

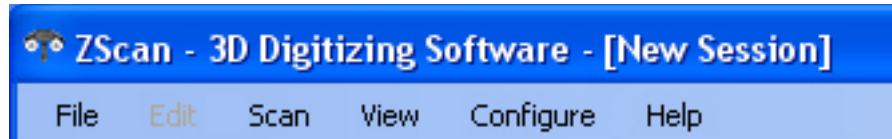
ZScanner Basic Instructions

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User Interface:

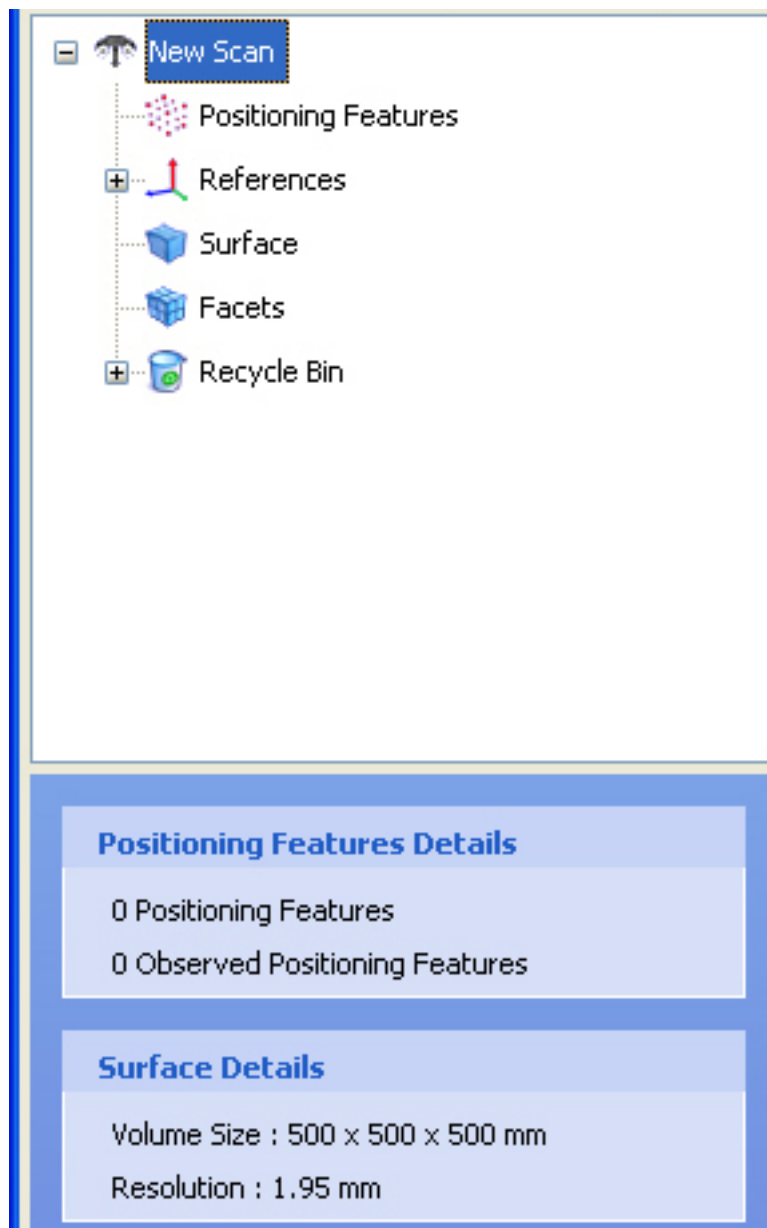
Tabs



Icon Bar



Side Bar



1. Preliminary operations

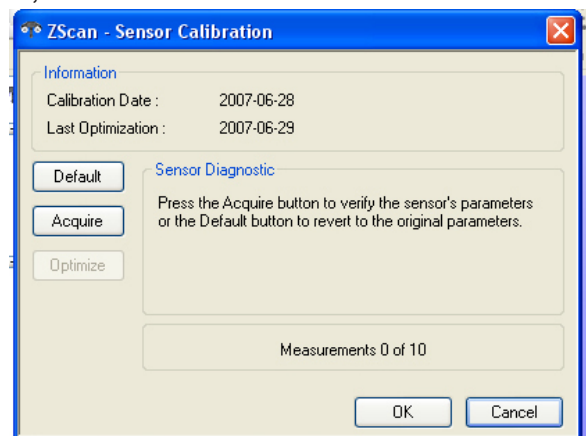
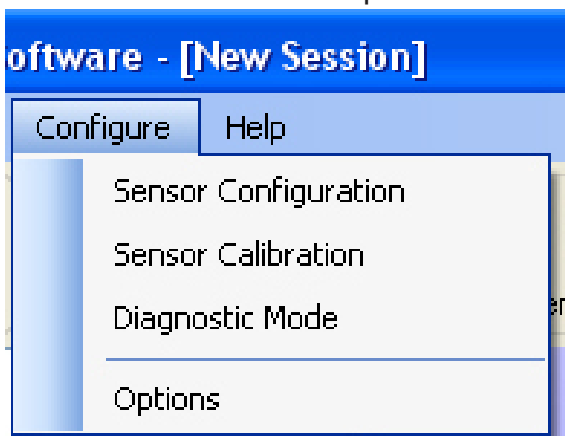
Applying Targets (Reflective Dots)

- Apply dots 1"- 4" apart on all surfaces.
- On flat plain surfaces 3"- 4" works, on surfaces with more undulation apply in the 1"- 2" range.

range.

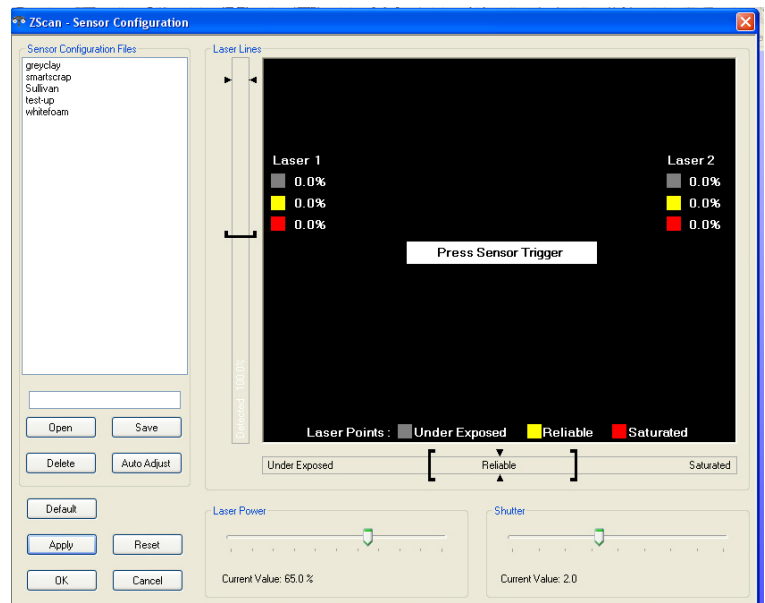
Scanner Calibration – calibrates the focus distance of the laser

- Use the black glass plate with large X to calibrate the Scanner before each use.
- Under the **Configure Tab**, click **Sensor Calibration**
- In the calibration menu click **Acquire**
- Take the Scanner and start about 4 inches from the glass
- Hold the trigger while moving straight up keeping the red cross hairs on the white X of the glass plate.
- A series of beeps should start...ending in a final burst.
- Check on screen: if all 10 positions are not acquired, start over.



Scanner Configuration – configures the contrast of colors that the scanner will read

- Before scanning an object configure the contrast of the material.
- Under the **Configure Tab**, click **Sensor Configuration**.
- A window will appear with a large X, and 2 bars going from black to yellow.
- Take the scanner and shine it on the object moving it forward and back until both bars are the yellow range, then let off of the trigger
- You can now save this setting for future uses, or just apply it for a one-time use.



2. Setting up a Session

Positioning features

- Scanning the positioning features (dots) first is recommended if you want to do multiple scans on the same object. This generates a file with the dots (targets) only.
- In the icon bar along the top of the screen, click on the arrow beside **Scan Surface**, and change to **Scan Features**.

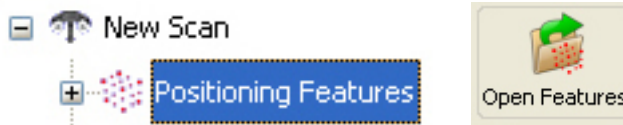


- In the icon bar along the top, click Record scan, and begin scanning
- Once all of the dots are captured, save the positioning features



Surface

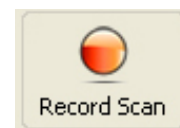
- If you have previously scanned the positioning features, load them by clicking on **Positioning Features** in the menu tree on side bar. A **Open Features** button should now be available in the top icon bar.



- At the beginning of each scan you must set the box size under **Surface Details** in the side bar. This is the volume in which the scanner will capture the surface. If a surface is to be scanned at high resolution (around 1 mm or less) it is recommendable to set the box size to less than 500 mm (20 in.), say 300 mm (12 in.)



- To begin the scan, click **Record Scan** in the icon bar.



- To start a new session, make sure the previous scan is saved, and then click **New Session** in the icon bar.



Scanning

- The first point that the scanner finds when you pull the trigger is located at the center of the box; this means that you should not start your scan on the edge of the object but at the center, or at the center of the scan area if multiple scans are going to be used for the object.
- The scanner has a focus distance of about 12". The lights on top of the scanner help to tell you if you are too close or too far from the object. This can also be read on the graph on the left side of the screen while recording a session: the green bars indicate acceptable focal distance.

3. Tips

- Slower is better; the faster you scan, the less information the scanner picks up.
- The scanner reads best when perpendicular to the surface you are capturing...this means rotating the scanner around a fair amount helps to capture the most detail.
- The scanner finds it difficult to detect very dark or black areas. For instance black patches could result in holes in the surface generated in the computer. Solutions could be: to clean the black areas; to shed more light on them; to dust the surface with a gray powder. Another way is to reconfigure the scanner by adjusting the shutter and power (see Configuration).
- Complex, curved surfaces require closely spaced targets. If you notice holes forming in areas covered by the scanner, try to add dots. This doesn't require to rescan the positioning features.

Registering different scans of the same object in Geomagic:

- When an object is scanned in parts, you should scan the positioning features (dots) first. This ensures that the different files will be automatically positioned in the correct place (registered) by Geomagic. If it was necessary to rescan the positioning features, the parts will not be shown with the correct alignment in Geomagic. In this case you can do a manual registration (see tutorial).