GUIDE:

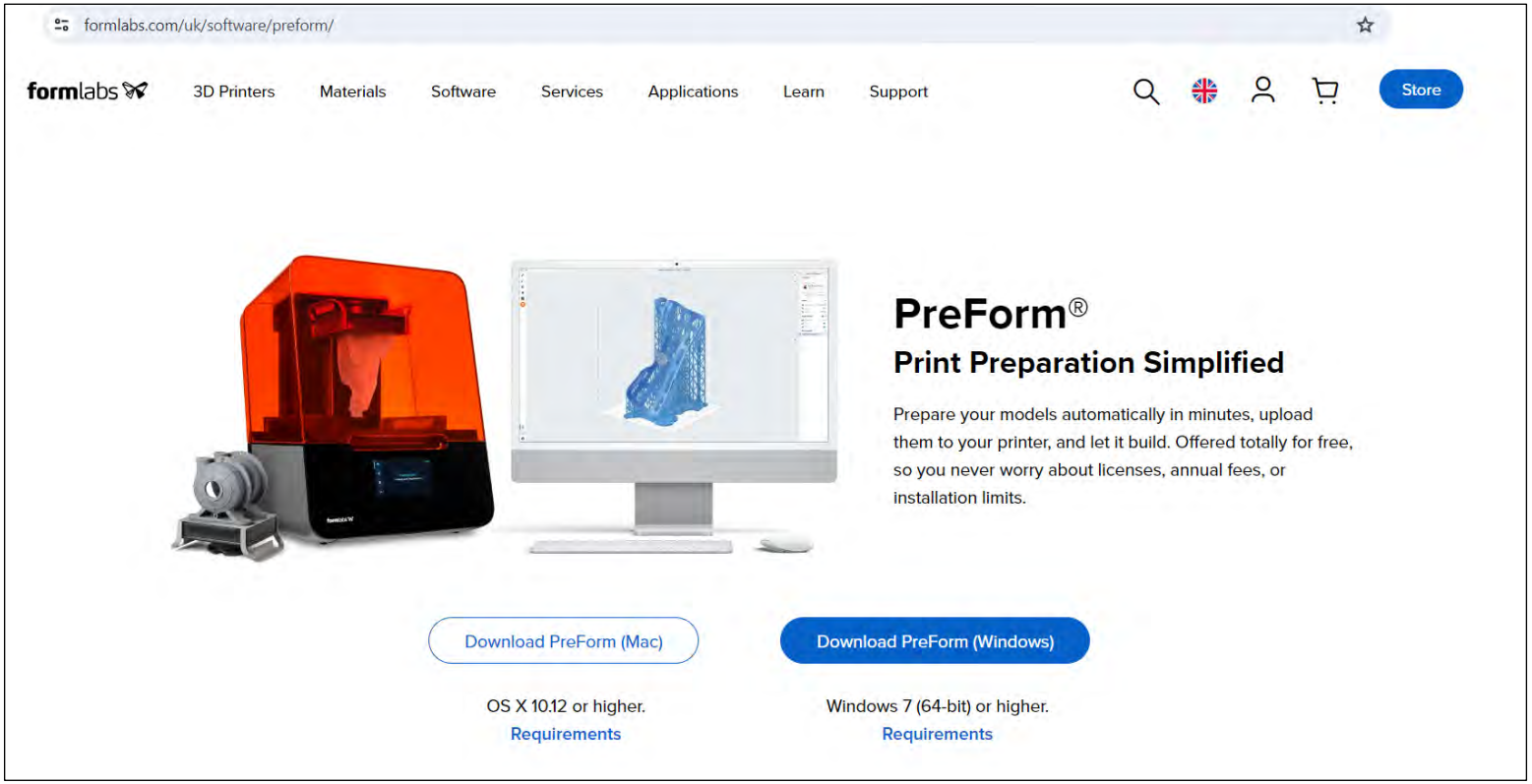
SETTING UP FILES IN **PREFORM**

FOR **FORMLABS** SLA (resin) 3D PRINTERS

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

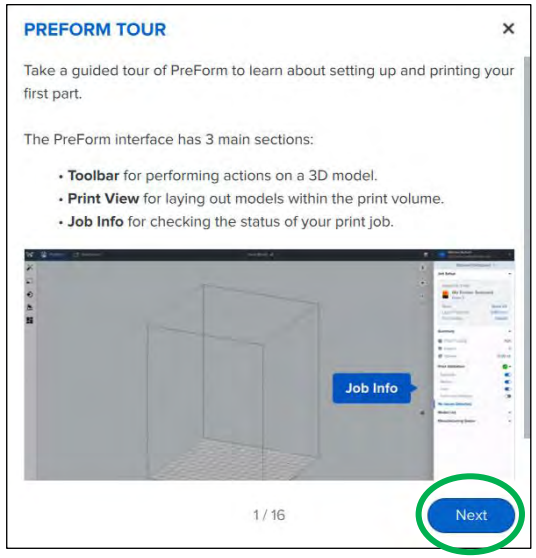
SETTING UP PREFORM (If you have already downloaded and set-up PreForm, skip to page 2 to set up your .stl files ready to print.)

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



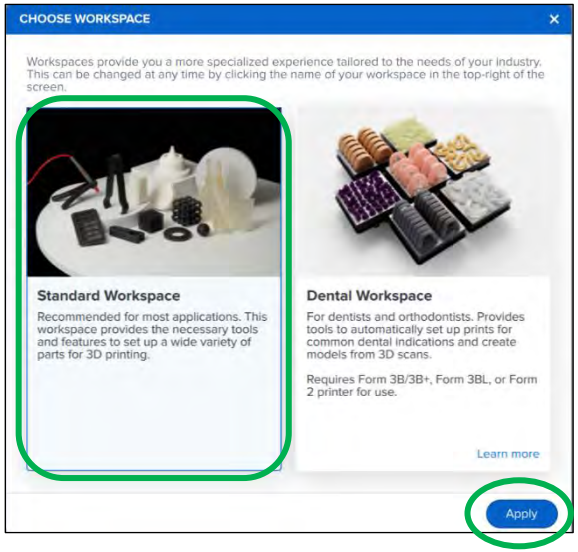
Once you have finished installing, open **Preform** (if it doesn't auto start from installation).

2.



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

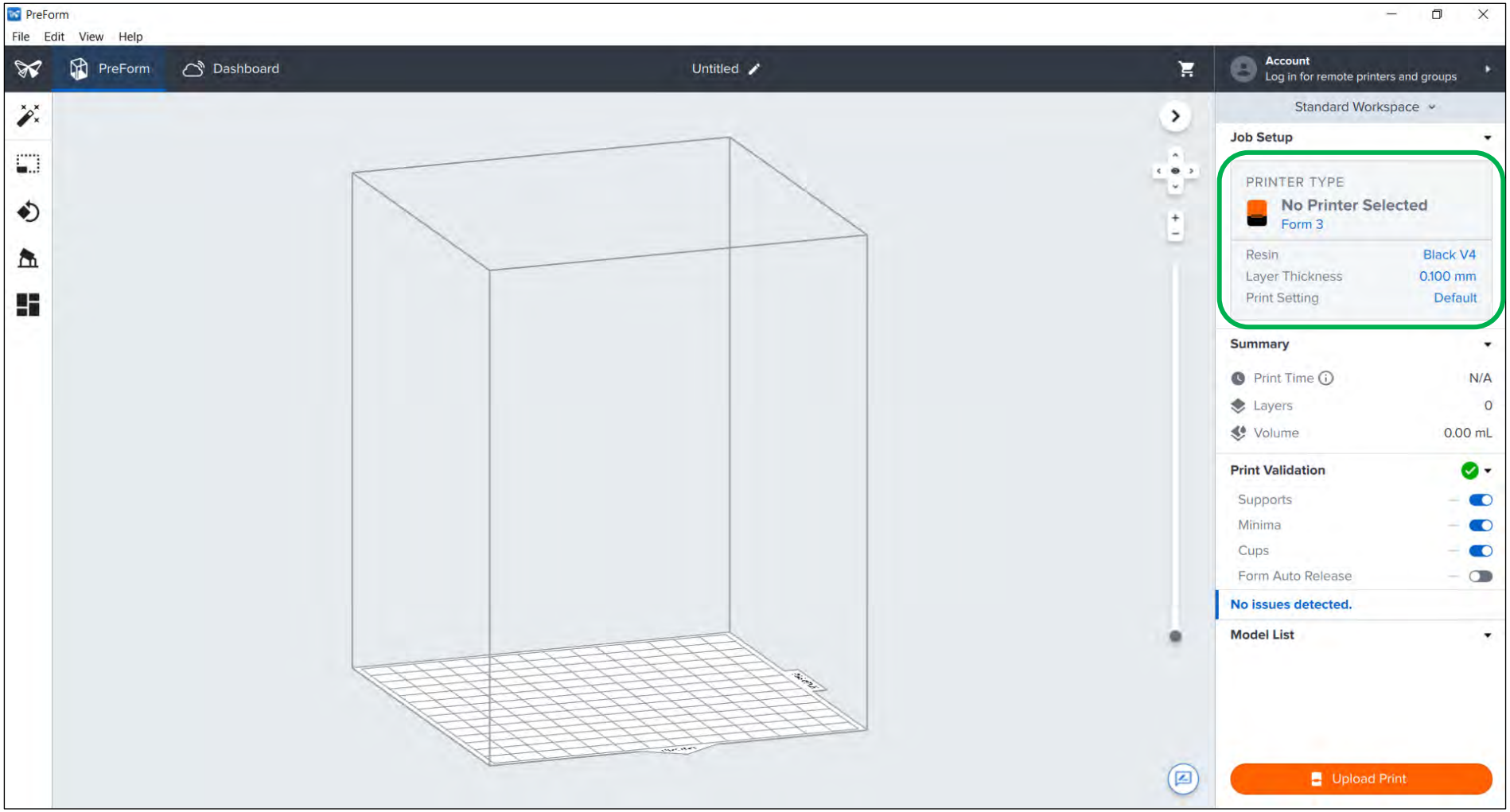
3.



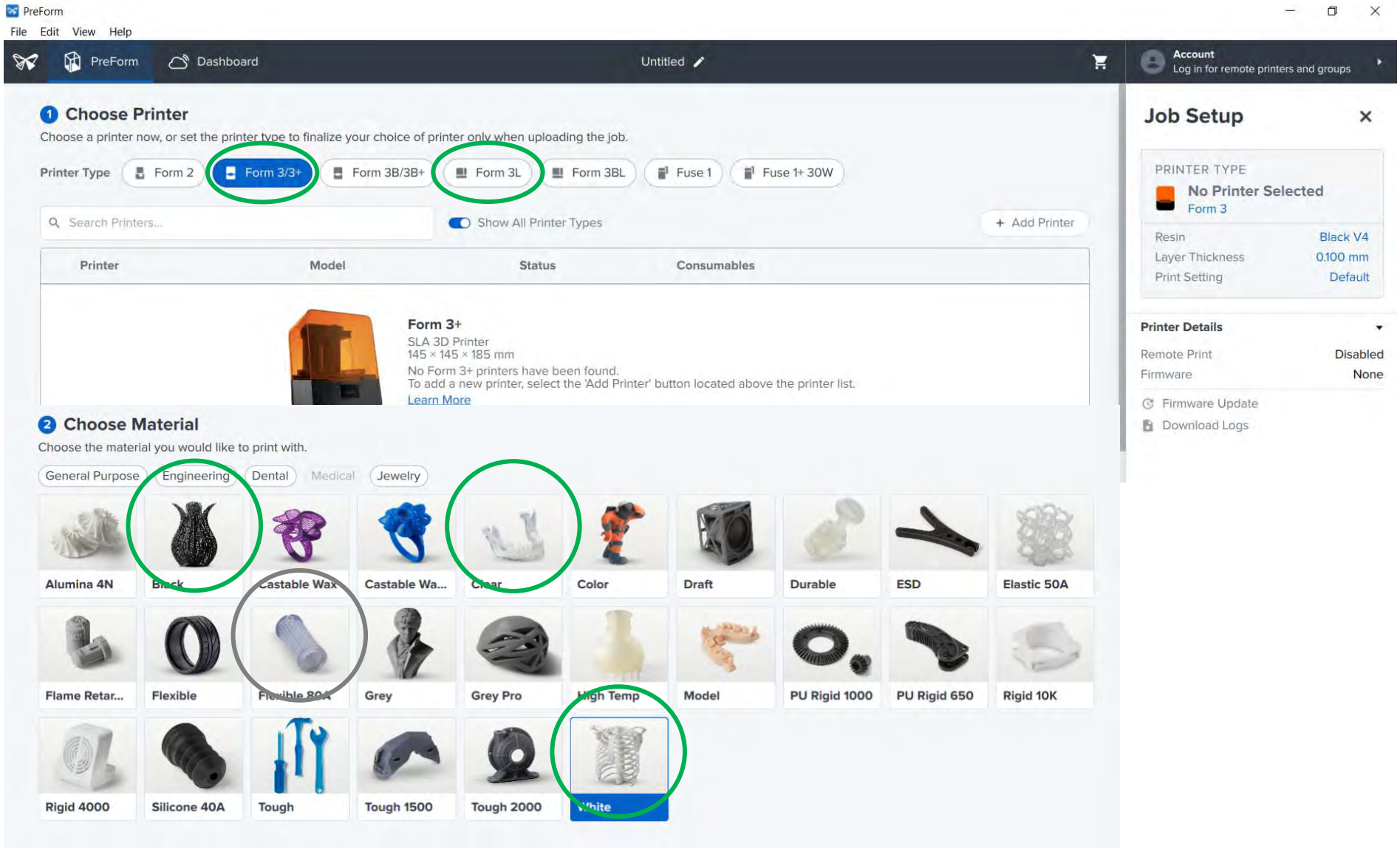
Choose the **Standard Workspace** and click **Apply**.

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.



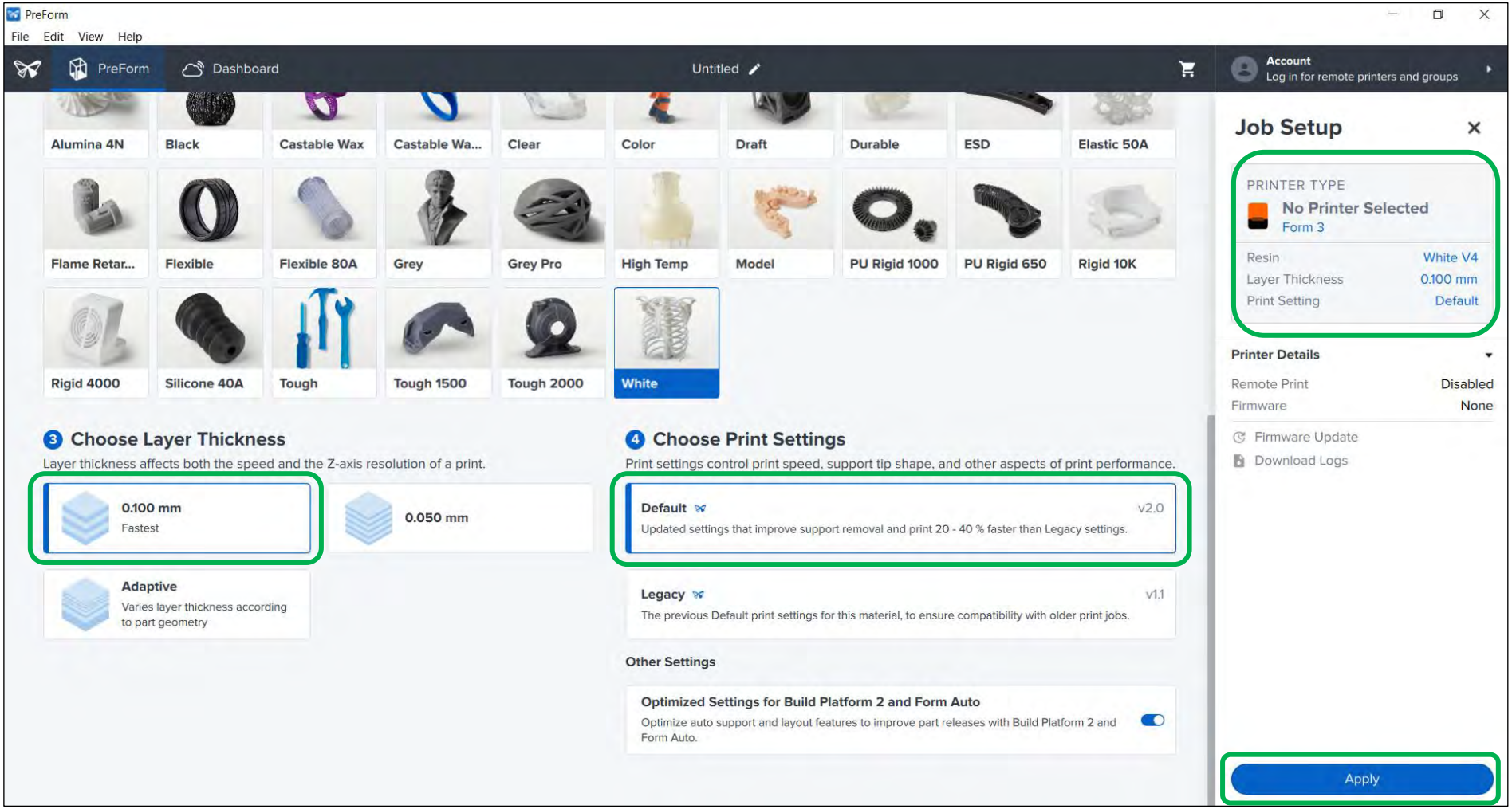
PRINTER: choose the printer – either the smaller **Form 3/3+** or the larger **Form 3L.**
MATERIAL: choose your material. <u>There is only clear resin available for the large **Form 3L**</u>.
You can choose clear, white or black for the small **Form 3** printers.
A clear flexible resin called **Flexible 80A** is available on special request from technicians, for the small **Form 3**.



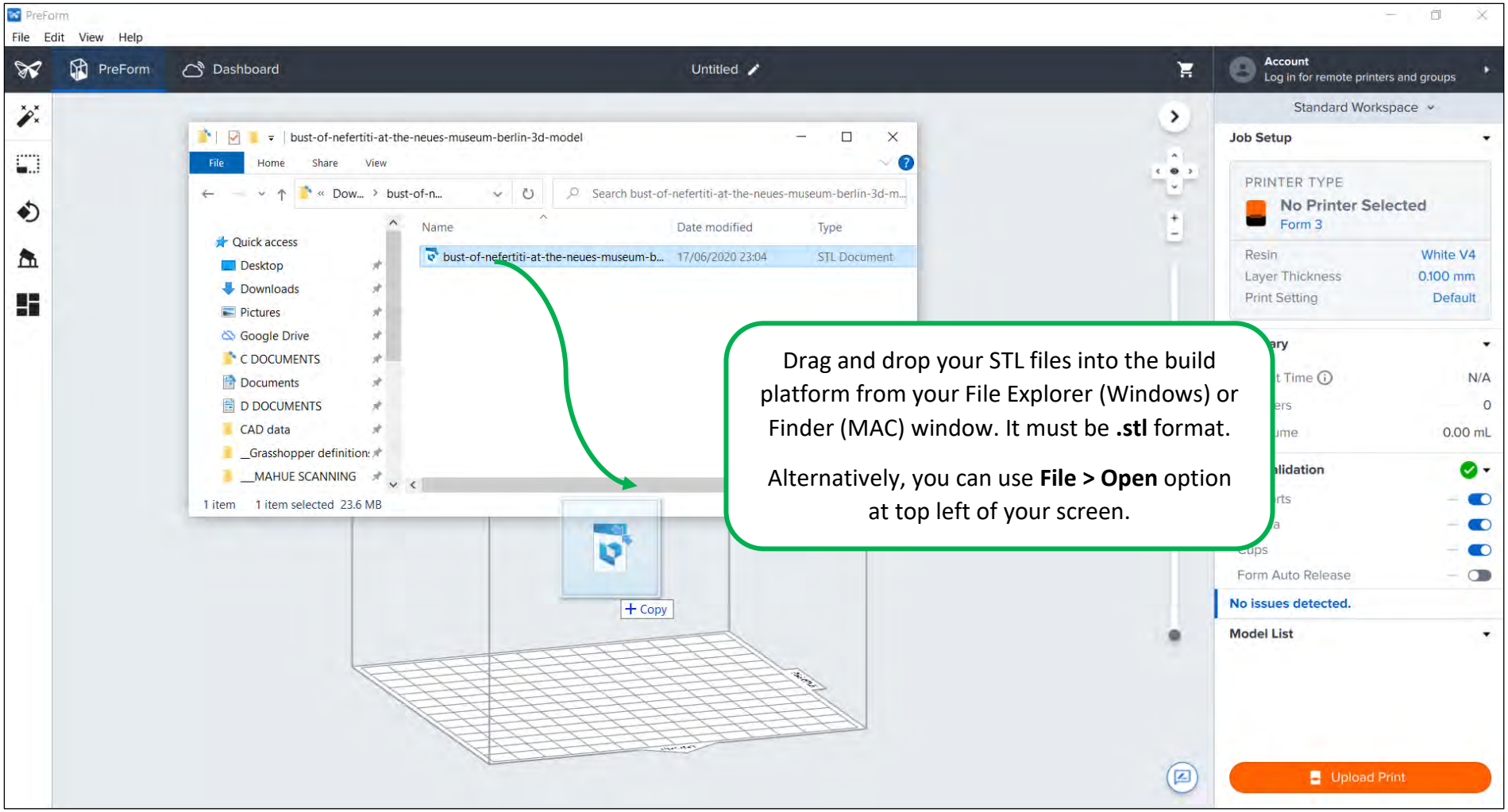
LAYER THICKNESS and **PRINT SETTINGS**: 0.1mm layer thickness gives a very high resolution print. 0.5mm prints in finer layers, giving a finer surface resolution but it is barely noticeable to the human eye, so we recommend 0.1mm which makes the print faster.

Choose the **Default Print Settings**.

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



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



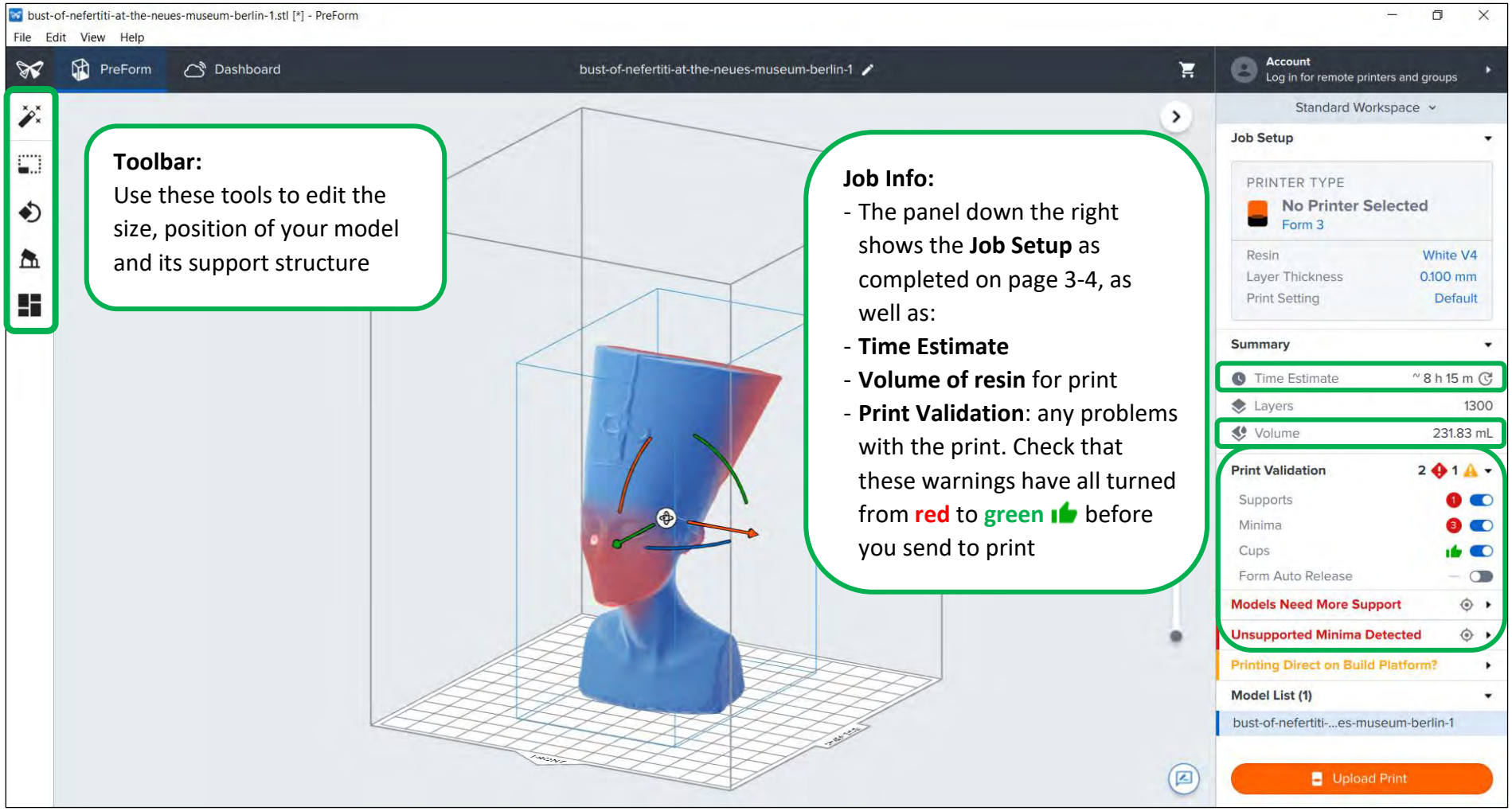
MOUSE NAVIGATION and USER INTERFACE

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

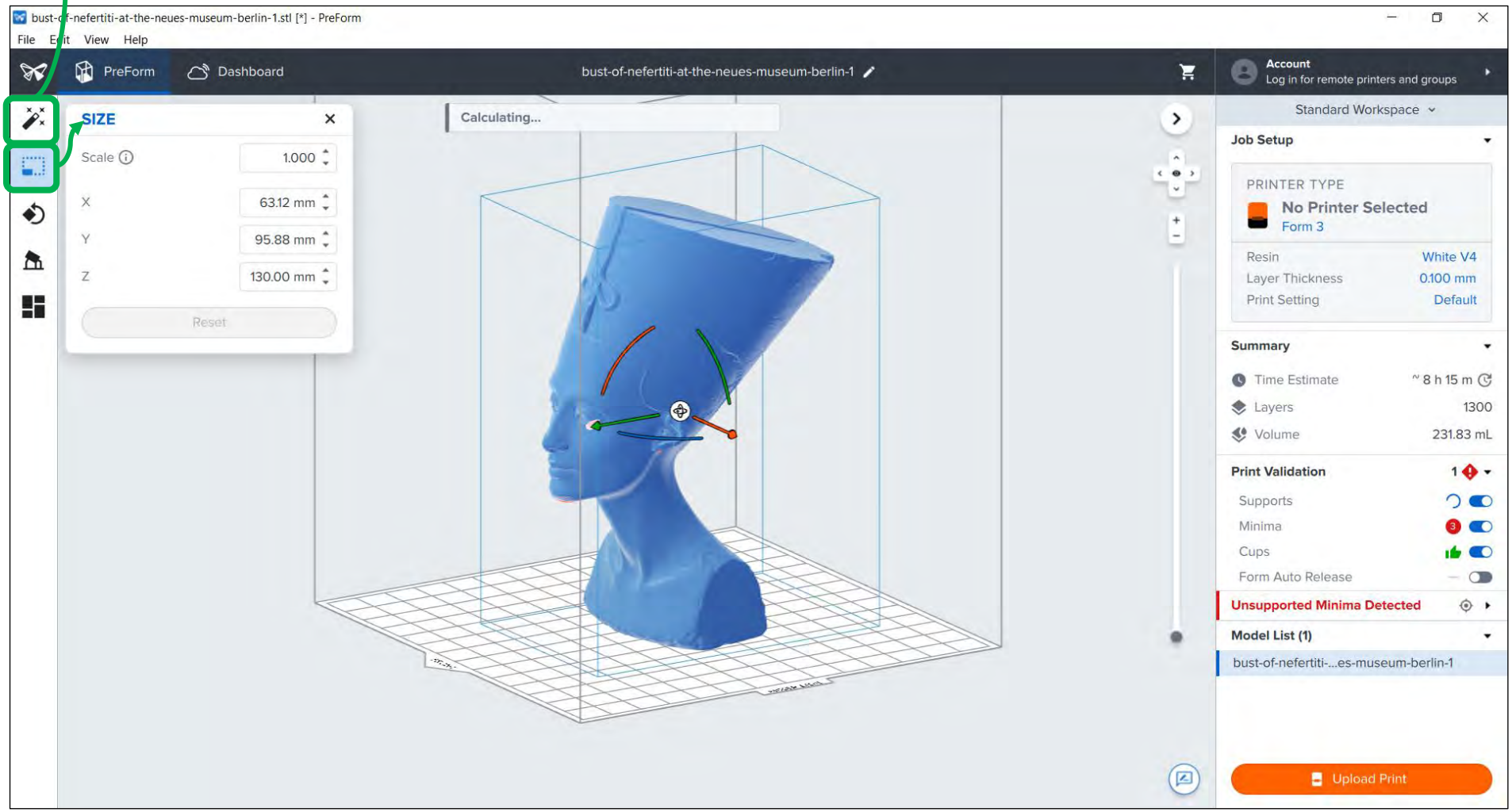
MIDDLE: press & hold = pan across
roller ball = zoom in/out

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



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.

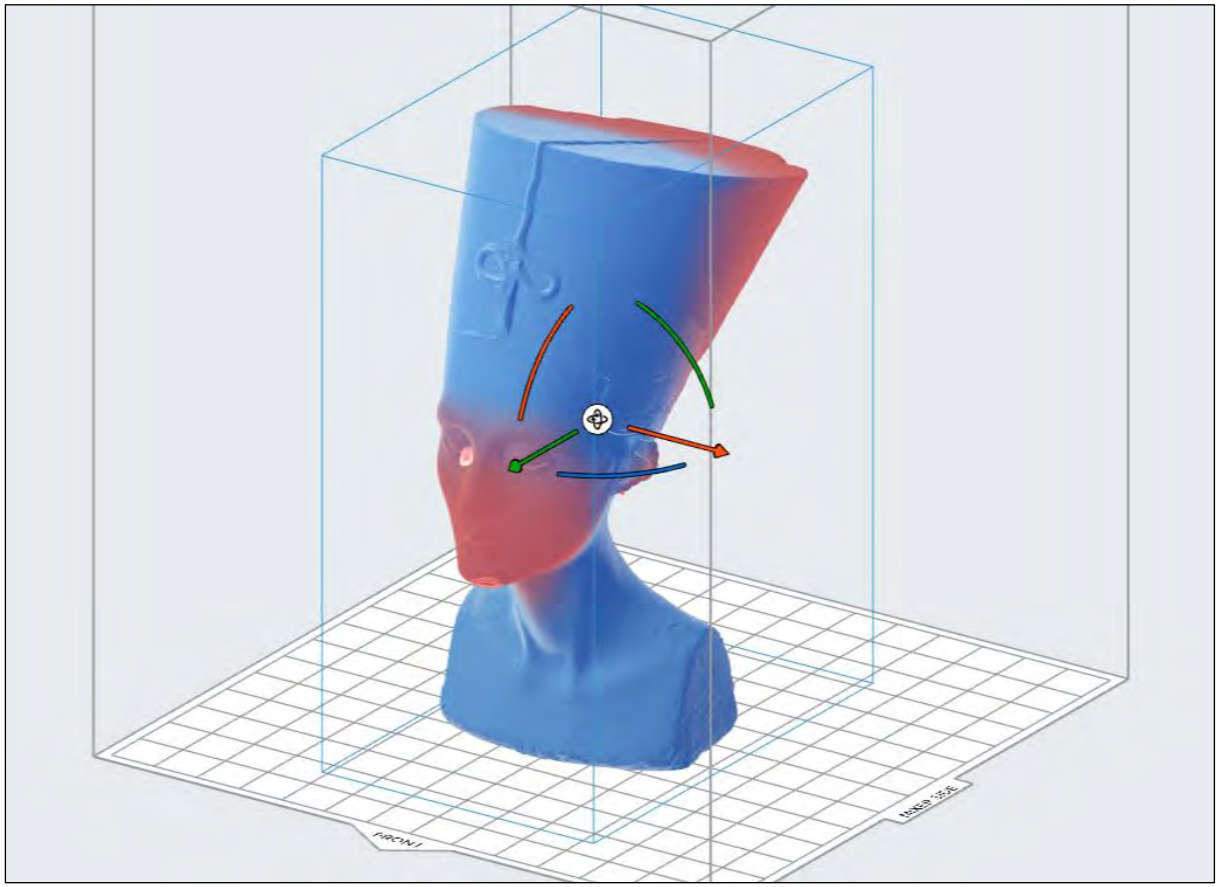


4. **POSITION & ORIENTATION**: if your model is outside the grey bounding box of the print volume, you will see a warning in **Print Validation** on the right.

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.

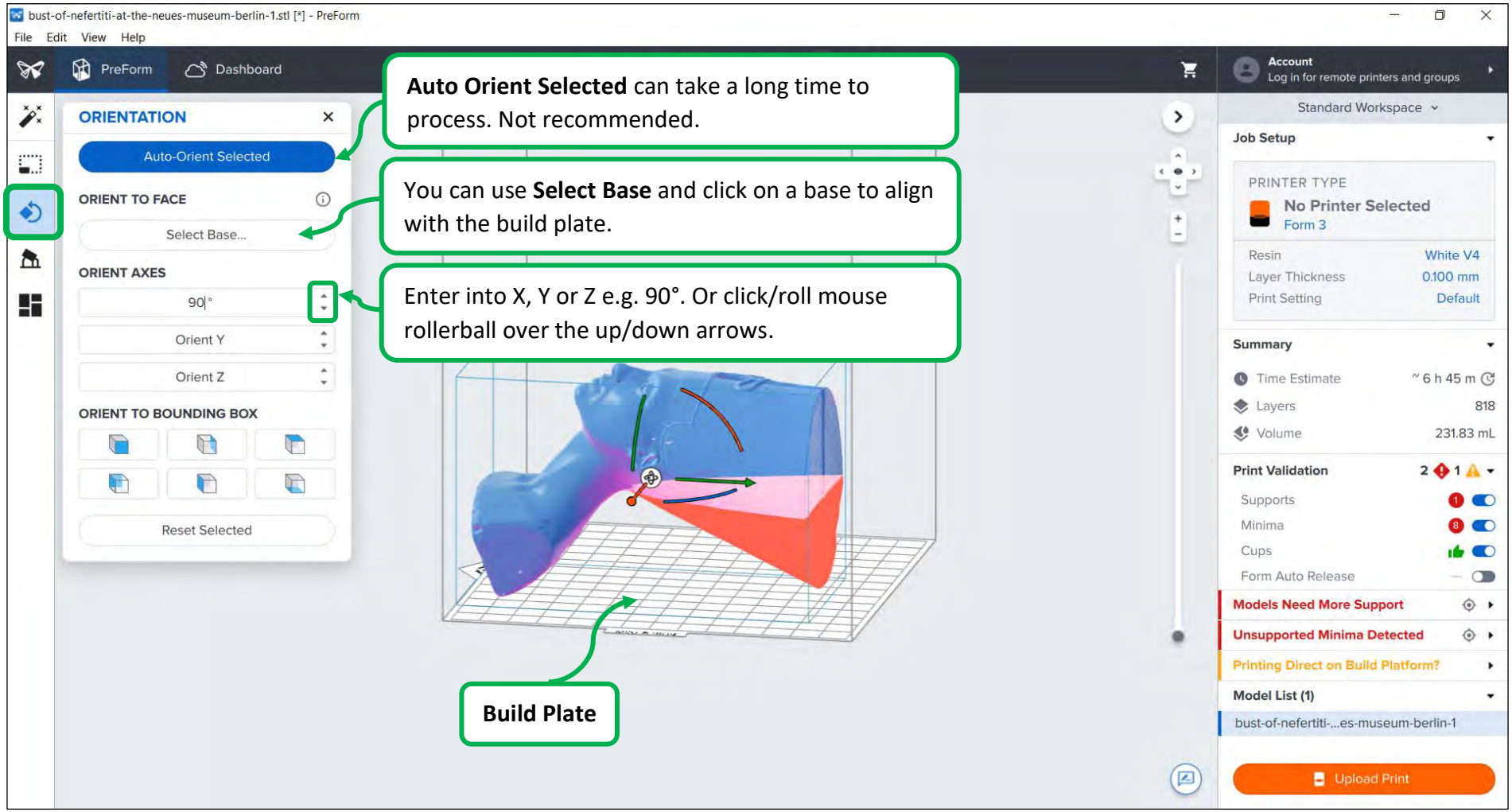
ROTATION: to orient your model you can use the green, red and blue arcs to rotate around the X, Y and Z axis. Or you can use the **Orientation** tool shown on the next page. Models will always snap down the build plate when rotated.



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

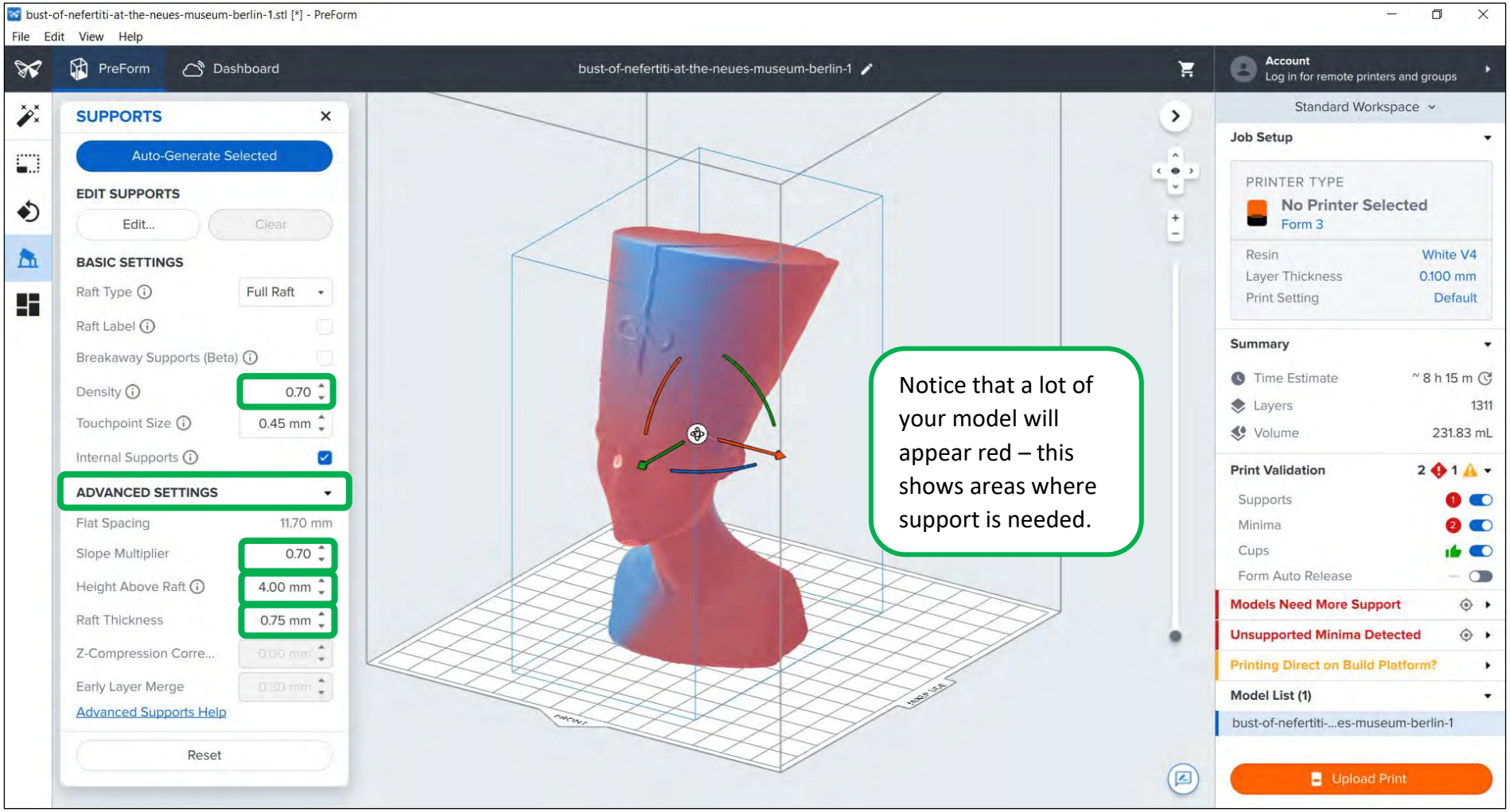
Considerations:

- 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



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 have been found to be optimum for the majority of prints.



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

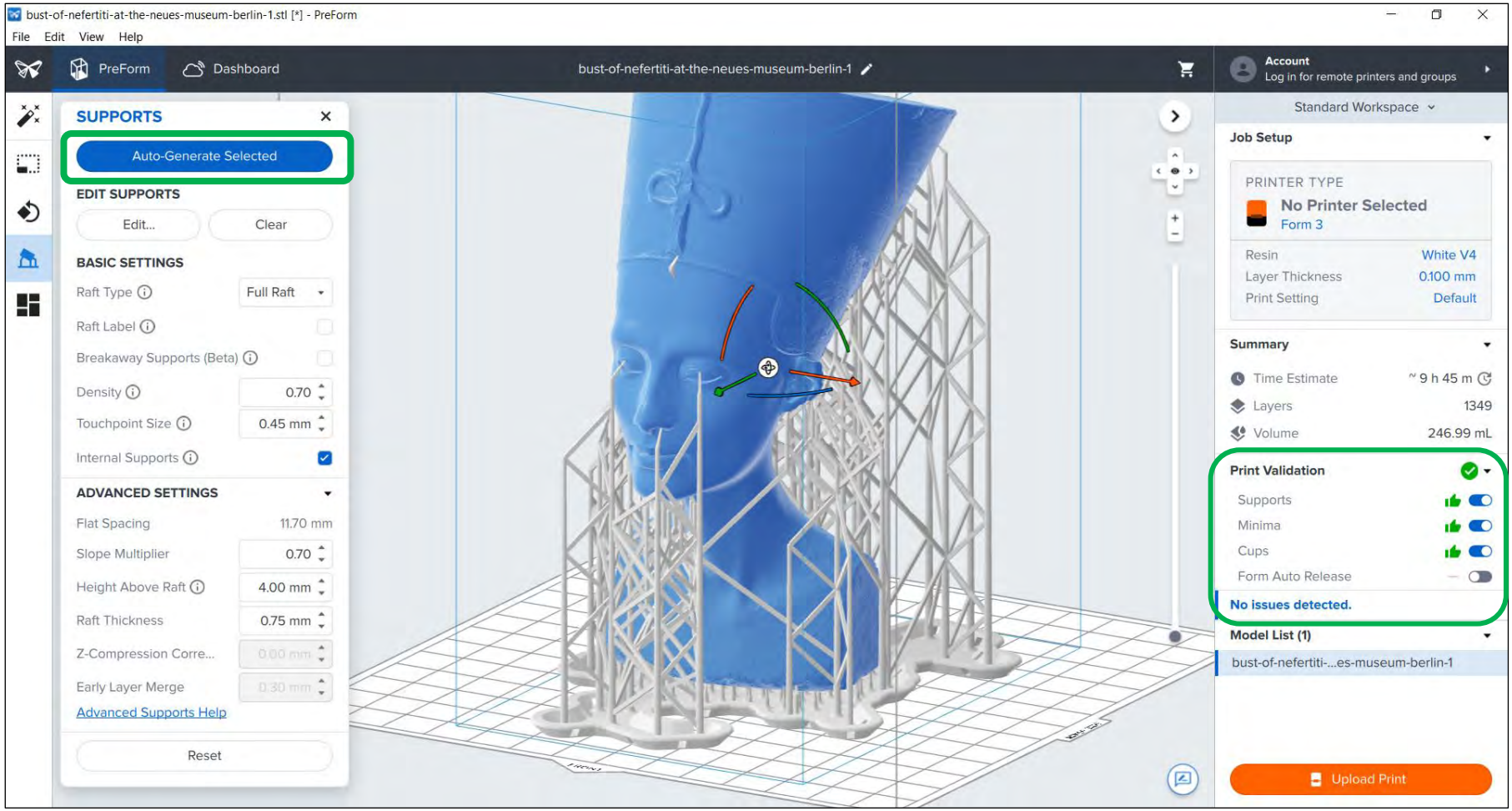
For multiples, make sure no models are selected by left clicking in the space around models. Then the blue button will instead look like this:

Click it and support will be generated for all models.

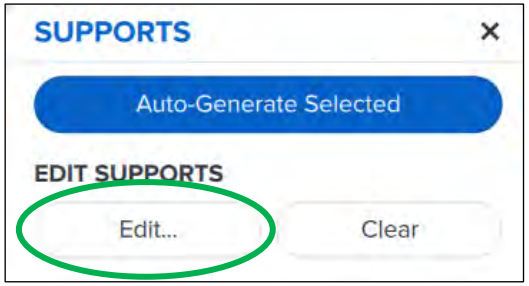
Check **Print Validation** to see that all warnings have all turned from **red** 6 to **green** and that it says: **No Issues Detected**.

If you are using the larger **Form 3L**, it is <u>not</u> a problem if it says: **Seamline Detected**.

This is because the **Form 3L** uses to lasers to cure the resin – the seamline between them is barely noticeable.



6.



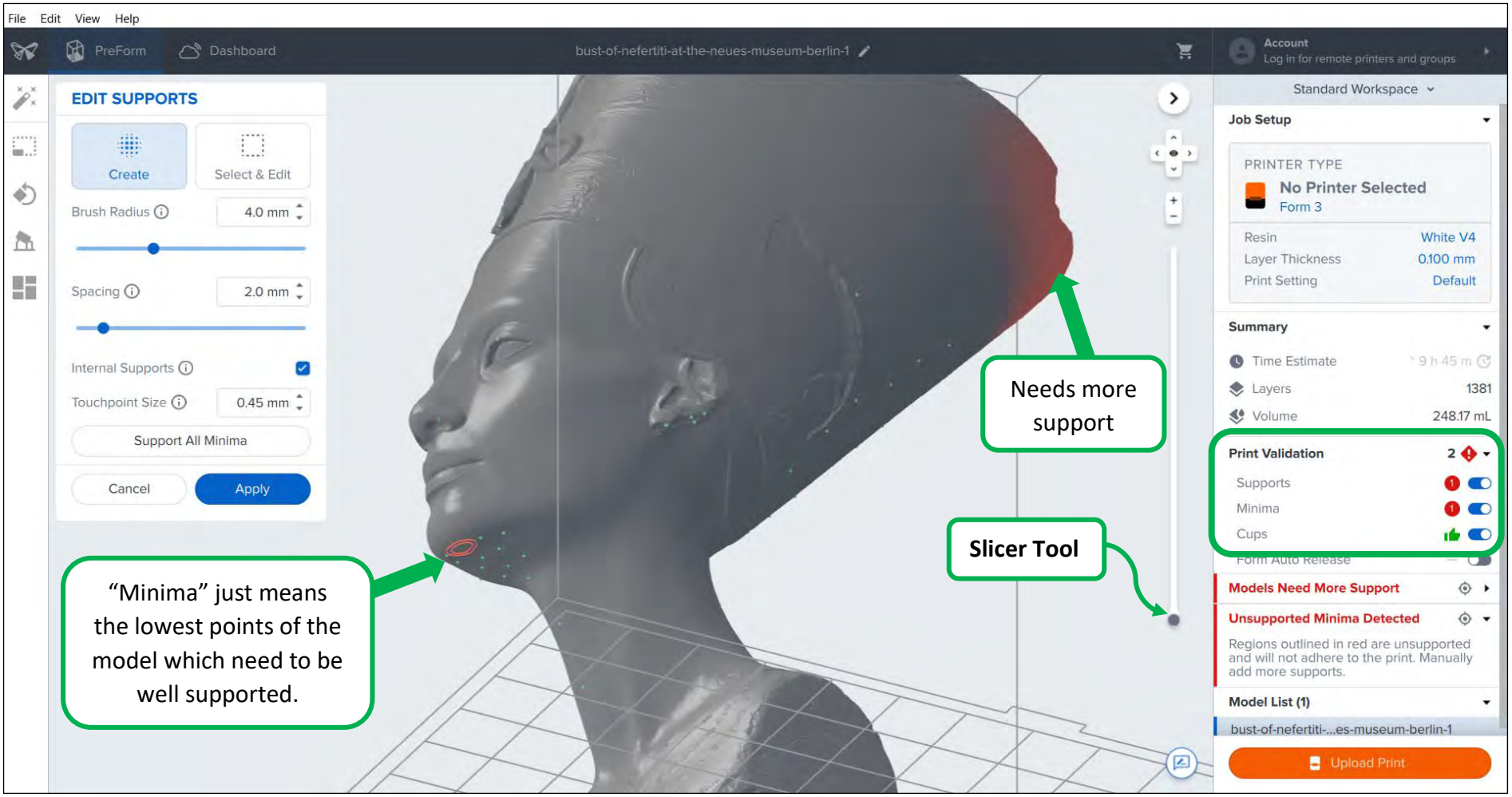
FIXING ERRORS: listed in **Print Validation**

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.**

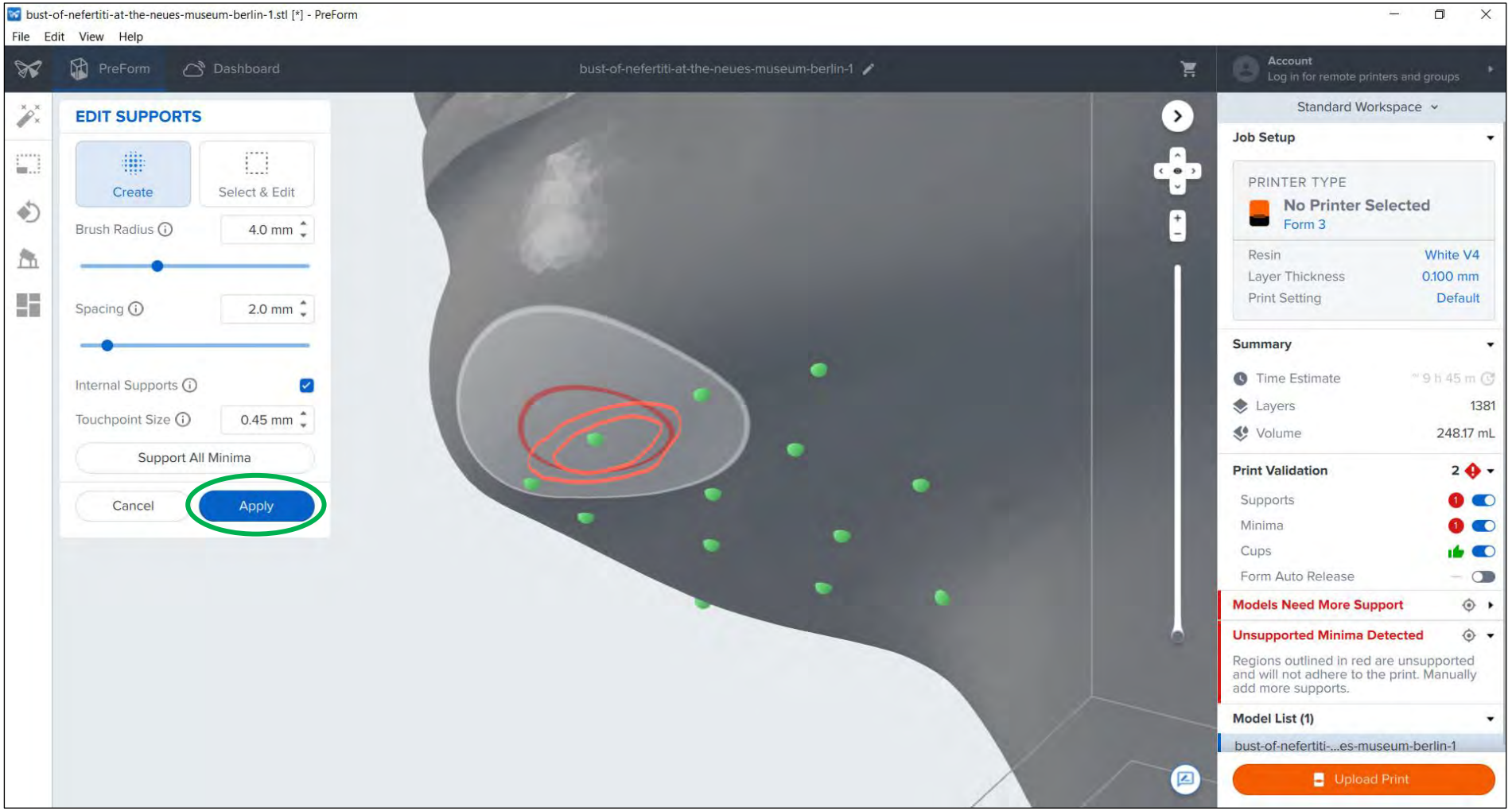
Look out for the red areas and red ringed areas on your model. More support is needed in these areas.

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**