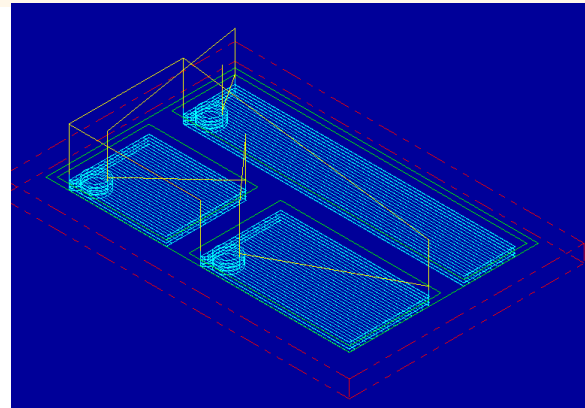
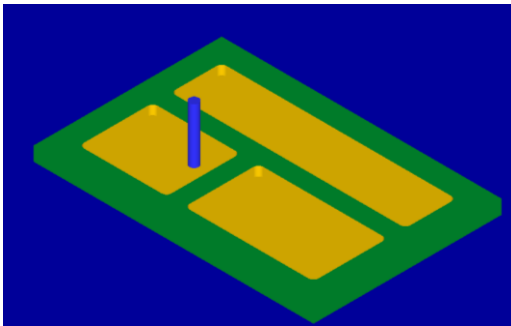
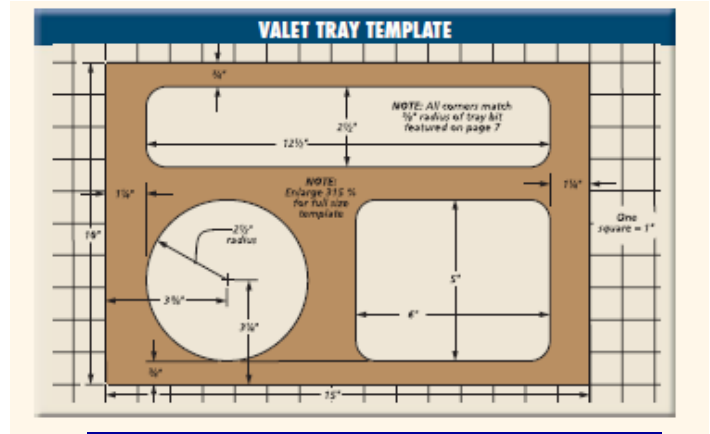
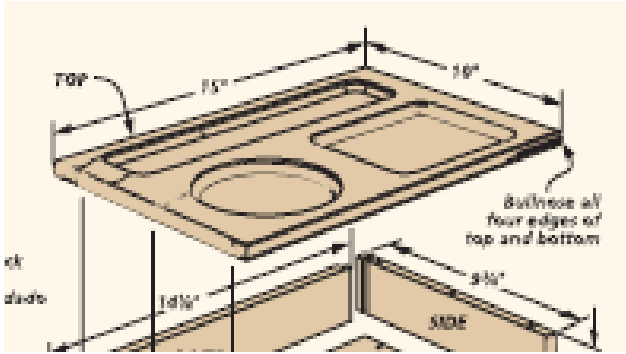
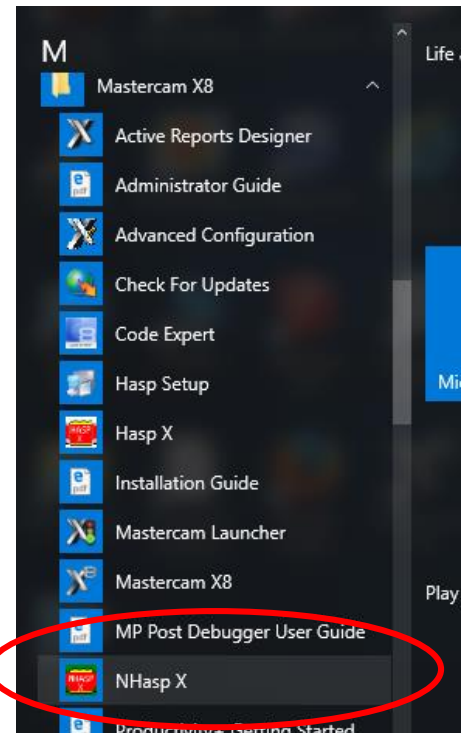


MasterCAM for Dresser Valet

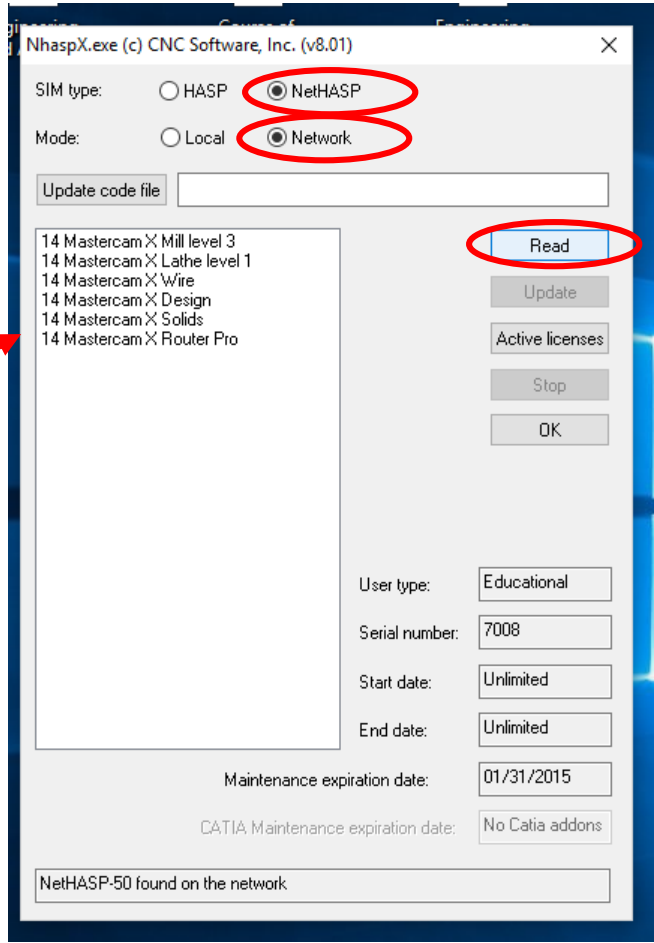


Check to make sure the nethasp is working/turned on to network.

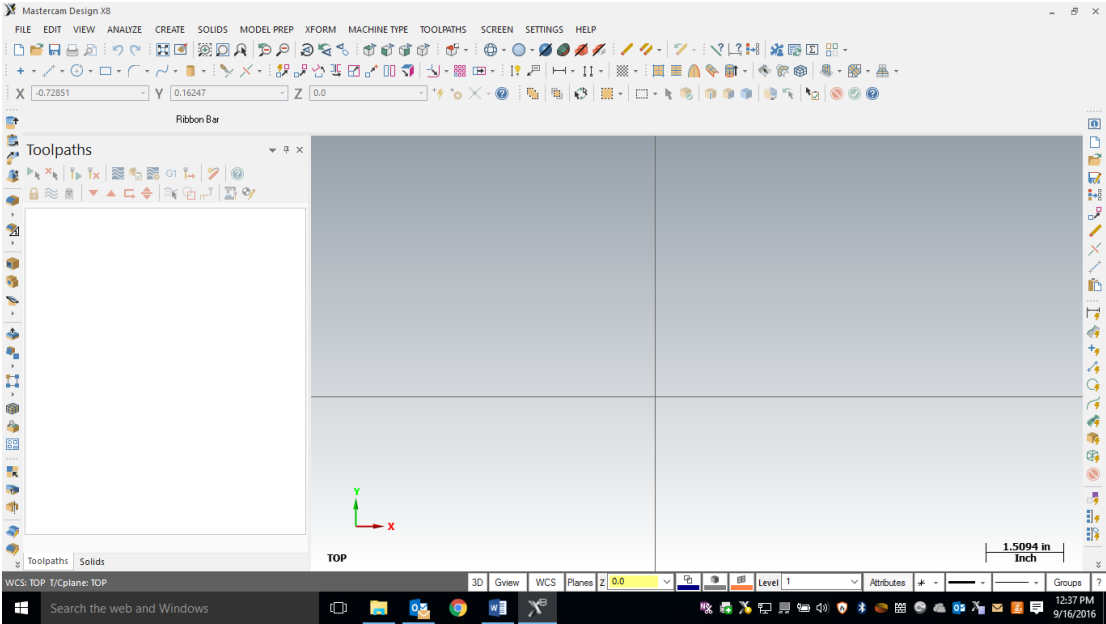
Go to ALL APPS/Mastercam x8/nethasp



After the computer “reads” the nethasp, these programs should show up. If not ask your instructor.

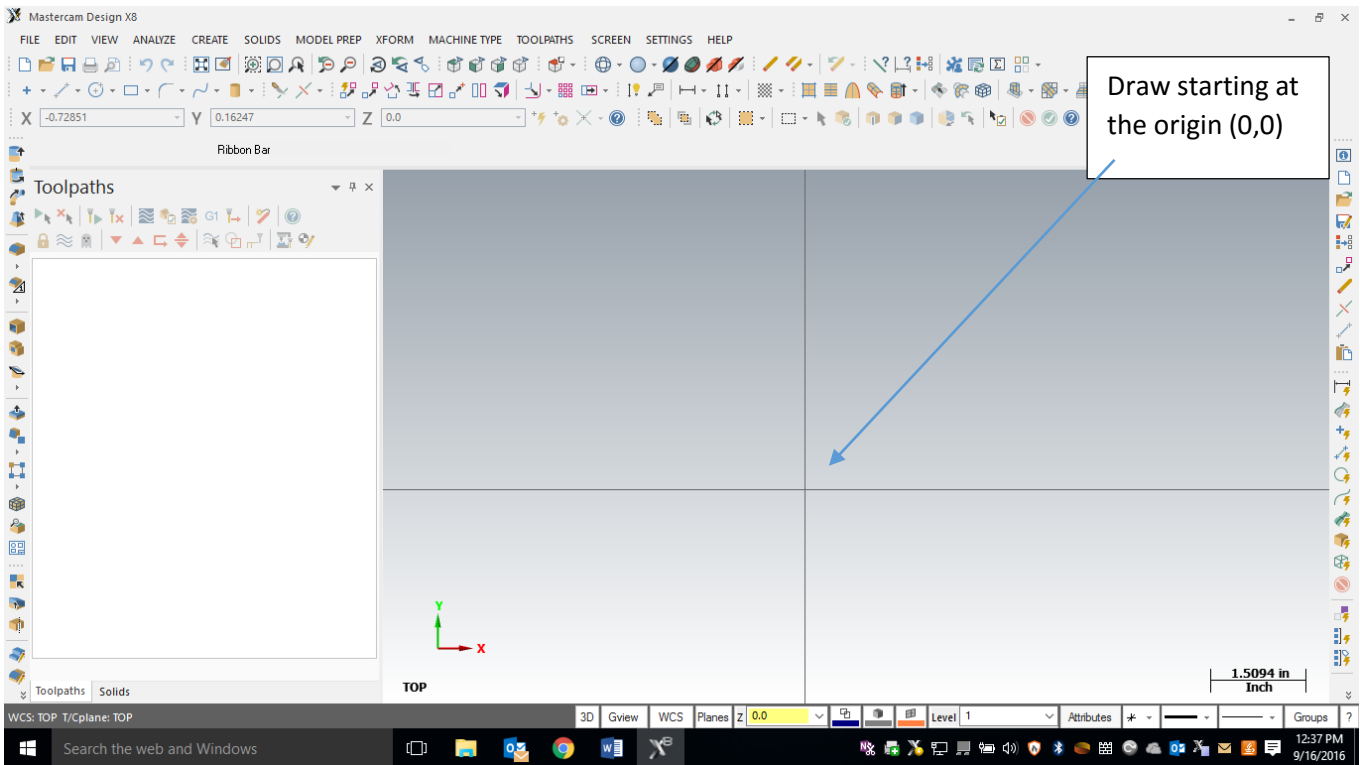


Open the MasterCAM application, it should look something like below.

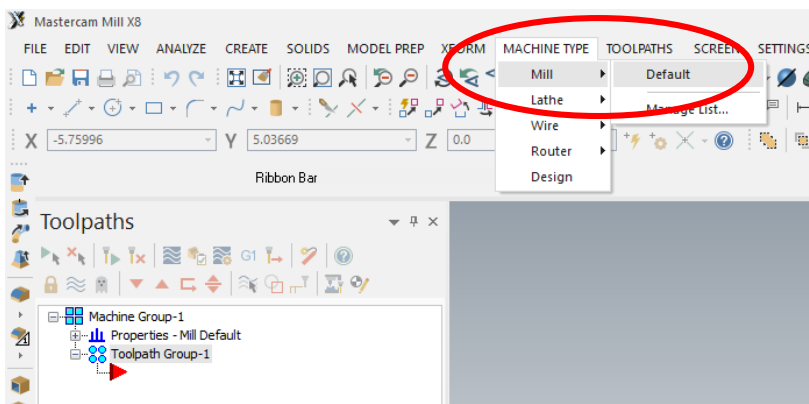


First thing is to figure out what you are making....Using the measurements from your plans or your adjusted measurements from your plans, you will draw your geometry (geometry is a generic term for lines, arcs, etc. in a computer drawing program). Personally I just draw on the piece of wood that is going to be cut and plot the points needed to draw the geometry. This geometry must be drawn in the 1st quadrant of the coordinate system, so positive x and y. The placement of the geometry matters since we will later be cutting out the part using the CNC Router. The CNC Router uses the coordinates from where you draw the geometry.

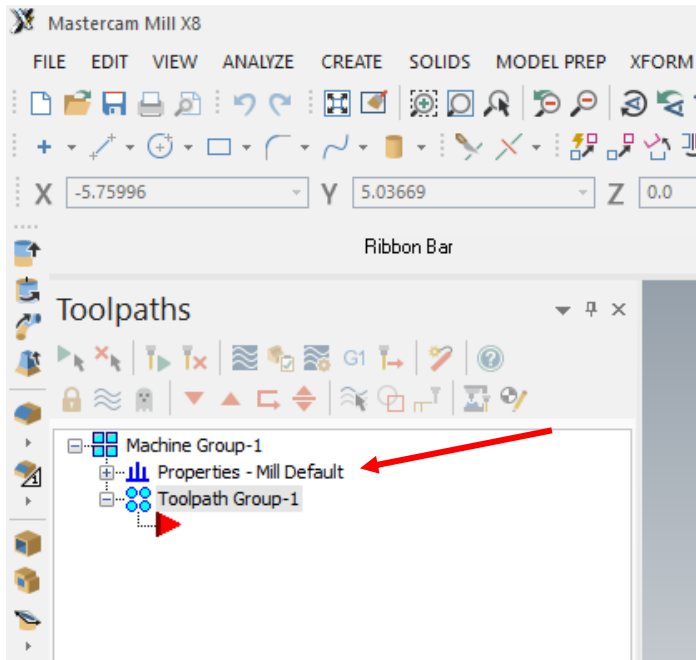
F9 will display the x/y axis such as:



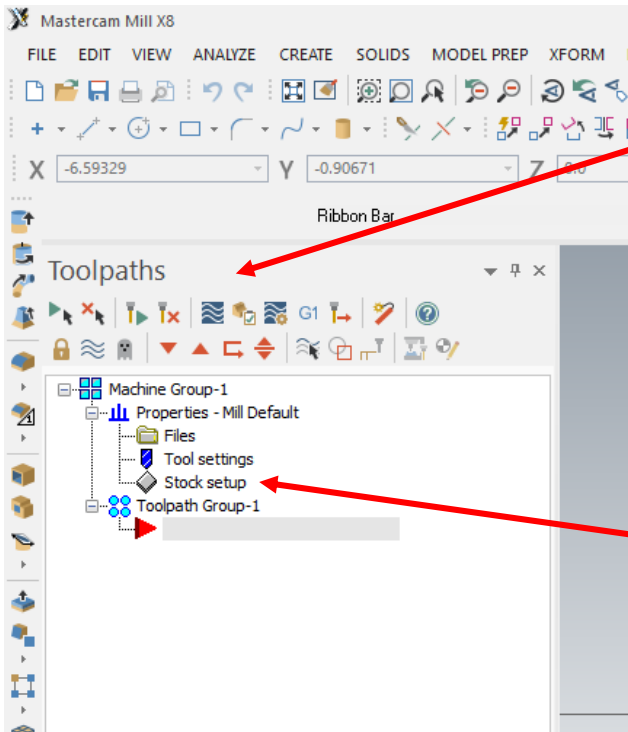
To start a project, we need to set our specific CNC router and set up the stock sizes. MasterCAM can write NC code for different manufacturers of CNC equipment. Our router is a Forest Scientific Velocity 3 axis mill. MasterCAM will write the correct type of code as long as we pick the correct machine definition. This is a critical first step, without the machine definition, the CNC router will crash....litterly the tool bit will dive into the table top. Your instructor will help you load the machine definition when you go to the cnc router, for the time being set the machine definition to default mill. **Goto Machine Type/Mill/Default.**



The result: there should be one machine group that says “Properties Default Mill,” if there is other Machine Groups, right-click and delete them.

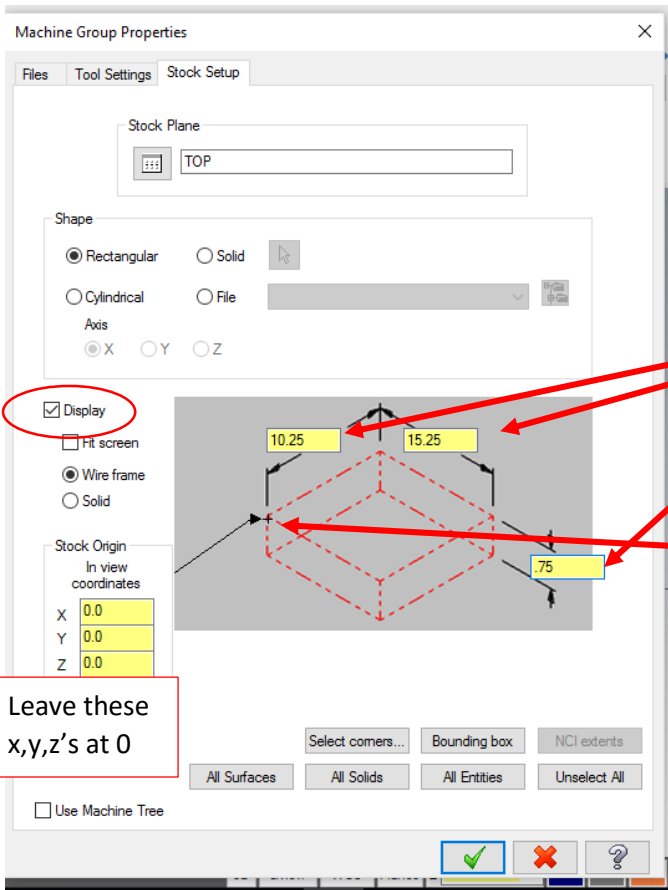


Stock Setup



The Toolpaths Operations Manager is the tool palette that is docked on the left of the screen. This displays all the specific information about the tool paths (what the CNC router will cut).

Expand the properties tab in the operations manager. Then click on stock setup.



Leave these x,y,z's at 0

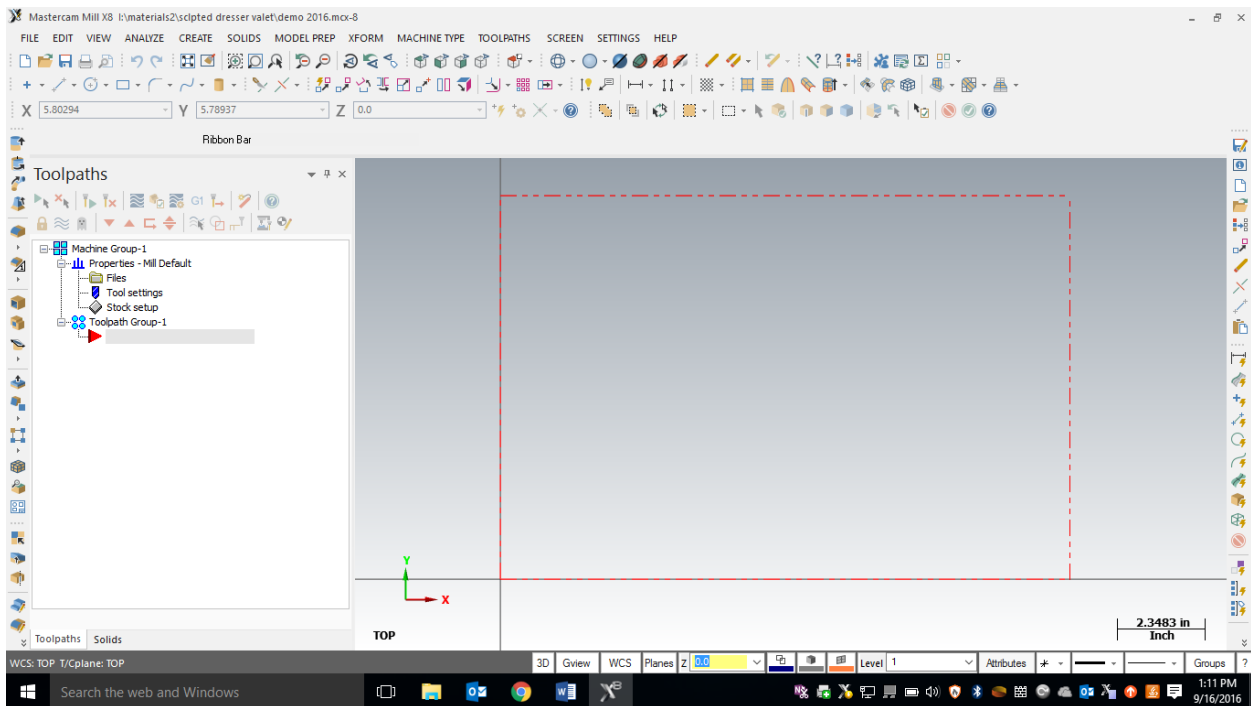
Setup the stock:
Enter the measurements for your piece, I'm putting in 10.25 (y), 15.25 (x), .75(z) for my measurements for the project. I'm not including the extra stock for the screws to hold it down to the router.

Set the stock origin by clicking on this corner.

Check "Display"

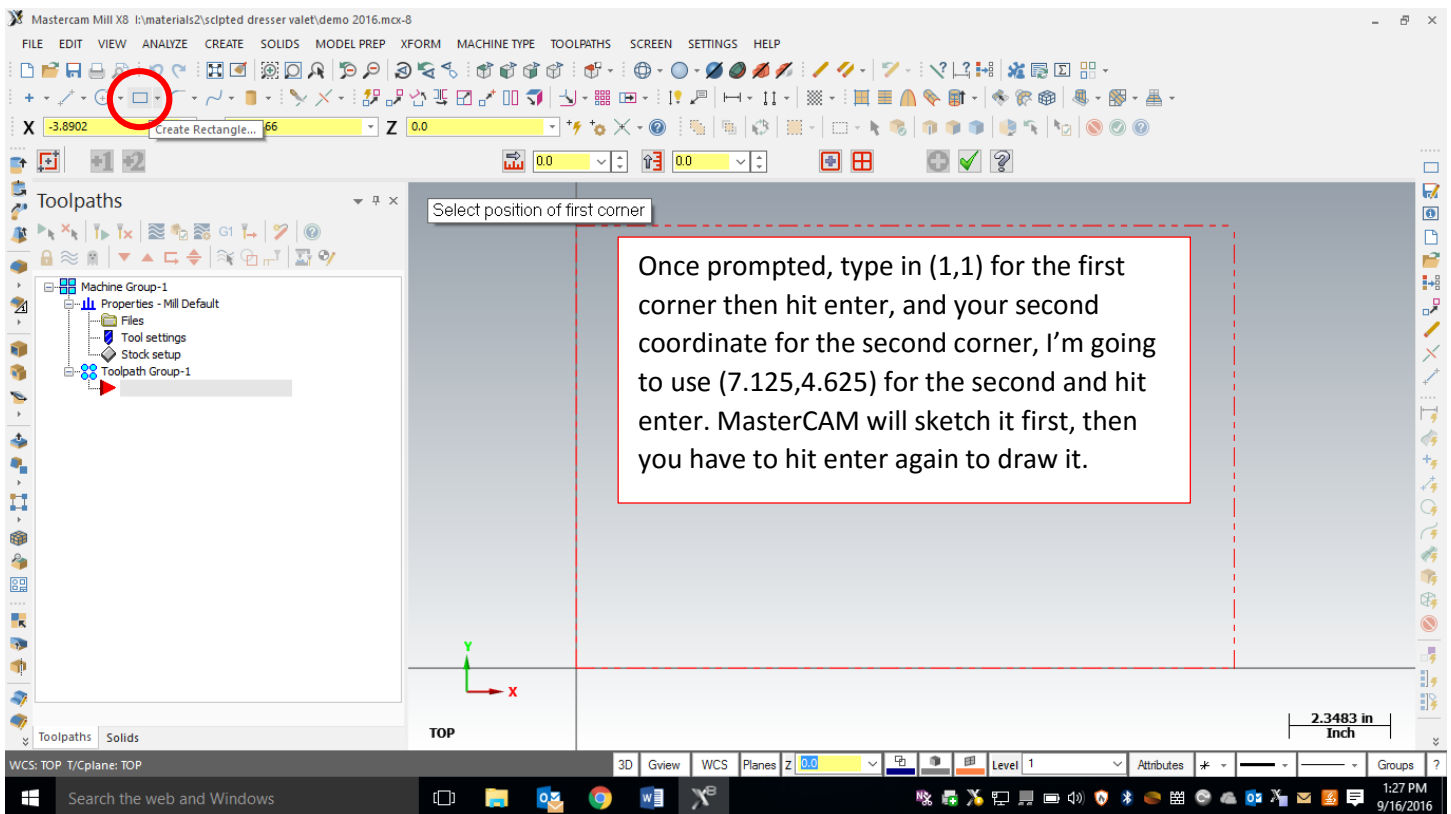
Click the Green Check Mark (OK)

After you click ok in the stock setup, you should see a red dashed rectangle that represents your stock. Zoom in or out so that you see the whole piece, like below.

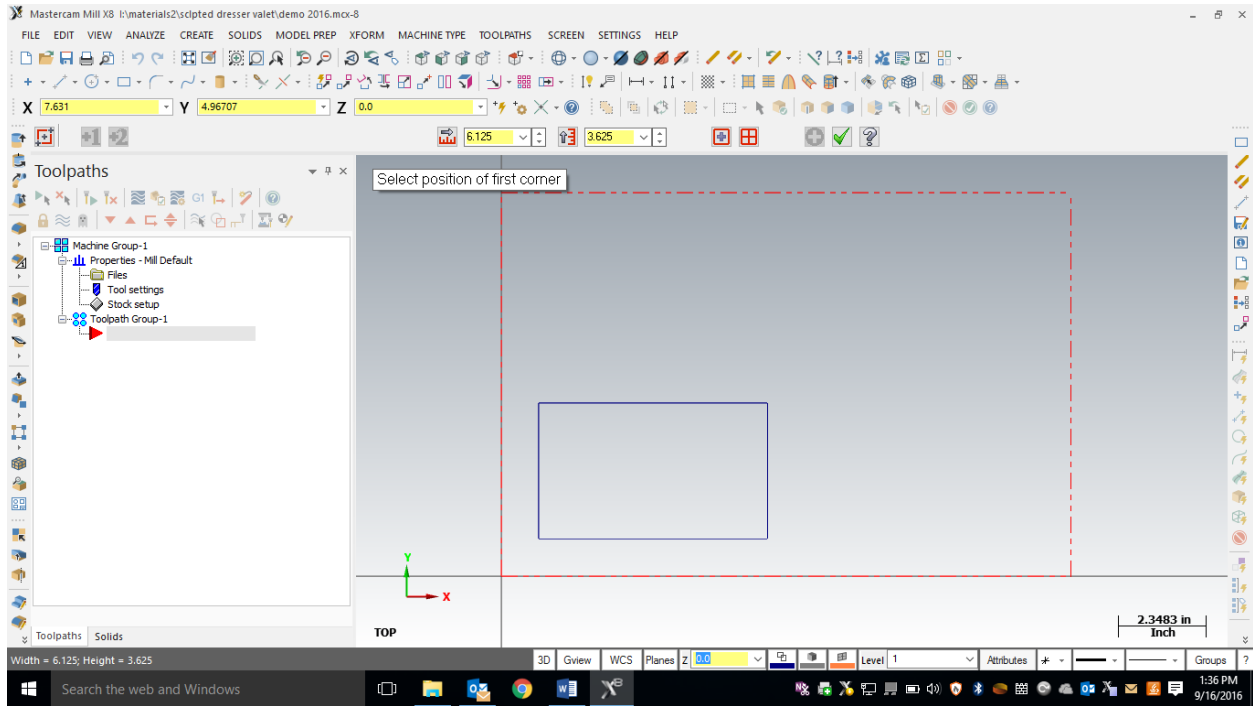


Entering Geometry

It's time to start drawing some geometry, so figure out what pockets you want to cut on your piece, and you will need the corresponding coordinates to draw the geometry. I'm going to leave 1" margin around the work piece so that I know that the screws will not intersect a pocket when that project is assembled. Also, I will leave 1" between the pockets so everything looks symmetrical. I'm just going to do 3 rectangles for the shapes of my pockets, but you can do what you like as long as it looks good and is symmetrical/balanced. To draw a rectangle, we need the coordinates of the opposite corners of each rectangle. When you have the coordinates written down then you are ready to go the rectangle tool, then we can just type in the two coordinates for the corners of each rectangle.

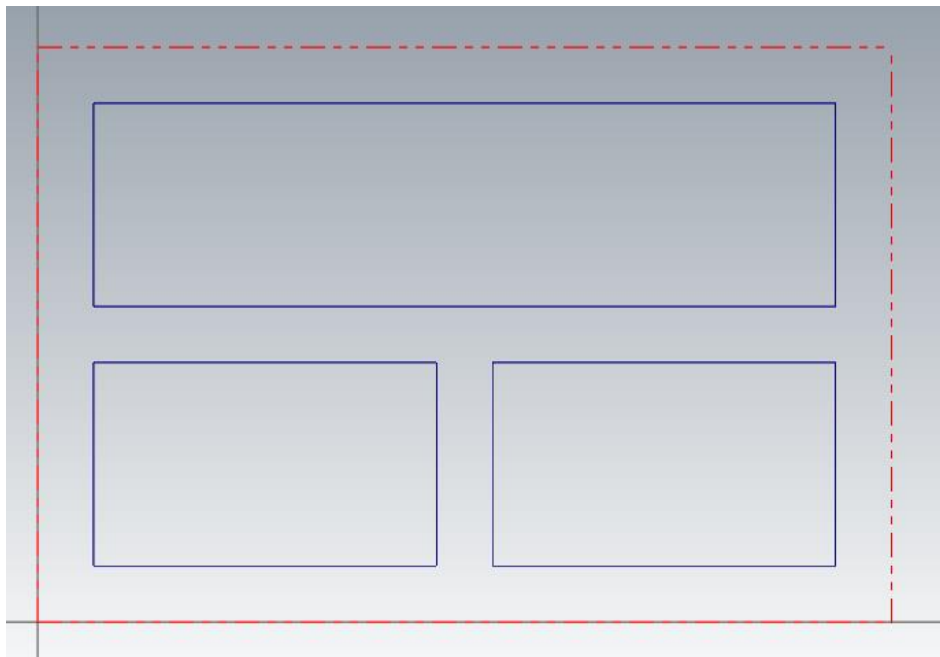


Result:



Now you can keep creating geometry in this method. You might want to draw out your shapes on graph paper or on your board first so you can keep the measurements correct. Here is my example. To complete this, you just need to coordinates of opposite corners of the rectangle. If you want to include a circle or other shape that is fine. They are just drawn from a center point and the radius or diameter.

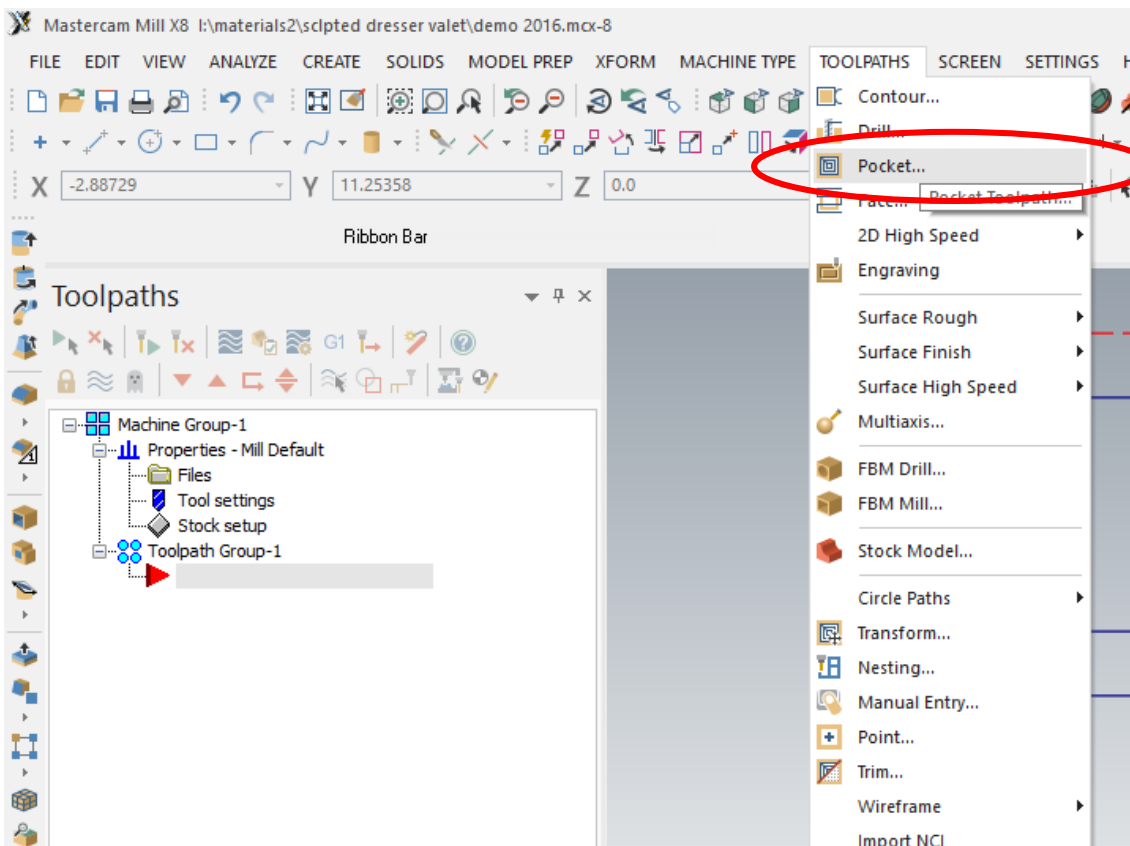
Result:

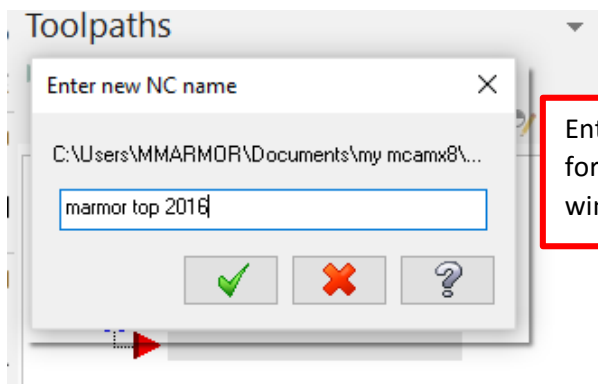


Toolpaths:

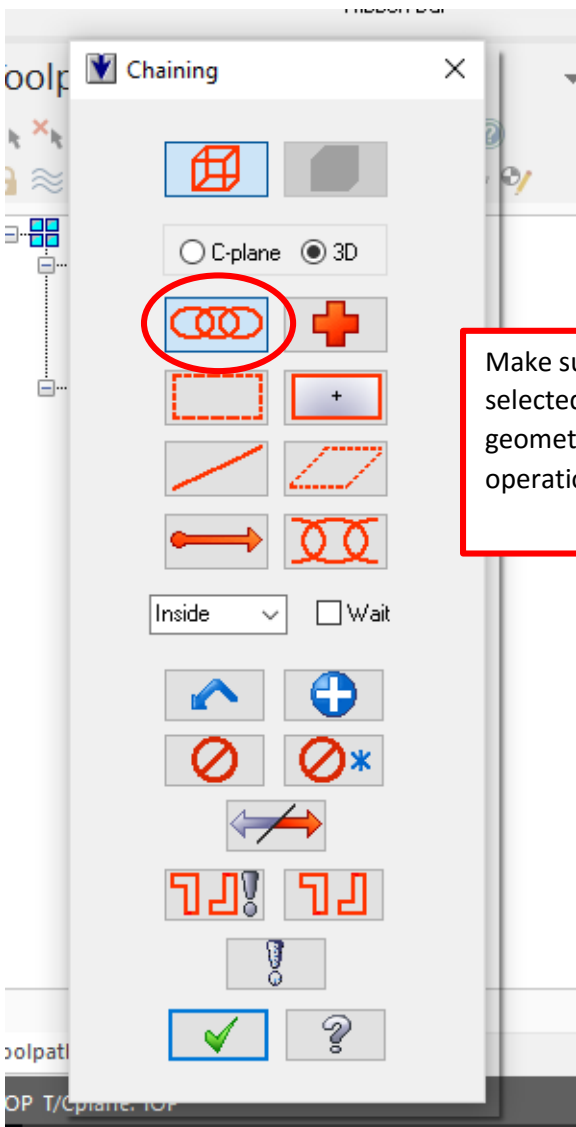
For 2D geometry such as we have, there are 2 main types of tool paths. The first one is a contour, and the second a pocket. In a contour toolpath, the tool bit will follow a path. The path can be one piece of geometry or multiple pieces of geometry linked together end to end. When the geometry is selected you must either pick the single option or the chaining option (multiple objects laid out end to end) before you select the geometry. We are going to complete pocket toolpaths. A pocket toolpath will make a cavity inside the selected geometry. We should be able to use one pocket toolpath and pick all the geometry to complete the cut correctly. When we select the geometry, we will use the chaining option, since the rectangles are really made from four lines each.

To start the toolpaths, go to Toolpaths/Pocket.

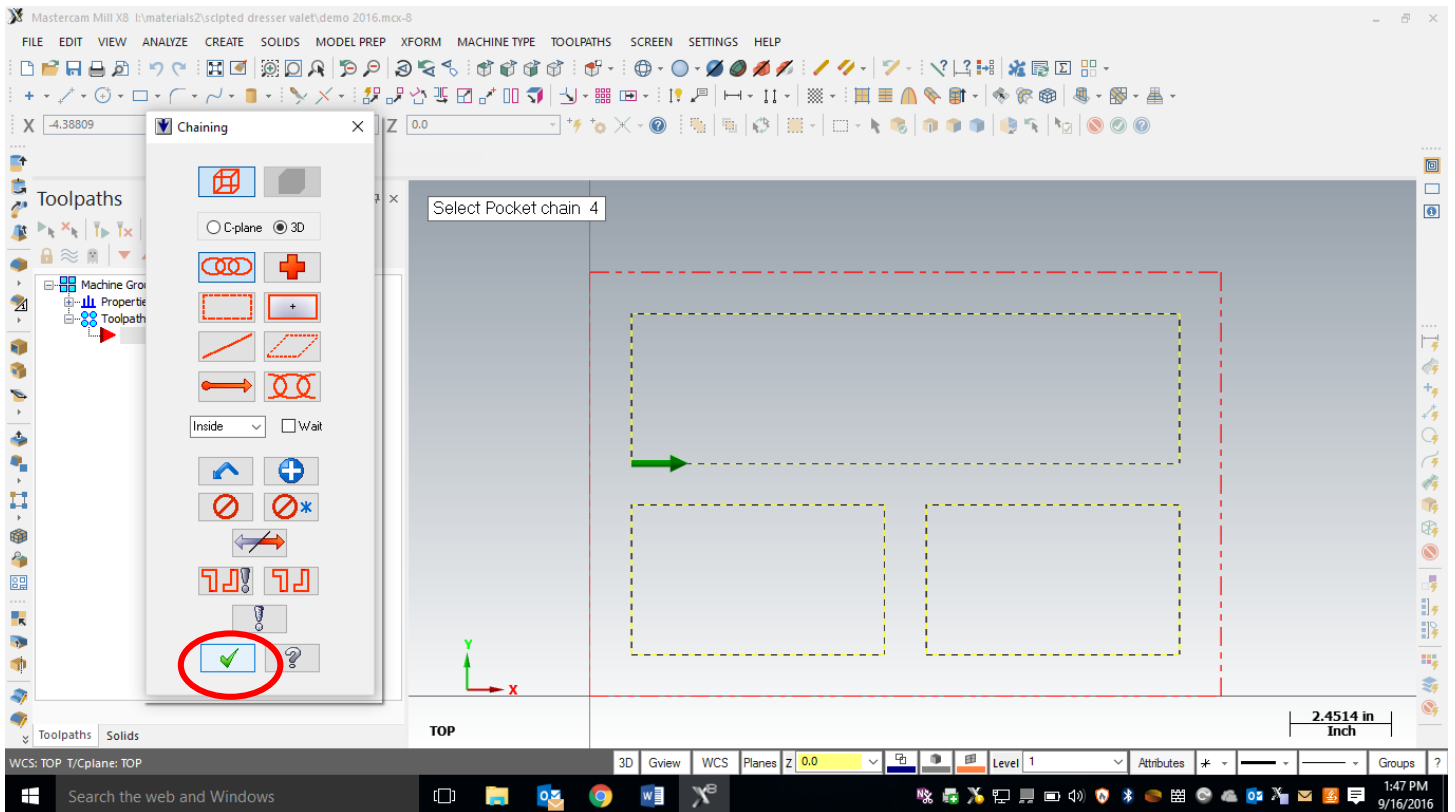
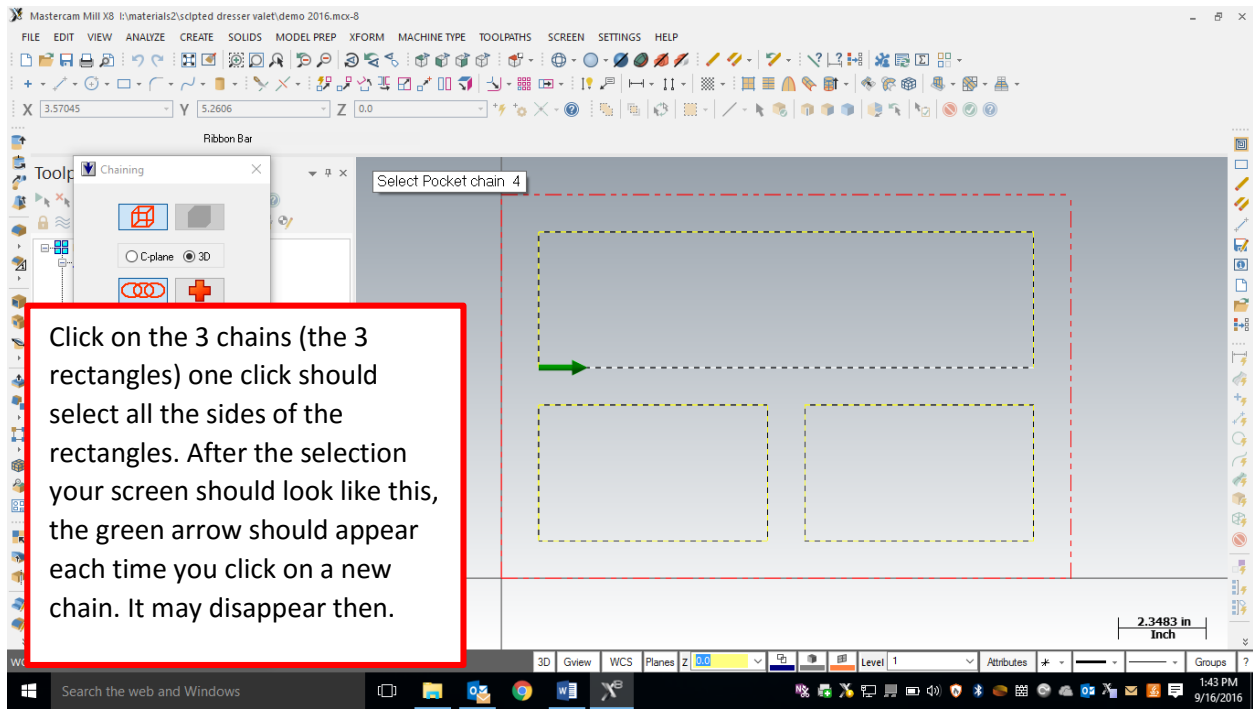




Enter an appropriate name for the toolpath in this window

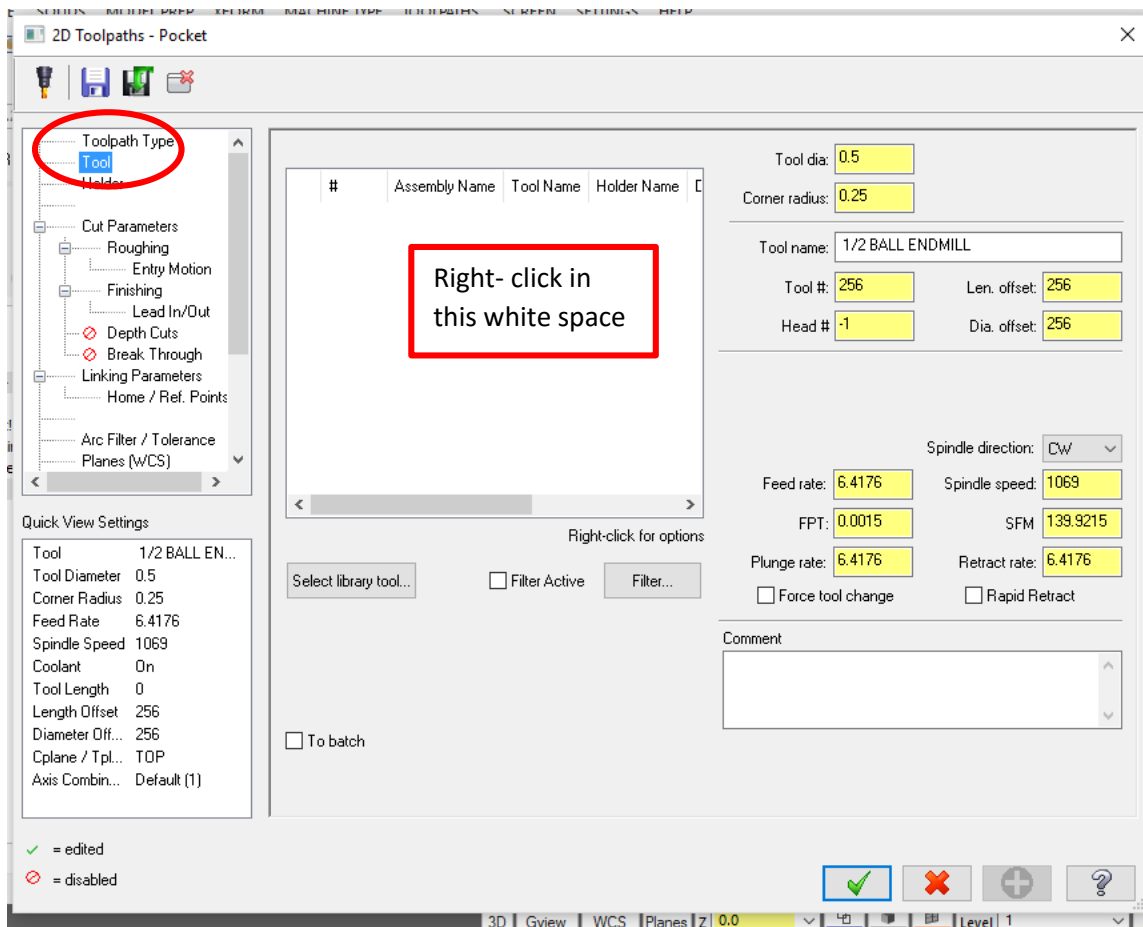
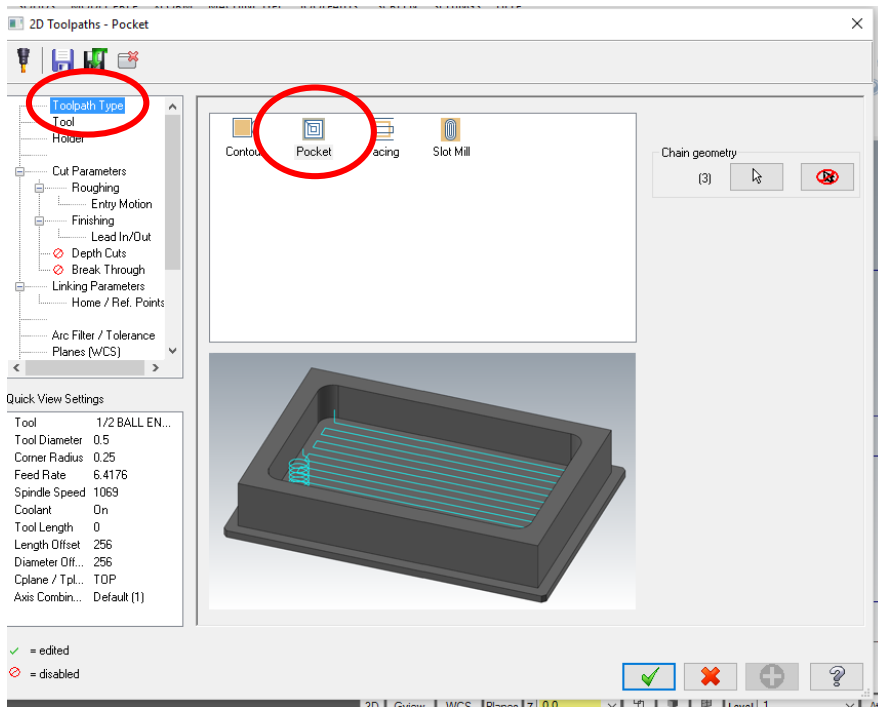


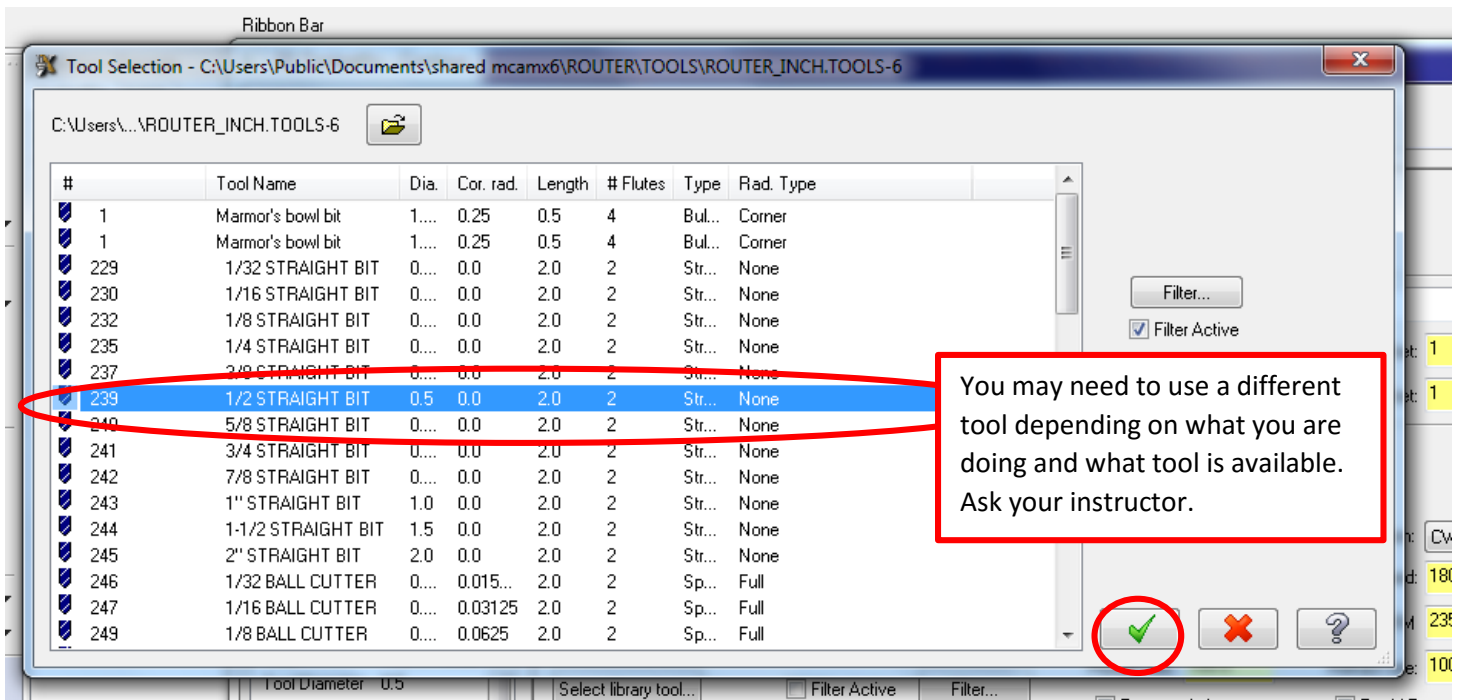
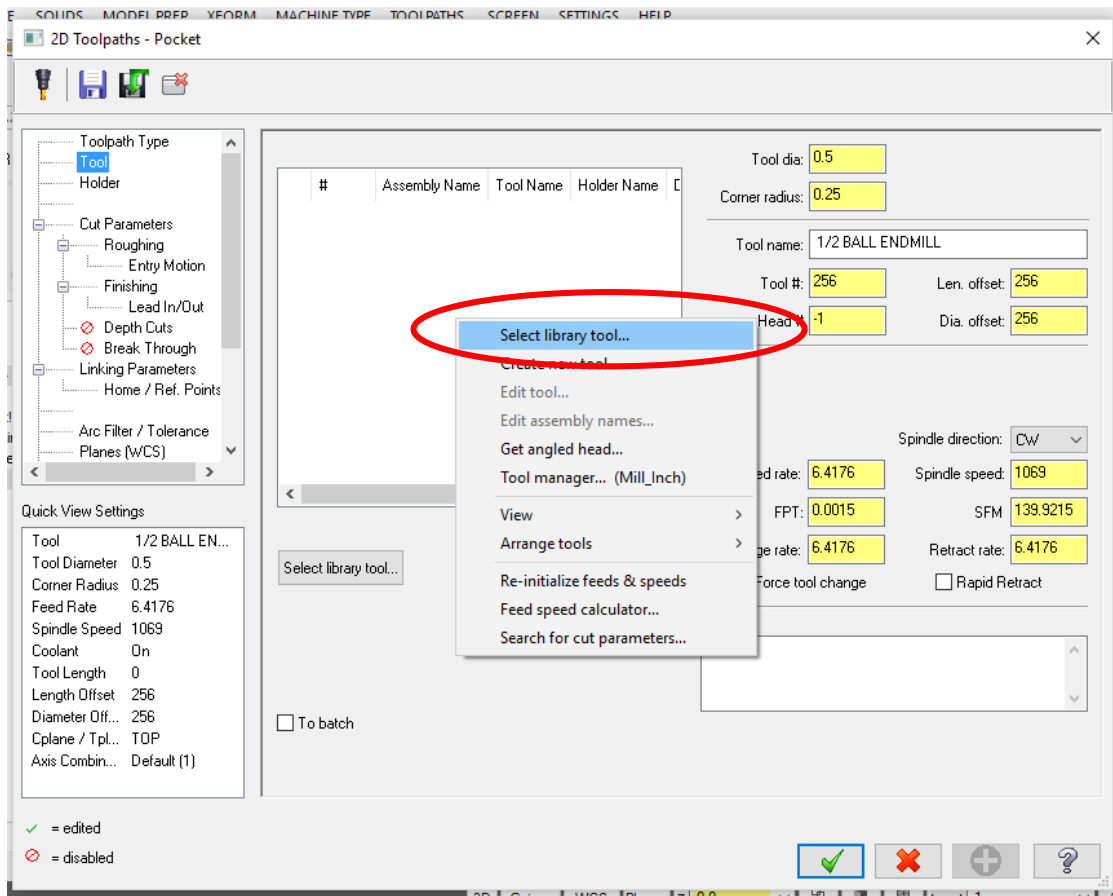
Make sure the chaining option is selected then click on the geometry you want to drive the operation.

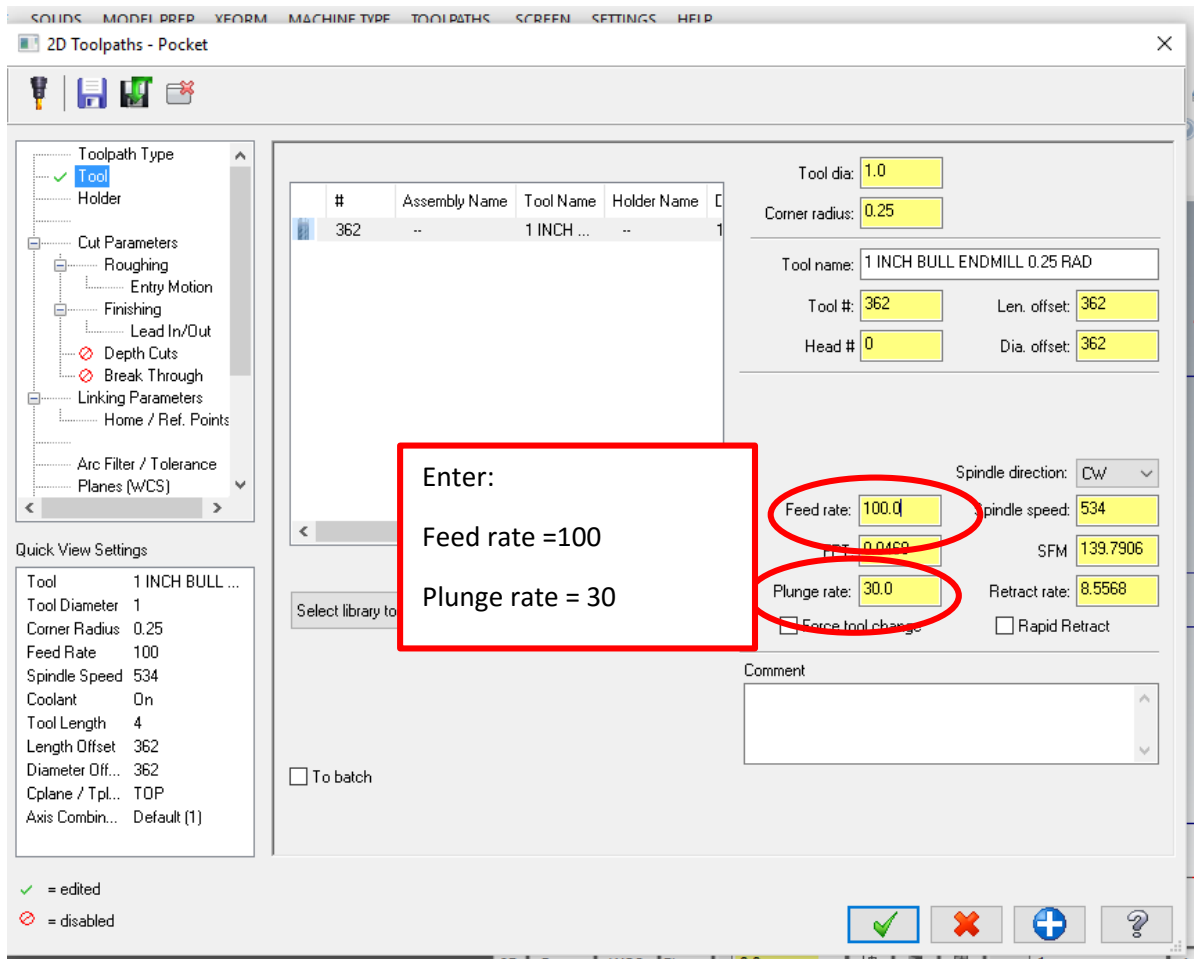
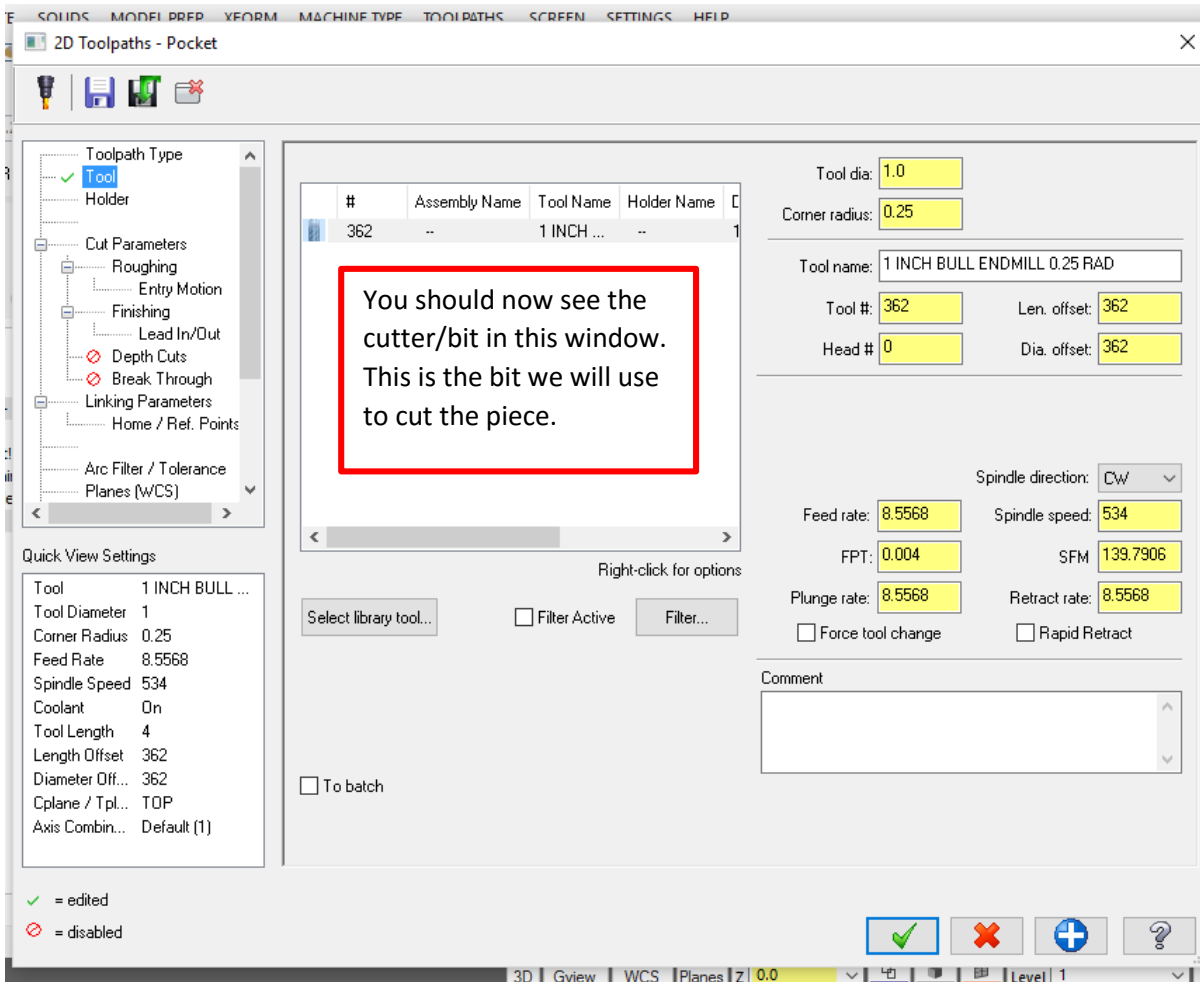


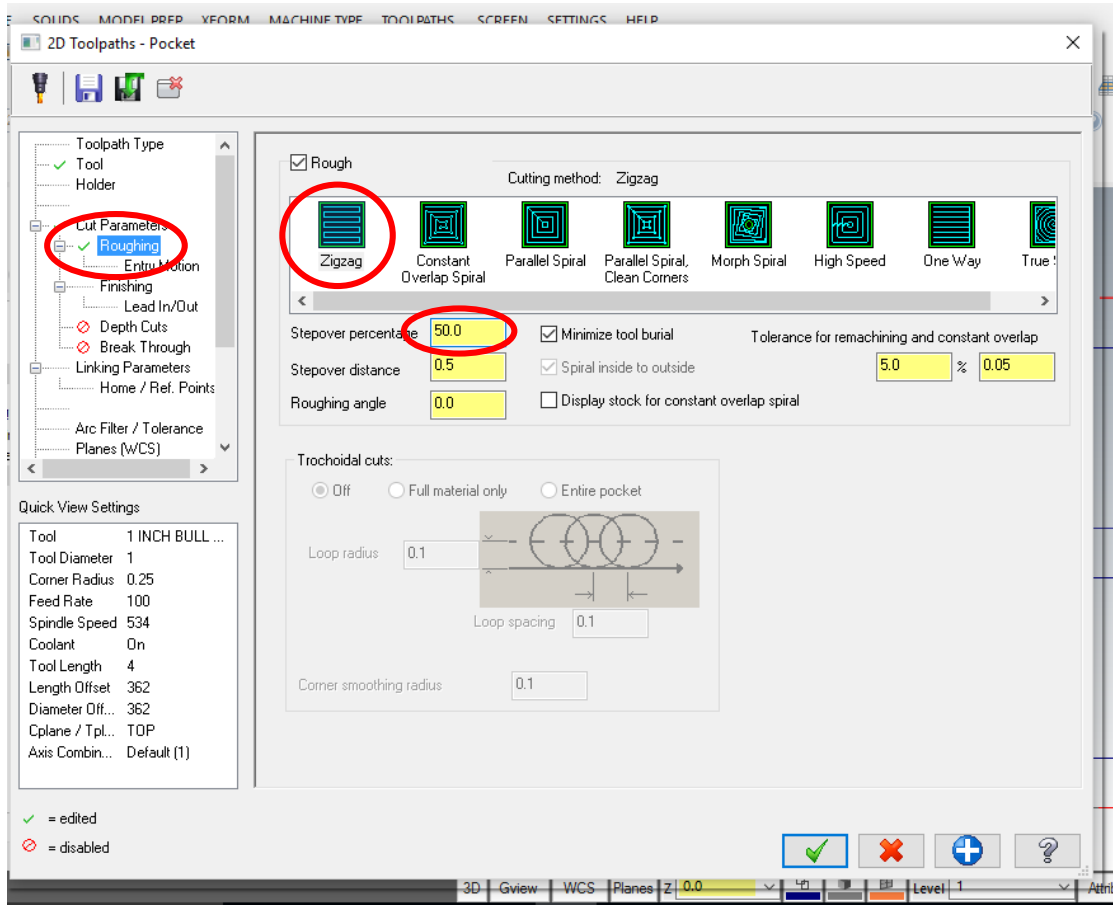
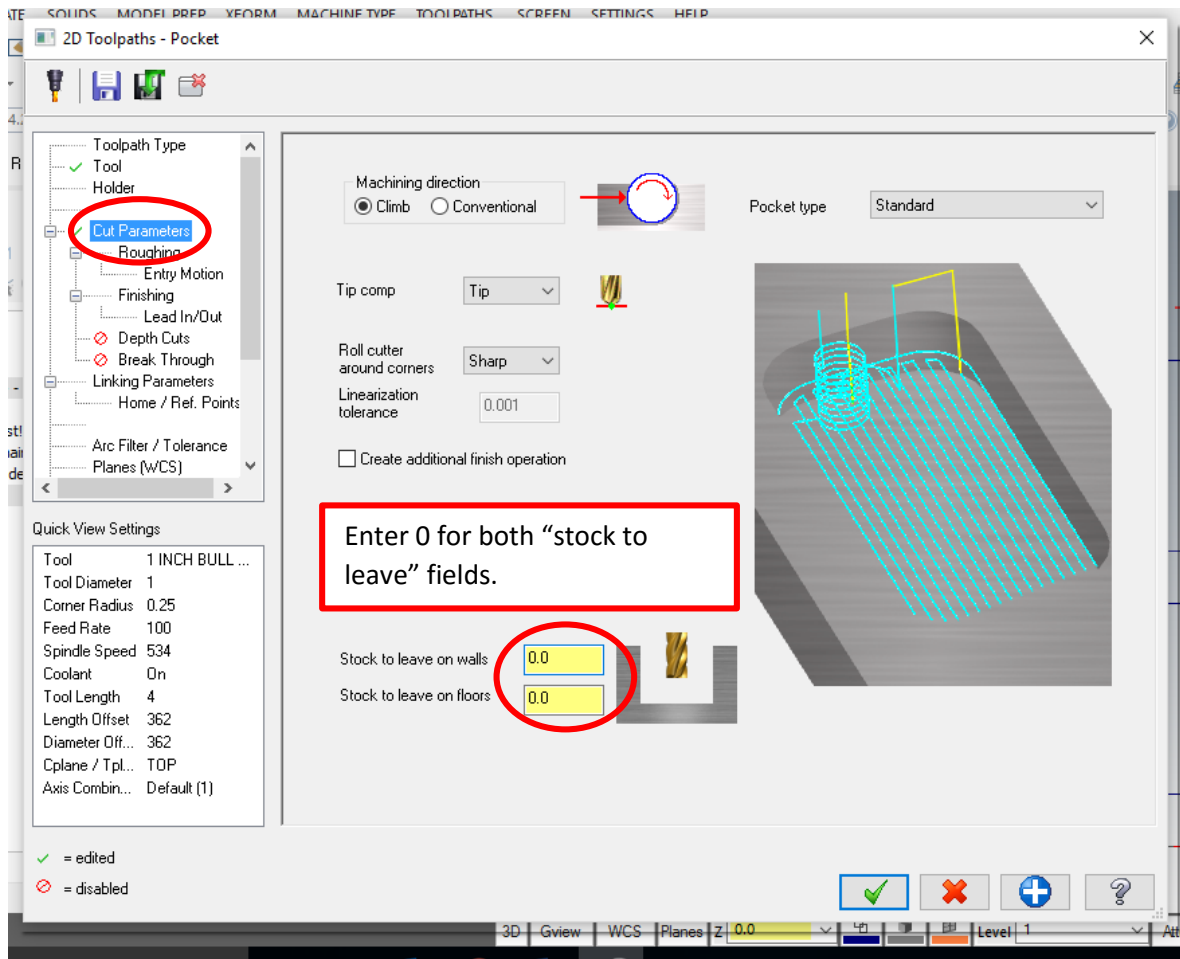
Click ok, to end our selection.

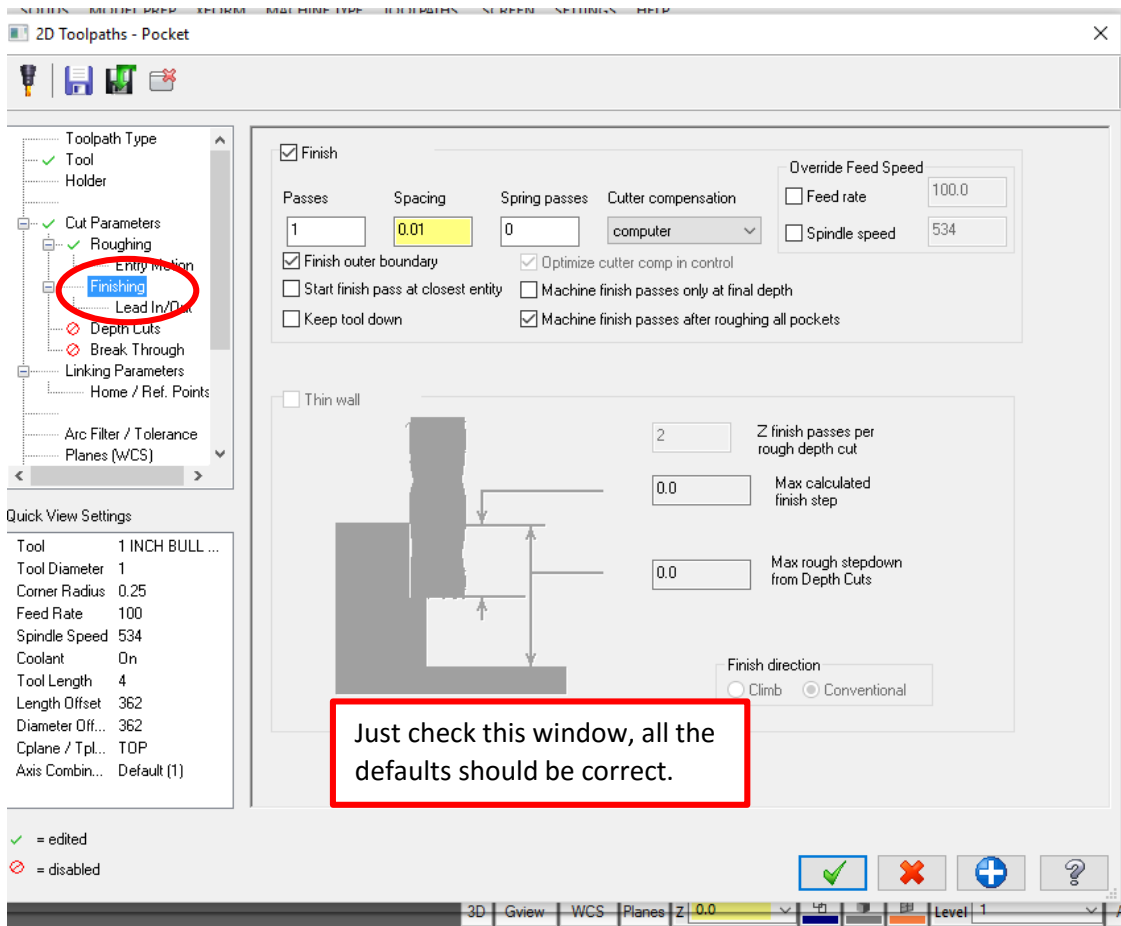
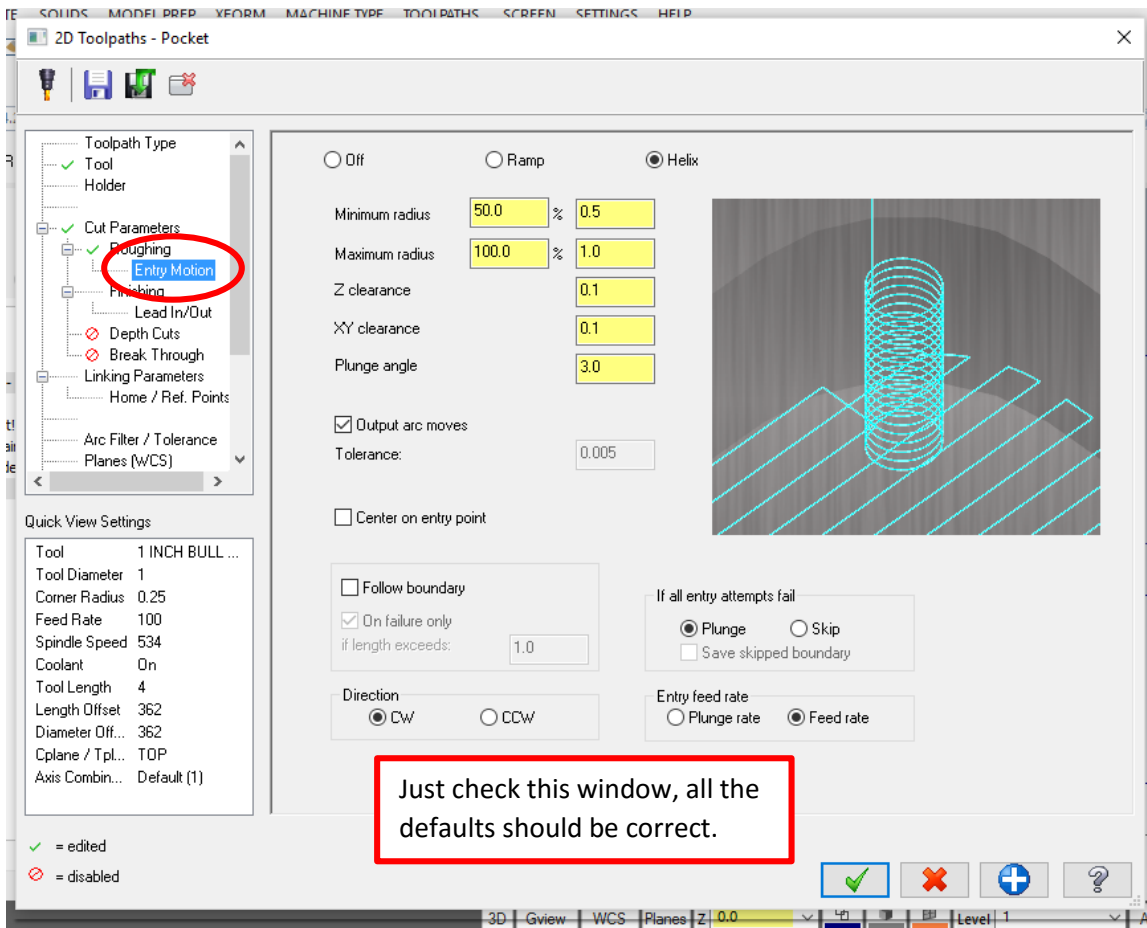
Please enter the following information in the pocket toolpath parameters.

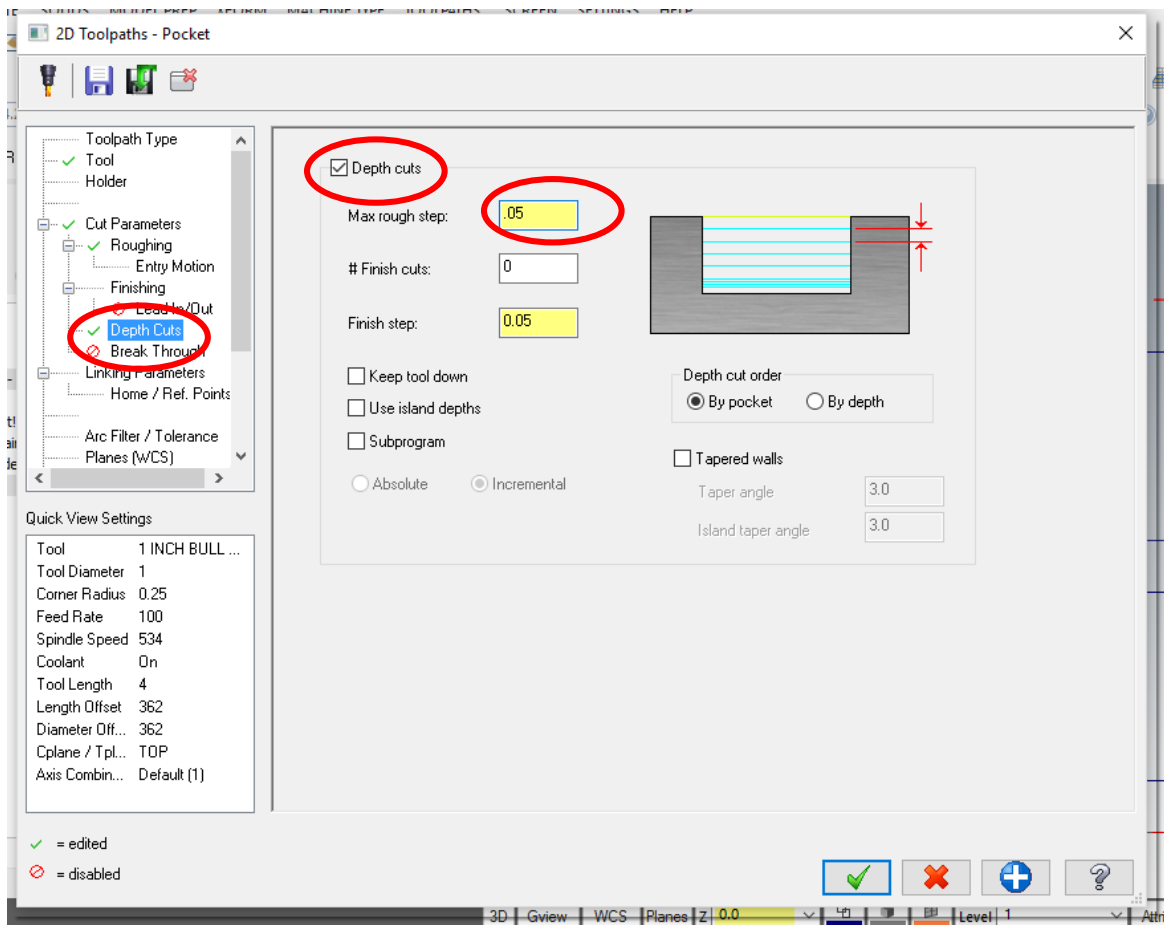
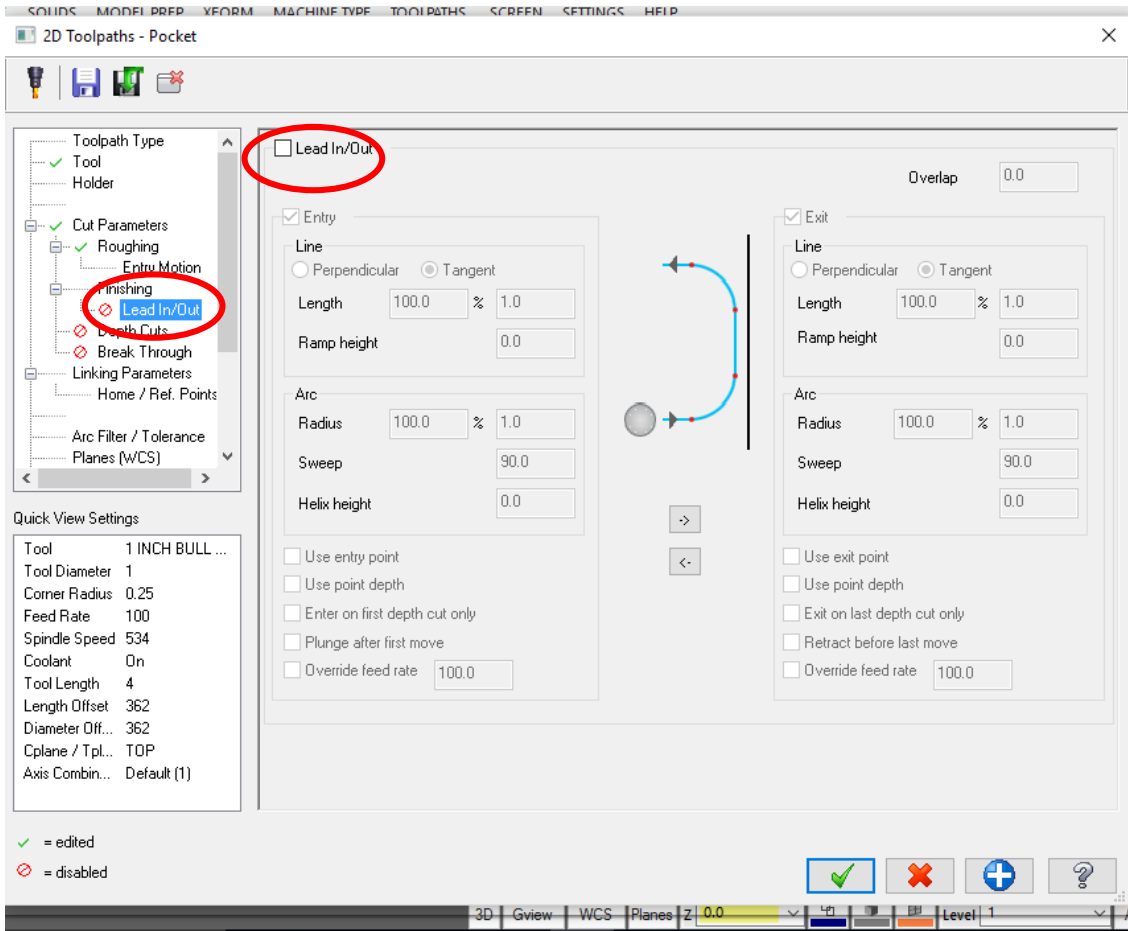


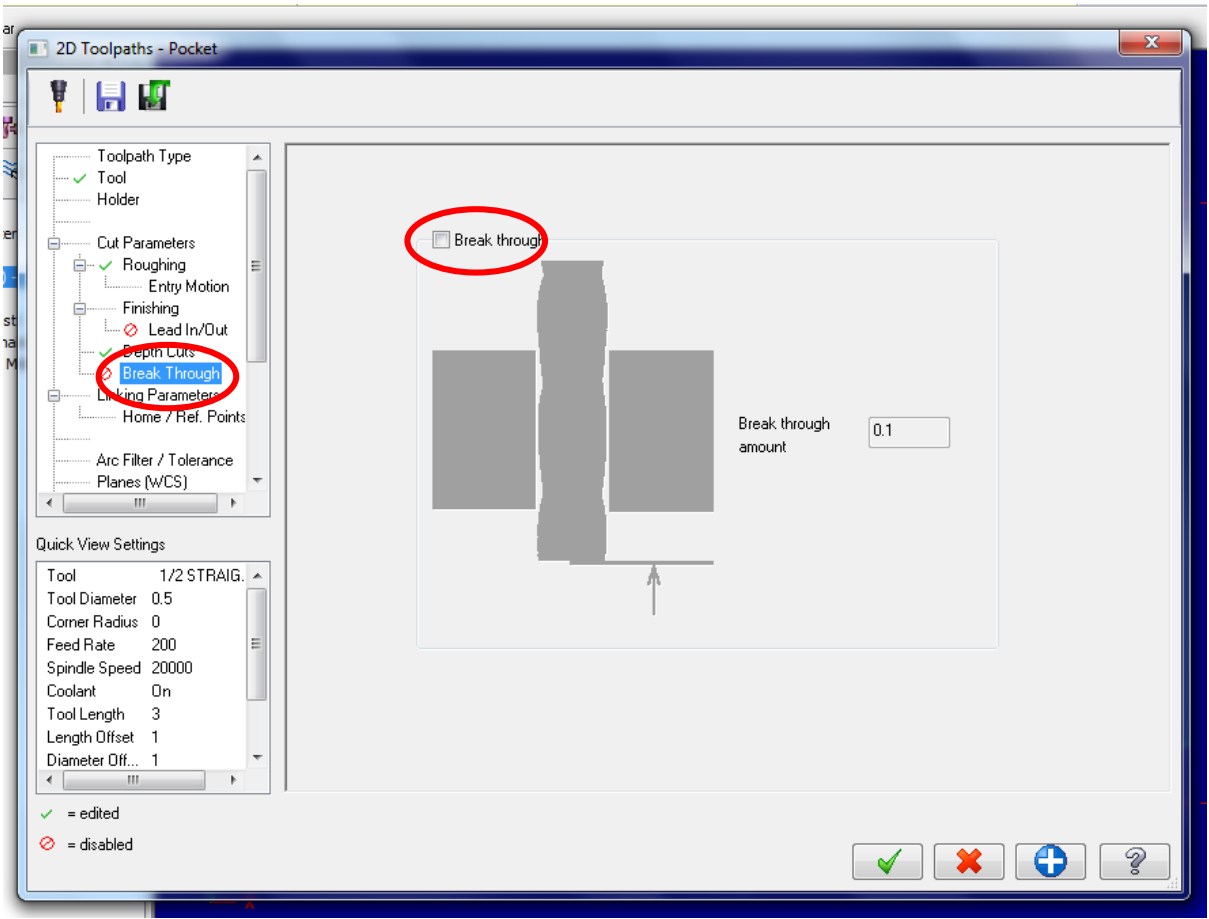




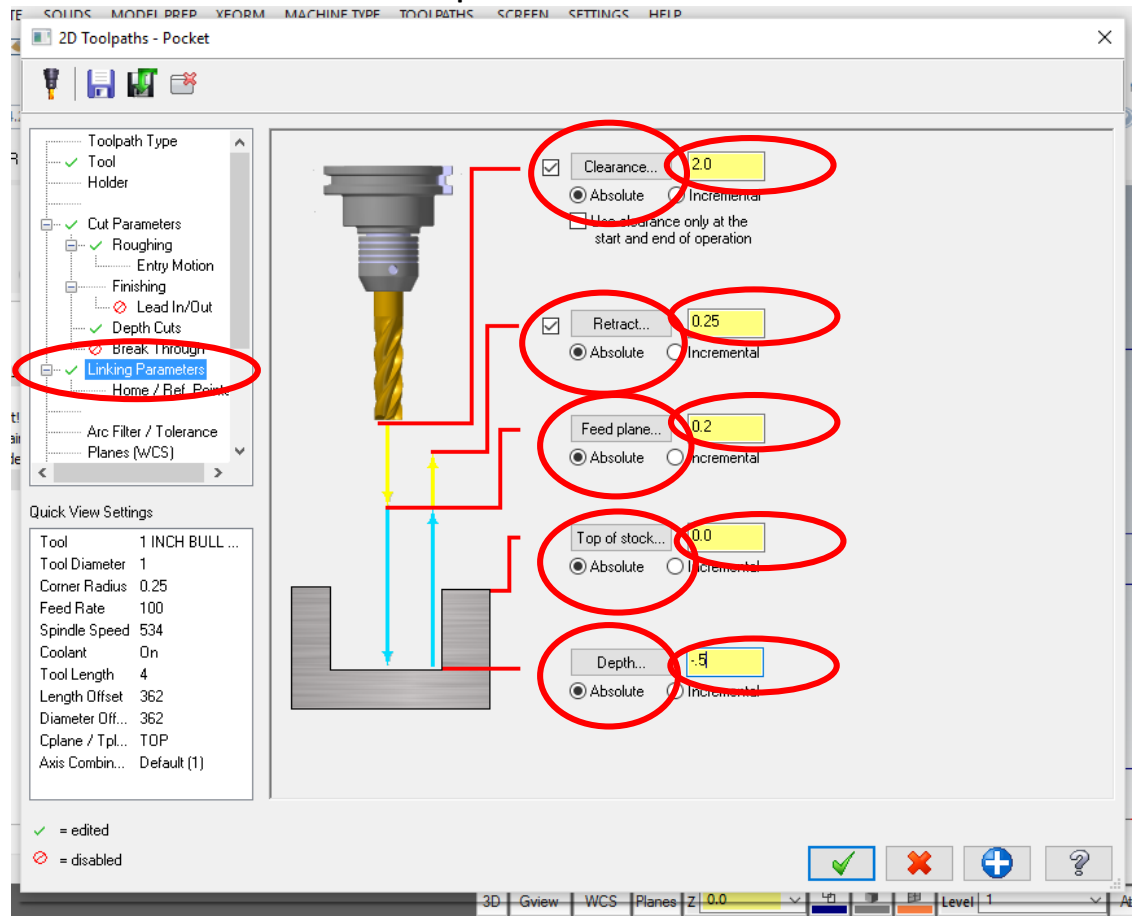


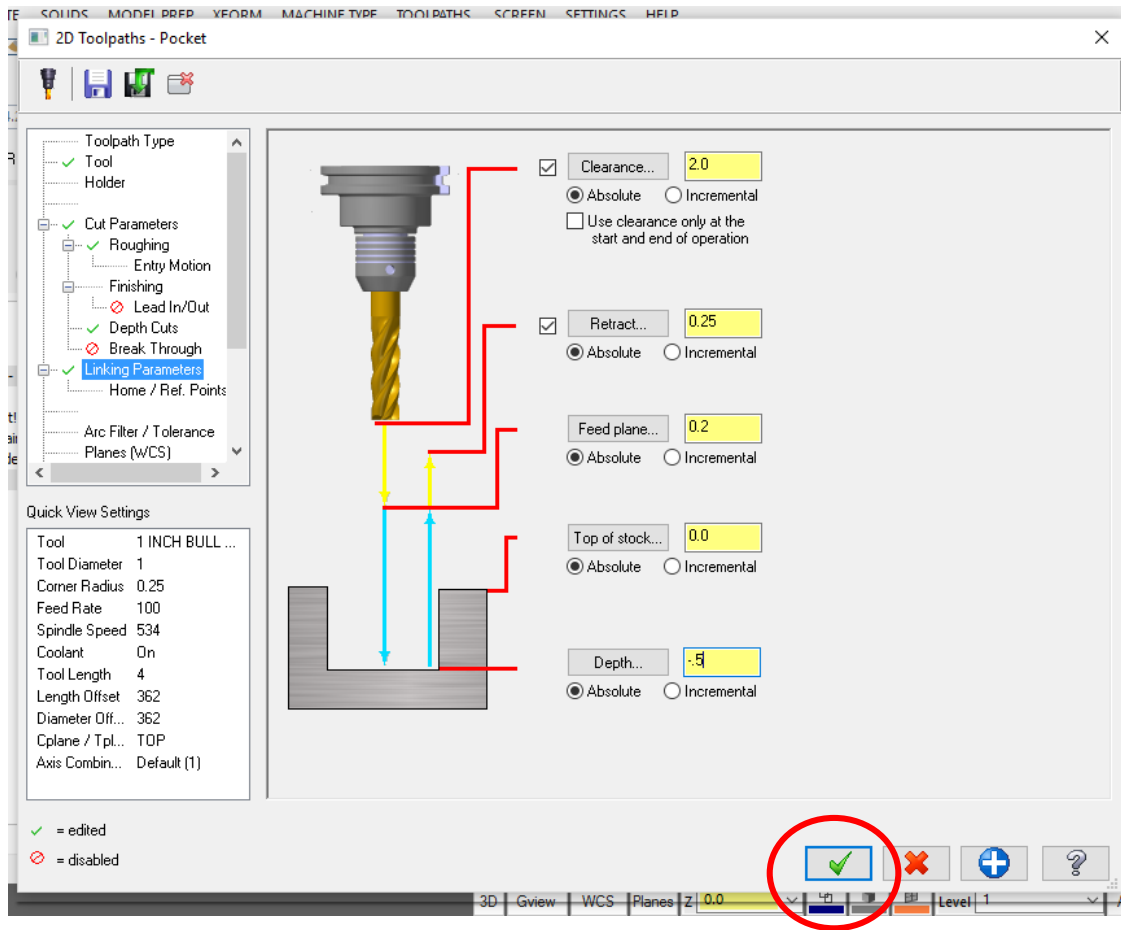




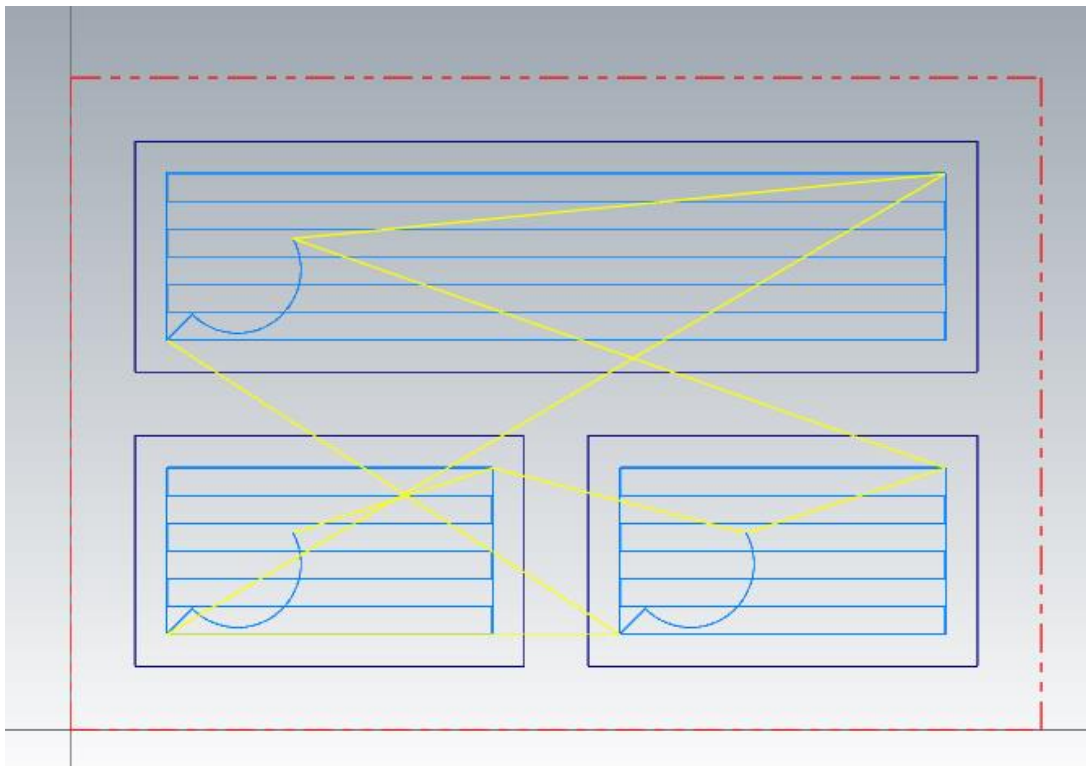


To set the depth of the cut, please enter the below values. In the Linking Parameters tab. Notice that all the values are **“Absolute”** and the depth is a **-5**.

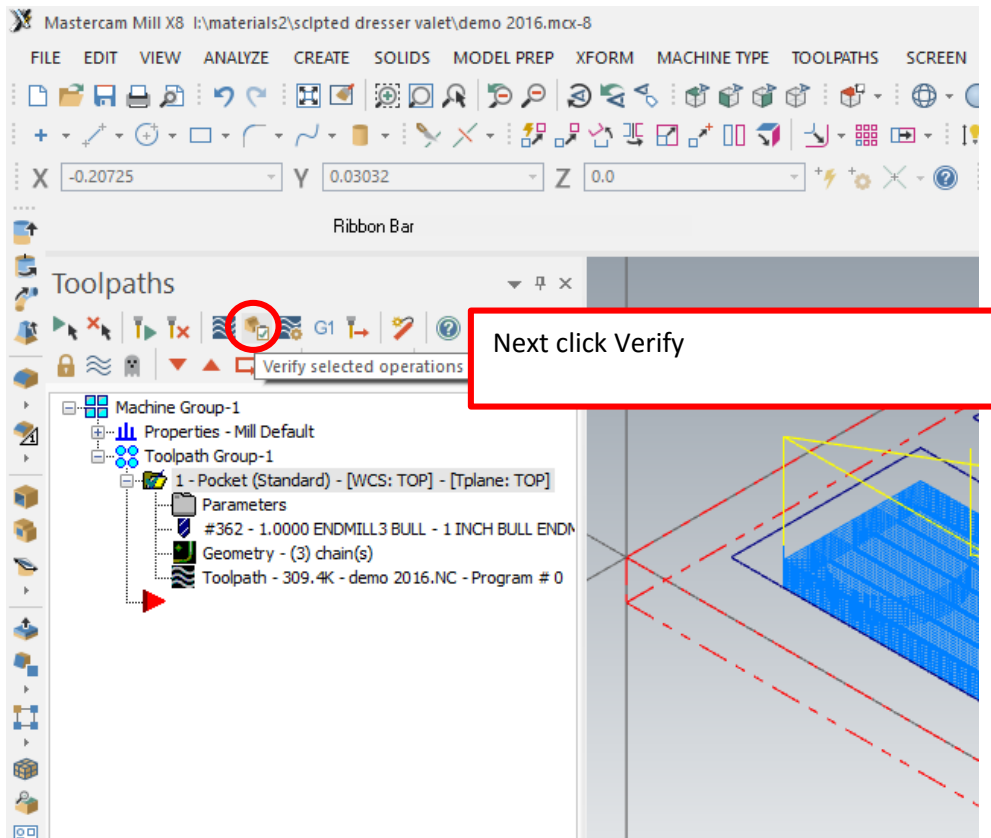
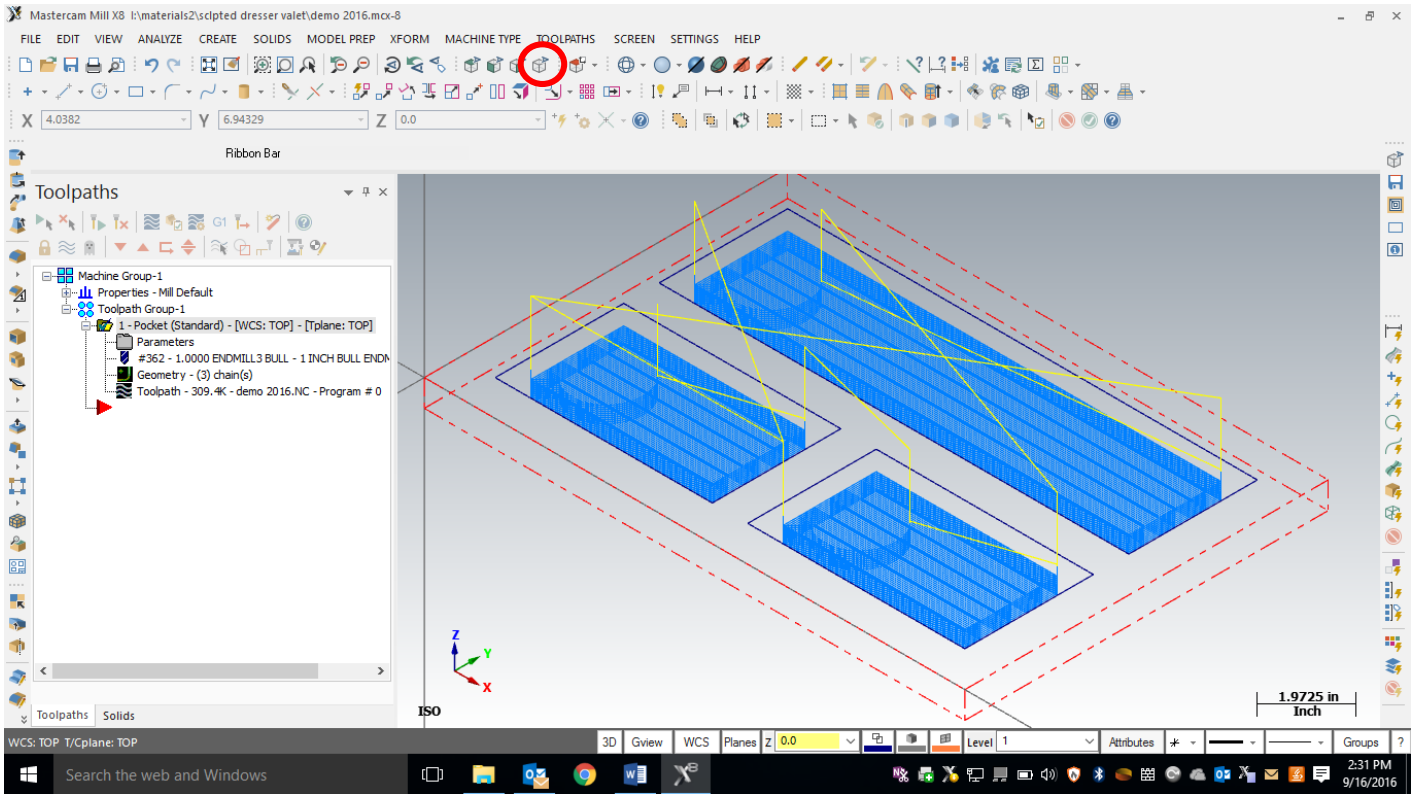




After you hit OK, you should see masterCAM draw the toolpaths. The blue lines represent the center of the cutter when it is cutting material, and the yellow lines represent the center of the cutter when it moves between geometry.



To Verify your toolpath, go to an isometric view, zoom in/out, and pan the drawing so you see something such as below:



This will open up in a new window titled "MasterCAM Simulator", and you can push the play button at the bottom of the window. It should see your part cut out virtually. Please show your instructor.

