CNC SCANNER

Getting started with CNC Scanner is easy

1. ***Download and install the software***
   The freeware version of the software is available at http://www.tormach.com/Product_CNC_Scanner.html.
   Download the software to your computer and double-click to begin installation.
   Follow the instructions on screen.

2. ***Activate the software in Mach3***
   2a. For Tormach PCNC install. Open Mach3. Choose Config→Config Plugins from the pulldown menu.
   Ensure that the plugin topstools is enabled (displays green check mark next to the name).
   If a red X appears instead, click on the box to enable and switch to a green check mark.

   2b. For Generic Mach3 install. If the tops tools plugin does not appear in the Config plugins menu, then copy, the file topstools.dll from folder C:/PCNC3/plugins/ to C:/Mach3/plugins/ and repeat Step 2A.

3. ***Install the camera driver*** (if applicable)
   Some webcams will need an additional driver to be installed for the camera to operate correctly.
   Consult your camera's documentation if this is the case.

TAKING YOUR FIRST SCAN

What you'll need

- A penny
- White backing paper: The blank side of a business card works great.

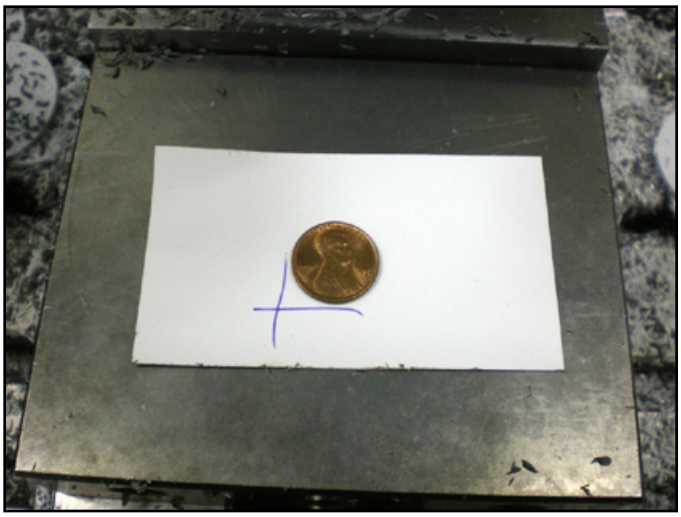
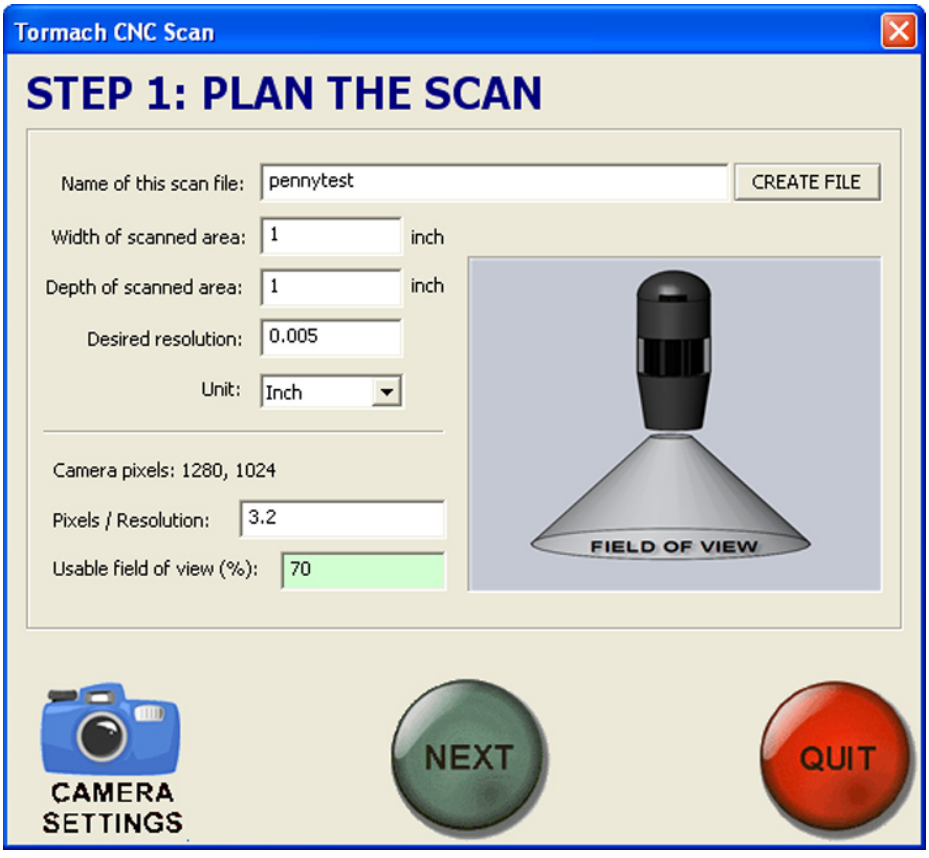


Figure 1. Set up on a flat surface such as the top of a Vice and mark the lower left-hand corner of the area to be scanned.

1. ***Setup.***
   Place the penny and card on top of a flat surface, as shown. Make a mark on the card to indicate the lower left hand corner of an imaginary box that the penny will fit inside.
2. ***Align the Scope and Focus.***
   Open the Tormach CNC Scope application. Use the mill to position the camera over the penny. Most likely, you will need to carefully rotate the scope with respect to the spindle so that X Y mill motion is aligned on the Camera display. Focus on the surface of the penny. For coarse focus, adjust with the focusing wheel of the scope, if available. For fine focus, the preferred technique is to move the Z axis in 0.001" increments. Do not readjust Z once the focus is set. Close CNC Scope.



3. ***Setup up Scan parameters.***
   Open Tormach CNC Scan. Fill in the following scan parameters and click Create File . Save the file and then click the green "Next" button.

Figure 2. Use the following Scan Parameters

TAKING YOUR FIRST SCAN (CONTINUED)

4. ***Set the start point.***
   Jog the mill so it is centered over the mark made in step 1. Click the blue button, "Set Start Point", followed by the Green "next" button.

5. ***Scale by Motion.***
   Chose "Scale by Motion". The snapshot window appears. Click "Set First point". Position the camera by moving the X and Y axes so the tip of Lincoln's nose is in the top right corner of the field of view as shown and click "Take the Snapshot". Now, click "set the Second Point". In a similar manner, position the camera so the tip of the nose is now in the lower right hand corner and click "Take the Snap shot". Finally, using the mouse, click on the tip of the nose in each picture to set the crosshairs. You will find it helpful to zoom into each picture using the mouses click wheel so you can identify the same point at a near-pixel resolution.

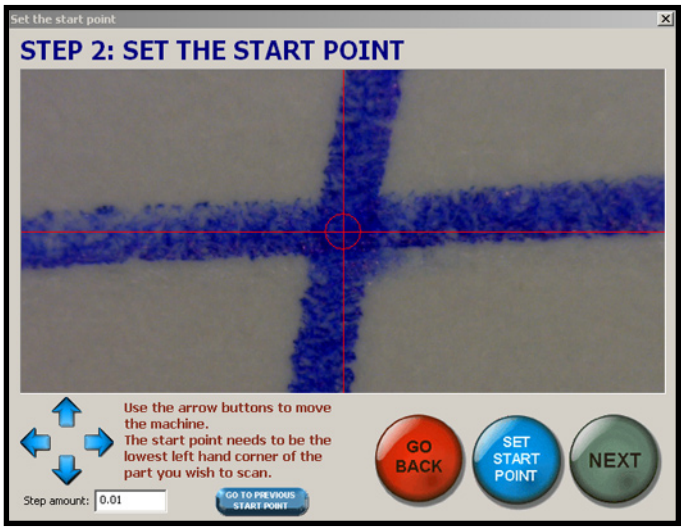


Figure 3. Set the Start point by aligning the cursor to the mark

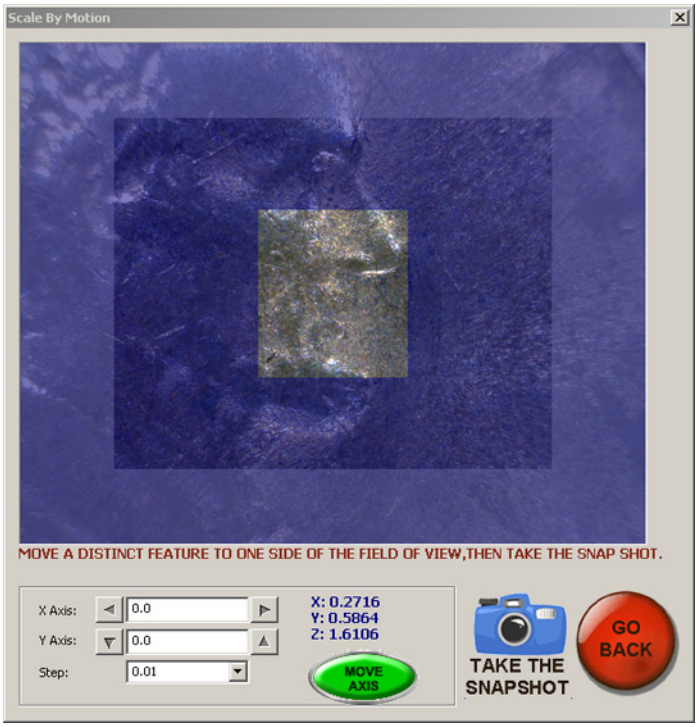


Figure 4 Position in the Upper left hand corner for snapshot 1

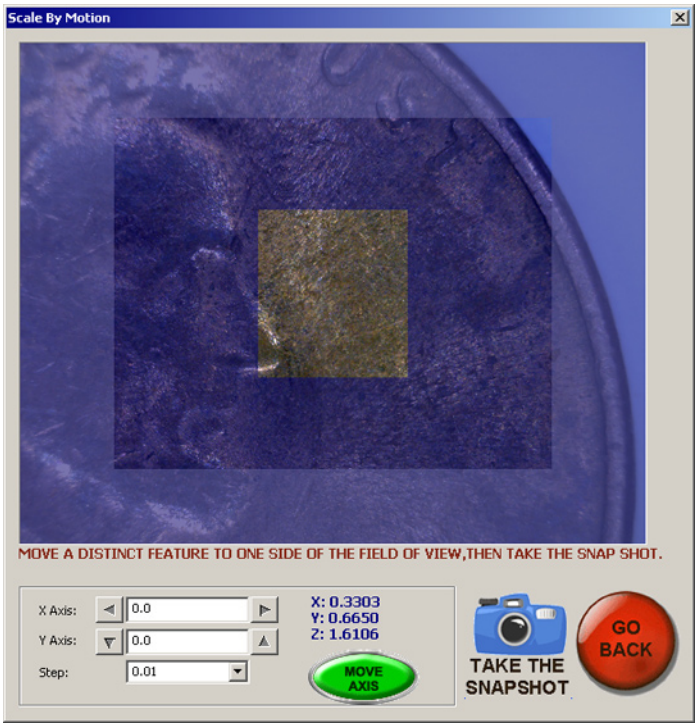


Figure 5. Position in the lower lefthand corner for Snaoshot 2.

TAKING YOUR FIRST SCAN (CONTINUED)

6. ***Complete the Scan.***
Click on the green "Start" button to begin the scan. The mill will move the scanner and snap pictures until it has completed data acquisition.

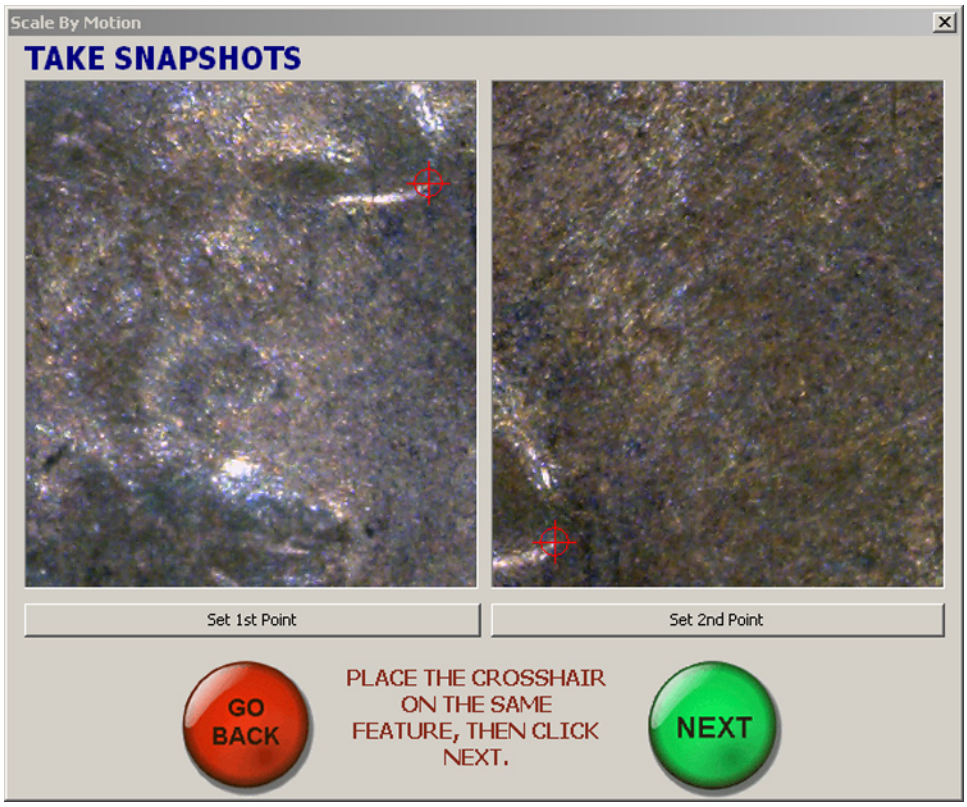


Figure 6. Zoom into each picture to identify each point at pixel level.

7. ***Analyze Results.***
When the Scan is complete, open the results to view the raw data file. You will be able to draw and measure on top of the scan using the tools in Tormach CNC Scan CAD.

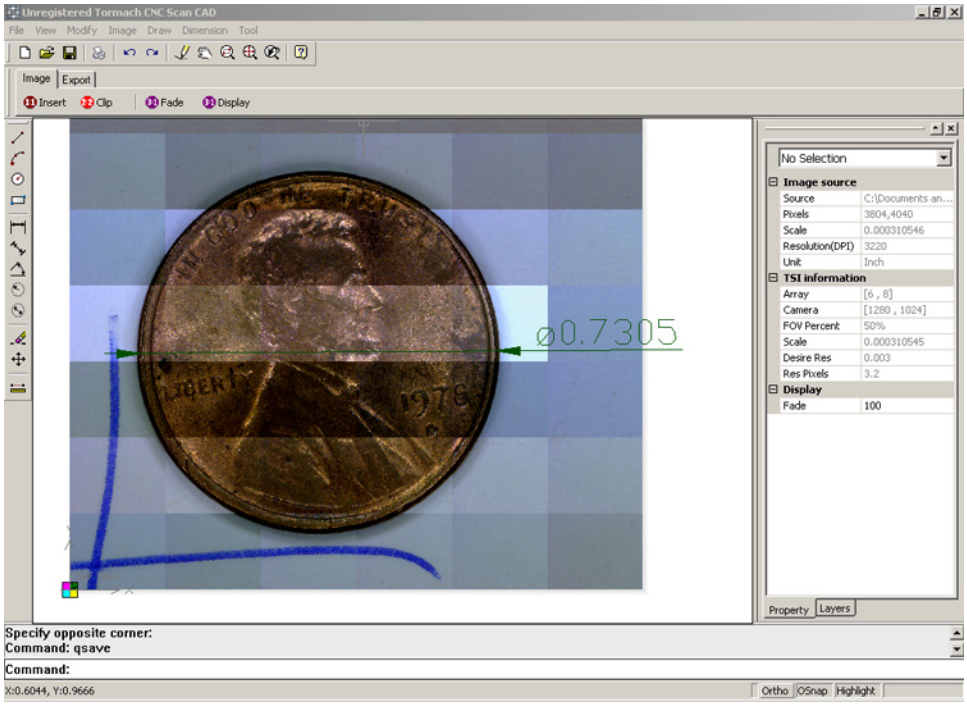


Figure 7. Analyze the completed scan with CNC Scan CAD tools to measure and draw.