



Microscan Guide

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How do I scan in 3D?

1. Turn on the 3D scanner:

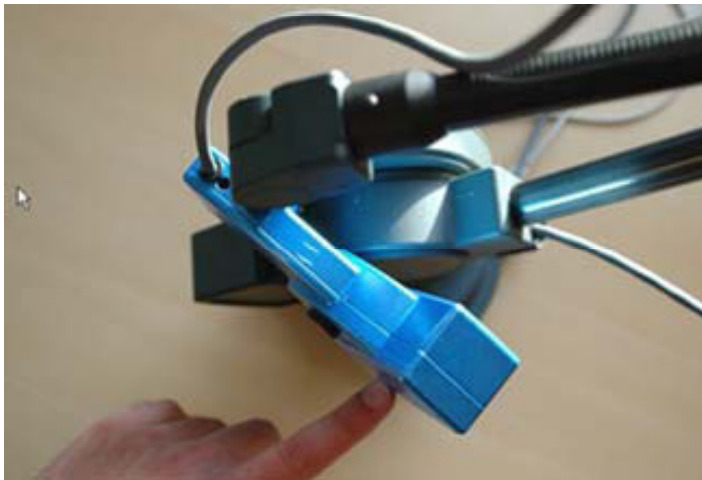
a. Flip the red button on the power strip. You should see a red light come on and a long laser project.

2. Home the scanner:

a. Make sure that the pointer of the arm (which extends out past the red scanner) is sitting in the holder above the shoulder of the arm.

b. Turn the arm so that the line on the base next to the red light matches up with the line on the base of the arm.

c. Then hold the head of the red scanner against the blue shoulder of the arm. Make sure the needle is pointed straight down.



d. While you hold the head against the shoulder, push the white button on the back of the base labeled "HOME".

e. The red LED light should turn green, and you can proceed.

3. Open Microscan Tools:

a. Click Start: All Programs: Microscan Tools: Microscan Tools. If you get an error message, restart the computer and open it again.

4. Consider calibrating:

a. Recalibrating the scanner may be necessary if you are making a scan requiring archival quality detail. Most users may safely skip this step.


b. Ask an ITC person for assistance in calibration. It requires special equipment.

5. Place the object:

a. Place what you want to scan on the table, with enough room for the arm to reach entirely around it.

b. Go ahead and move the arm around the object to get a sense of where it should be and how to use the arm.

6. Scan the object:

a. Press Connect  to activate the scanner.

b. Press the red button on the red scanner to start a scanning sweep.

c. Run the laser straight across the object. Press the red button again to finish. Give it a moment before starting the next scan.

d. If you need to scan beneath an object, consider using a base so you can get a good angle with the scanner. Do not move the object between scan passes (see [e] below)

e. Different materials and colors require different settings. If your object is not scanning, or is producing a lot of noise, click the Adjust button



i. The exposure level of 1 ms is good for scanning white objects. Darker objects should have a longer exposure, up to the maximum of 10 ms for black objects.

ii. The tolerance level of 1 assumes that your object is as shiny and translucent as a sheet of white paper. Higher tolerance will make



it easier to pick up materials like foam, glass, and human skin. Unnecessarily high tolerance will increase noise.

iii. Brightness shouldn't need to be changed unless you are using extra lighting.

f. If your object is too large to scan without moving it, scan what you can and then hit the New Scan button and scan what you missed. These will need to be registered and combined later.


g. If you are scanning something especially reflective or translucent like plastic, skin, or foam, you should try using a smaller laser. On the left side of the screen, where it says "Capture with..." click on "Small laser." [picture]

7. Clean up your scan:

a. Often scans will pick up the table or any supports you used. Use the **Pick tool**  to select the object, then use the **Select tool**  to select anything that you don't want and press delete to delete it.

b. Click on Sweeps in the upper left hand corner. There is another button in the upper right corner, also called Sweeps. Leave it alone. You'll get a pop-up saying that proceeding will disconnect the scanner. Click OK.

c. If you have multiple objects to put together, click the Pick tool, select one, and then hold Control and left click another to select both.

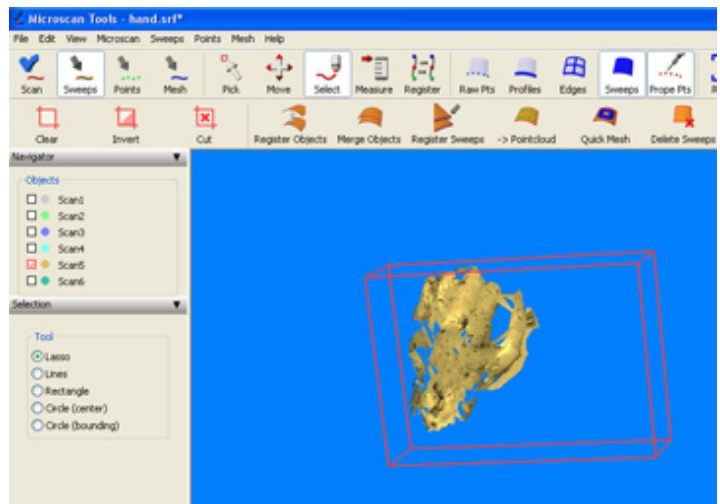
i. Click the Register by Reference button .

ii. Place 3 or 4 points in identical places on each object. Generally speaking, the further the points are from one another, the more accurate the registration will be. You can use the mouse wheel to zoom in and out for better point accuracy.

iii. Click register and inspect your

work. If the match isn't good enough, hit Edit: Undo and move your points.

iv. Repeat as necessary to complete the object.




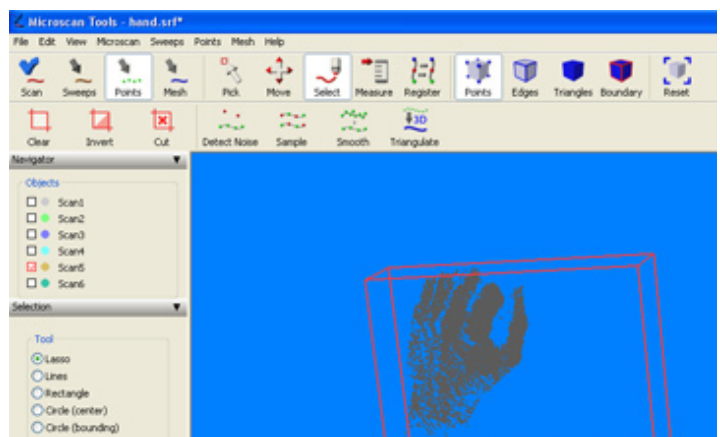
8. Generate your points:



a. Click the **Generate Pointcloud** button (-> Pointcloud) to create points that you can work with in another program.

i. You can choose a reduction factor to manage file size. A factor of two means that every second raw point will be kept.

ii. Profile registration can help reduce noise.

b. Click **Smooth Pointcloud** . You get a pop up saying that this might be a good time to save your work. True. Press OK, press Cancel, and save your points. Click Smooth Pointcloud again. Click OK or fine tune it.



c. Click Triangulate Pointcloud 3d 
(unless you only scanned from one direction, in which case use 2d ).

i. Click Closed if the object was scanned from all directions. If half or less was scanned, click Open.



9. Export your object.

- a. STL exports best to most 3D modelers
- b. DXF will export well to AutoCAD.
- c. You can also export raw XYZ points (Ascii).

