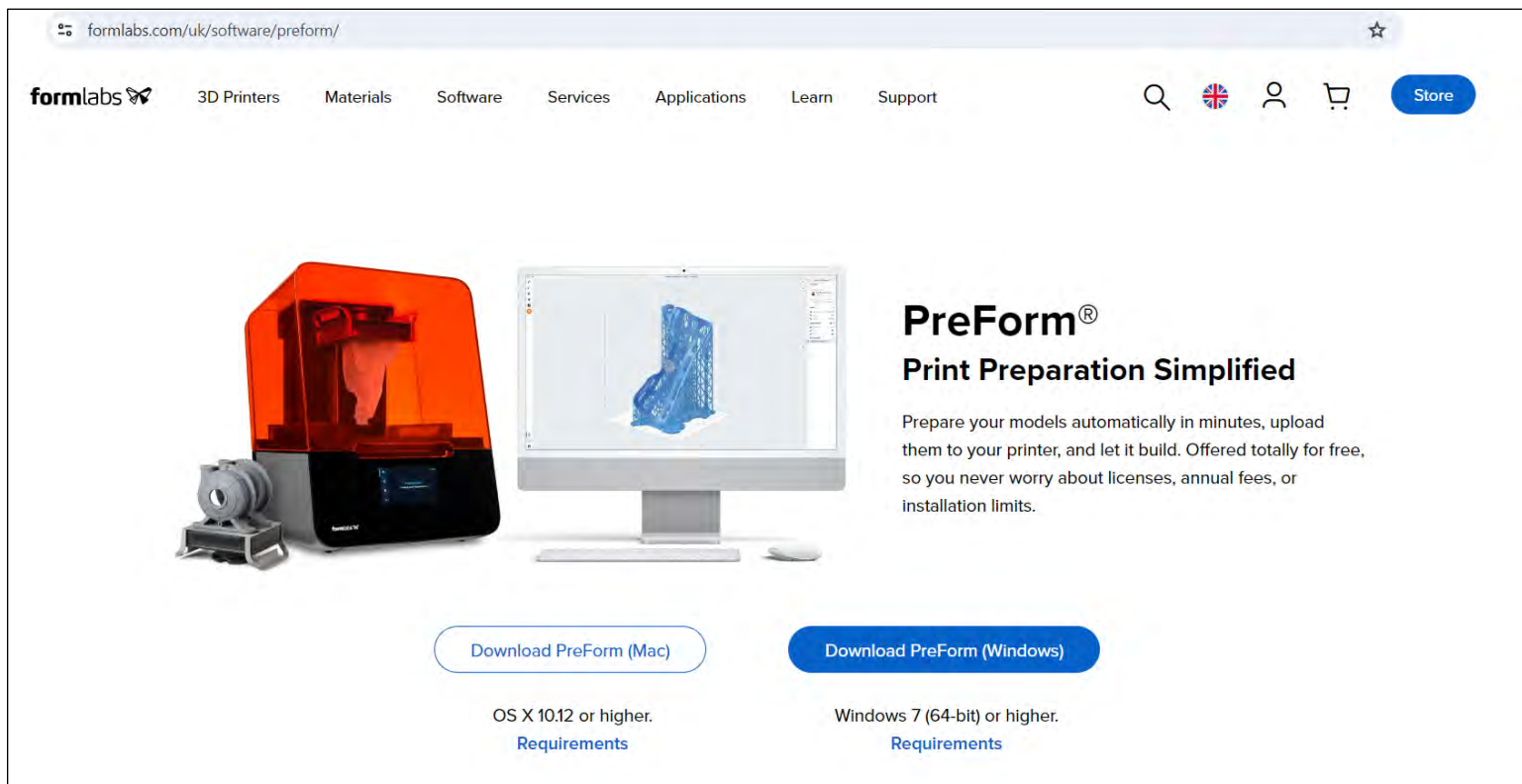
FOR FORMLABS SLA (resin) 3D PRINTERS



GUIDE: SETTING UP FILES IN PREFORM (Mac & PC/Windows)

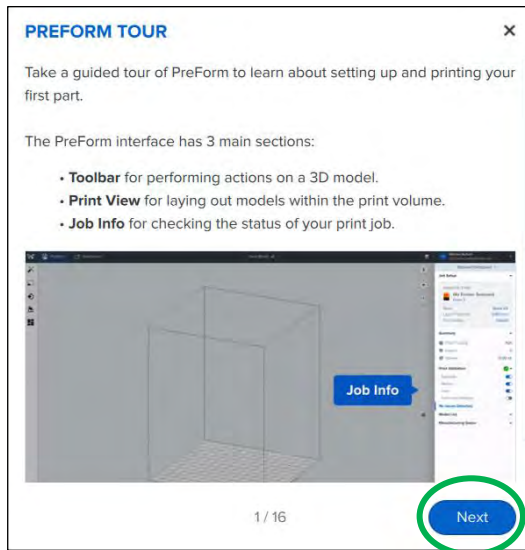
SETTING UP PREFORM (If you have already downloaded and set-up PreForm, skip to page 2 to set up your .stl files ready to print.)

1. Download and install **PreForm** from formlabs.com



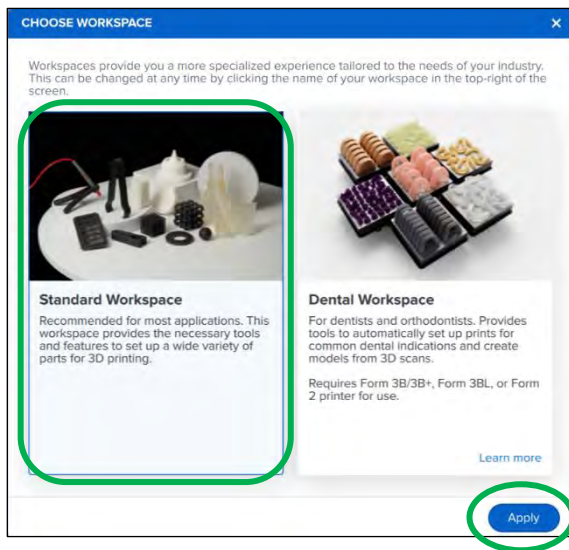
Once you have finished installing, open **Preform** (if it doesn't auto start from installation).

2.



It will ask you to agree to data collection and then read through the information, clicking 'Next' until done.

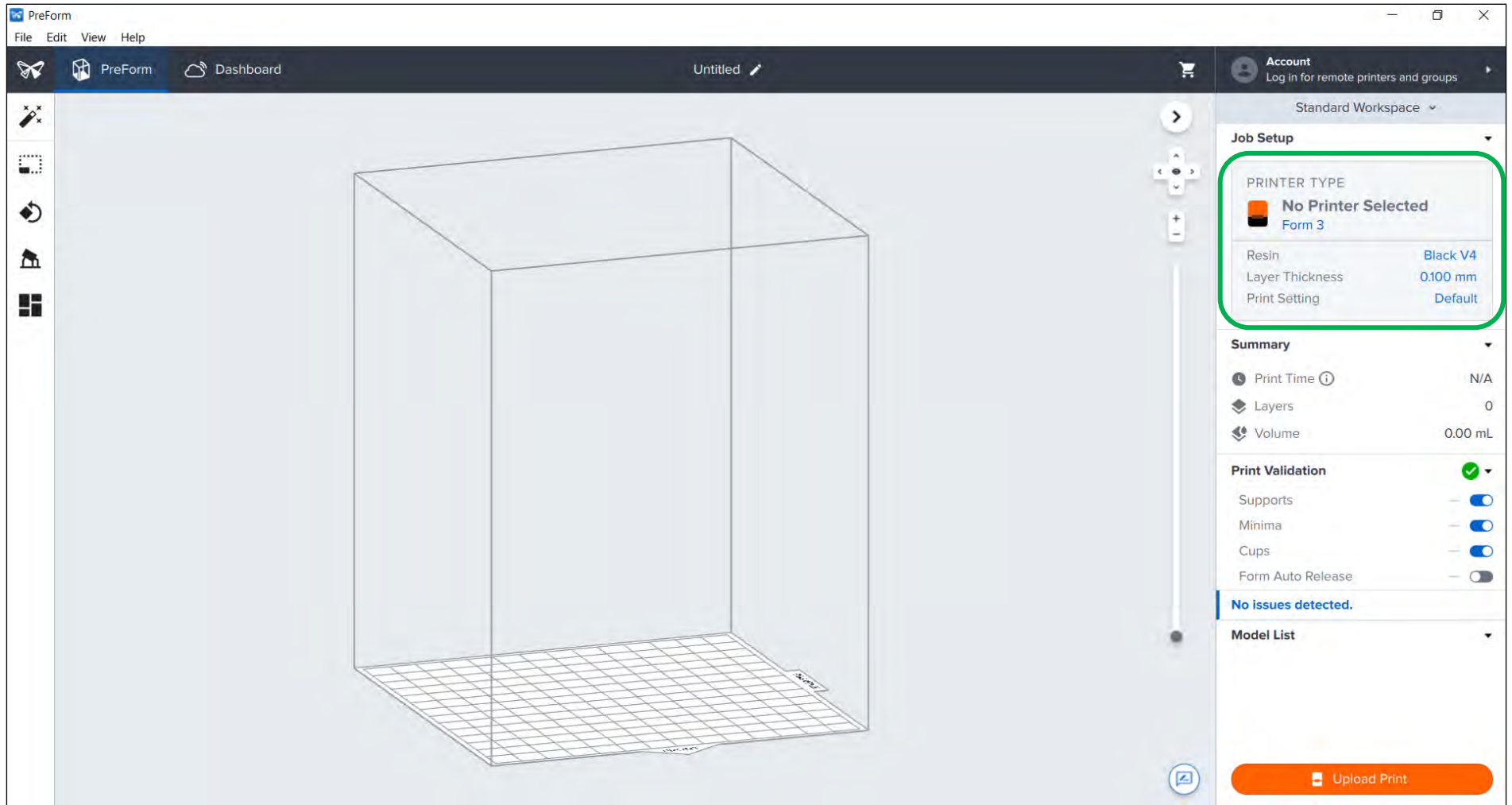
3.



Choose the **Standard Workspace** and click **Apply**.

SETTING UP YOUR BUILD FILE

1. **JOB SETUP:** on the right side of the screen, click on the grey box below 'Job Setup' to edit the settings.



PRINTER: choose the printer – either the smaller **Form 3/3+** or the larger **Form 3L**.

MATERIAL: choose your material. There is only clear resin available for the large Form 3L.

You can choose clear, white or black for the small **Form 3** printers.

A clear flexible resin called **Flexible 80A** is available on special request from technicians, for the small **Form 3**.

The screenshot shows the PreForm software interface. At the top, there is a menu bar with 'File', 'Edit', 'View', and 'Help'. Below the menu bar, there are navigation icons for 'PreForm' and 'Dashboard', and a 'Untitled' document indicator. On the right side, there is an 'Account' section with a user profile icon and the text 'Log in for remote printers and groups'.

The main content area is divided into two sections:

- 1 Choose Printer:** This section prompts the user to 'Choose a printer now, or set the printer type to finalize your choice of printer only when uploading the job.' It features a 'Printer Type' filter with buttons for 'Form 2', 'Form 3/3+', 'Form 3B/3B+', 'Form 3L', 'Form 3BL', 'Fuse 1', and 'Fuse 1+ 30W'. The 'Form 3/3+' and 'Form 3L' buttons are circled in green. Below the filter is a search bar labeled 'Search Printers...' and a 'Show All Printer Types' toggle. A '+ Add Printer' button is also present. A table below lists printer details, with one entry for 'Form 3+' (SLA 3D Printer, 145 x 145 x 185 mm) and a note that no Form 3+ printers have been found.
- 2 Choose Material:** This section prompts the user to 'Choose the material you would like to print with.' It features a category filter with buttons for 'General Purpose', 'Engineering', 'Dental', 'Medical', and 'Jewelry'. Below the filter is a grid of material options, each with a representative image and a label: Alumina 4N, Black, Castable Wax, Castable Wa..., Clear, Color, Draft, Durable, ESD, Elastic 50A, Flame Retar..., Flexible, Flexible 80A, Grey, Grey Pro, High Temp, Model, PU Rigid 1000, PU Rigid 650, Rigid 10K, Rigid 4000, Silicone 40A, Tough, Tough 1500, Tough 2000, and White. The 'Black', 'Clear', 'Flexible 80A', and 'White' options are circled in green.

On the right side, there is a 'Job Setup' panel with a close button. It contains a 'PRINTER TYPE' section with a 'No Printer Selected' message and a 'Form 3' dropdown. Below this are fields for 'Resin' (Black V4), 'Layer Thickness' (0.100 mm), and 'Print Setting' (Default). The 'Printer Details' section is expanded, showing 'Remote Print' (Disabled), 'Firmware' (None), 'Firmware Update', and 'Download Logs'.

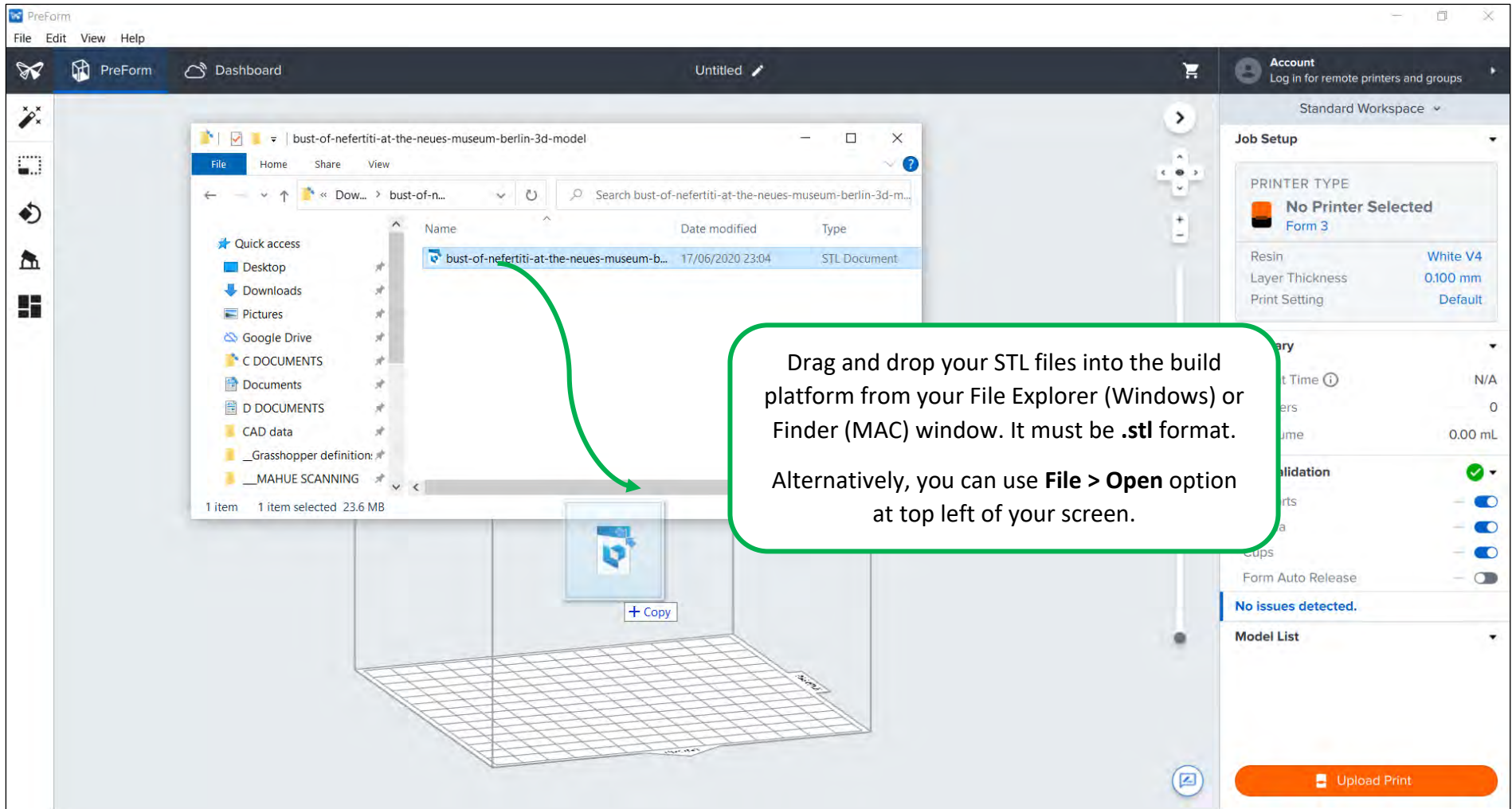
LAYER THICKNESS and PRINT SETTINGS: 0.1mm layer thickness gives a very high resolution print. 0.5mm prints in finer layers, giving a finer surface resolution but it is barely noticeable to the human eye, so we recommend 0.1mm which makes the print faster.

Choose the **Default Print Settings**.

Then check over your chosen settings in **Job Setup** at top right, before clicking **Apply** at the bottom left.

The screenshot displays the PreForm software interface. At the top, there is a menu bar with 'File', 'Edit', 'View', and 'Help'. Below the menu bar is a navigation bar with 'PreForm' and 'Dashboard' tabs, and a 'Untitled' document name. The main area is a grid of material options, including Alumina 4N, Black, Castable Wax, Castable Wa..., Clear, Color, Draft, Durable, ESD, Elastic 50A, Flame Retar..., Flexible, Flexible 80A, Grey, Grey Pro, High Temp, Model, PU Rigid 1000, PU Rigid 650, Rigid 10K, Rigid 4000, Silicone 40A, Tough, Tough 1500, Tough 2000, and White. The 'White' material is selected. Below the material grid, there are two sections: '3 Choose Layer Thickness' and '4 Choose Print Settings'. In the 'Choose Layer Thickness' section, '0.100 mm' is selected, described as 'Fastest'. In the 'Choose Print Settings' section, 'Default' is selected, described as 'Updated settings that improve support removal and print 20 - 40 % faster than Legacy settings.' The 'Job Setup' panel on the right shows 'No Printer Selected' and 'Form 3' as the printer type. The 'Printer Details' section shows 'Remote Print' as 'Disabled' and 'Firmware' as 'None'. The 'Apply' button is highlighted at the bottom right.

2. Add your STL files via drag & drop from your file explorer/finder or via **File > Open**.



MOUSE NAVIGATION and USER INTERFACE



It is MUCH easier to navigate around a 3D environment with a 3 button mouse. You can buy one for usually less than £5 and it is almost essential for any 3D digital work.



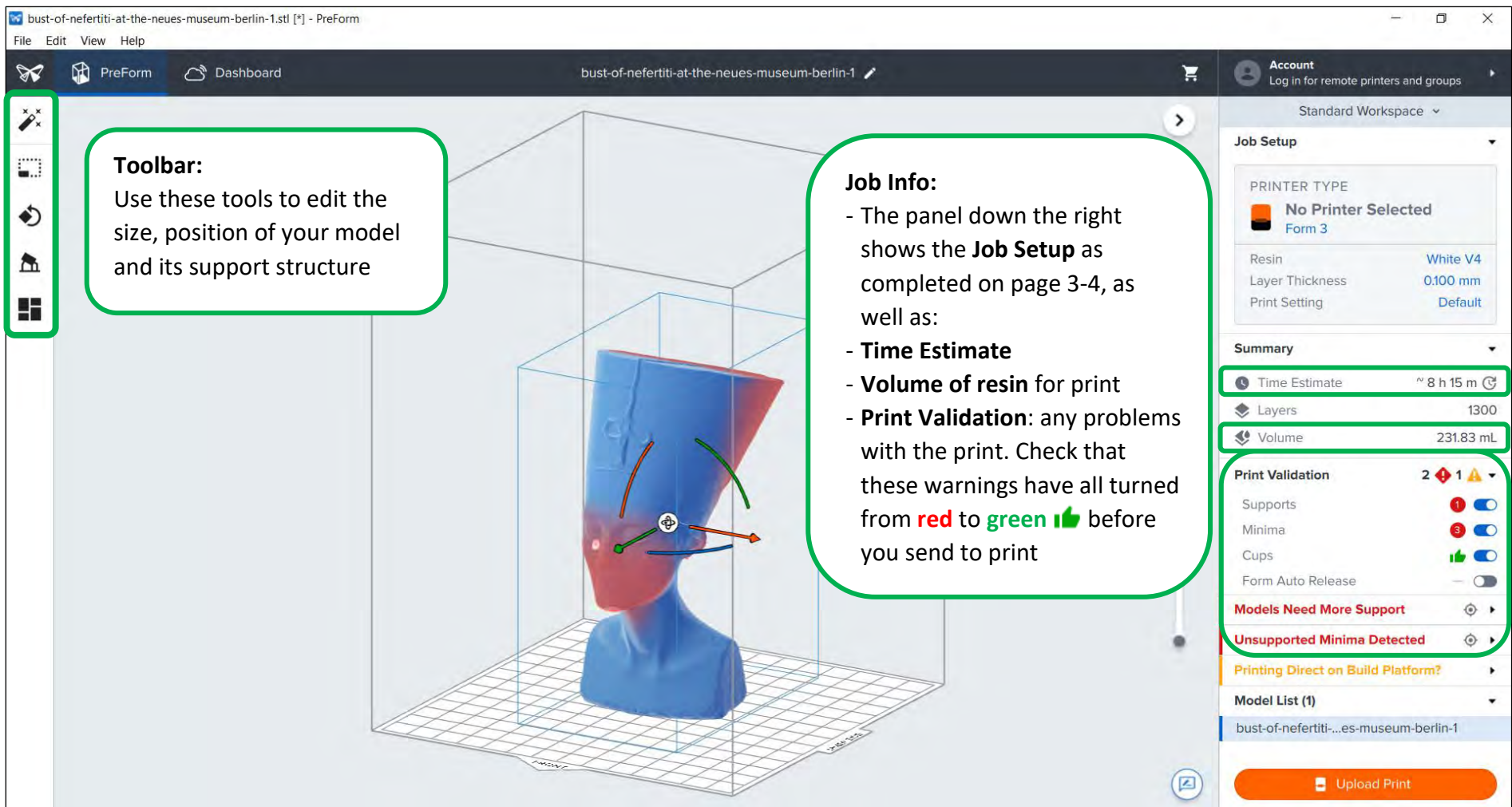
LEFT: select models and tools



MIDDLE: press & hold = pan across
roller ball = zoom in/out



RIGHT: press & hold = orbit around
single click model = menu



Toolbar:
Use these tools to edit the size, position of your model and its support structure

Job Info:

- The panel down the right shows the **Job Setup** as completed on page 3-4, as well as:
- **Time Estimate**
- **Volume of resin** for print
- **Print Validation:** any problems with the print. Check that these warnings have all turned from **red** to **green** 👍 before you send to print

Job Setup

PRINTER TYPE
No Printer Selected
Form 3

Resin **White V4**
Layer Thickness **0.100 mm**
Print Setting **Default**

Summary

- Time Estimate ~ 8 h 15 m
- Layers 1300
- Volume 231.83 mL

Print Validation 2 ⚠️ 1 ⚠️

- Supports 1 ⚠️
- Minima 3 ⚠️
- Cups 👍
- Form Auto Release

Models Need More Support

Unsupported Minima Detected

Printing Direct on Build Platform?

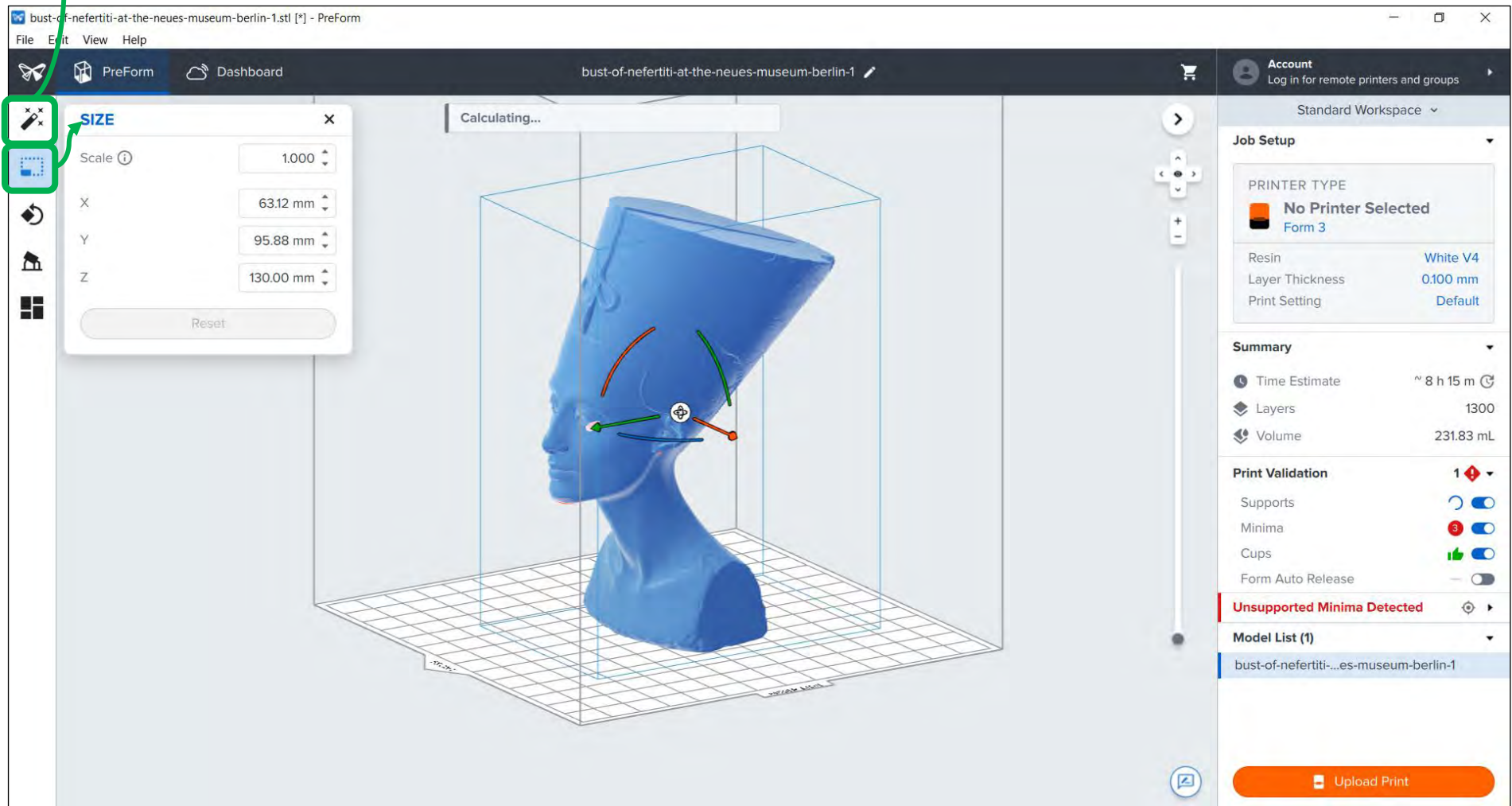
Model List (1)

- bust-of-nefertiti-...es-museum-berlin-1

Upload Print

3. **SIZE**: scale your models using the 2nd tool in the toolbar. Use the factor option (0.8 = 80%) or scale by X, Y or Z.

ONE CLICK PRINT: this can be useful for simple prints but you don't have control of support placement and it is better to learn about the process by setting each option yourself.

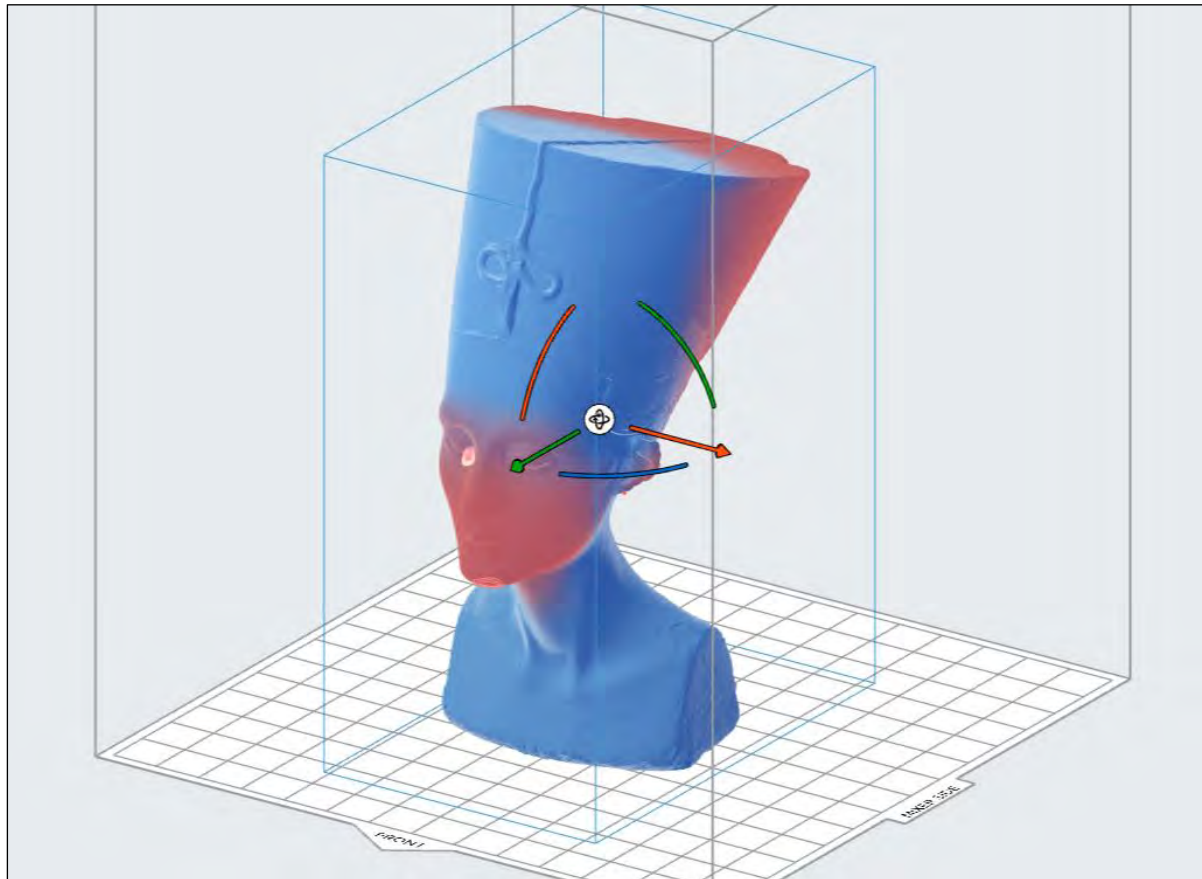


4. **POSITION & ORIENTATION:** if your model is outside the grey bounding box of the print volume, you will see a warning in **Print Validation** on the right.

Select your model – rotation and move tools will appear on your model when selected.

MOVE: you can drag your model around by clicking it & holding with your left mouse button. You can also use the green and red arrows to move in one direction. As long as models aren't touching and are inside the bounding box, they can be placed anywhere.

ROTATION: to orient your model you can use the green, red and blue arcs to rotate around the X, Y and Z axis. Or you can use the **Orientation** tool shown on the next page. Models will always snap down the build plate when rotated.



There are lots of ways of orienting with the **Orientation** tool on the left.

Considerations:

- Orientating as flat as possible saves money on support material and saves time in printing
- Support material will build from the build plate to attach to your model – orient important fine details away from build plate
- Aligning your model's base or the bigger end of a model, with the build plate, can result in less print failures

The screenshot shows the PreForm software interface. On the left, the **ORIENTATION** panel is open, showing several options: **Auto-Orient Selected** (highlighted in blue), **ORIENT TO FACE** (with a 'Select Base...' button), **ORIENT AXES** (with a '90°' input field and up/down arrows), and **ORIENT TO BOUNDING BOX**. A green box highlights the 'Auto-Orient Selected' button, and another green box highlights the 'Select Base...' button. A third green box highlights the '90°' input field and its arrows. A fourth green box highlights the 'Build Plate' label at the bottom of the 3D model. The 3D model is a blue bust of Nefertiti, positioned on a red build plate. The right side of the interface shows the **Job Setup** panel, which includes printer type, resin, layer thickness, and print settings. Below that is the **Summary** panel with time estimate, layers, and volume. The **Print Validation** panel shows 2 errors and 1 warning, with a list of issues: **Models Need More Support**, **Unsupported Minima Detected**, and **Printing Direct on Build Platform?**. The **Model List** panel shows the current model: **bust-of-nefertiti-...es-museum-berlin-1**. An **Upload Print** button is at the bottom right.

Auto Orient Selected can take a long time to process. Not recommended.

You can use **Select Base** and click on a base to align with the build plate.

Enter into X, Y or Z e.g. 90°. Or click/roll mouse rollerball over the up/down arrows.

Build Plate

5. **SUPPORTS:** there will be a resin support structure that builds from the build plate to support the base of your model and any necessary overhangs. It will add cost to your print.

Expand out **Advanced Settings** by clicking it and follow **ALL** the settings as shown below (technicians may edit these before printing). The ones that you need to change are highlighted in green – these have been found to be optimum for the majority of prints.

The screenshot displays the PreForm software interface for a 3D printing job. The main window shows a 3D model of a bust with a support structure. The support structure is highlighted in red, indicating areas where support is needed. The interface includes a 'SUPPORTS' panel on the left, a 'Job Setup' panel on the right, and a central 3D view. A green callout box points to the red support areas on the model.

SUPPORTS

Auto-Generate Selected

EDIT SUPPORTS

Edit... Clear

BASIC SETTINGS

Raft Type Full Raft

Raft Label

Breakaway Supports (Beta)

Density 0.70

Touchpoint Size 0.45 mm

Internal Supports

ADVANCED SETTINGS

Flat Spacing 11.70 mm

Slope Multiplier 0.70

Height Above Raft 4.00 mm

Raft Thickness 0.75 mm

Z-Compression Corre... 0.00 mm

Early Layer Merge 0.50 mm

Advanced Supports Help

Reset

Job Setup

PRINTER TYPE

No Printer Selected

Form 3

Resin White V4

Layer Thickness 0.100 mm

Print Setting Default

Summary

Time Estimate ~ 8 h 15 m

Layers 1311

Volume 231.83 mL

Print Validation 2 1 1

Supports 1

Minima 2

Cups

Form Auto Release

Models Need More Support

Unsupported Minima Detected

Printing Direct on Build Platform?

Model List (1)

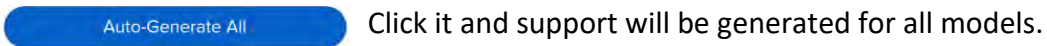
bust-of-nefertiti-...es-museum-berlin-1

Upload Print

Notice that a lot of your model will appear red – this shows areas where support is needed.

Click **Auto-Generate Selected** – this will create supports for the model that was selected.

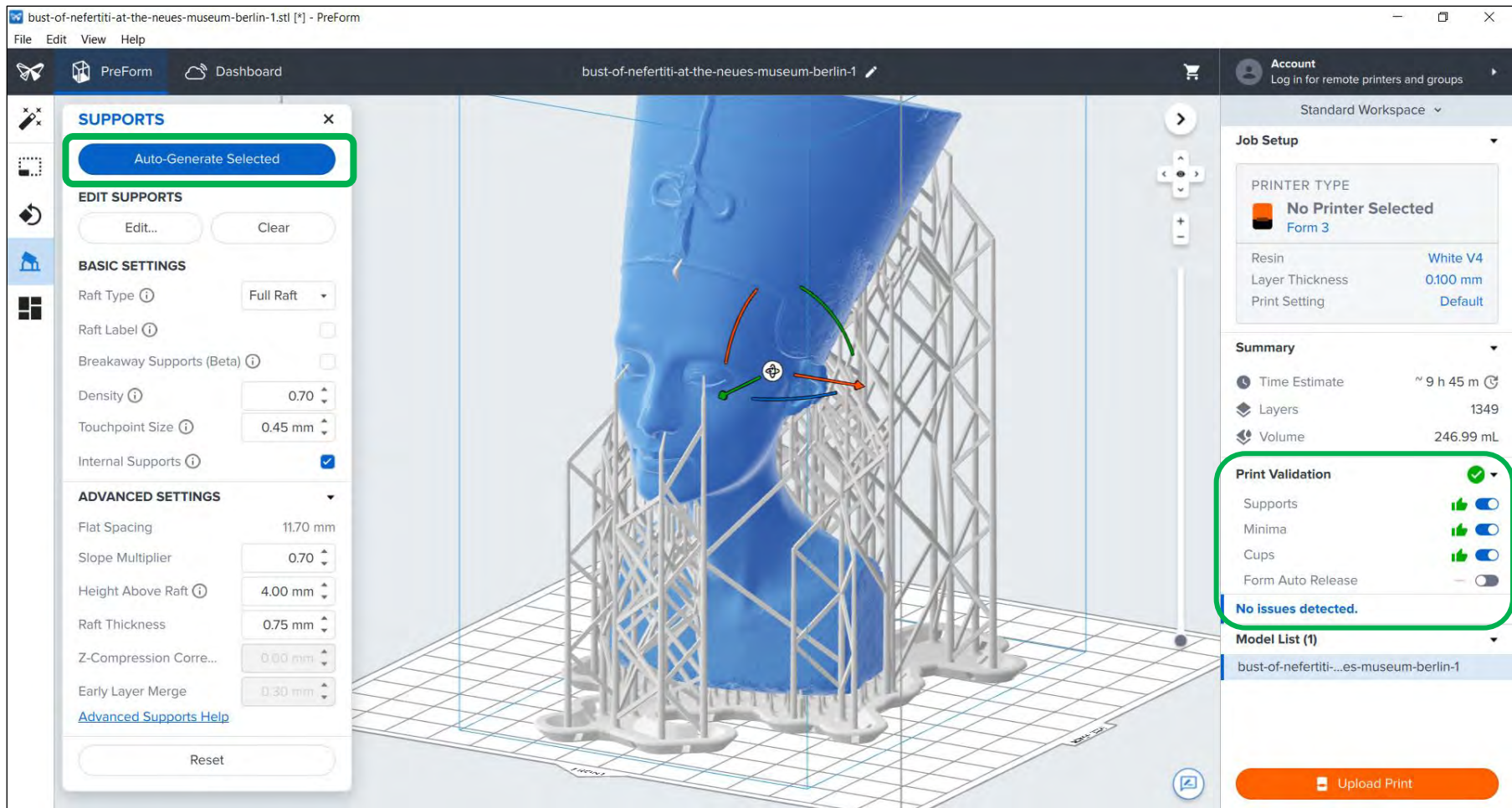
For multiples, make sure no models are selected by left clicking in the space around models. Then the blue button will instead look like this:



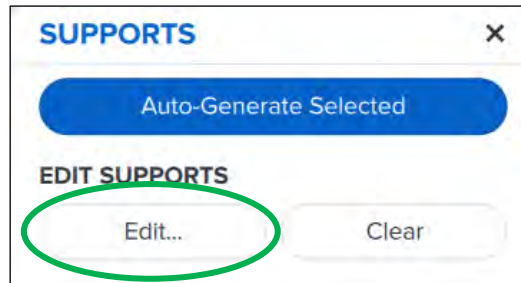
Check **Print Validation** to see that all warnings have all turned from red 6 to green thumbs up and that it says: **No Issues Detected**.



If you are using the larger **Form 3L**, it is not a problem if it says: **Seamline Detected**. This is because the **Form 3L** uses two lasers to cure the resin – the seamline between them is barely noticeable.



6.



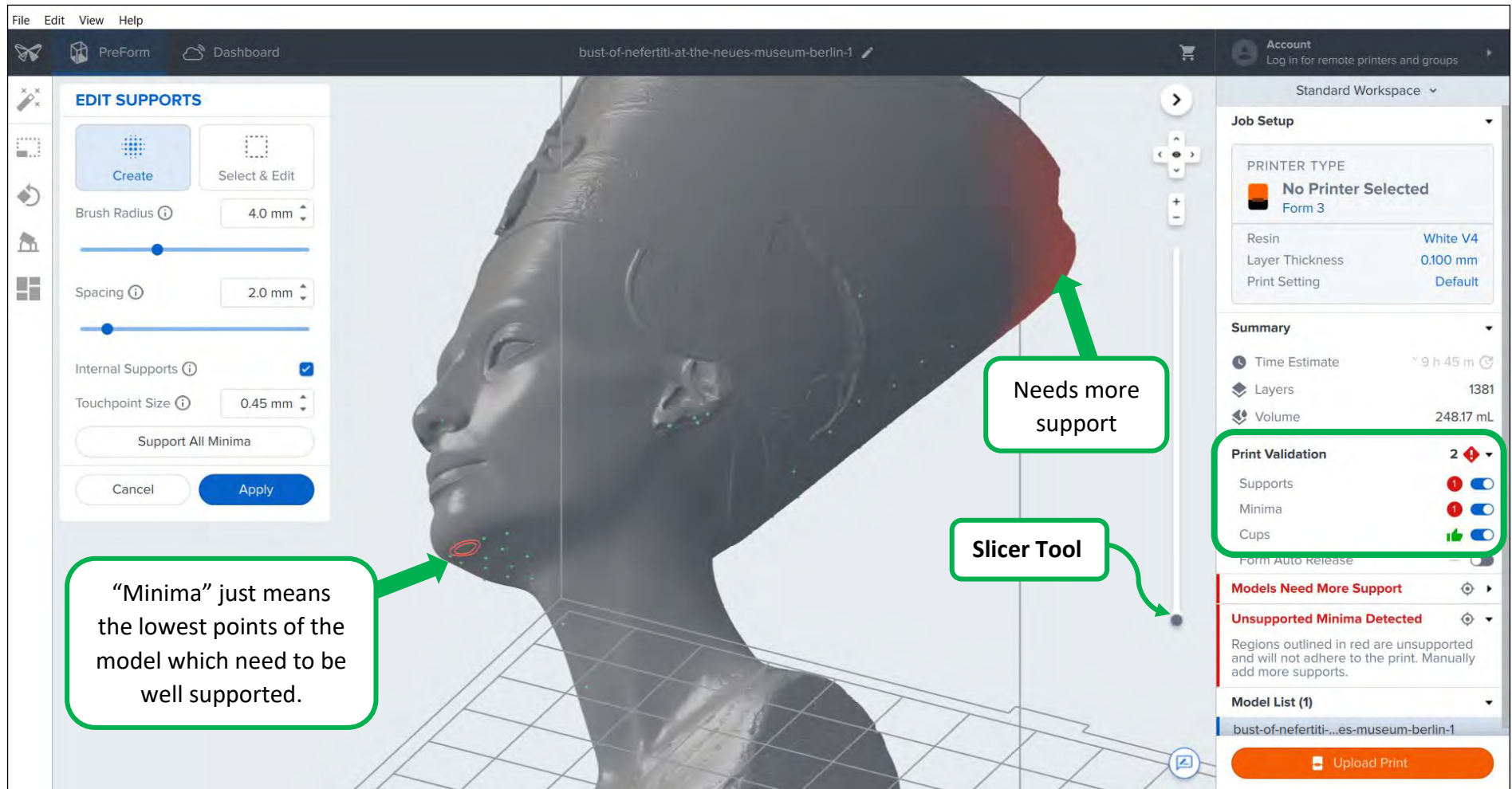
FIXING ERRORS: listed in **Print Validation**

If there is an error for **Cups**, go speak to a technician.

If there are errors for **Support** or **Minima** click **Edit** under **Edit Supports**.

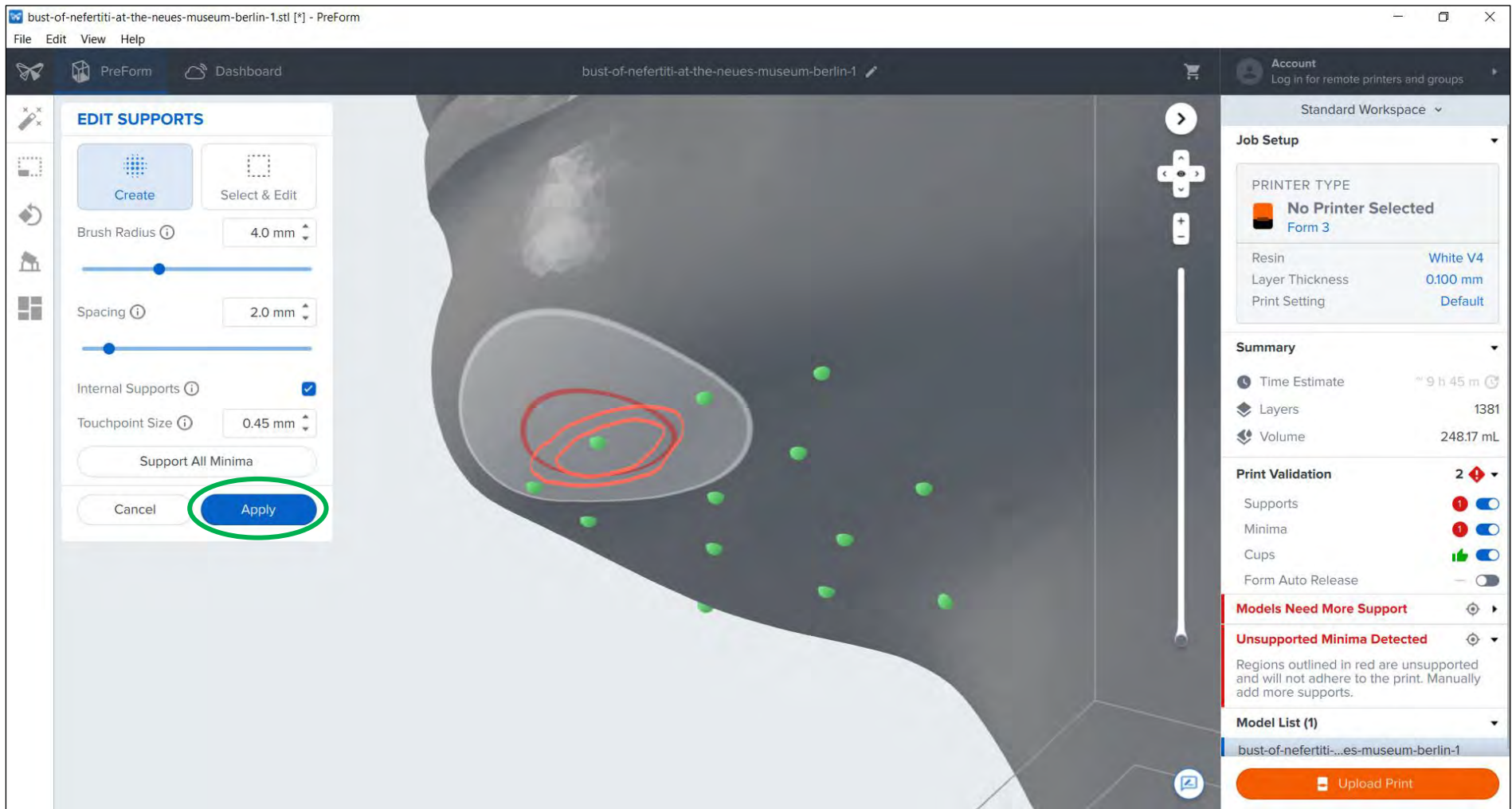
Look out for the red areas and red ringed areas on your model. More support is needed in these areas.

These can be very small and hard to spot. Scrolling through with the **Slicer Tool** can help to spot these with very complex models.



Simply left click in all the red areas to add more dots – these will be where a support meets your model.

Click **Apply** to see if this has fixed the errors in **Print Validation**. If it has not, there are tiny red areas somewhere – have a good search for them.



7. **TIME & COST:** when you have all green ticks in **Print Validation** you are ready to print.

Time Estimate – use this to plan your booking of the 3D printer on ORB. **NOTE:** booking slots on ORB are 2 hours but you get the printer for 24 hours from that slot time. Don't be late if your print time is near to 24 hours!

Volume: this is the amount of resin that your build will use for your model/s and support structure. Standard white, clear and black resins cost 16p per ml.

Multiple the volume by 0.16 to get the cost in £.

The model below at **140mm** high would use **253ml** of resin so: **253 x 0.16 = £40.48**

An 80mm high version would use **61ml** so: **61 x 0.16 = £9.76**

