

Next Engine 3D Scanner Instructions:

1. Click the Start button, go to All Programs, NextEngine, ScanStudioHD, and open ScanStudioHD (or click on the desktop icon if it's there, it's shaped like a blue cog)

--Click on the question mark in the upper right hand corner to bring up the help file. Click on NextWiki/Help/Getting Started and there will be a video walkthrough of how to scan the palm tree.

2. Click the green Scan arrow

3. Place your specimen on the raised pad.

4. Choose your scan style: 360 will scan the specimen from every angle; Bracket will scan it in three chunks, and Single will scan it from one angle.

--If you choose 360 choose the number of divisions you want to scan in, this will determine the number of rotations and individual scans.

5. Choose the resolution: POINTS/IN² is how many pixels are scanned. This higher resolution the more time and memory the scan will take. What resolution is best will depend on the specifics of your specimen, how much detail you actually need, and how long you want it to take. Specimens with more curvature will need a higher resolution, etc. It may take some trial and error to figure out which resolution works best for your specimen.

The time and memory that the scan will take is given at the bottom of the screen. This is determined by how many divisions and how high a resolution you are using.

6. Choose the Range: Depending on the size of your specimen, choose the range you want to scan at. For most things MACRO is fine, for something wider or larger choose WIDE or EXTENDED. Use the ruler to make sure that the specimen is the recommended distance away from the scanner, and get the specimen as close to the center of the scanning area as you can.

Click in the scanning window and select what area you want scanned (i.e. your specimen). It is a good idea to leave some extra space around your object, as its perspective will change as it's rotated. When you have chosen your scanning area use the TURN arrows at the top of the screen to rotate your rotate and make sure that it stays in the scanning area for the entire rotation. If it does not adjust it as necessary, but stay as close to the optimum distance as you can.

7. Click on the green START button. Depending on how long it's going to take, go get a sandwich. When the scan is done, to rotate it use the left mouse button, to zoom in and out use the right mouse button or the scroll wheel, and use both buttons to pan.

8. ALIGN: When the scan is complete, you may need to align the different scans. Click on ALIGN and place the colored pins at identical spots on the different scans. If your specimen

doesn't have any distinguishing points, like a coral, you may want to somehow mark a specific spot or two before the scan. When you have placed the points click ATTACH SCANS

9. TRIM: Click on TRIM. This is to get rid of unwanted data in your scan, such as the turntable. The arrow will let you adjust the specimen's viewpoint, like usual. The circle and square and rectangle allow you to select areas you want to delete. If you accidentally select an area you don't want to delete, click the – button and select the area again, this will deselect it from the trim area. When you have selected what you want to cut out, click the scissors. You don't have to do it all at once. If you accidentally delete something you didn't want to, click Edit/Revert To, and you'll have to start over.

10: SECOND SCAN: You'll notice that the top and bottom of your specimen are big holes, because they weren't scanned. Click the green SCAN button again and reorient your specimen so that it is now horizontal. Do not move the platform in relation to the scanner, and use the same settings. Do all the previous steps with this scan, it should align automatically, if not, follow the same steps as before. Trim this scan as well.

11. ALIGN AGAIN: To Align the two scans you will need to place three differently colored pins at identical spots on the different scan. Space out the pin placement as much as possible. When the pins are placed click ATTACH SCANS.

12. FUSE: When the scans are aligned, click the back arrow, then click FUSE, and FUSE again. This combines the multiple scans into a single mesh.

13. REFINING: Click on POLISH, and REMESH, this should fill some holes left over. You can also smooth down any rough areas with BUFF. The refining process is also time consuming, depending on how clean you want the scan to look. All images will require some amount of refining to look presentable. Some will require a great deal of it, and it takes practice to learn how to use all the options, just like any other image manipulation program.

You can adjust the viewing options by clicking on the balls in the lower right corner of the screen. The top beach ball is the standard color view, and second ball is a monochromatic shaded morphology view, the third ball is a mesh, and the bottom ball is a points view.

14. SAVE: When you're happy with your image, click File/Save As and save the file as an SCN file. There are other file formats you can use, but I don't know how they work or what programs they require yet.

Keep in mind that all of this is very much Your Mileage May Vary. If your specimen is very oddly shaped it may be difficult to get the scans to align, and may take several tries with different options before you get a scan that works just right.

Tips:

--If there is ambient light coming in from the window this may affect your scan. Bright white light on a cloudy afternoon seems to make the scanner think that very light objects are actually blue. If this happens close the blinds or wait until it gets dark to scan your specimen.

--Scan at the highest resolution at your own risk. The computer doesn't seem to be powerful enough to handle it consistently. Sometimes I've gotten it to work, and sometimes the program keeps crashing. There doesn't seem to be much difference between high standard resolution and high resolution, anyway.

--Save your model often! The program crashes frequently. I'm not sure if it's a hardware problem or a Windows 7 instability or something else. After you finish a set of scans, or before and after you perform a function like trimming or aligning save your model. It's unpleasant to have to rescan a specimen.

--If you do a 360° scan I recommend 16 rotations. This adds time to the scan, but it makes aligning much easier.

--Sometimes the program will try to align the model automatically and it will come out a mess, or your manual alignment won't come out as good as you wanted. If this happens go to Edit/Detach All. Then drag the first section into the green box and align again. The more pins and the wider they are spaced out the better.

--Sometimes the fused model of your two scans will look worse than either individual one, small details such as teeth etc may be missing. I don't know why this happens.

--Make sure you have the correct color option (Dark/Neutral/Light) chosen. If you have a really dark object or a really light object and have the opposite option checked the laser won't pick it up. I usually stick with Neutral, unless it's very very light or dark.