

## FAQ #22: How do I EDM a simple 4 Axis Shape?

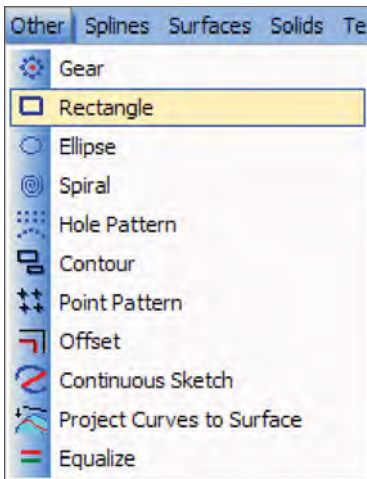
Q: How do I make a simple 4 Axis shape to get started?

A: Simple is the key word. Essentially there are only 3 real steps to it: 1. create two 2D shapes in the **Workspace**, 2. add a feature of the desired type to the **CAM** tree and assign the shapes to it, and 3. edit the parameters of the feature to be what is desired. For a shape with a constant taper around the entire part or with a land, it's best to use a 2 Axis function on the part because they have built-in land & taper controls. If the taper changes over the course of a single profile, a 4 Axis function like this is required.

Without any further ado, a nice tutorial is warranted!

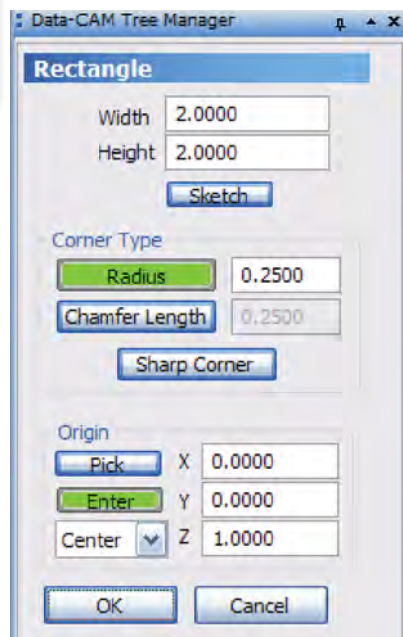
### Example:

**Step 1.** Create a simple shape in the **Workspace**.

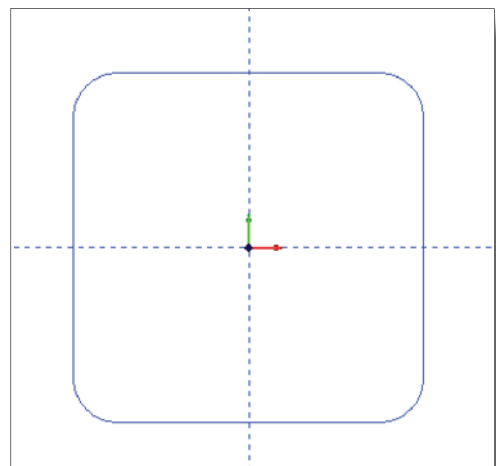


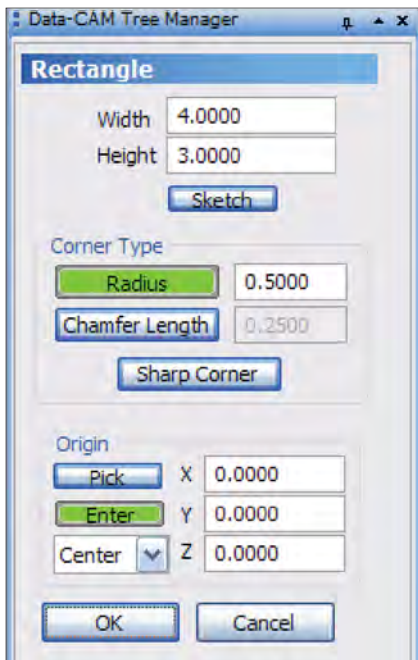
Click on the **Other** menu at the top of the screen and choose **Rectangle** to start the top shape.

In the dialog box that appears to the left of the **Workspace**, set the **Width** and **Height** both to 2 inches. Under **Corner Type**, click on the **Radius** button and type in .25 in the **Radius** field. In the **Z** field in the **Origin** section of the dialog, type in 1 to put this shape 1 inch up from Z0 as illustrated below.

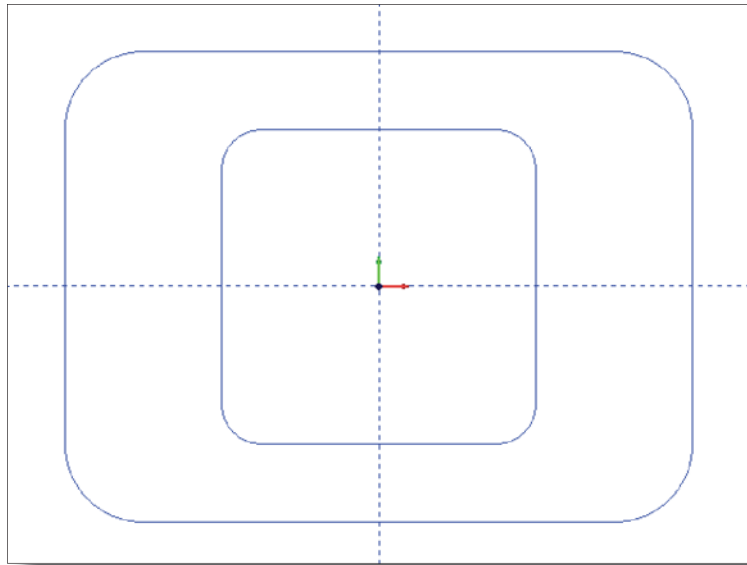


Click **OK** in the dialog and BobCAD-CAM will draw the rectangle.

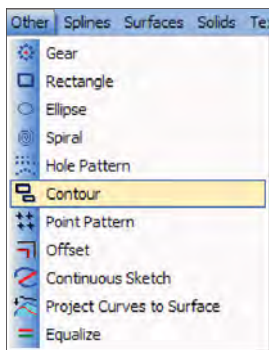




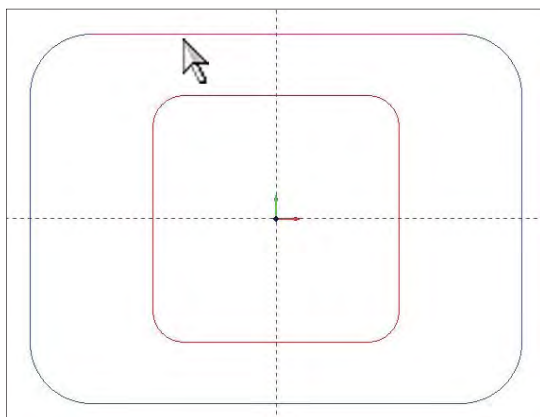
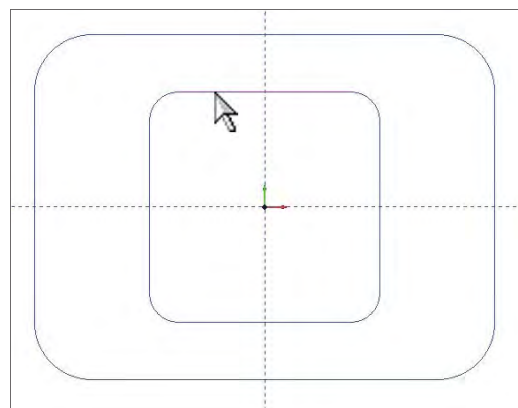
For the bottom shape, change the **Height** to 3 and the **Width** to 4 in order to ensure the example has a differing taper in some places of the example. Change the **Radius** field to .5, and set the **Z** field under **Origin** to 0. Click **OK** to have BobCAD place the second shape.



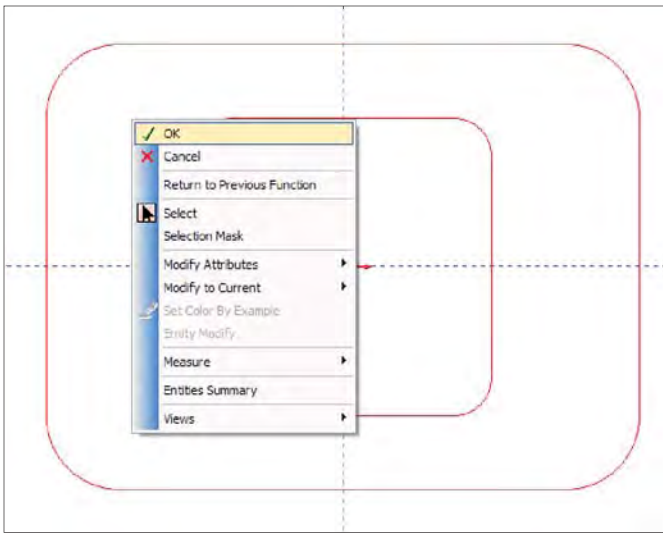
In the **Other** menu at the top of the screen, click on **Contour**. BobCAD-CAM will be automatically placed in **Selection mode**.



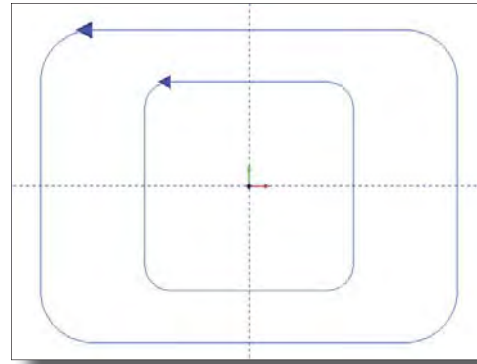
Hold the **SHIFT** key on the keyboard and then click on the left side of the top line of the smaller rectangle as shown.



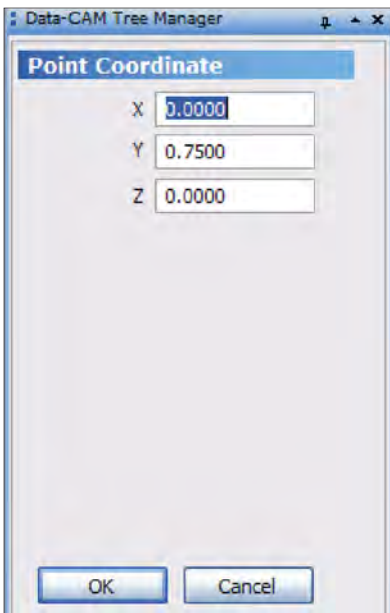
Do the same again in the same place on the larger one. Both shapes should highlight all the way around.



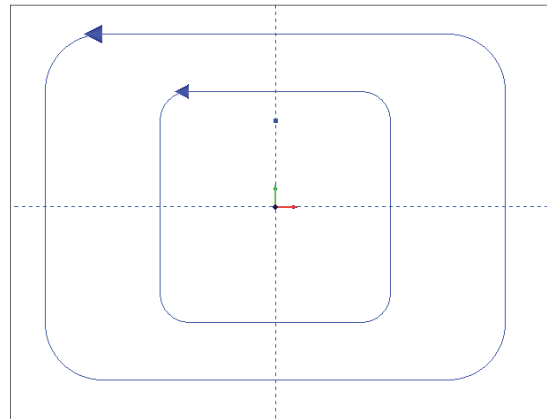
Right click anywhere in the **Workspace** and choose **OK**. BobCAD-CAM will create the contour entities to be used for the boundary of the part.



Click on **Point** in the main menu and choose **Coordinates**.

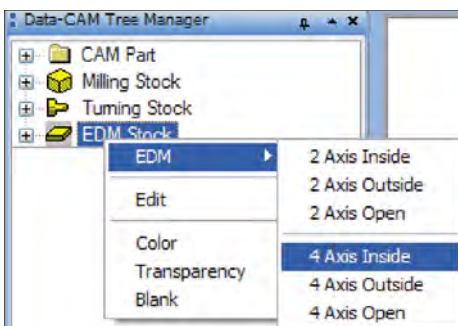


Enter in **.75** in the **Y** position field and then click **OK**. The point will be drawn in the **Workspace**.



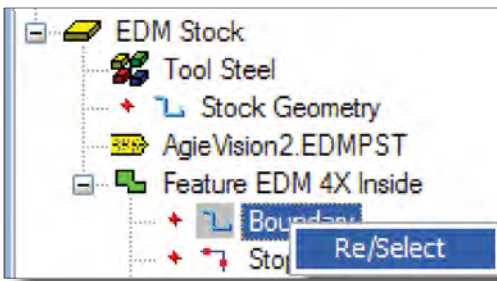
Click **Cancel** in the dialog to the right and the drawing will be complete and ready to machine.

**Step 2.** Add the appropriate feature to the tree and assign the geometry to it.

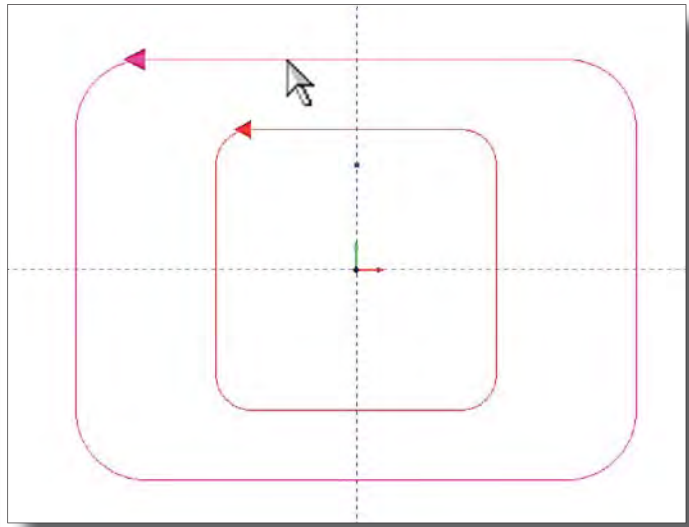
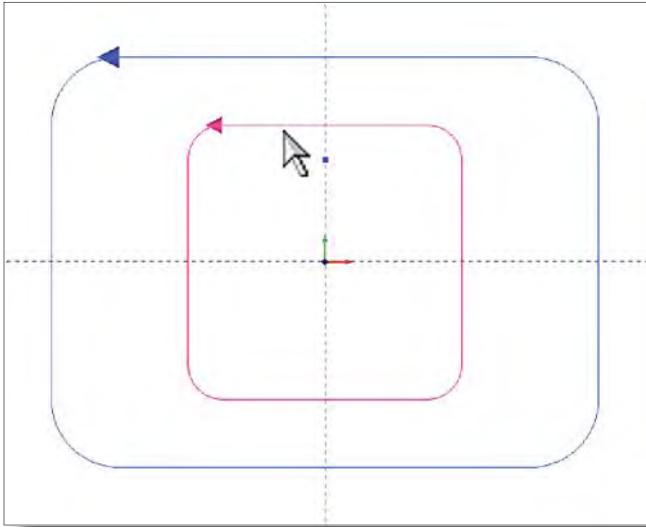


Right click on **EDM Stock** in the CAM tree and hover the mouse cursor over the **EDM** item. Choose **4 Axis Inside** from the fly-out menu. A new **Feature 4X Inside** will be added to the tree.

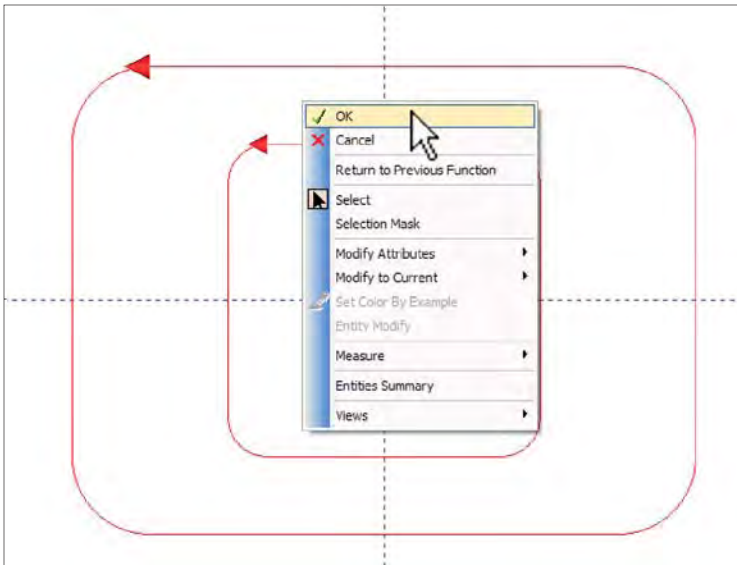
Right click on the **Boundary** item under the new feature and choose **Re/Select**.



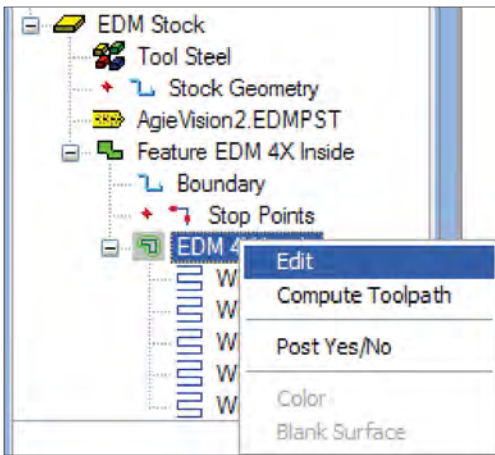
Click anywhere on both of the shapes so that they will highlight.



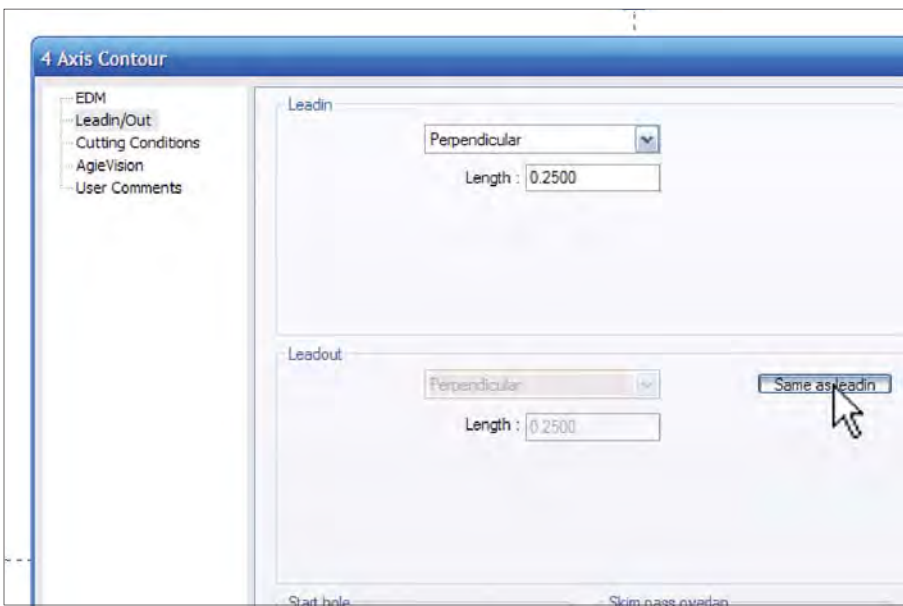
When they both are, right click anywhere in the **Workspace** and choose **OK**.



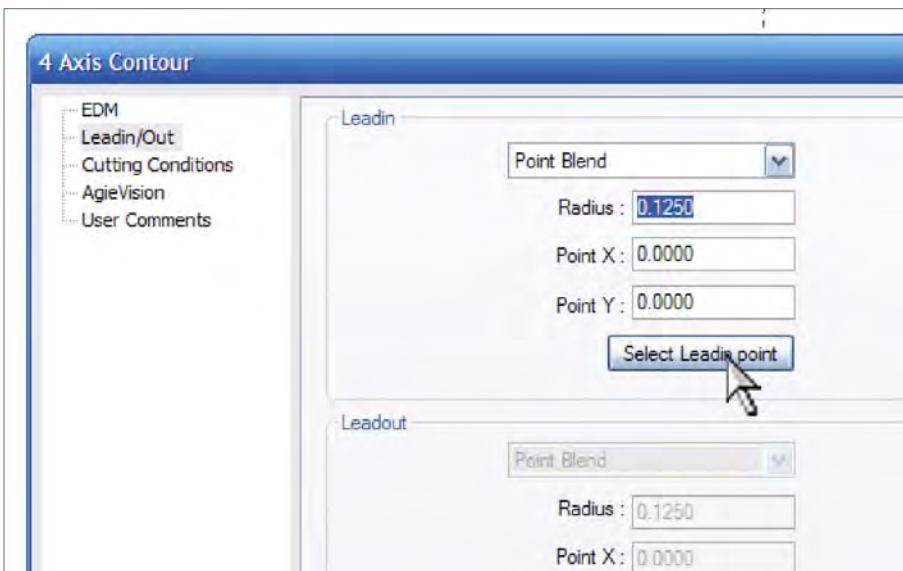
**Step 3.** Edit the feature to reflect what's desired to machine the shape.



Right click on the **EDM 4X Inside** item in the tree and choose **Edit**.

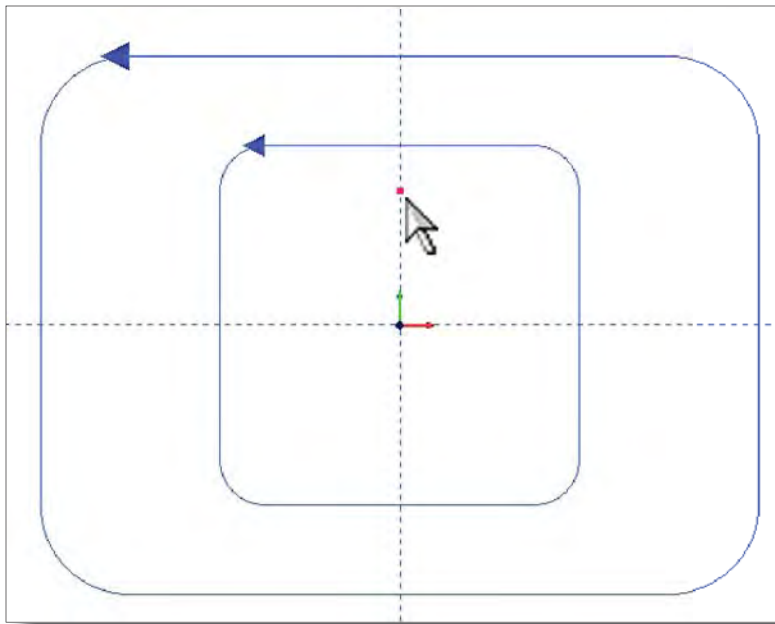


In the box that will appear, click on the **Leadin/out** category on the left. In the **Leadout** section, click on the **Same as leadin** button so what whatever gets chosen for the lead in will also apply to the lead out.

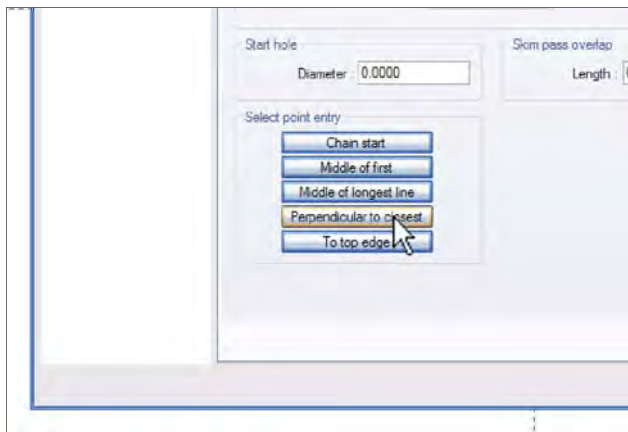


In the **Leadin** section pick **Point Blend** from the drop-down list. In the **Radius** field, type in .125 for a 1/6" lead in and out.

Click on the **Select Leadin point** button.



The **4 Axis Contour** dialog will disappear to make it possible to select the point that was drawn in the workspace. Click on the point, and the dialog will reappear.



In the **Select point entry** section near the bottom of the dialog, click on **Perpendicular to closest**.

Click **OK** on the box and the part will be complete.

