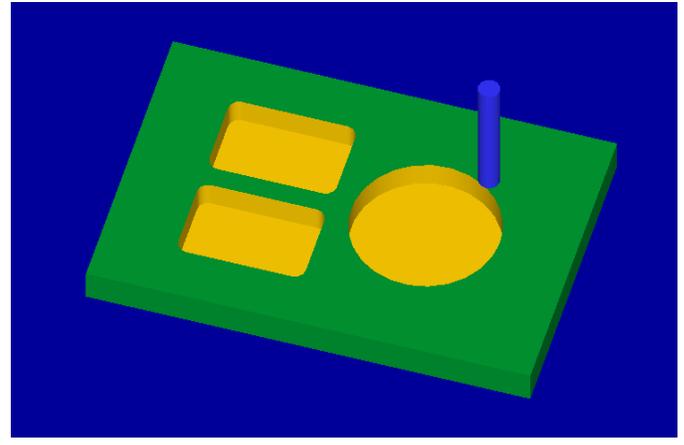
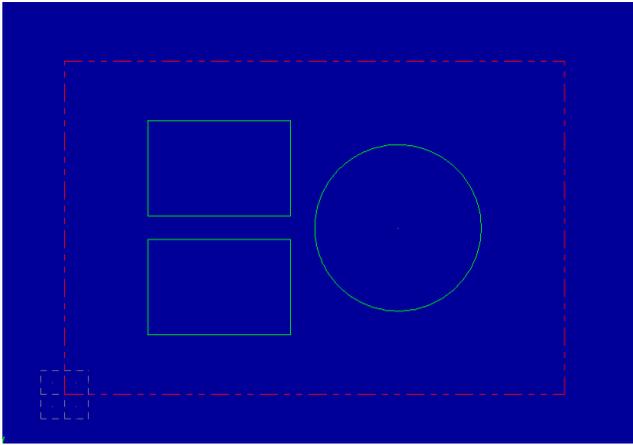
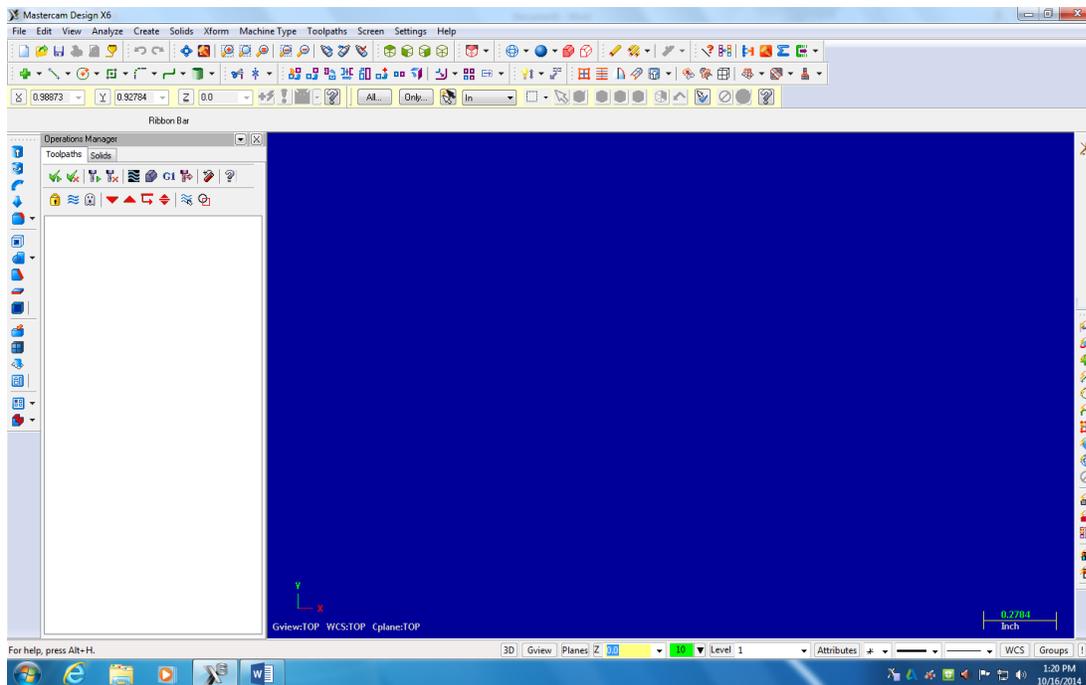


Jewelry Box Tray Geometry in MasterCAM



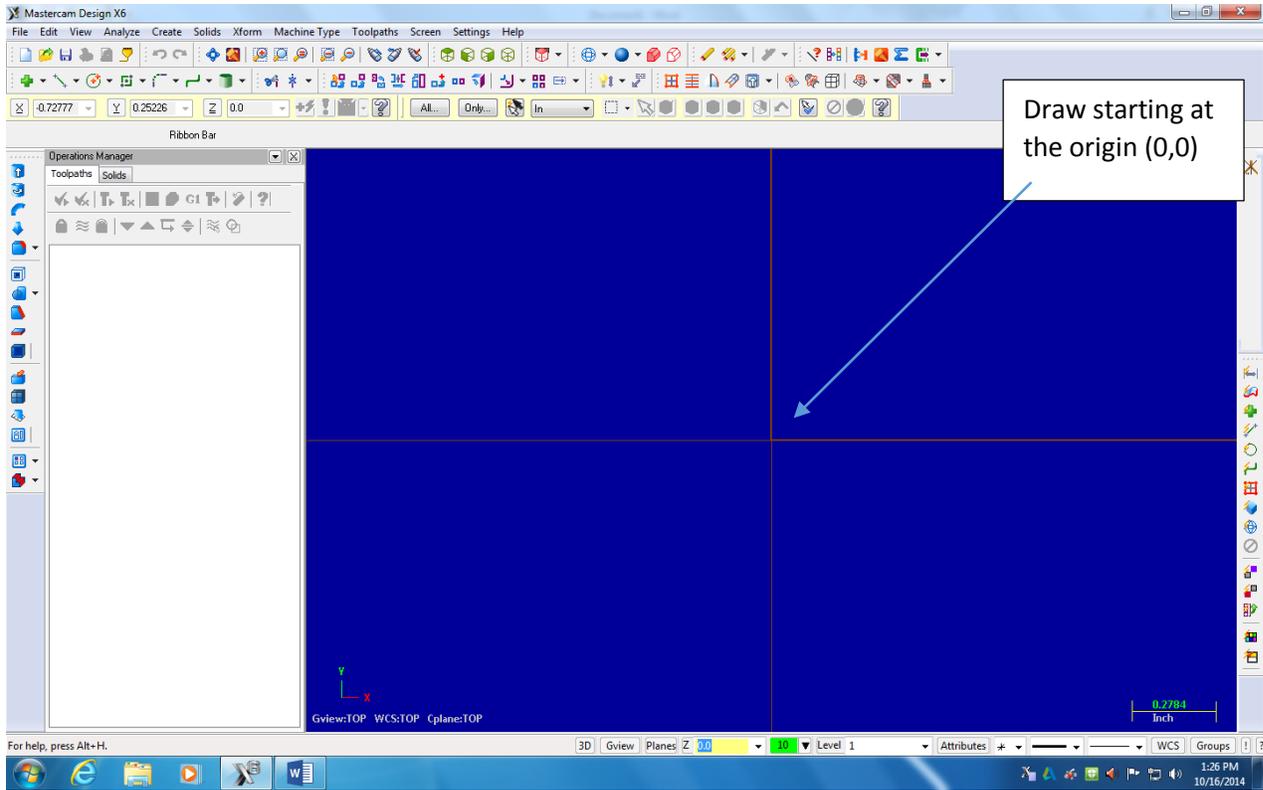
Open the MasterCAM application, it should look something like below.



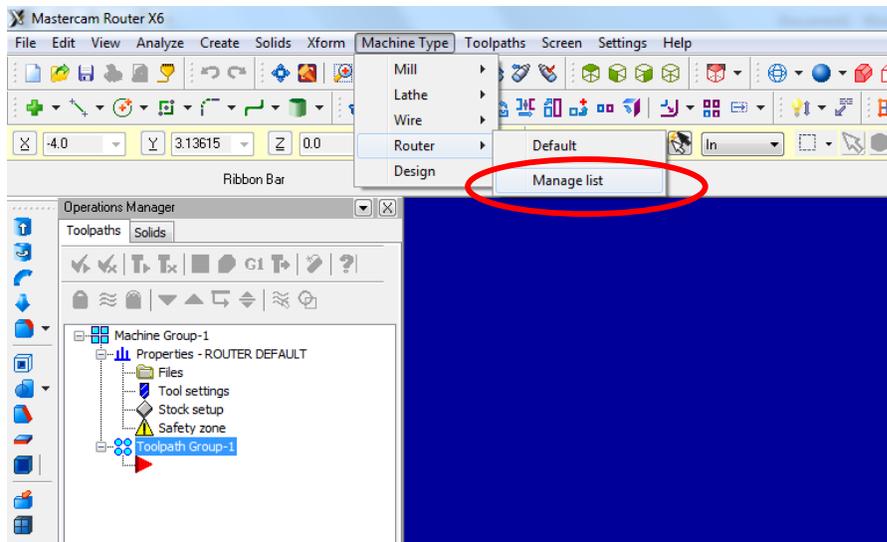
First thing is to figure out what you are making....Using the measurements from your plans, you will draw your geometry (geometry is a generic term for lines, arcs, etc. in a computer drawing program). This geometry must be drawn in the 1st quadrant of the coordinate system, so positive x and y. The 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.

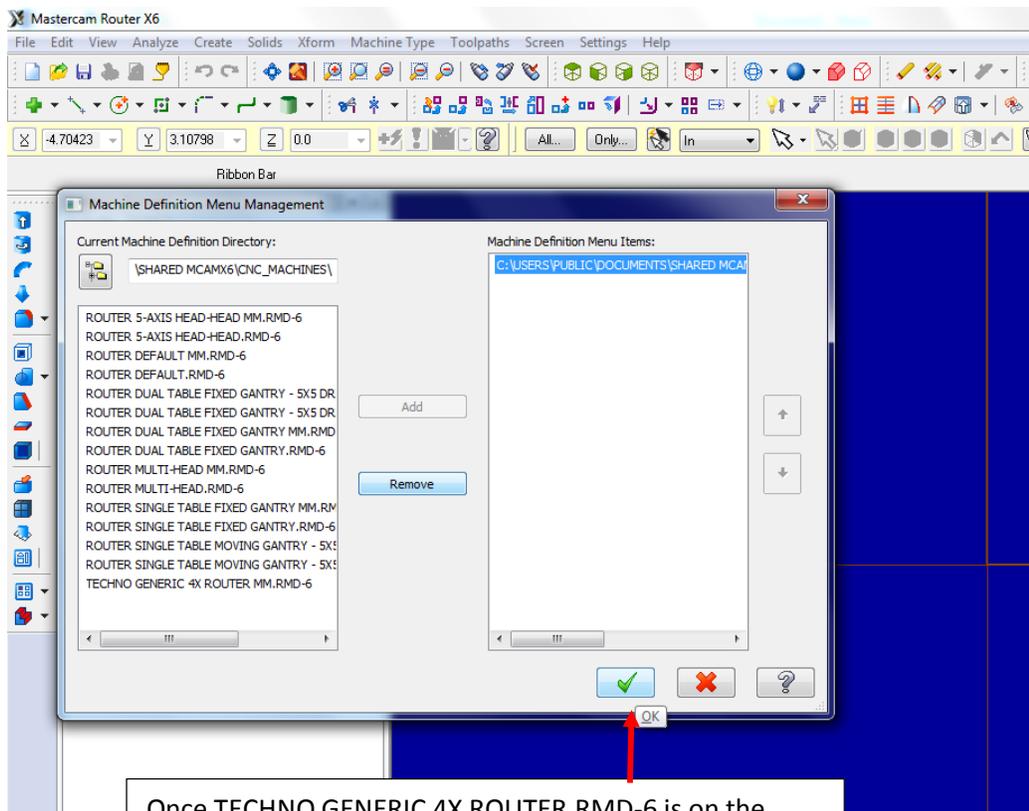
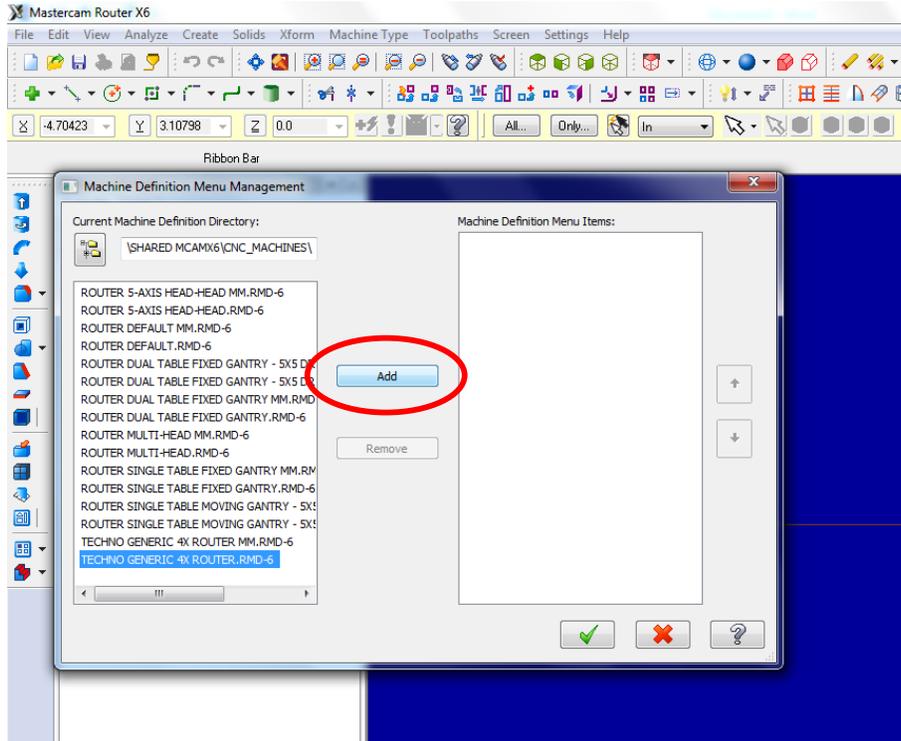
F9 will display the x/y axis such as:



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 TechnoCNC 3 axis router. 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 Techno machine definition, the CNC router will crash....litterly the tool bit will dive into the table top. **Goto Machine Type/Router/Manage list.**

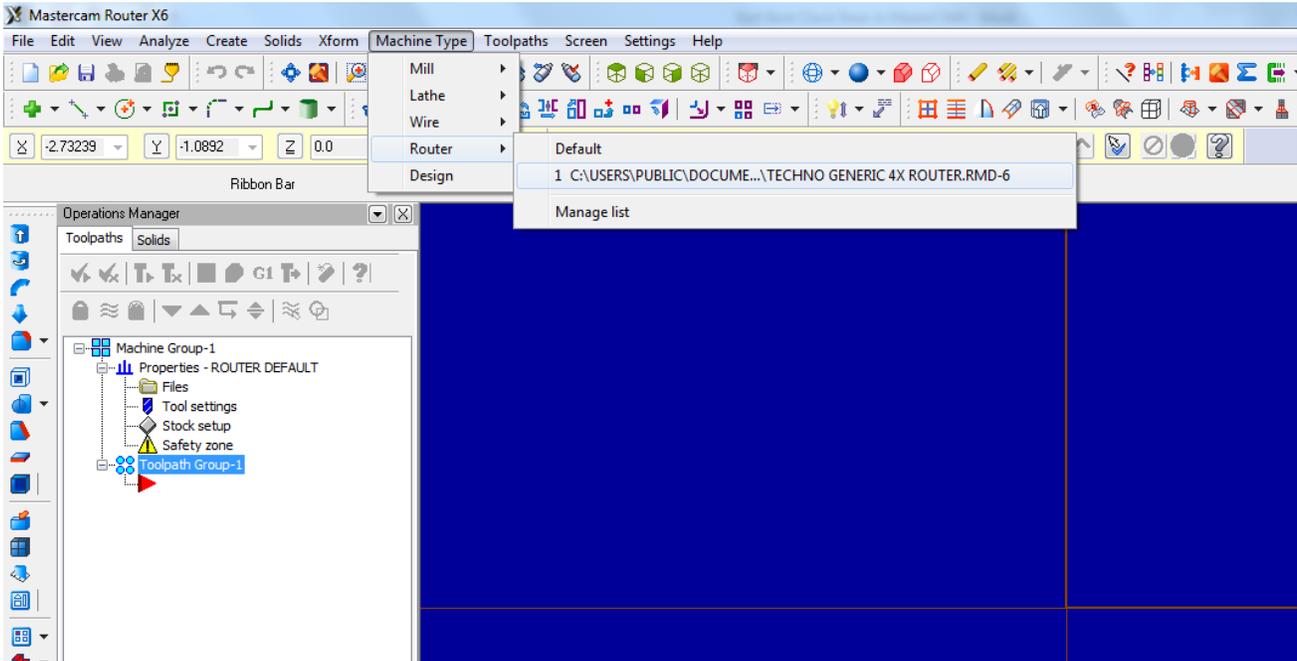


The menu below will open. The last machine definition in the list of the left should be: TECHNO GENERIC 4X ROUTER.RMD-6. Please click on the machine definition, then click ADD. This will Put the machine definition in the list on the right.

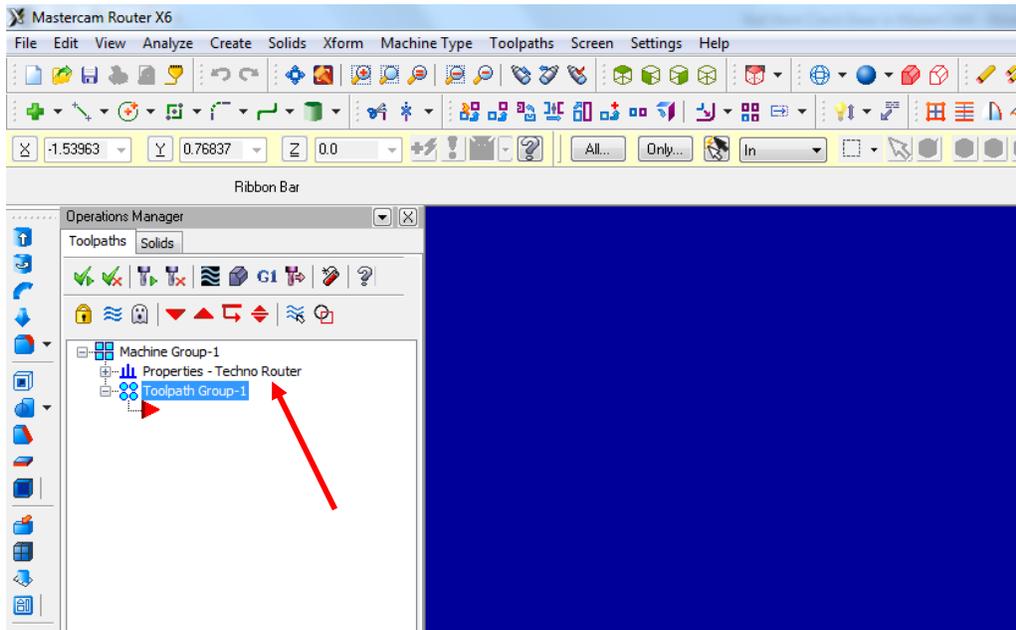


Once TECHNO GENERIC 4X ROUTER.RMD-6 is on the right list, click OK.

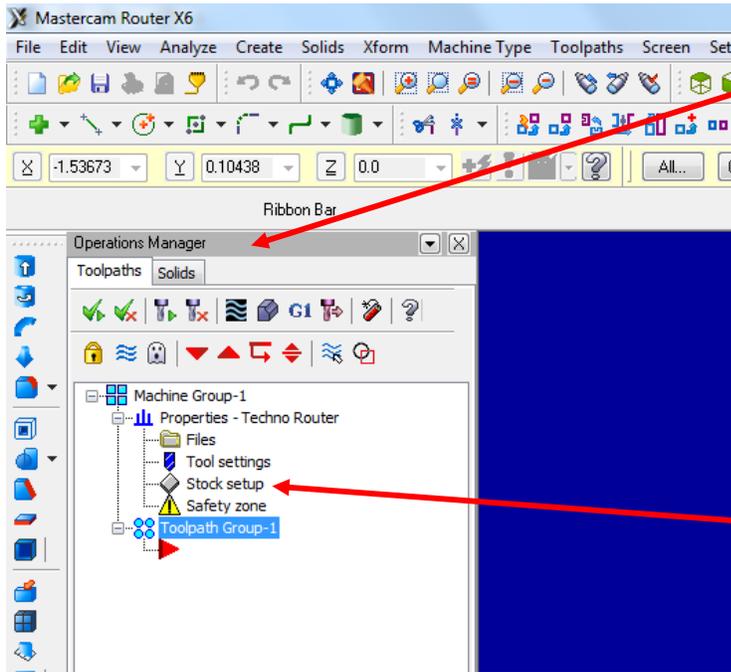
All we did was load the machine definition into the menu. Now go back to **Machine Type/Router**, and Pick the **TECHNO GENERIC 4X ROUTER.RMD-6** as our machine



The result: there should be one machine group that says techno router, if there is other Machine Groups, right-click and delete them.

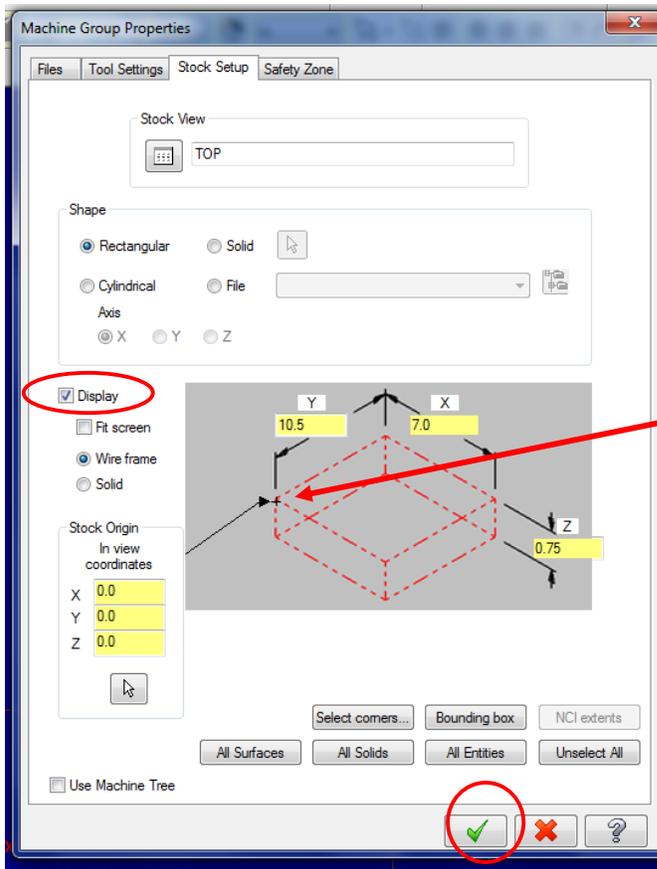


Stock Setup



The 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.

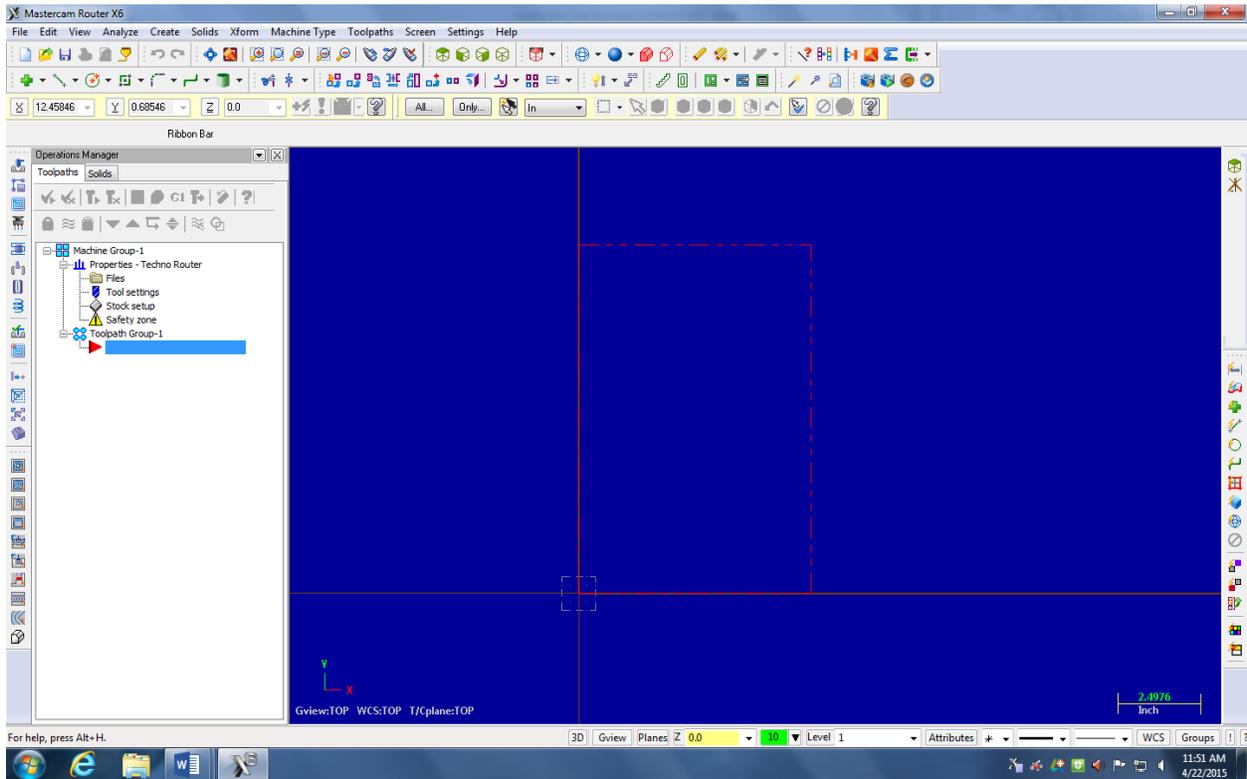


Setup the stock:
Enter the measurements
7 for x
10.5 for y
.75 for z
Set the stock origin by clicking on this corner.

Check "Display"

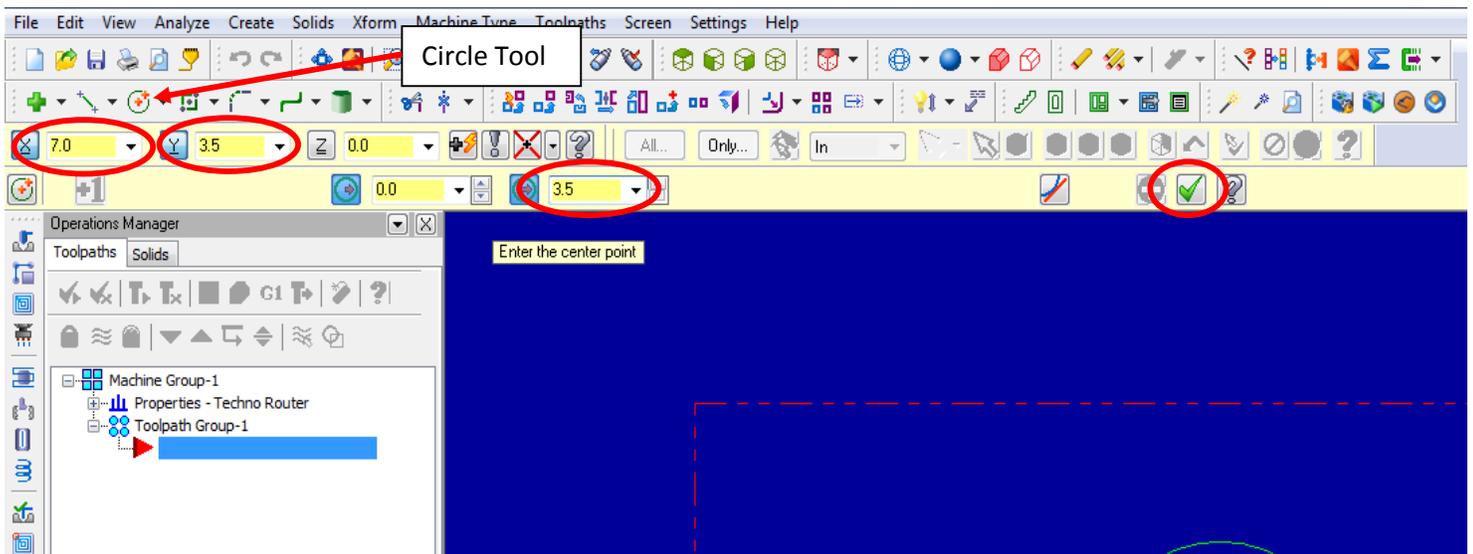
Click the Green Check Mark (OK)

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.

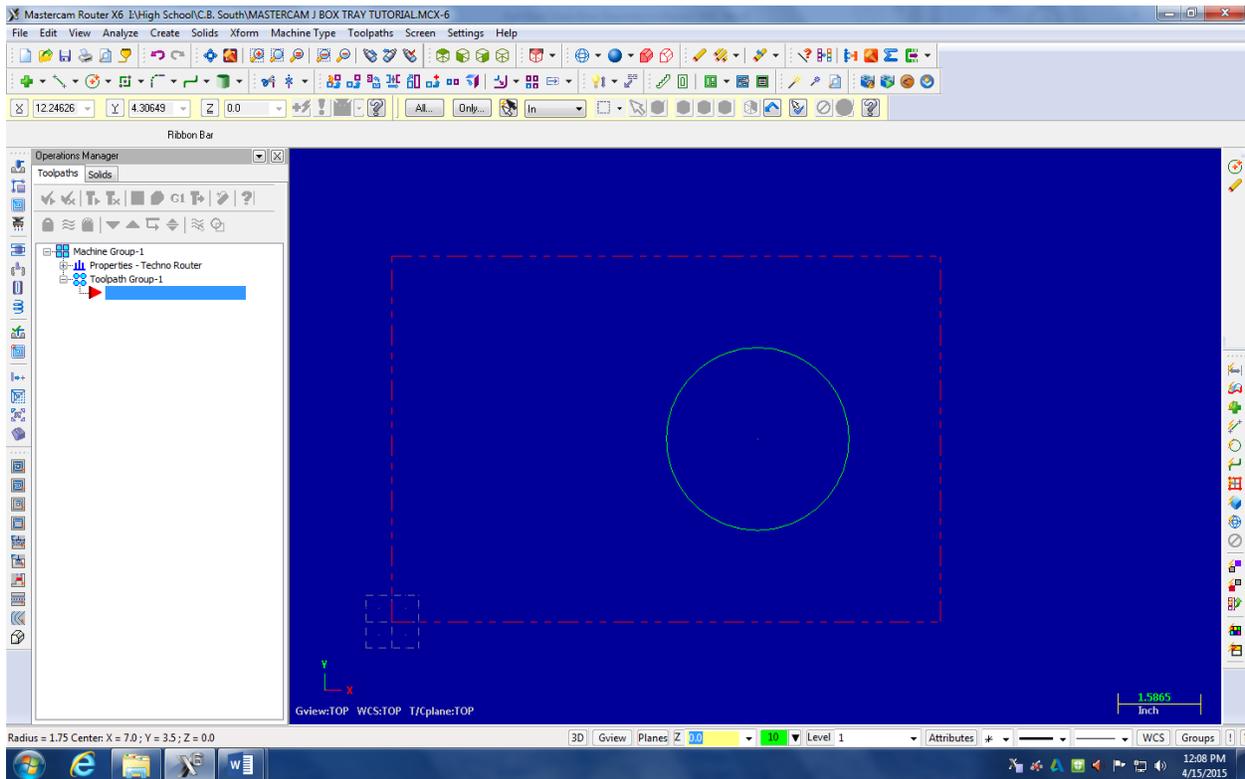


Entering Geometry

It's time to start drawing some geometry, we can start with a circle and apply the same technique for a rectangle. Click on the circle tool. Once inside the tool, you can enter the coordinates for the center and the diameter of the circle. Enter the coordinates for your tray design as you laid out on graph paper. For my design I chose (7, 3.5 with a diameter of 3.5). Once you have entered the values hit "Enter" or click the green check mark and your shape should appear.

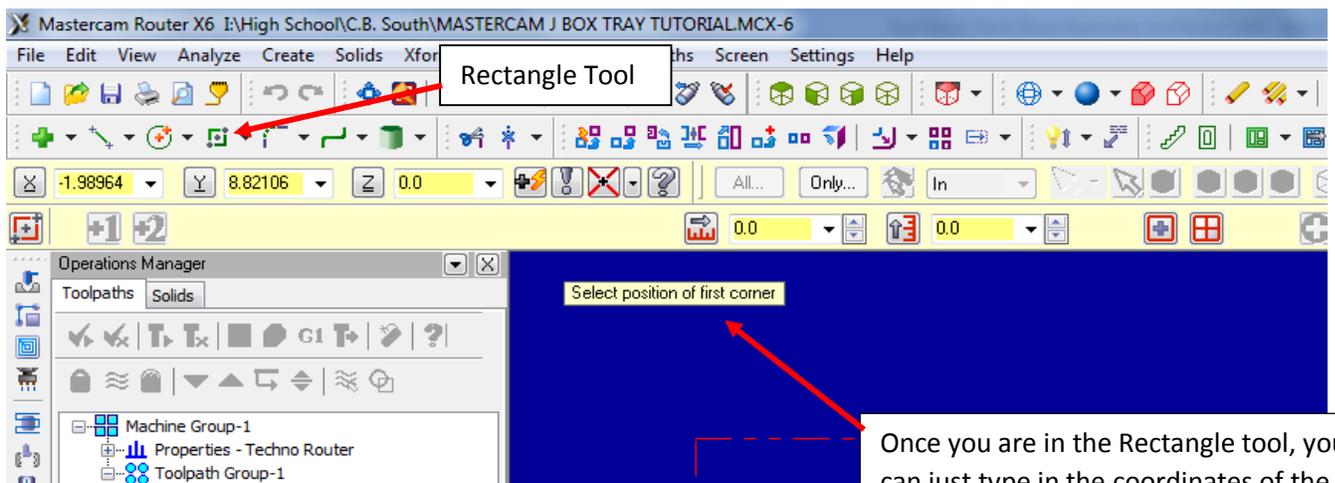


Resulting In:



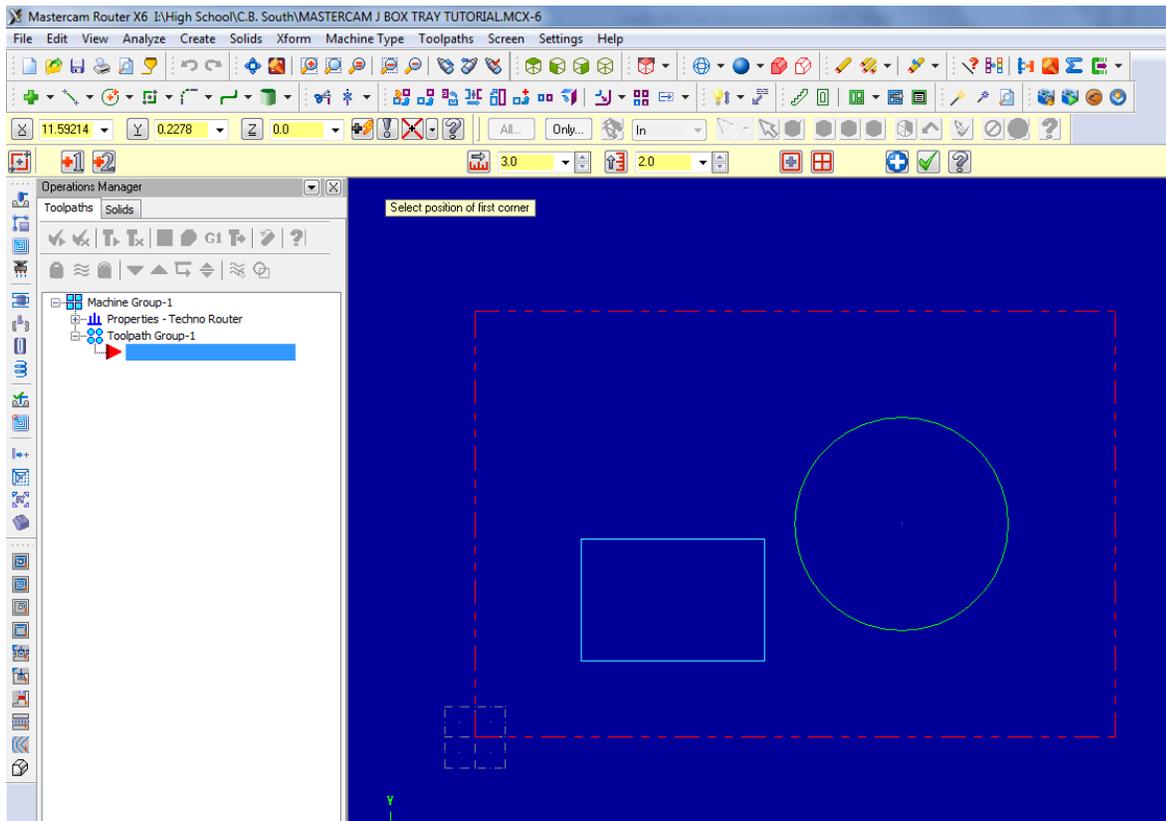
Rectangles:

Inputting the geometry for to draw rectangles is very simllair to how we draw circles. We use the rectangle tool, and enter the coordinates for the opposing corners of the rectangles (the bottom left corner and the top right corner)

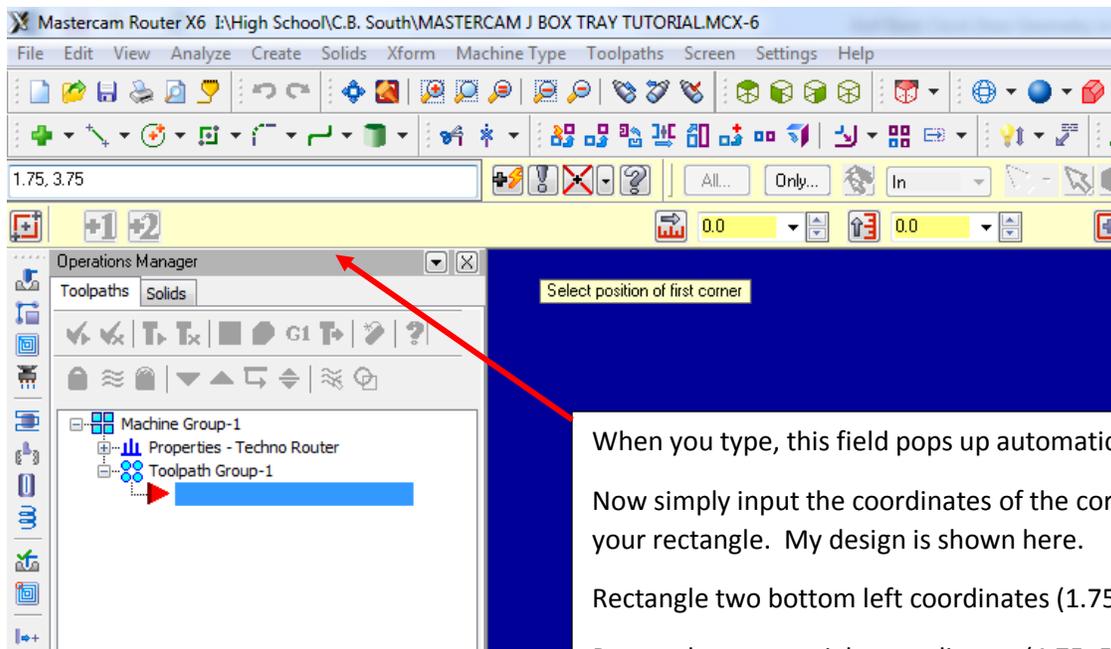


Once you are in the Rectangle tool, you can just type in the coordinates of the rectangles. You will put in the coordinates for the bottom left corner first, followed by the coordinates for the top right corner. After entering both sets of coordinates hit "Enter" and your shape should appear

Resulting In:

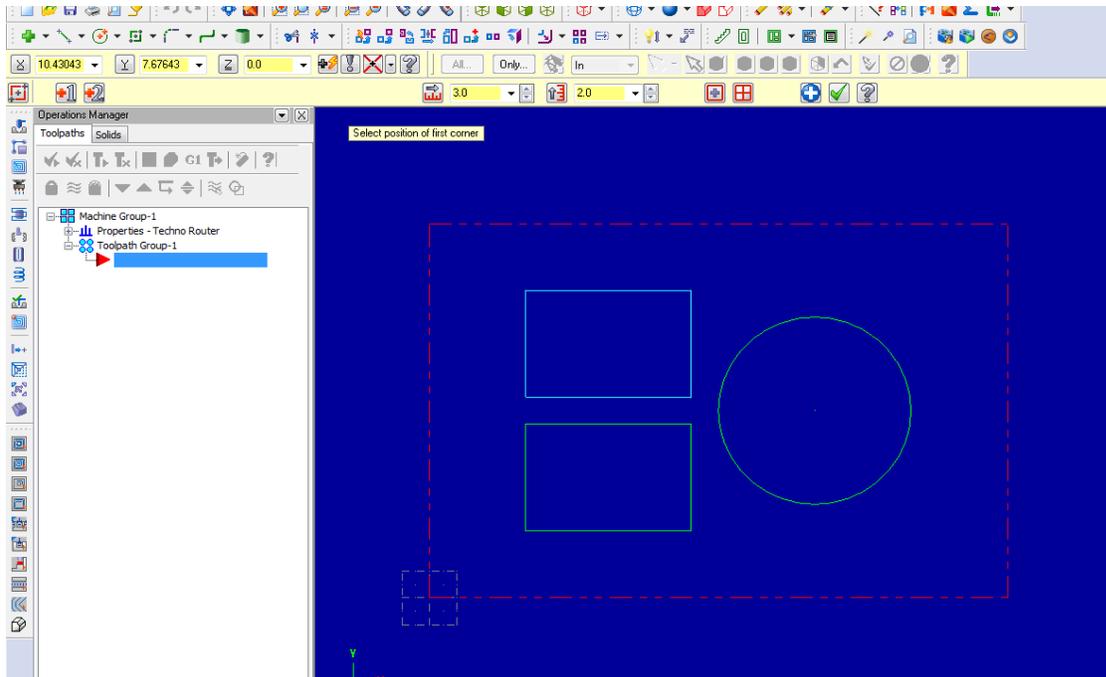


For my design I chose to add another rectangle directly above the one just drawn. I will repeat the same process using the coordinates from my graph paper for my second rectangle.



When you type, this field pops up automatically.
Now simply input the coordinates of the corners of your rectangle. My design is shown here.
Rectangle two bottom left coordinates (1.75, 3.75)
Rectangle two top right coordinates (4.75, 5.75)

Resulting In:



This completes the tutorial for drawing basic geometry in Mastercam. Continue on through the Mastercam Toolpaths for the Jewelry Box tray to complete your design and prepare it for CNC machining.