HOW TO USE THE ARTEC SPYDER 3D SCANNER AND THE ARTEC STUDIO 3D SOFTWARE

Version V1

TABLE OF CONTENTS

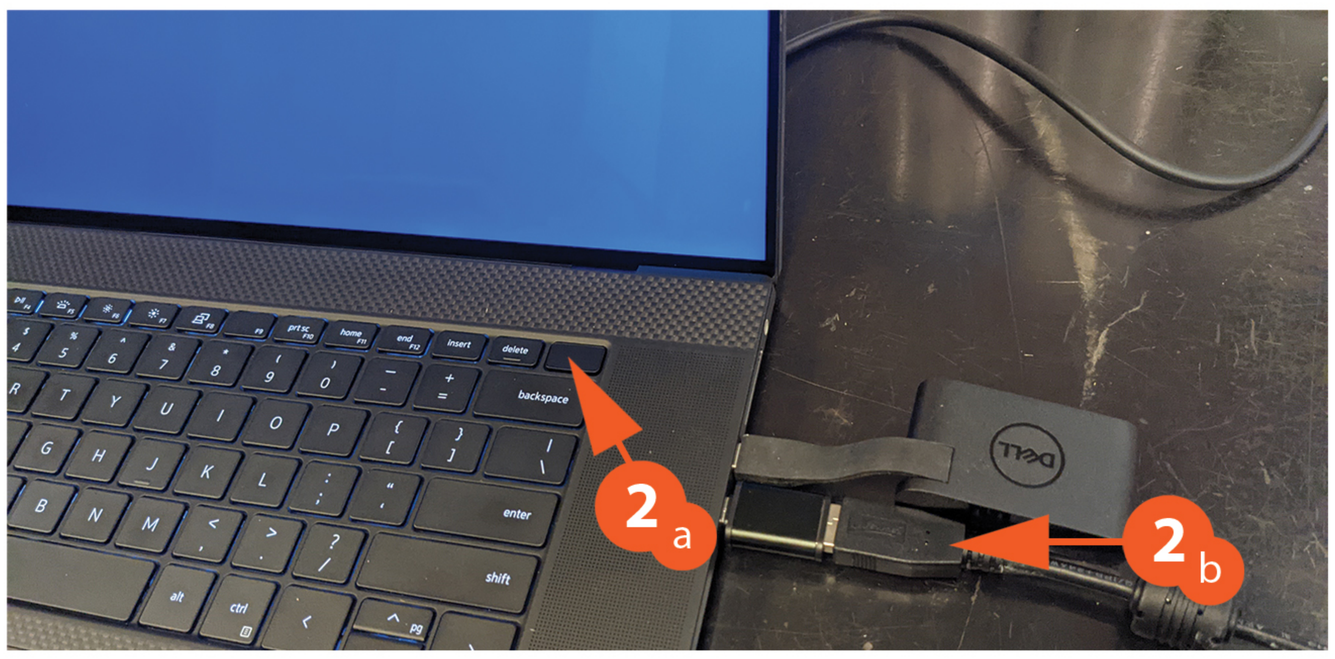
Version v1
Published November 3, 2021
Author Don Gillard
Langara College Makerspace

ARTEC 3D SCANNER - HOW TO GUIDE
OBJECT PREP & ARTEC SPYDER SETUP

1

1a - Prep your object, ie paint with temp spray if glossy or bright colours.

1b - Also put a few registration marks on it if possible.



2

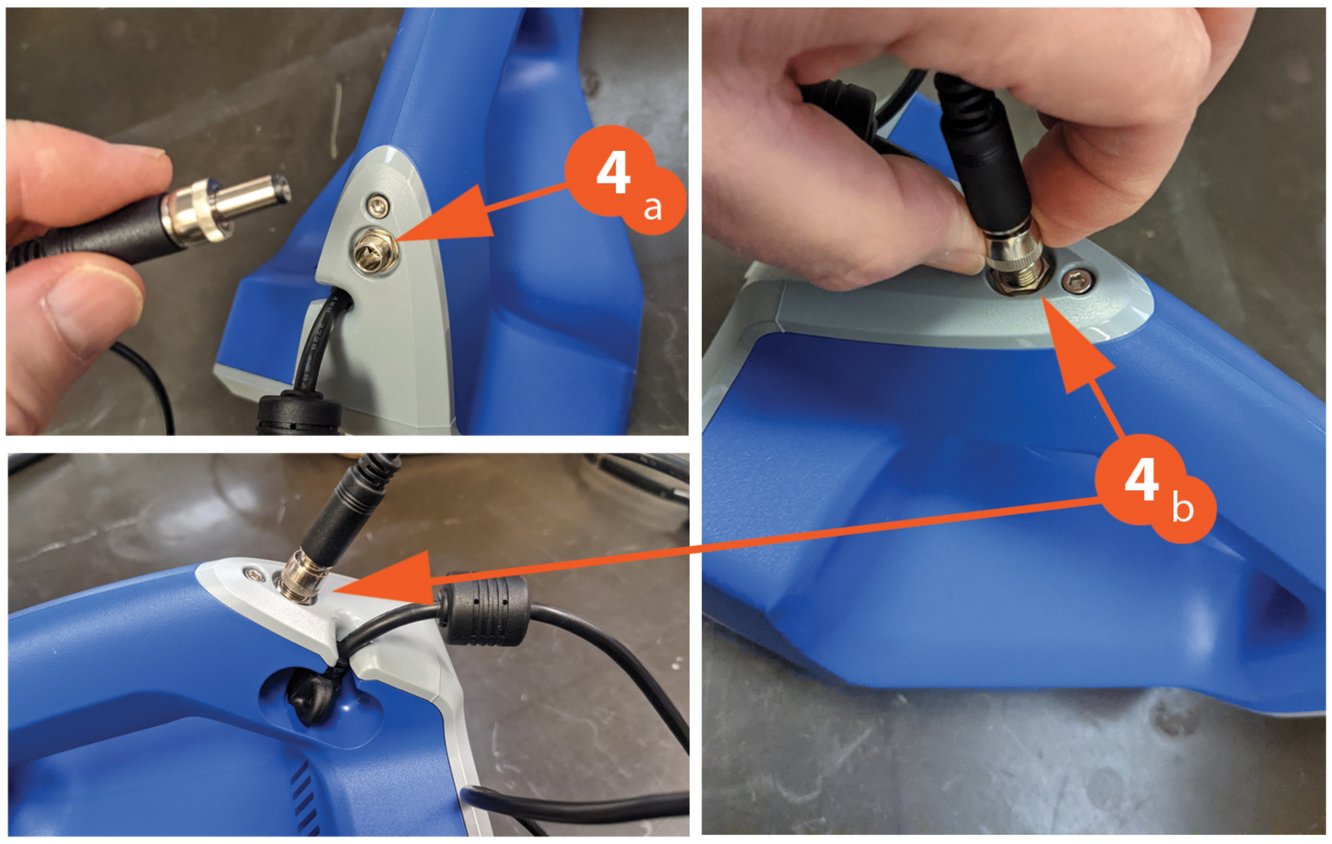
2a - Start up Engineering laptop

2b - Plugin USB cable for Spyder Scanner to a USB/C converter into the laptop.

3

3a - Plug the USB cable into the Spyder.

3b - Line it up and gently push down until it seats.

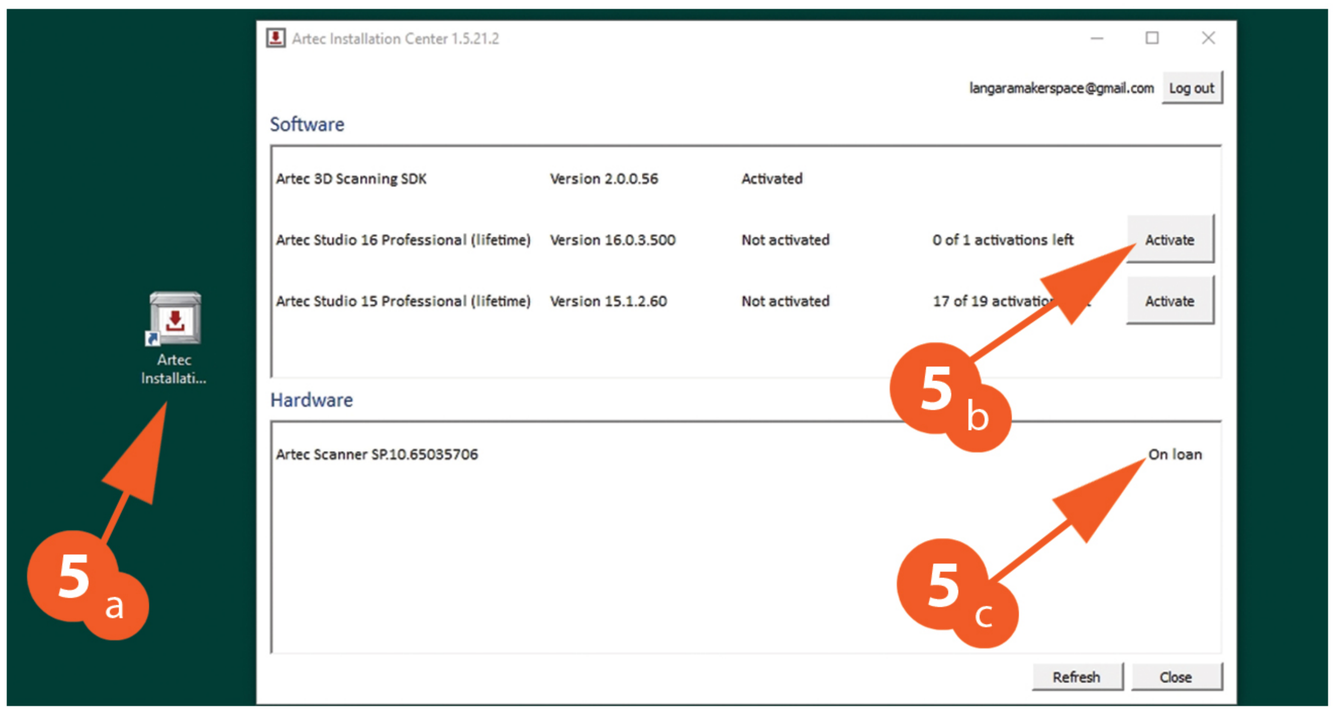


4

4 - Plug the power cable into a wall plug.

4a - Line up the male power plug to the Spyder.

4b - And thread it on until it is snug.

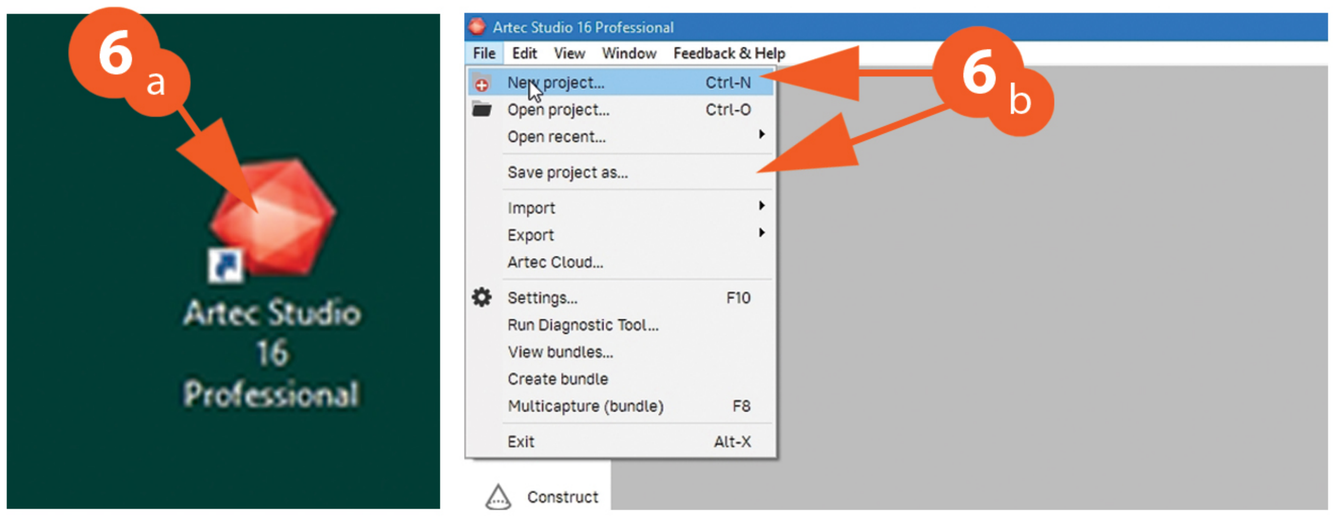


5

5a - Click On/Open **Artec Installation Center.**

5b - Make sure **Artec Studio** is Activated (click on Activate if not).

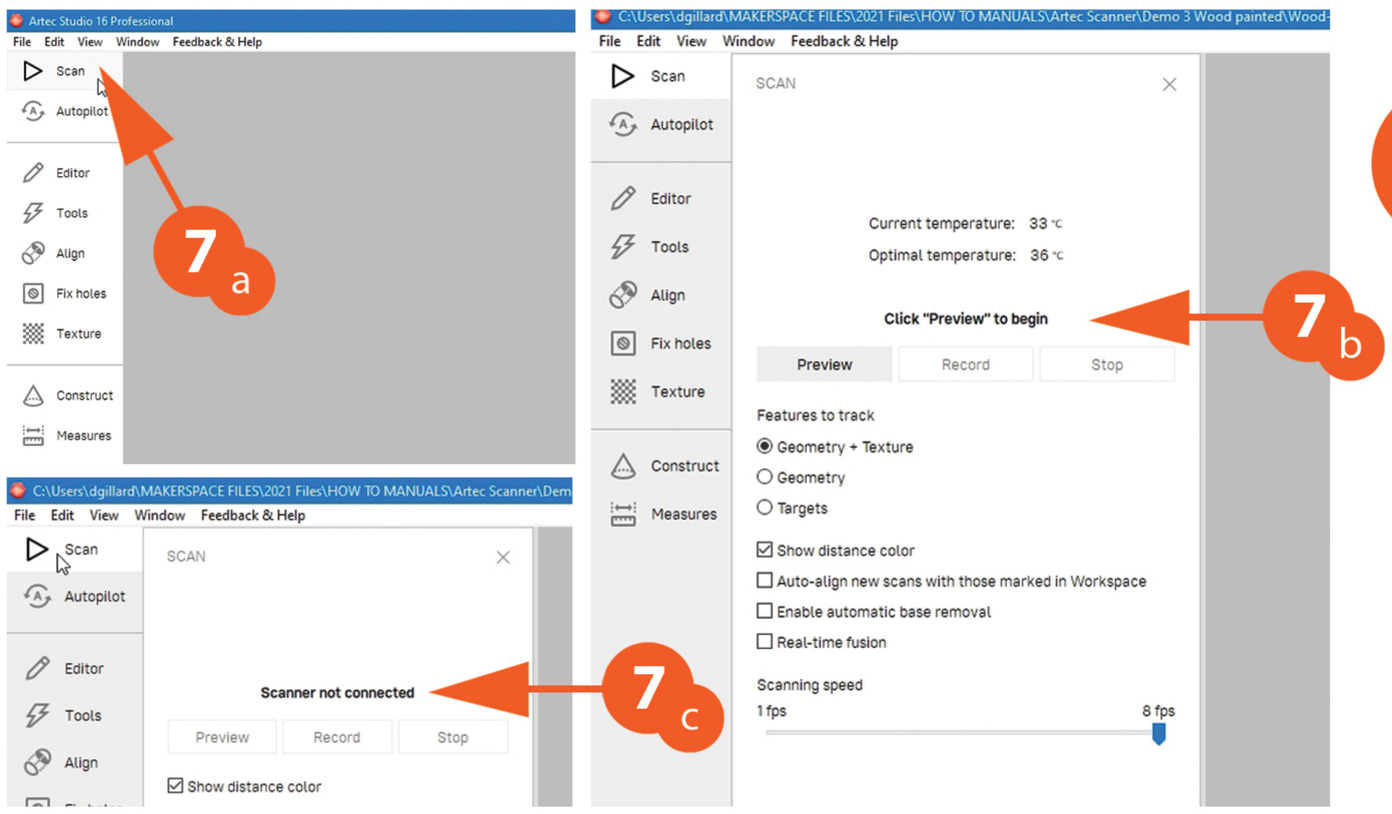
5c - Make sure the **Artec Scanner SP** is either **On Loan** or **Activated.**



6

6a - Open up **Artec Studio.**

6b - Create a new project,
and Save Project As to your file folder of choice.

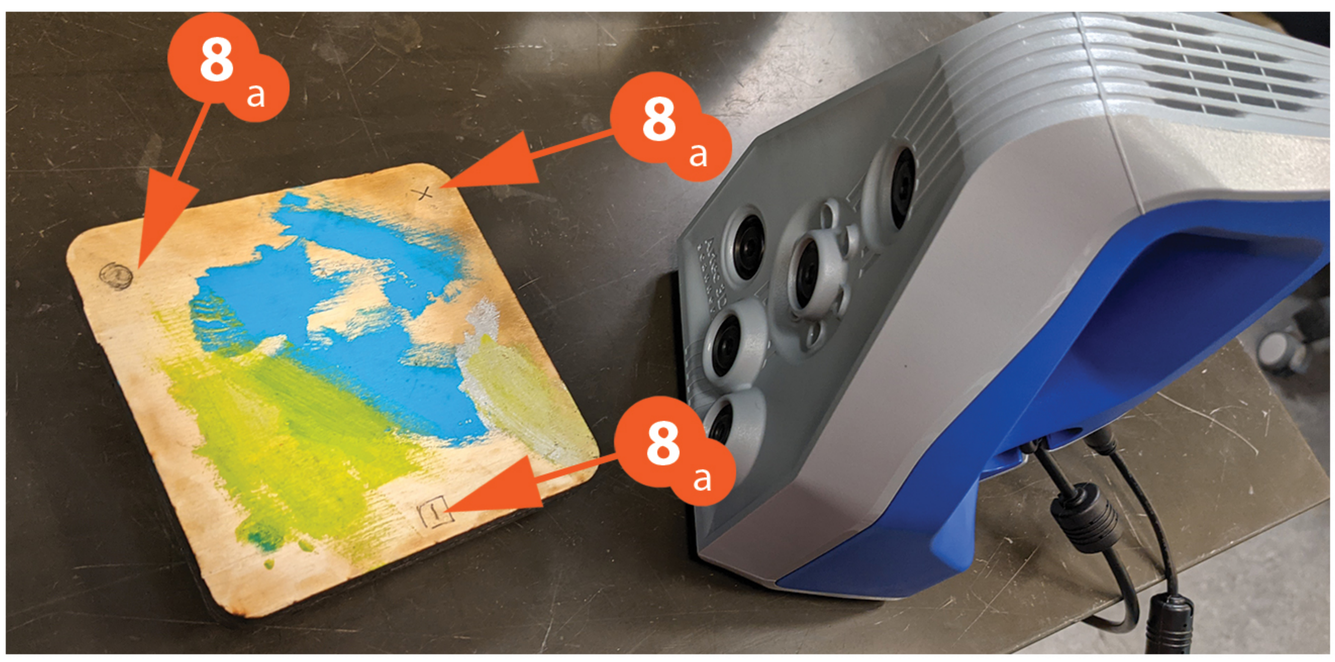


7

7a - Click on **Scan**.

7b - You should see this menu now.

7c - If you do not see it, and instead see **Scanner Not Detected**... you will need to go back into the **Artec Installation Center** and make sure the scanner is on loan or activated (step 5).



8

8 - Now go to your object and the **Spyder Scanner.**

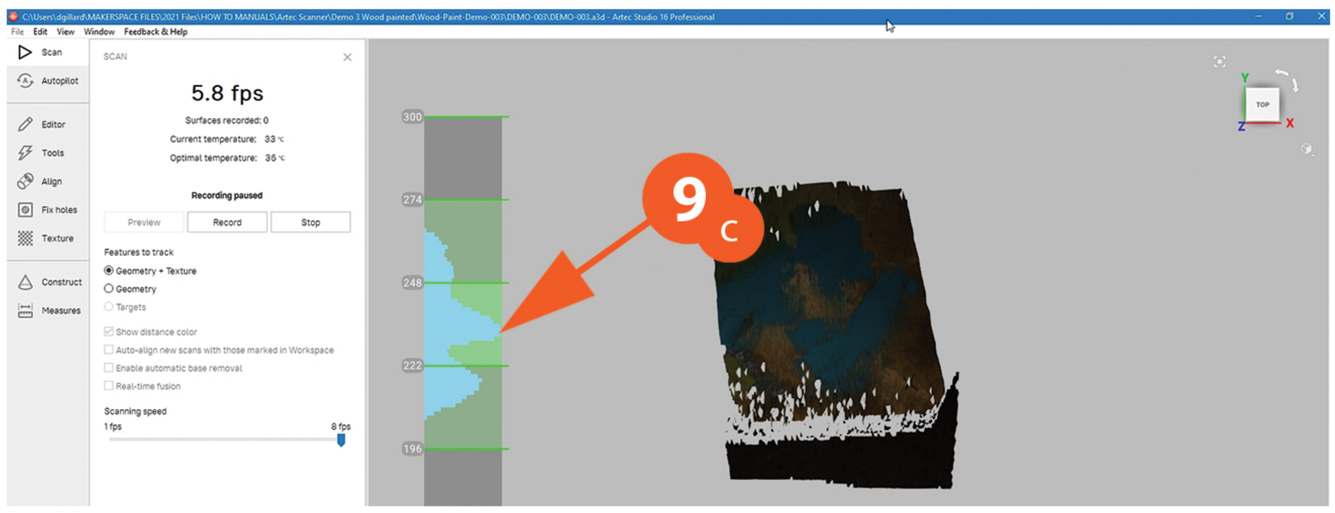
8a - I have put 3 registration marks on this painted piece of wood to help to register the scans later in the demo.

9

Here are the button commands:
- Scanner Ready
  (solid green button).
- Button up once - Preview Mode
  (flashing red button).
- Button up again - Scan Mode
  (solid red button).
- Button down - Saves Scan
  (back to solid green button).

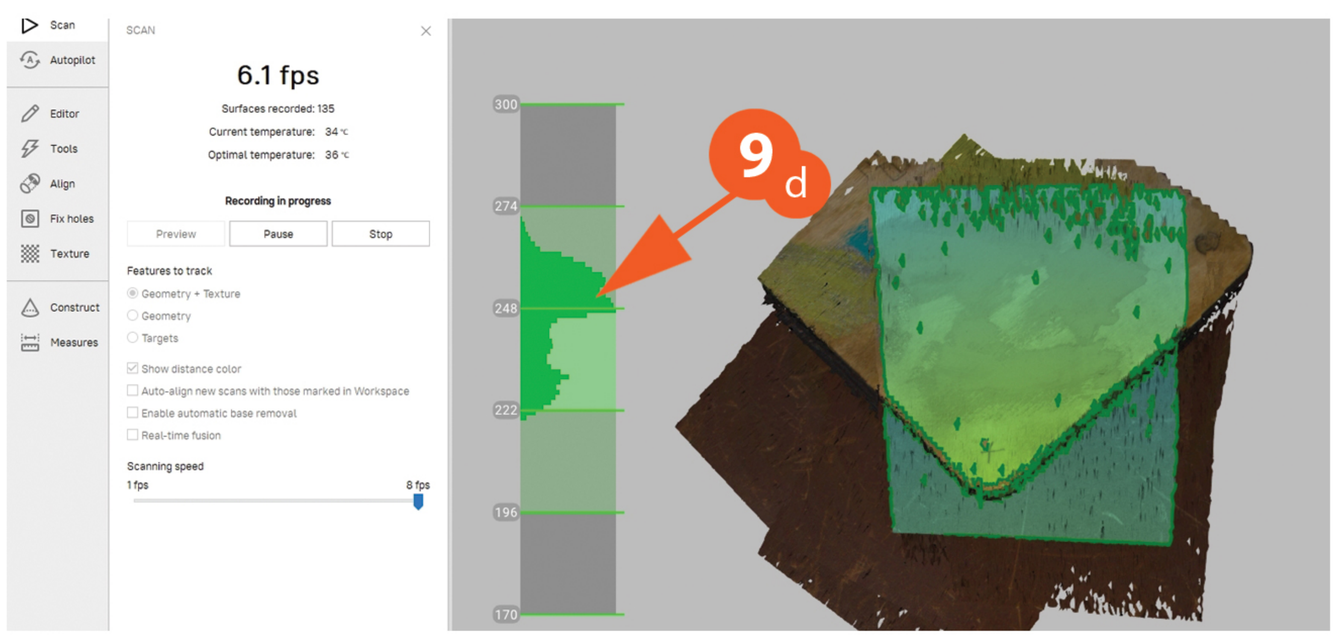
9a - Push the Spyder button up once… to begin the Preview mode.

9b - Get the distance and angle correct from your object.



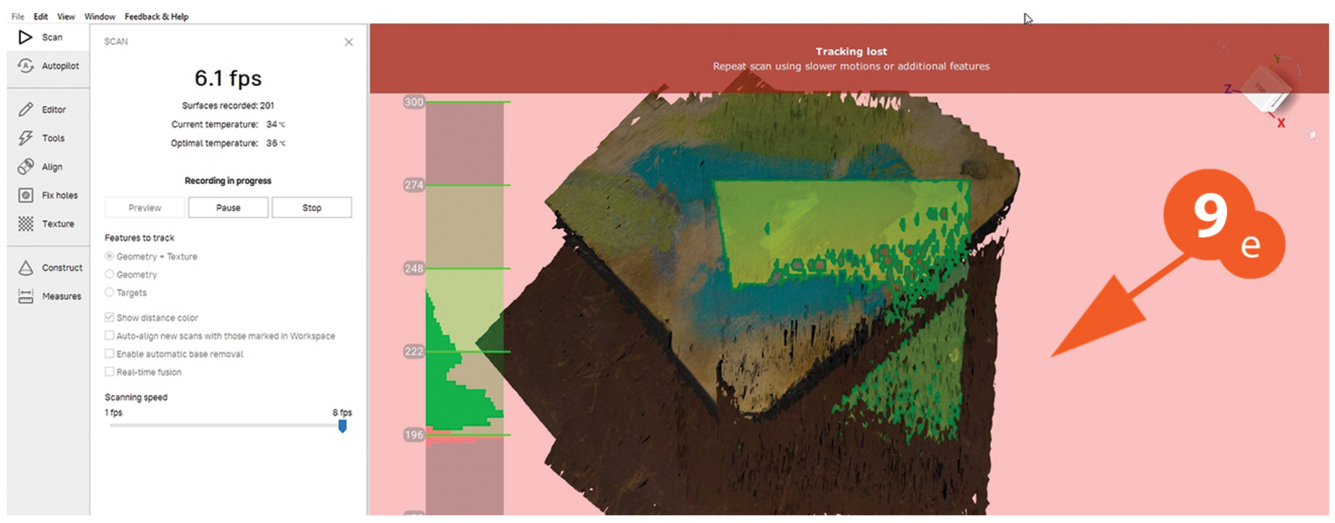
9c - Watching the laptop screen, you want the **Blue Graph** area to be close to the center of the scale.

Once you have the correct distance click the button up again and release.

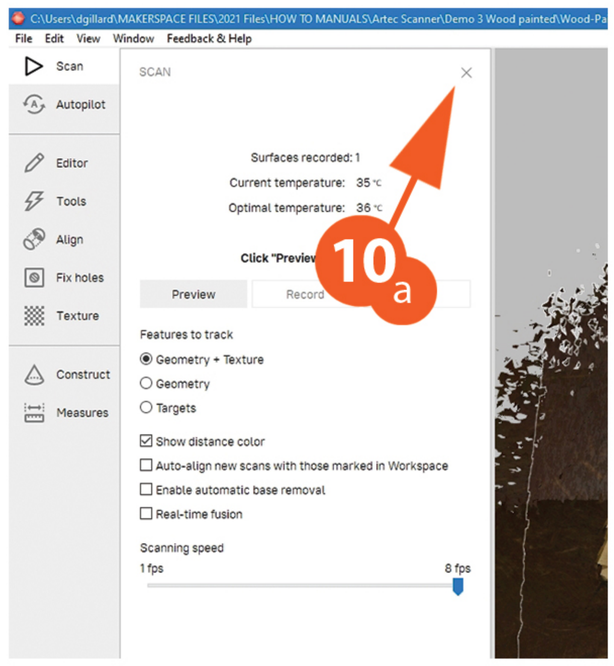


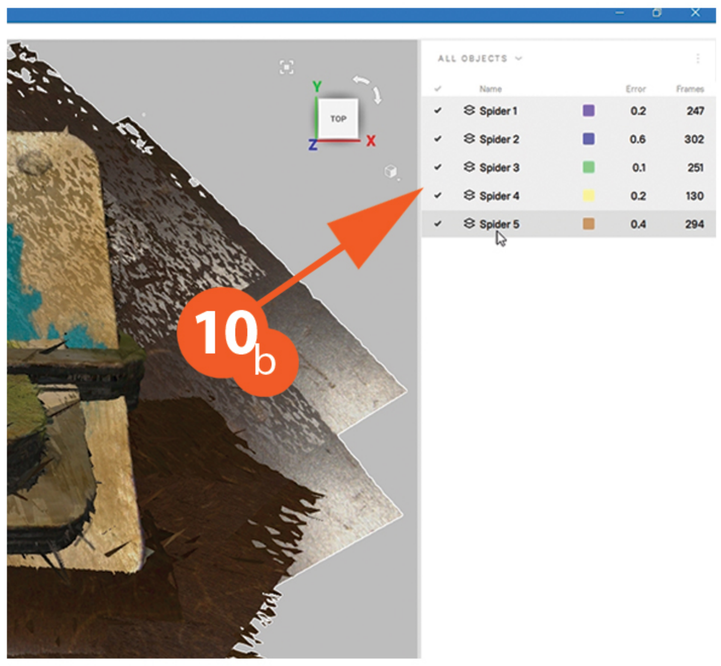
9d - You are now scanning, looking at the laptop, keep the **Green Graph** area near the center.
You are now scanning slowly go up and down and around your object.You don't have to do it all, just get a few good scans of a few sides (but always try to get some of the registration marks in each scan).

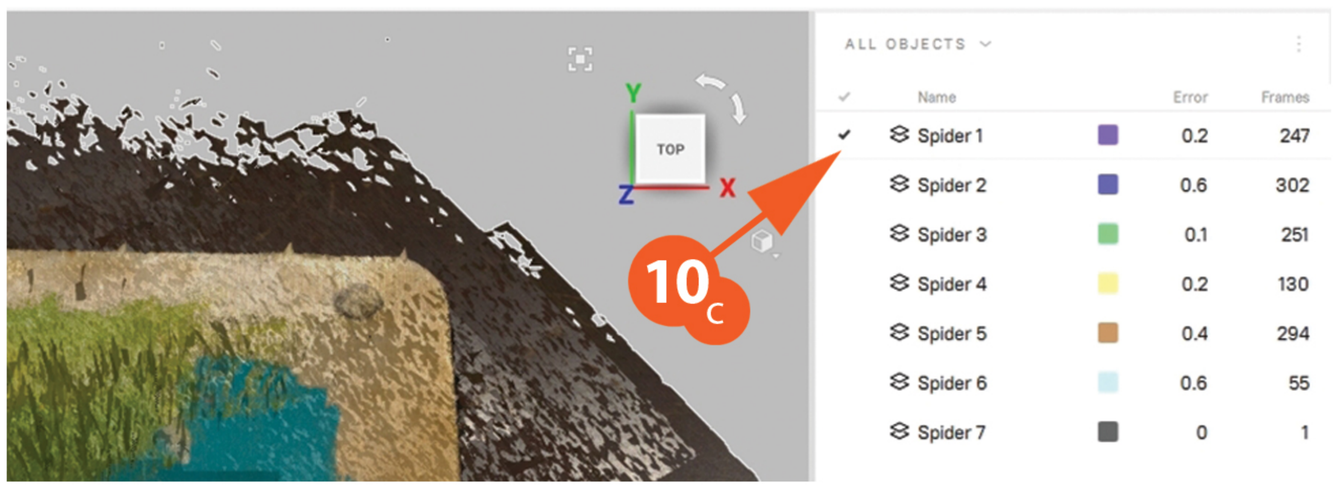
Repeat the scan process again, trying to capture new areas, and try to capture some of the registration points in every scan.
You can also rotate the object around to get access of other sides.
Repeat again until you are confident you have all the areas scanned.

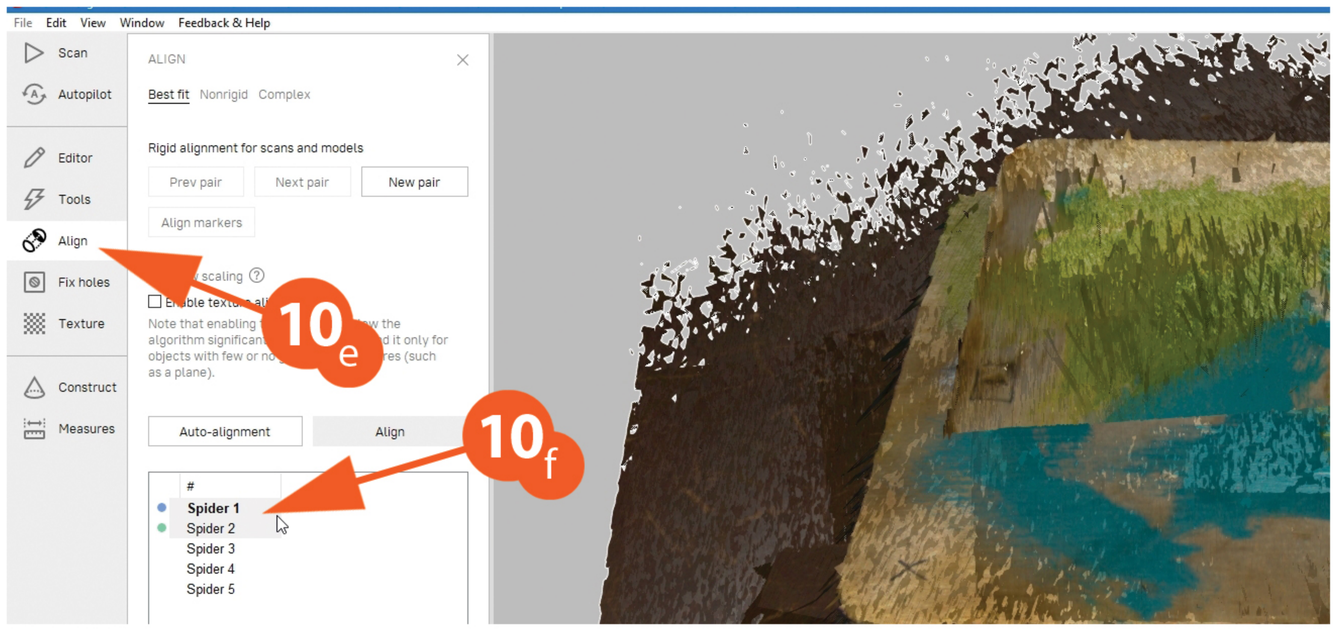


9e - If you see a red screen come up, and some beeps… you are to close or to far from the object. The red means you have lost tracking of the scan. At this point it is best to stop the scan (**Button Down**) and then just repeat it.









10

10 - Go to **Artec Studio.**

10a - Close the scan menu (**X**).

10b - You will see all of you scans on the right side.

If there is a **Group Folder**, that means those scans lost tracking at some point , so you may just want to delete the folder.

10c - You can click on the Check of each scan to hide or unhide it. Use this to have a look at each scan.
Look over the scans and decide which ones you want to use.
You can delete the ones you are sure you will not need (**Right Mouse, Delete**).

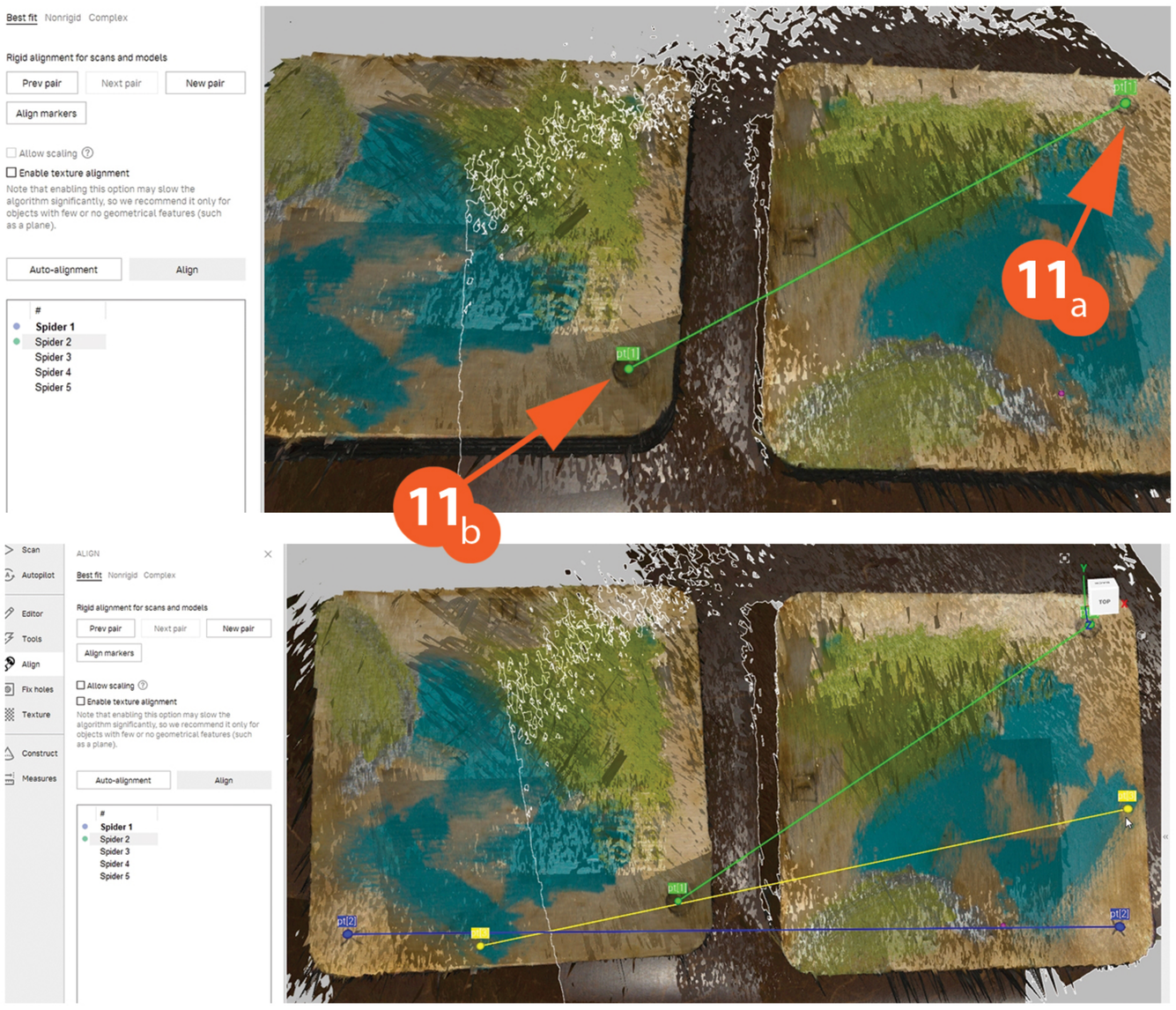
10d - Check & select all of the scans you want to use (**Shift Mouse Down**).

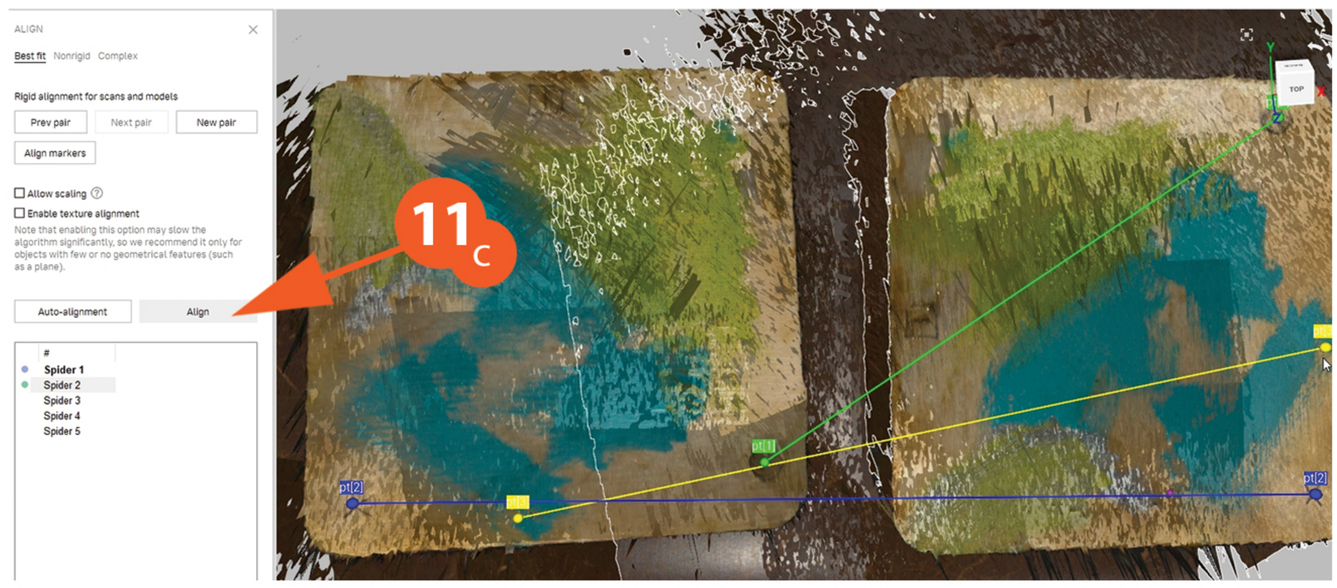
10e - Click on **Align** on the left vertical menu bar.

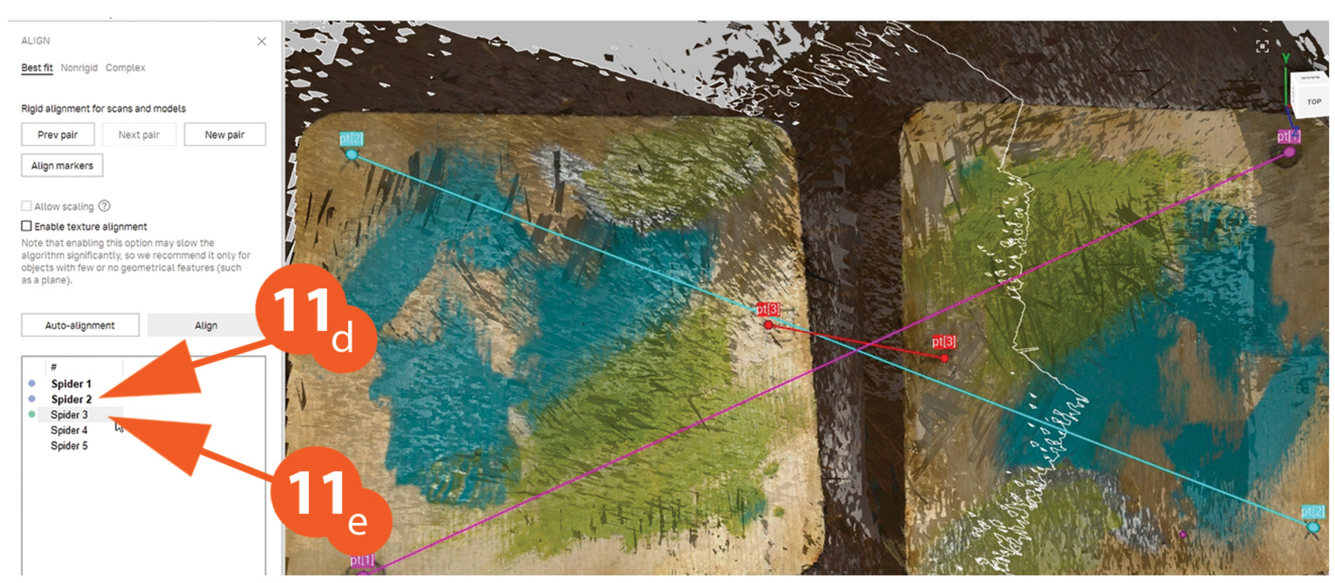
10f - Click on the first and second scan from the list. The first scan has a **Blue Dot** beside it, that means it is locked.
The second one (as well as the others) should have a **Green Dot**.

10g - Now we need to move the second scan away from the first scan so we can see the aligment marks.
Holding the **Shift & CTRL** keys down and:

a. **Left Mouse Button** to rotate the scan.
b. **Left & Right Mouse** button to move it.







11

Now try to find matching marks or using your alignment marks.

11a - **Left Mouse Click** on the first alignment mark.

11b - Then click on the same mark on the other scan.
You can click on any of the markers holding your **Left Mouse Button** down, and move the marker if you need to.
You can also **Right Click** on a marker and delete it if you need to.

Then click a second mark on one scan, and the same on the other scan.

Repeat a third time.
If you don't have 3 marks that you can align, you can try to align with less marks, but 3 is the best.

11c - When you have all of your marks done, click on the **Align** button.

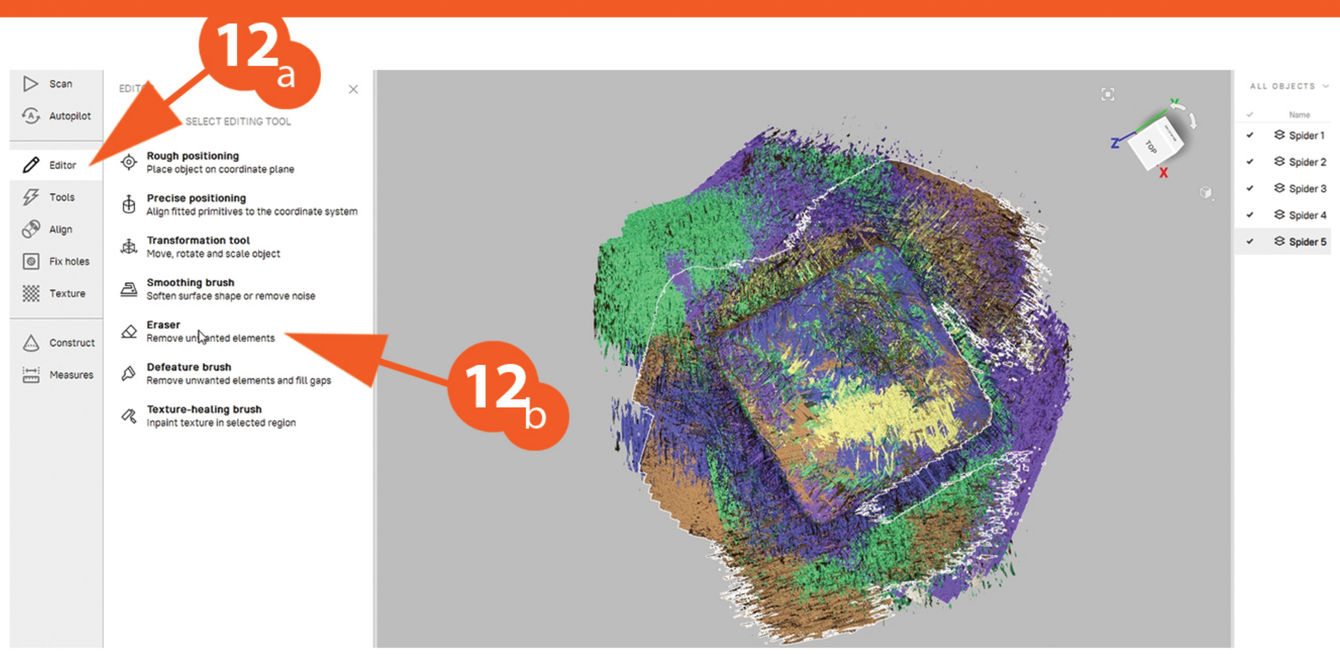
11d - Now in the list, the second scan's dot will also be Blue (so it is locked).

11e - Now select the third scan.

Using **Shift/CTRL** & **Both Mouse Buttons**, move the third scan away from the 1 & 2, so you can see all the alignment points.
Then repeat the selection of the points and the **Align** command.

Repeat this process with the rest of your scans.

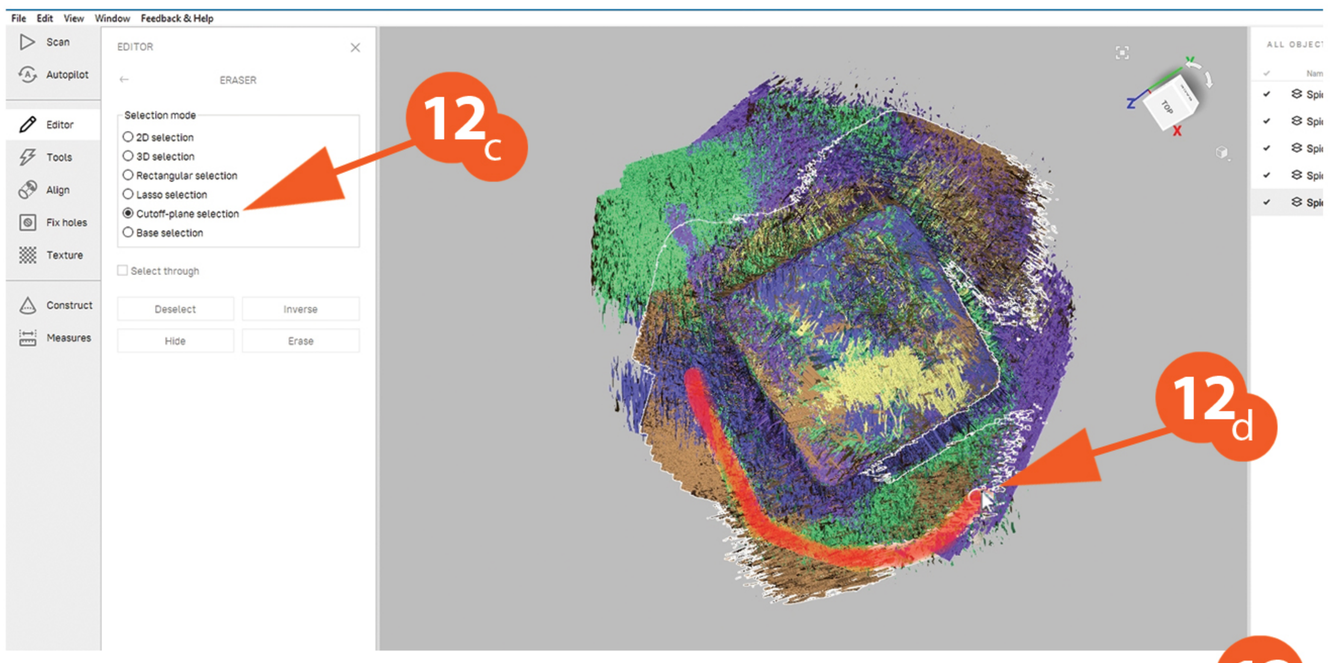
11f - When all of your scans are complete, click on the **Apply** button.



12

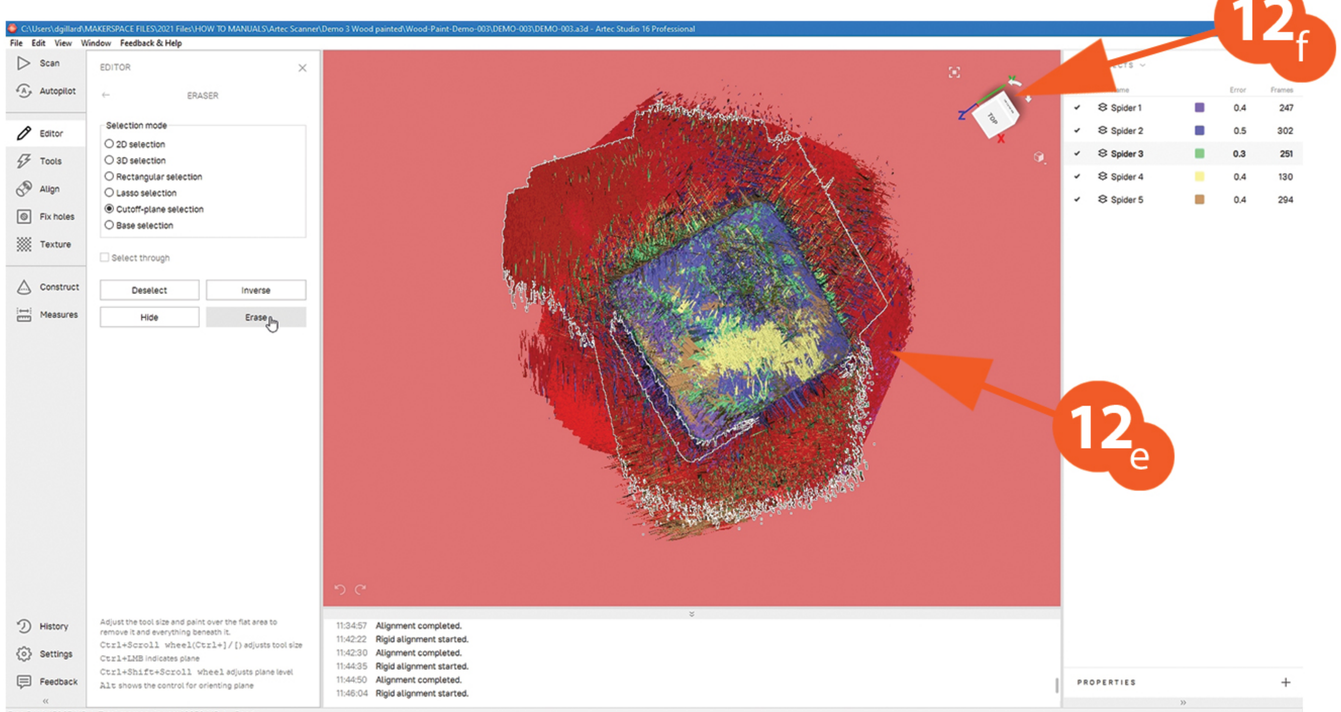
12a - Now click on the **Editor** button.

12b - And **Eraser.**



12c - Then select **Cut-Off Plane.**

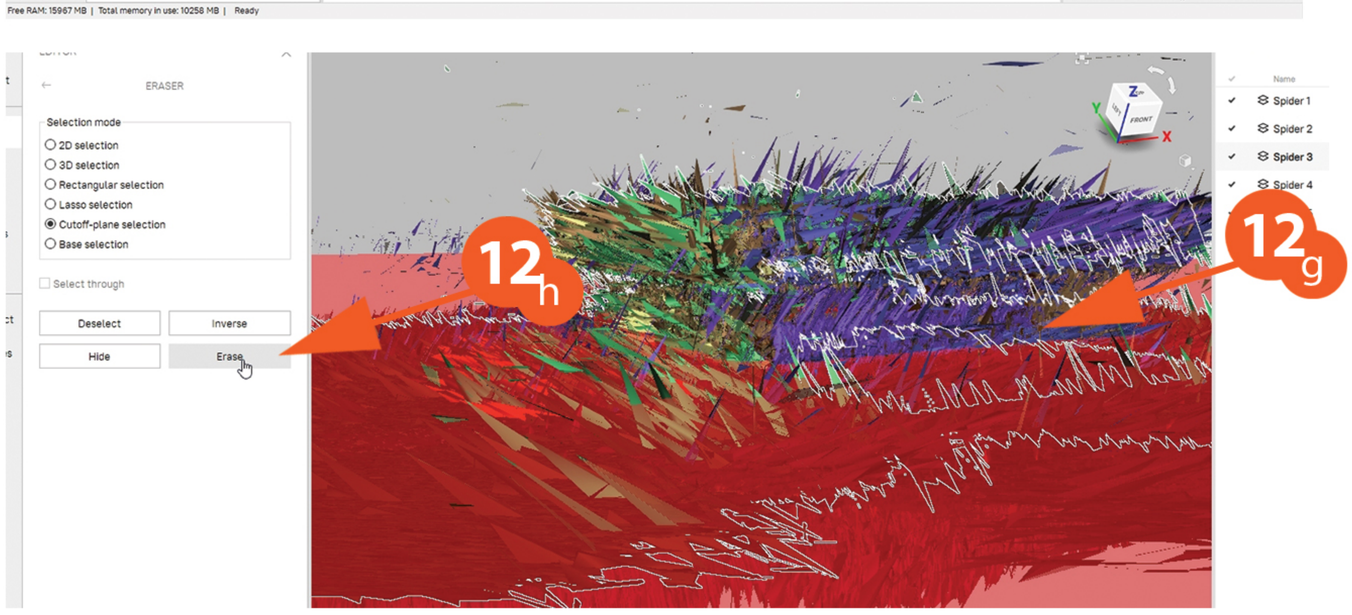
12d - Holding the **CTRL Key** down and your **Left Mouse Button**, drag all around the object so as to select the background/table.



12e - The background should then go all red.

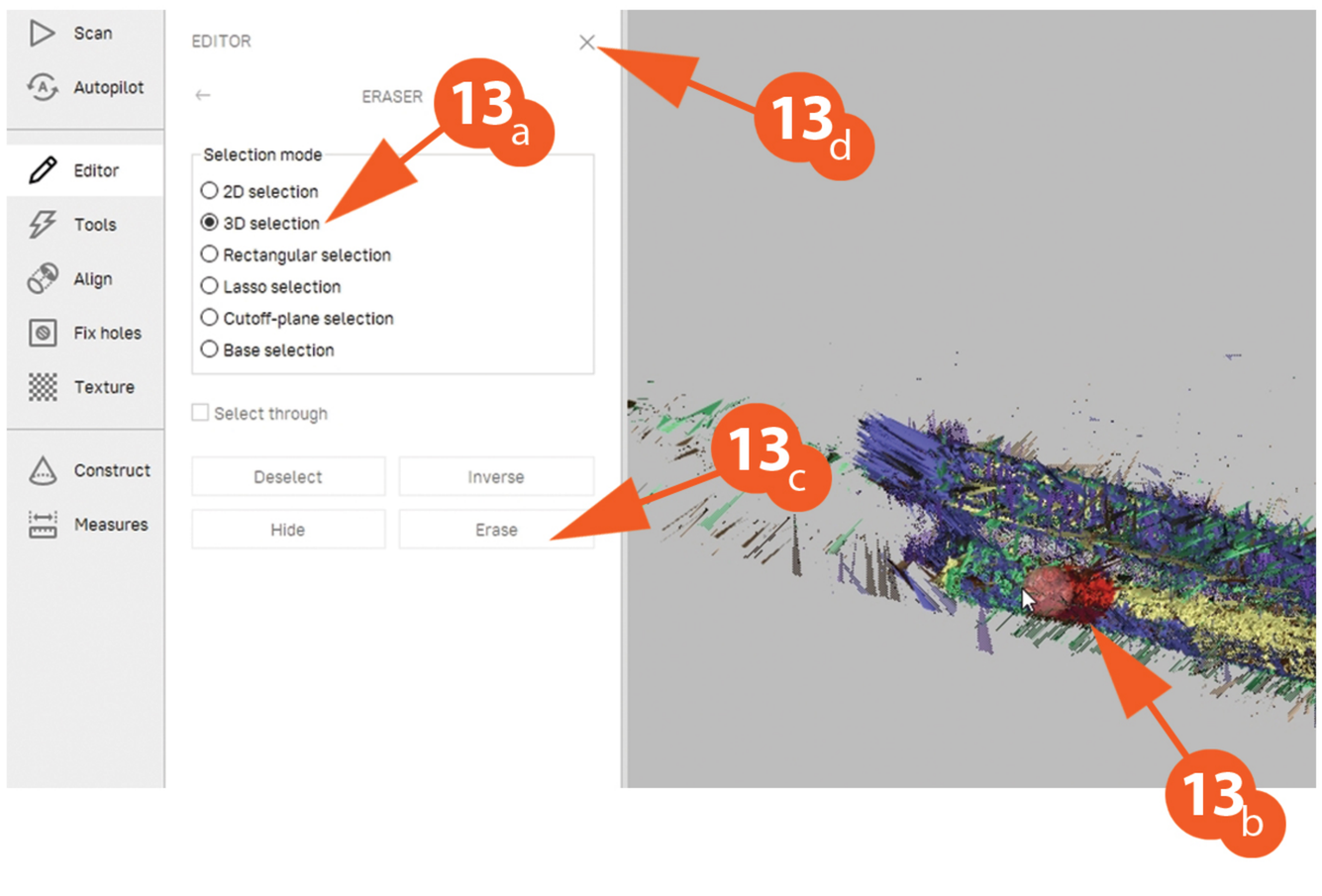
12f - Using the **3D Gimbel Cube.**

12g - Rotate your view to a side or front view.



Now Use **Ctrl+Shift+Scroll Wheel** to raise or lower the plane level (ie if the table was selected but you also wanted it to grab the block under the object). Make sure not to have any of your object selected.

12h - Click on **Erase** when your ready. This will delete all of the red selection. There will still be debris and fragments left, don't worry about these yet.



13

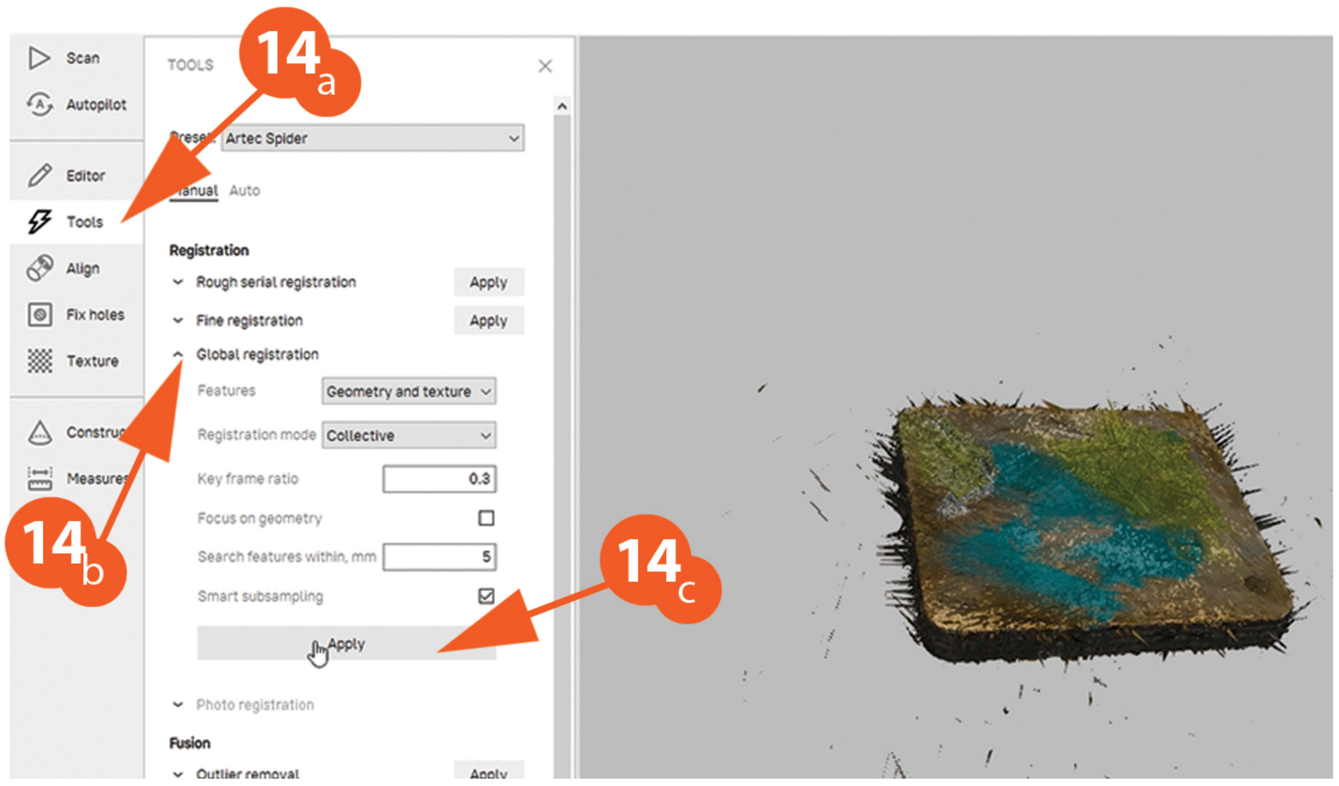
You can also use some of the other Eraser tools if you want.

13a - **3D Selection**, lets you manually go around and highlight (in red) objects to be deleted.

13b - Hold **CTRL** down and the **Left Mouse Button** to select the area/objects

13c - Click on **Erase** when ready

13d - Close the Eraser window when complete (**X**).

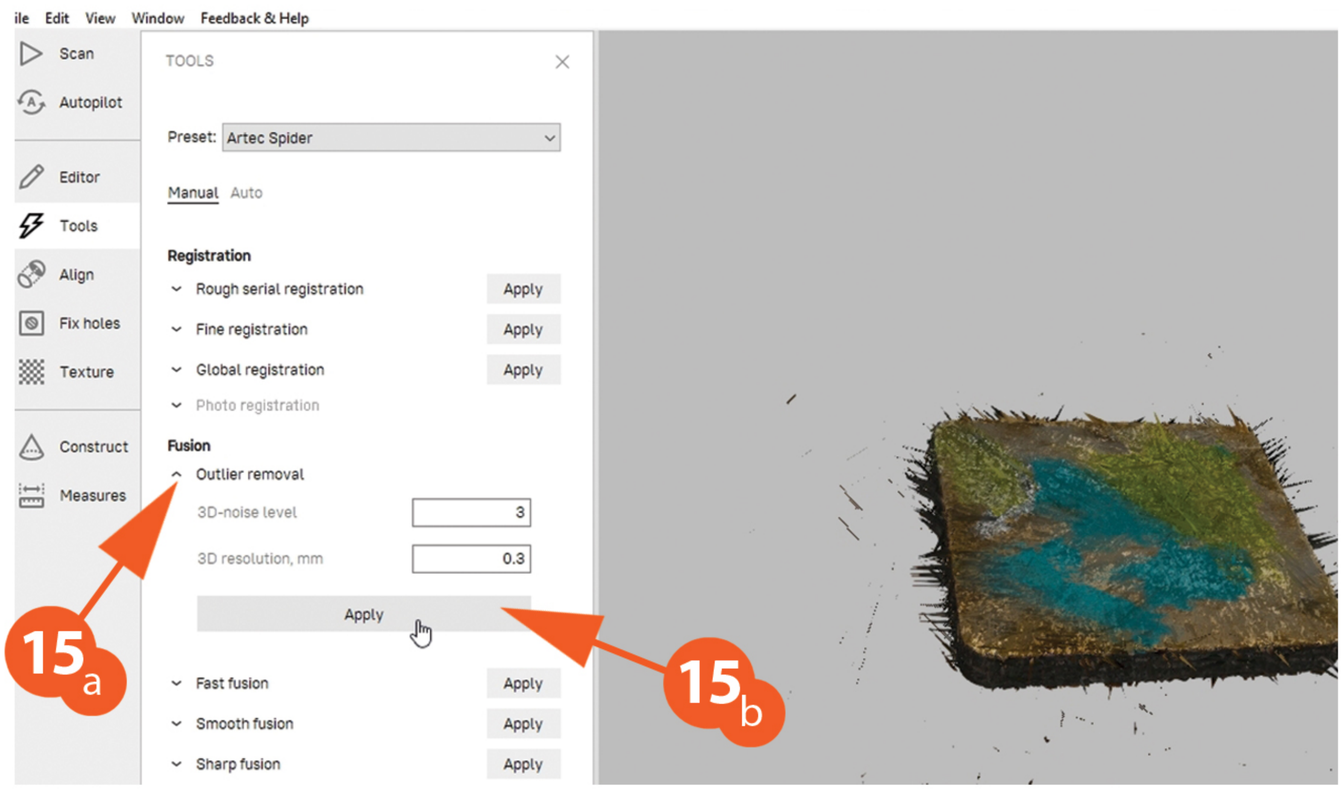


14

14a - Now click on the **Tools** menu button.

14b - Click on **Global Registration.**

14c - And **Apply.**



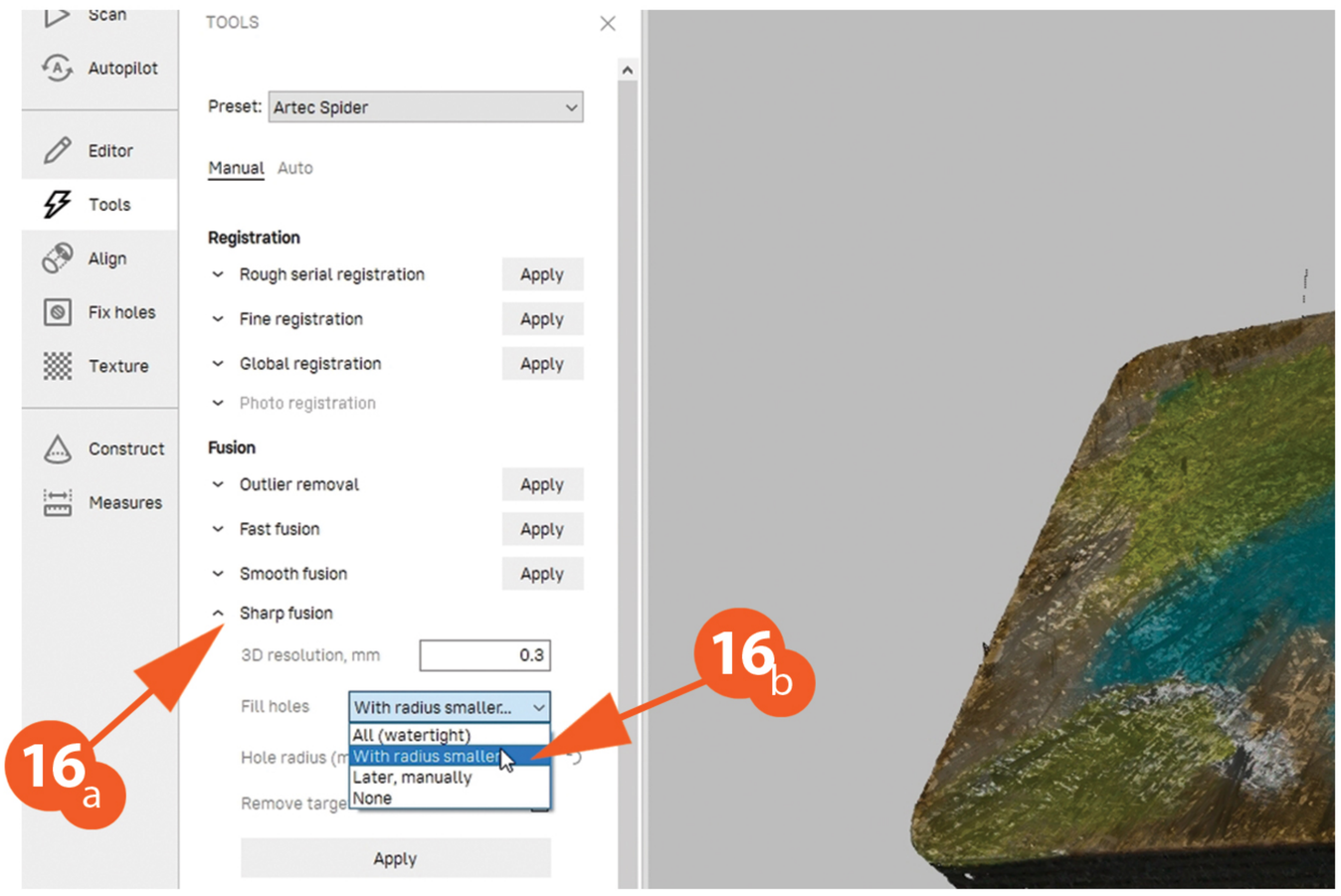
15

Staying on the **Tools** menu,

15a - We can go to **Outlier Removal** to remove the stray bits, click on it .

15b - And then **Apply.**

Don't worry if there are still stray bits, we will take care of those in a future operation.



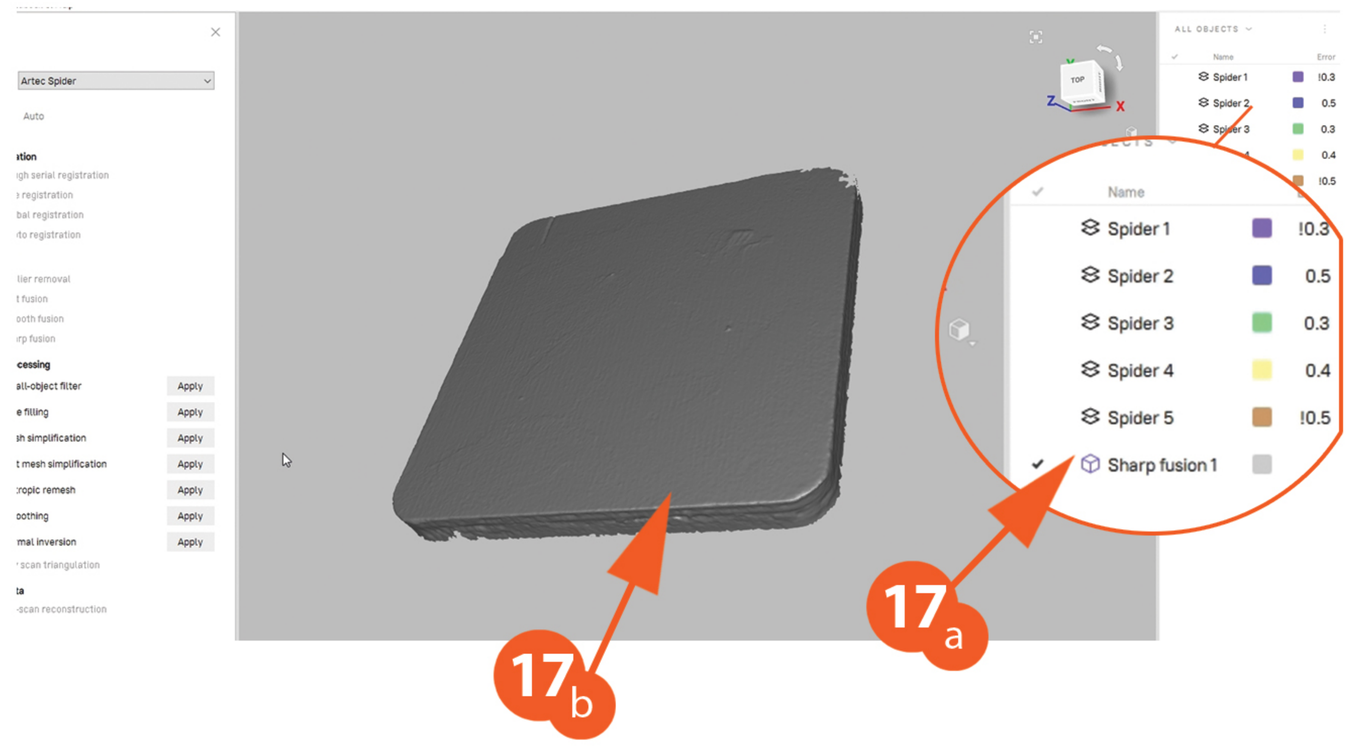
16

16a - Now click on **Sharp Fusion.**

16b - Select **Fill Holes With Radius Smaller** (you can adjust this to smaller resolution if you like, but the default works well usually).

If you select **All (watertight)** it will try to close the bottom.

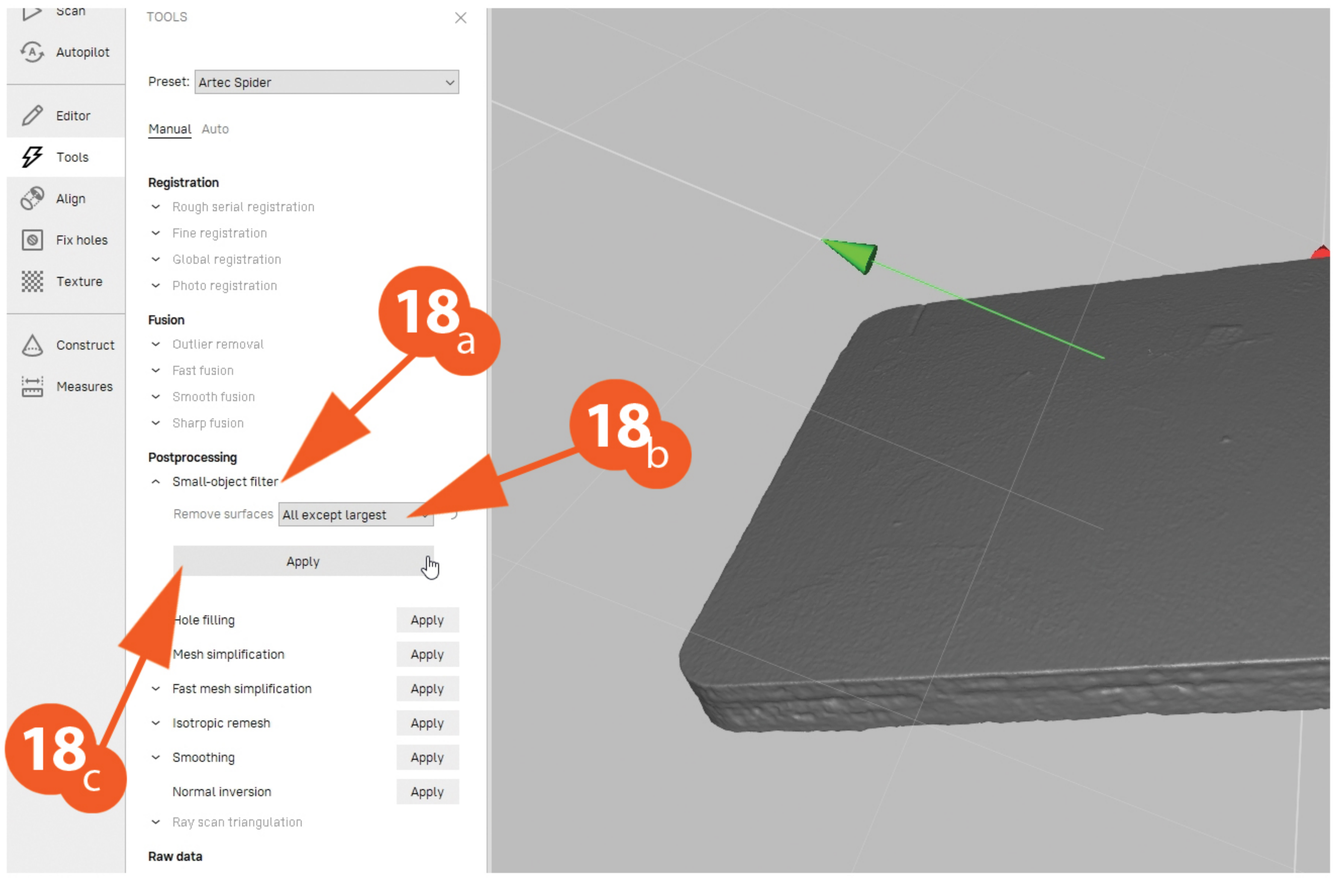
16c - And click on **Apply.**



17

17a - You will now see the **Sharp Fusion** with your scans on the right side list.

17b - Your object will also be grey now, as the Texture Maps are not on it.



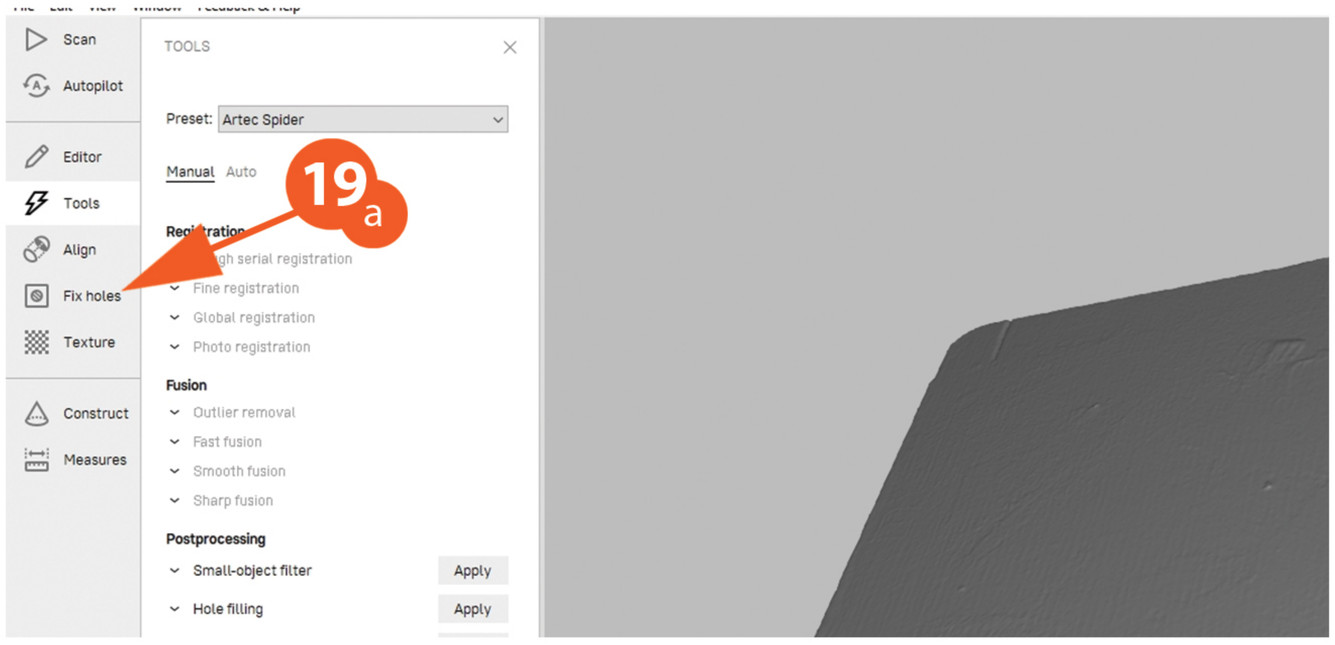
18

18a - You can now use the **Post Processing – Small Object Filter.**

18b - And select Remove Surfaces / **All Except Largest.**

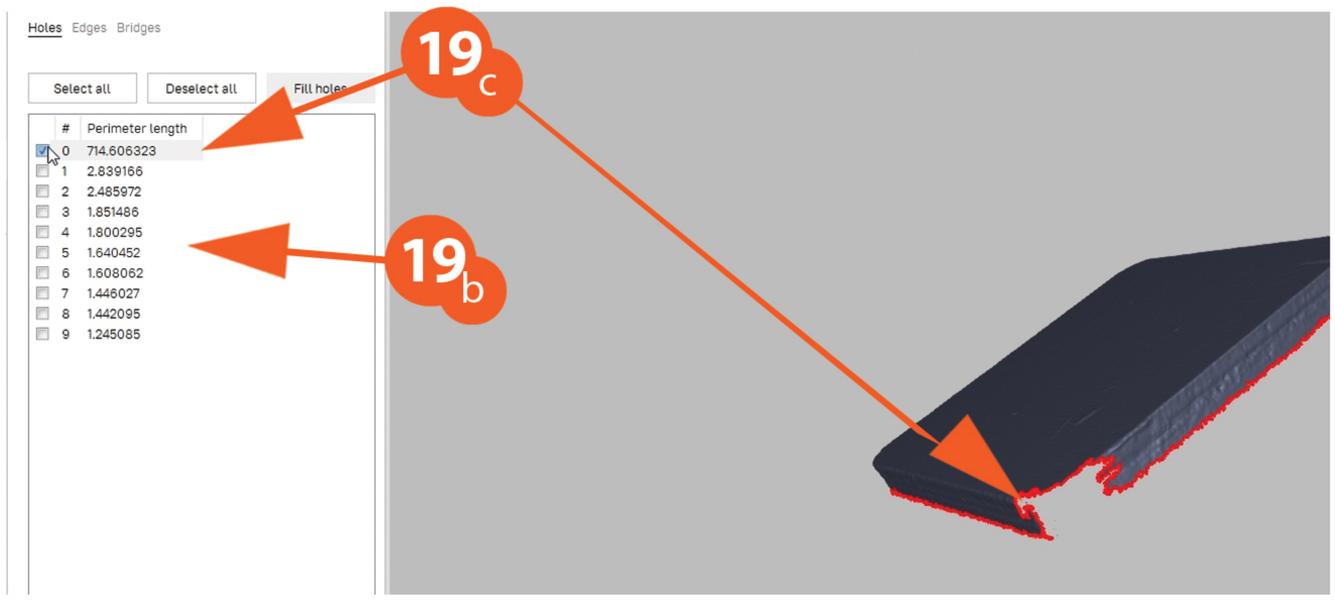
This setting will remove any random objects except the main object. This usually works the best unless you have multiple objects you want to save.

18c - Click on **Apply.**



19

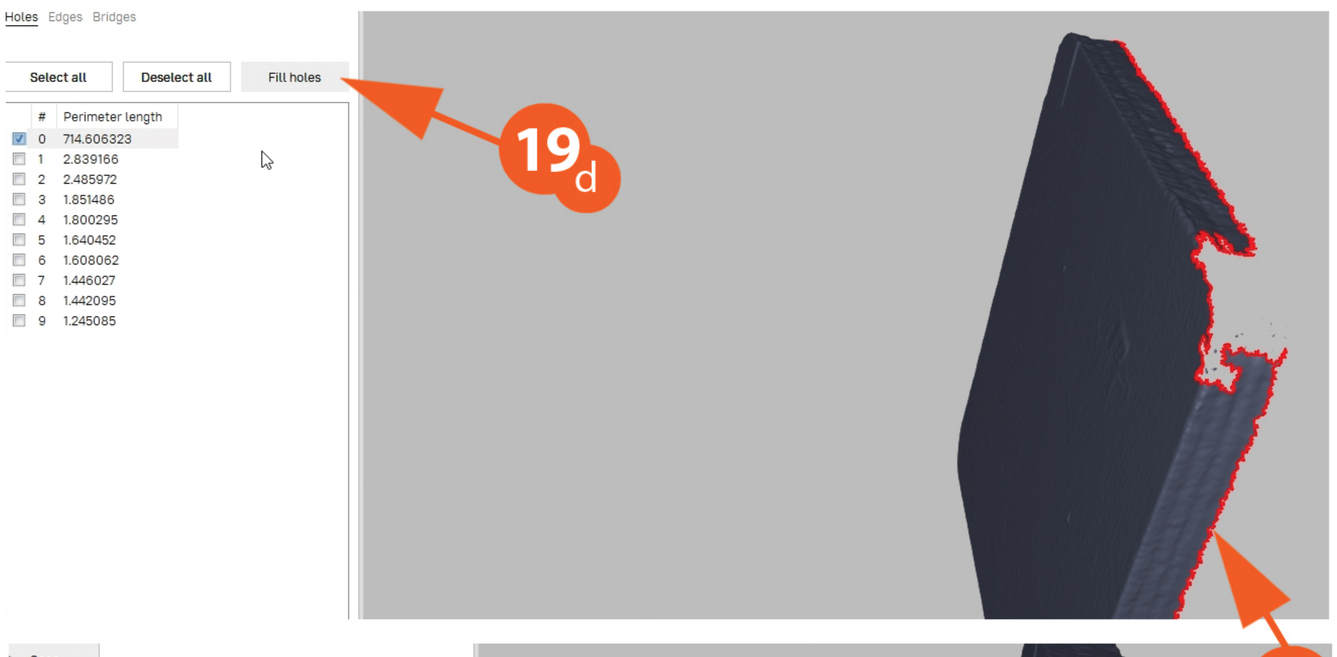
19a. Under the Main Vertical Menu, Select **Fix Holes**.



19b - You will then see a Hole's list on the left

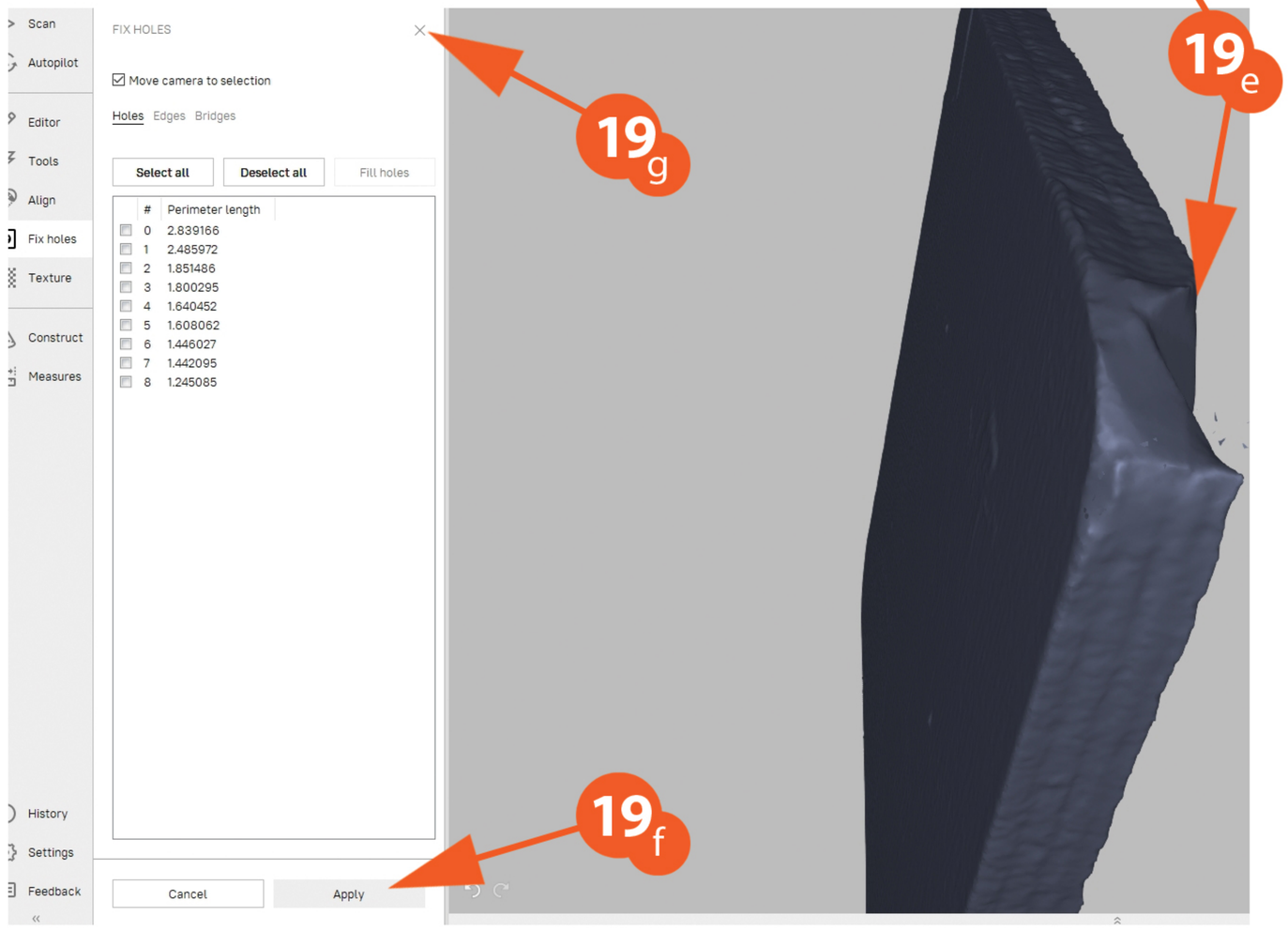
19c - When you click on each check box you will see what hole it is.

Click on the holes you want to fill.



19d - Then click **Fill Holes.**

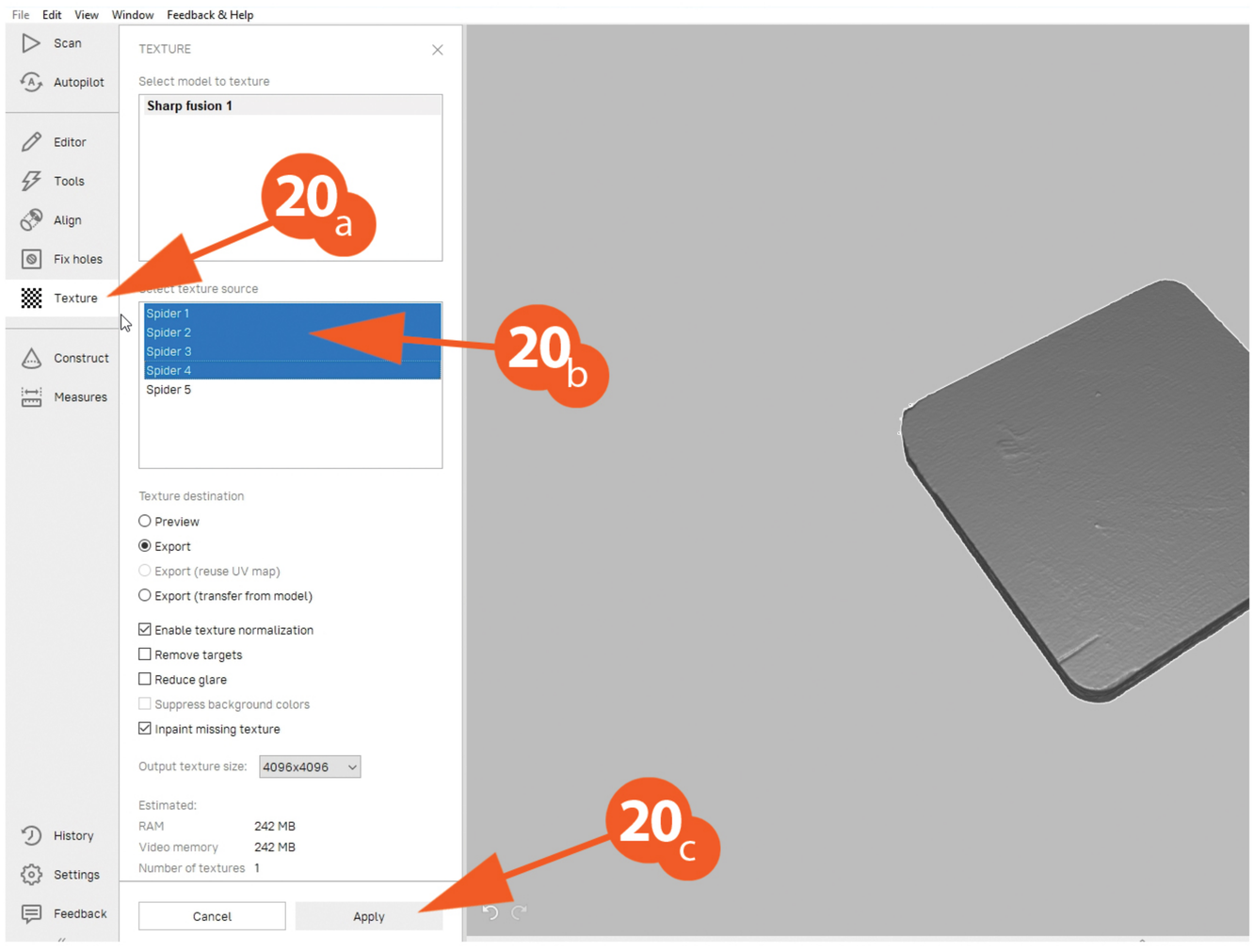
19e - The hole that I actually clicked on was the edges and the bottom area, that area was never scanned. The program will try to actually close in the bottom. You can try this here, but you can also make your own bottom for it later in a 3D program.

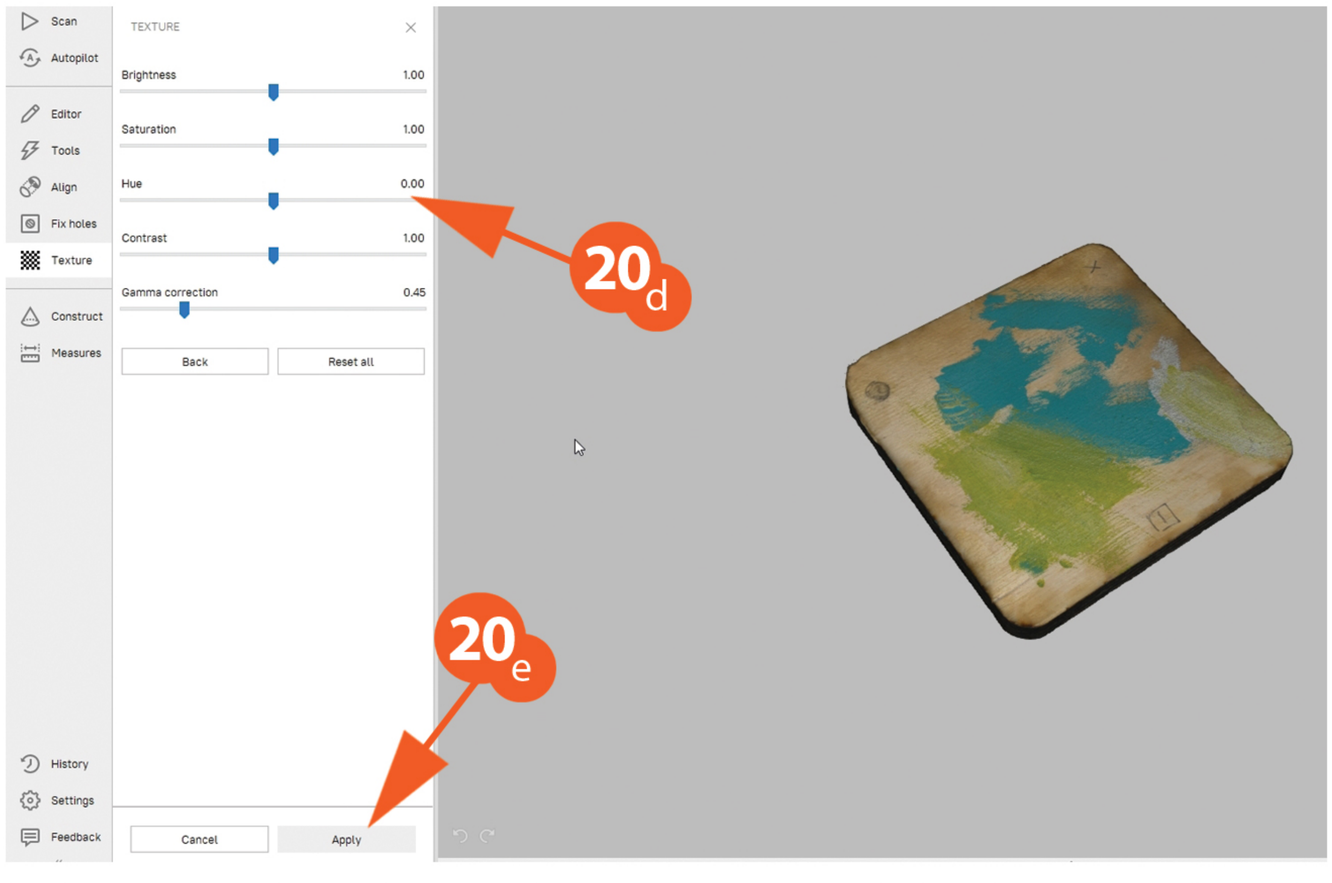


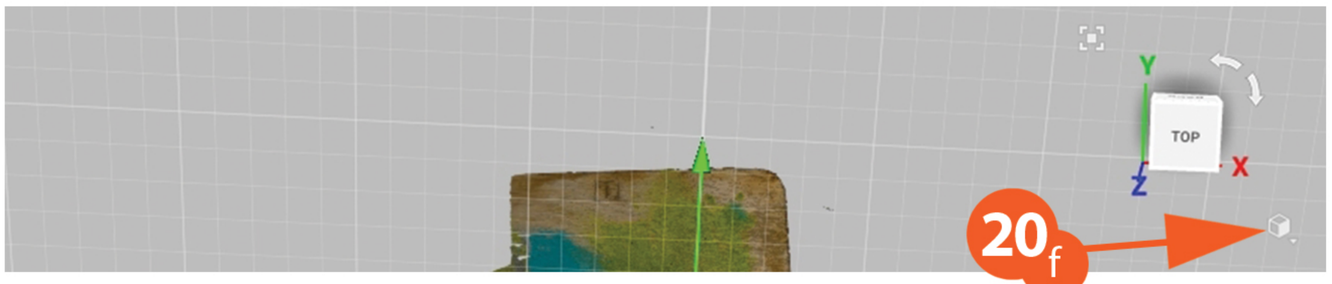
19f - If you are happy with the results click on **Apply** at the bottom.

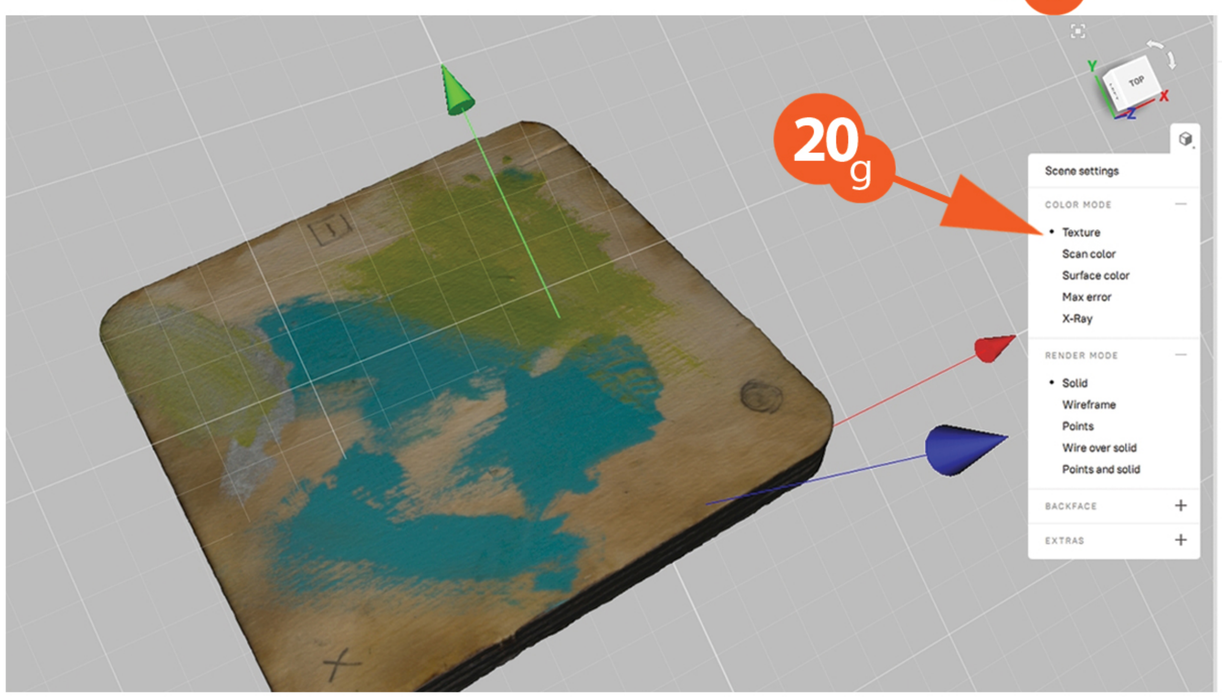
19g - Close the Fix Holes (**X**) window.

If you are not be happy with the results at this point, you may need to go back and scan more of your object, then repeat the steps to **Align**, **Erase**, **Registration** & **Fusion**.









20

If you want the Texture on your objects final scan....

20a - Select **Texture** on the main Menu.

20b - Then select the scans from the list that appears. Usually you can use all the scans that you use to build the final model.

20c - Then click **Apply** (it ca take sometime to generate the texture map).

20d - After it is rendered, you can use the **Sliders** to adjust the image map, if you want to change the Brightness, Saturation, etc.

20e - Click **Apply** when you are ready.

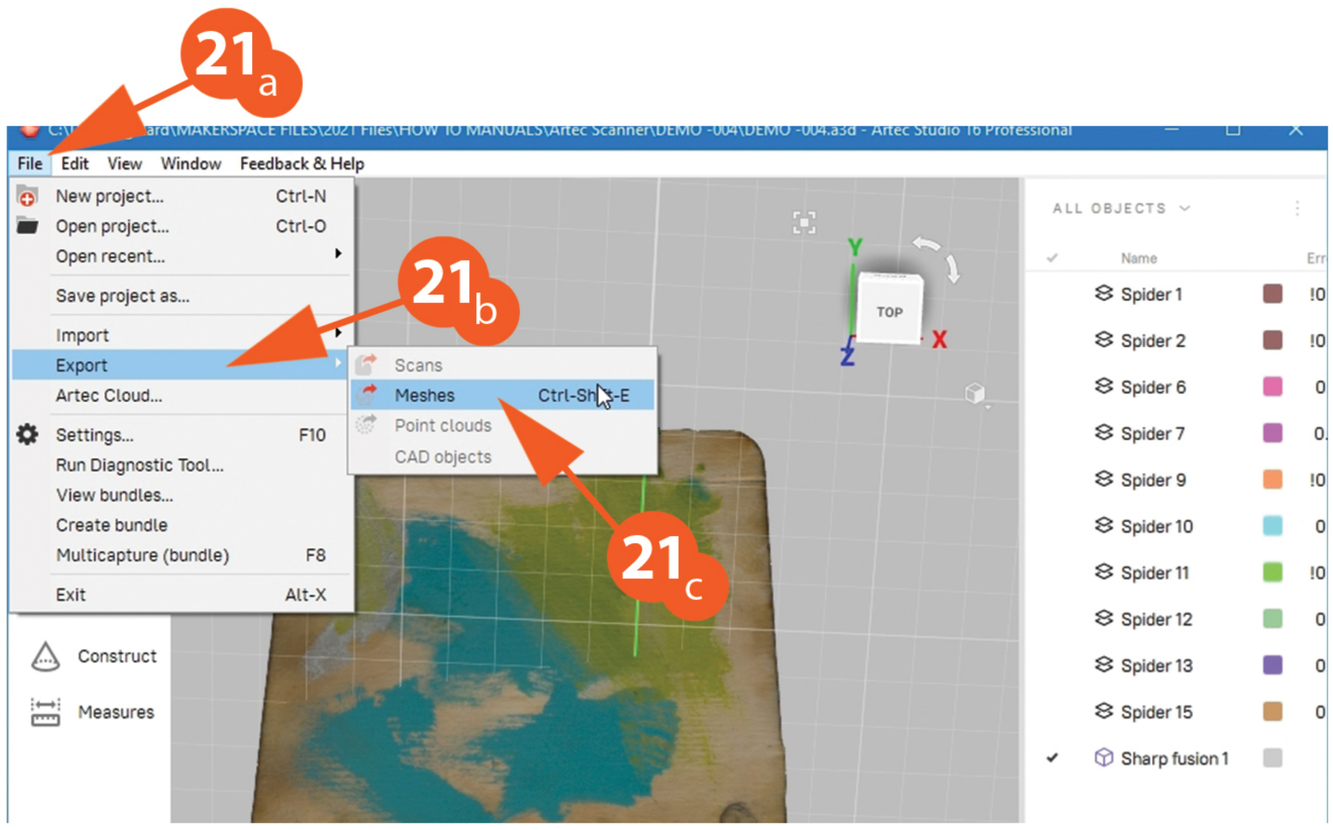
If you cannot see the texture,

20f - Click on the Tiny Cube to open the **Scene Settings** menu.

20g - Make sure the **Scene Settings** - **Colour Mode - Texture** is selected.

At this point your scan is complete but you can use other tools to refine your mesh if you desire. Under **Tools** is **Mesh Simplification**, this is to reduce the mesh size. Also under **Tools** is **Smoothing** if you want to smooth out the surface of your object and the edges.

The last step is to export the mesh.

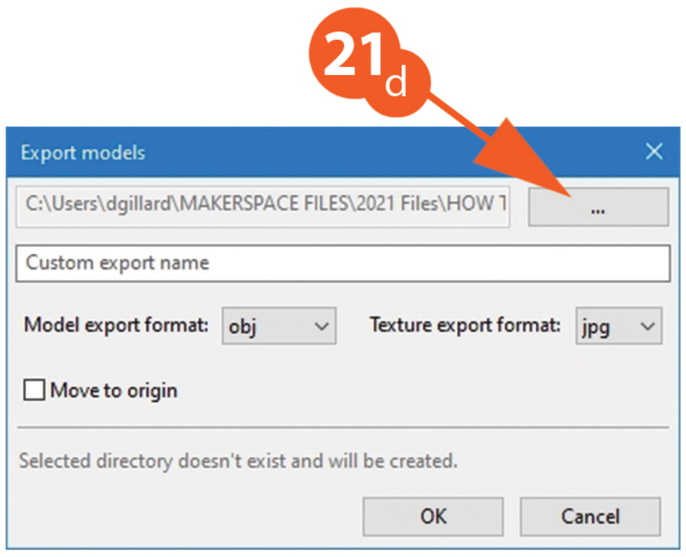


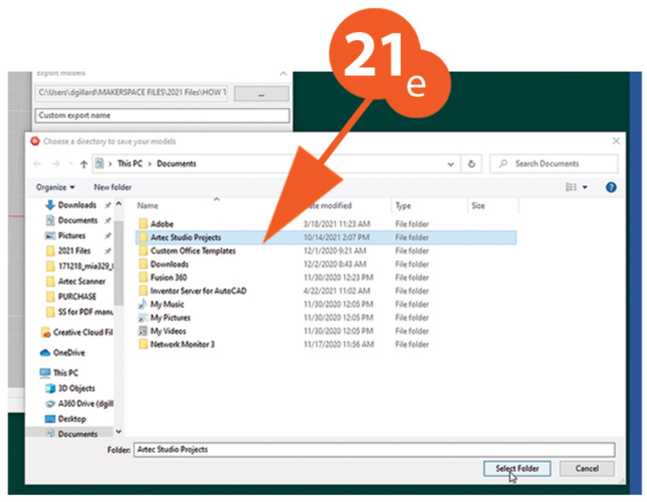
21

21a - Click on **File**

21b - **Export**

21c - **Meshes**

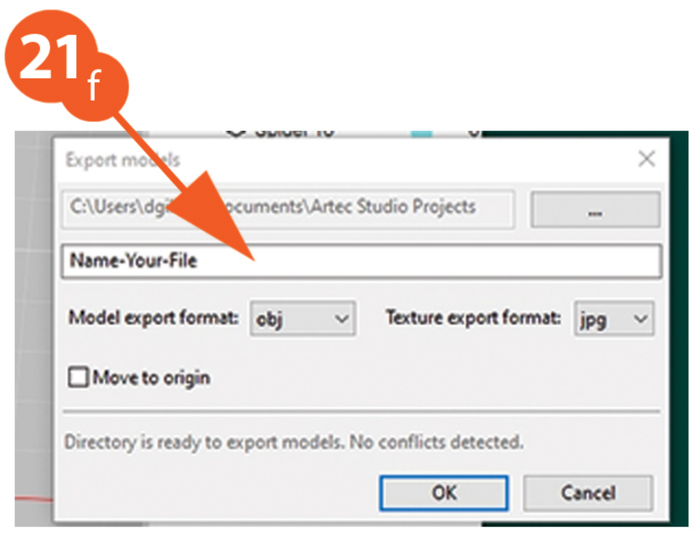


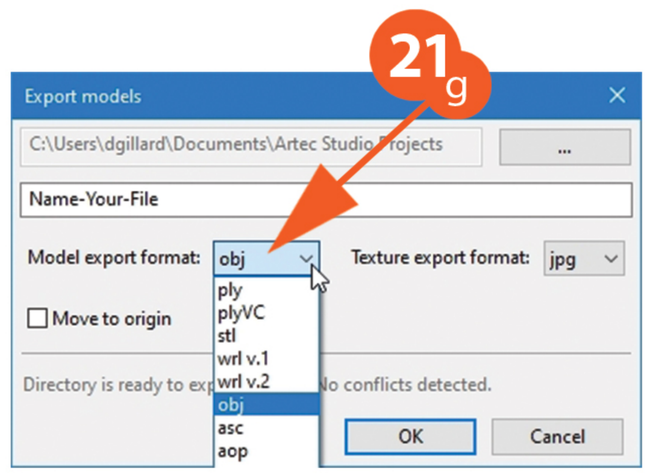


A popup menu will appear.

21d - Click on the top bar.

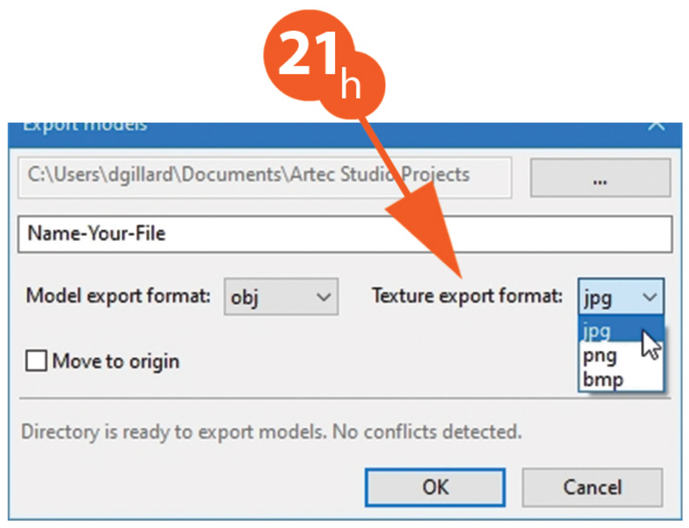
21e - And select a File Folder Location.

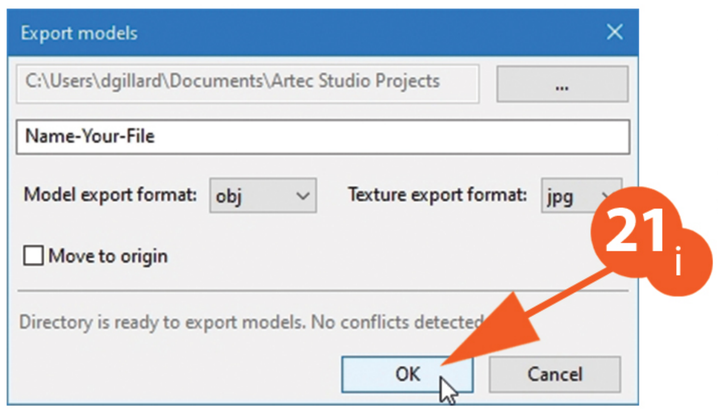




21f - Click on **Export Name** area, and name your model.

21g - Click on **Model Export Format**, and choose **OBJ** or **STL**.





21h - Click on texture **Export Format** and choose: Jpg, Png or Bmp.

21i - Click on **OK**, your model iis now ready to 3D print or import into a 3D program.