



## Technical Support Bulletin: AllenCAD Tutorial

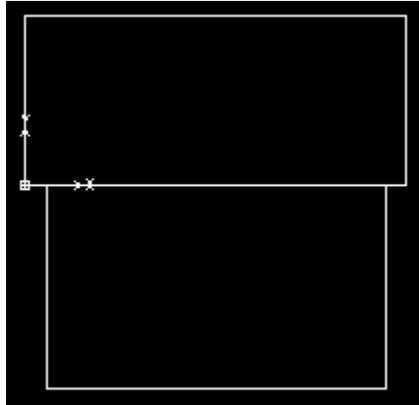
Last Updated September 15, 2014

**Abstract:** This tutorial demonstrates most of the features of AllenCAD necessary to design or modify a countertop using the program. It starts with two cabinets and builds a template for a granite top. Commands demonstrated in order demonstrated: New page, draw rectangle, zoom extents, move relative distance, offset distance, fillet, arc, mirror, trim, layer manager, zoom window, dimensions, pan, text, modify object properties.

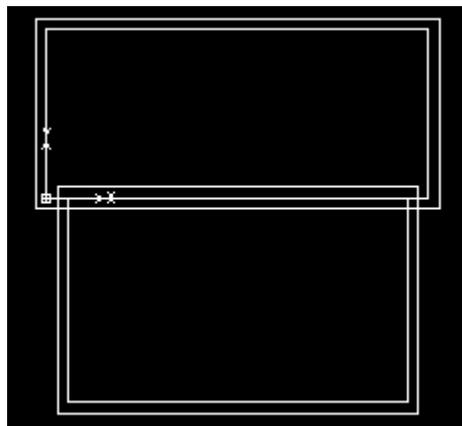
We will be designing a countertop to fit over two cabinets to be placed in the center of a kitchen.

The cabinets are 54" x 24" and 48" x 29". We start with a blank AllenCAD drawing. Click  on the standard tool bar (or file -> new menu command) and select the drawing template standard.dwt. Click on the new page in the startup assistant. Choose Imperial (feet and inches) and OK. To start we draw two rectangles representing the cabinet outlines. Click on the rectangle tool  on the draw toolbar (or draw -> rectangle). Enter 0, 0 for first corner and 54, 24 for opposite corner. Click on zoom to drawing extents on the Allen Tile tool bar  (or view -> zoom -> fit). The outline of the 54 x 24 cabinet should appear. Again click on the rectangle tool entering 0,0 and 48,29 for its corners.

Now we move the 2<sup>nd</sup> cabinet into position by clicking on the  move selected objects on the Allen Tile toolbar (or Modify -> move). We click on the 2<sup>nd</sup> cabinet to select it. It turns dashed to indicated it is selected. Since we are finished selecting object we can either hit the enter key on the keyboard or right click the mouse. The command window displays base point. We will click on the Displacement tool on the options toolbar. This will allow us to move the 2<sup>nd</sup> cabinet exactly into position. We want to move the cabinet centered on the 54 inch bottom so we do a little math  $(54 - 48) / 2 = 3$ . So the x move is 3 inches to the right and the y move is 29 inches down. We enter 3, -29 for the move distance. Click  to display both cabinets. Your screen should now appear as follows: (File saved as tut1.dwg)



We decide we want an inch and a half overhang so we use the offset distance command to create the offset lines. Click on the  Offset button on the modify toolbar (or Modify -> offset). Enter 1.5 for the offset. Click on the upper cabinet. It turns dashed to indicate selected. At the prompt side to offset we want a line to the outside of the cabinet so we click outside the boundary of the rectangle. We repeat the command on the lower cabinet. Now your drawing is as follows: (file saved as tut2.dwg)



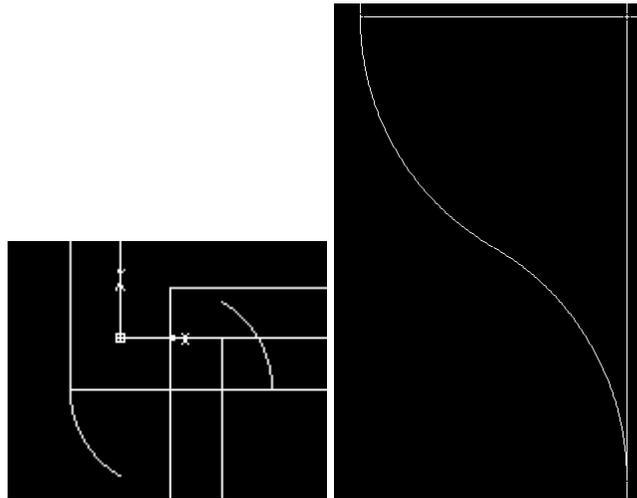
We need to round off some corners so we use the fillet command on the top two corners. Click on the  fillet button on the modify toolbar (or Modify -> fillet). Click **Radius** on the options toolbar. Enter 1 for the Fillet radius. Select the left side of the offset cabinet and then the top and a fillet will appear in the upper left corner. Repeat modify fillet for top and right sides. The top of the drawing now has rounded corners. (file saved as tut3.dwg)



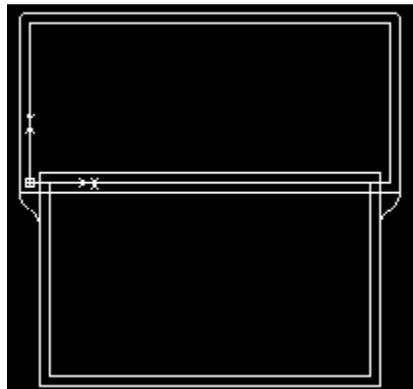
To join the two vertical lines with a smooth curve, we will create two arcs of  $60^\circ$ .<sup>1</sup> We want a 3 inch radius so the center of the first arc will be at +3,0 from the lower left corner or (1.5,-1.5). To draw the arc, click on the arc on the draw toolbar  tool (or Draw -> Arc). Click on the **Center** on the options toolbar. For the center enter 1.5,-1.5. Enter start point so that radius is 3 and start angle is 180-. 180 for start angle and then select **Angle** from options toolbar and  $60^\circ$  for sweep angle. We will draw the corresponding arc with center 1.5,-1.5, select start point so radius

<sup>1</sup> Geometry:  $\cos(60^\circ) = 0.5$ . We choose this angle so the two arcs meet in the center. We use  $\sin(60)$  in equation below because we need to know vertical distance.

is 3 and start angle is 0 or (4.5,-1.5), start angle 0, select **Angle** from options tools bar. Then enter end angle 60 and then move it below to the correct position. File saved as (tut4.flx)



Use the move to position the 2<sup>nd</sup> arc in the correct position. We will want to move it 3 inches in  $-x$  and  $2 * 3 * \sin(60)$  or  $-5.196$ . So click on the  move button on the Allen Modify toolbar (or Modify -> move), select the 2<sup>nd</sup> arc, right click, click on **Displacement** then enter  $-3, -5.196$ . This moves the 2<sup>nd</sup> arc to join the first arc. (File saved as tut5.dwg). For the arcs on the other side we will mirror the two arcs about the left most vertical line. Click on the Modify -> mirror. Select the two arcs, right click to end selection, enter coordinates of mirror line as  $-1.5, 0$  and  $-1.5, 1$ . Then no to delete source entities. (File saved as tut6.dwg) Move the two, mirrored arcs relative to right 57 inches ( $54 + 1.5 + 1.5$ ). Click on , select the two mirrored arcs, right click, click on **Displacement** then enter  $57, 0$ . (File saved as tut7.flx)



Now we add the last arc across the bottom of the cabinet. The center of the arc will be at  $54/2, -30.5$  with radius  $(48 + 1.5 + 1.5) / 2 = 25.5$ , start angle 180 end angle 0. (arcs are drawing counter clockwise)

ARC ( on draw toolbar)

Start point: (**Center** on options toolbar)

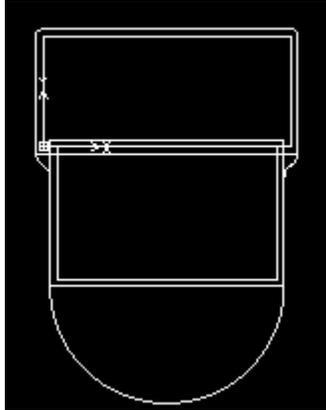
Center point:  $27, -30.5$

Start point such that radius is 25.5 and start angle is 180

Start point: 1.5,-30.5

Select **Angle** from options toolbar and enter sweep angle: 180

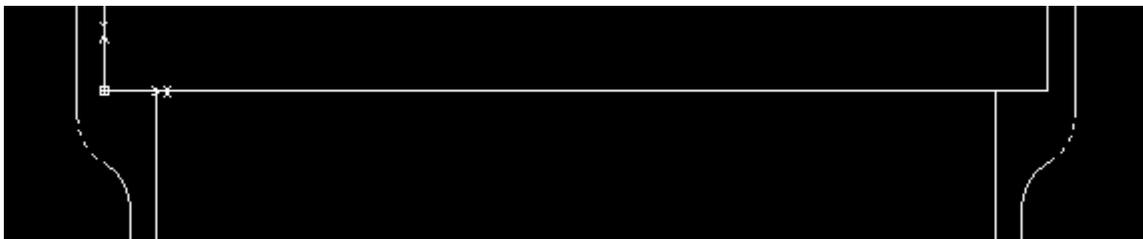
(File saved as tut8.dwg)



We now use the trim command to eliminate extra lines. Click the  trim button on the modify toolbar (or Modify -> trim), for cutting edge, select the two lower arcs that join the two vertical lines. Right click, then click on the top line of the offset from the lower cabinet for entity to trim. (file saved as tut9.flx)

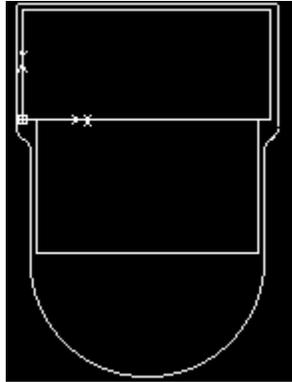


Now select  again. Select upper arcs that join the two vertical lines as cutting edge, right click, and then click on bottom offset line of top cabinet. (file saved as tut10.flx)



For last trim, select , click on big semicircle at bottom as cutting edge, right click, and click on bottom edge of bottom offset line as entity to trim. (file saved as tut11.dwg)



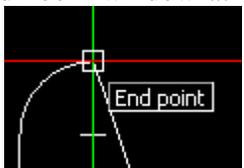


The counter top is done. Lets add some dimension lines on another layer. Click on the layer manager  tool on the property toolbar. This brings up the layer manager. Select  Type in layer name “dimension” hit enter and click on ok. In the drop down box select the dimension layer for new objects. We put the dimensions on a different layer so it’s easy to turn off the layer for cutting.

Click on Dimension -> linear (or the  button on the dim toolbar). Use zoom window,  on the Allen Tile toolbar (or view -> zoom window), to zoom to a small area around the bottom of the big semi circle. Click on the very bottom of the arc The word midpoint will appear

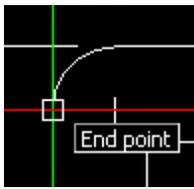


. Then zoom extents  and zoom window at top right corner of countertop.

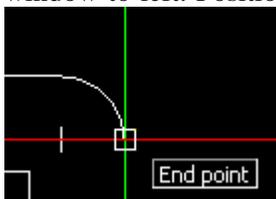


Click on top corner until end point appears . Move mouse left to position dimension line and left click.

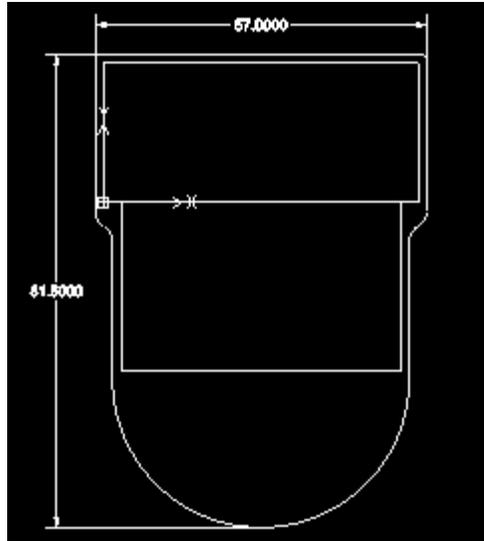
Click on zoom extents then use roller on mouse to zoom into top left corner. You can also use zoom window  and draw a marquee around area to zoom into. Click  Dimension ->



linear. Click top left corner after curve when end point appears  Click on pan  on the Allen Tile toolbar or roller ball push and drag window to left. Position the cursor to

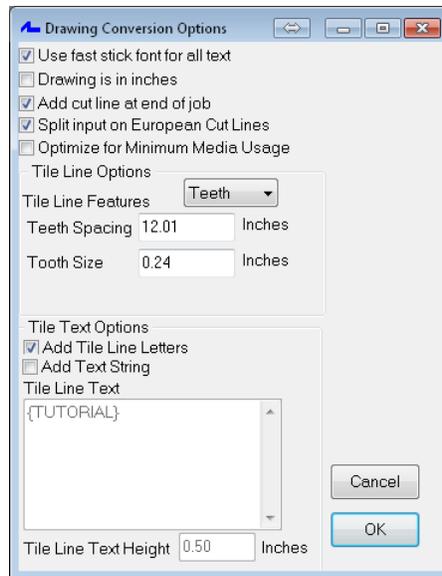


right side of rectangle until end point appears and left click . Move mouse up to position dimension line and left click. Right click to accept dimension. (File saved as tut12.dwg)

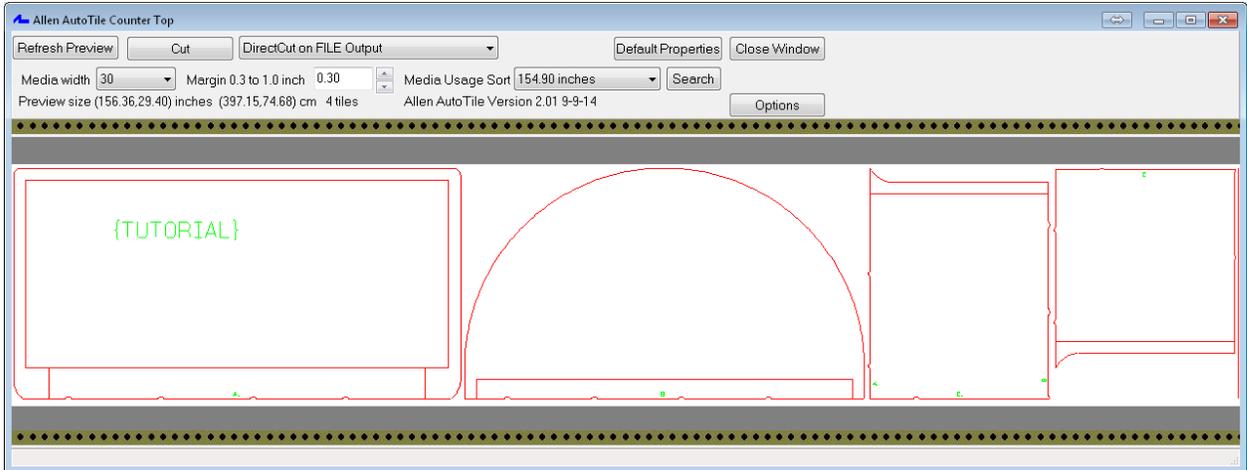


To add text, click on the  memo tool on the draw tool bar (or draw -> text -> memo) to start the memo manager. Click on upper left of memo area, select Height from options tool bar and enter 2 for text size, Move mouse to lower right corner of text area and enter “TUTORIAL” in text box. Press escape to cancel rest of command. (saved as tut13.dwg)

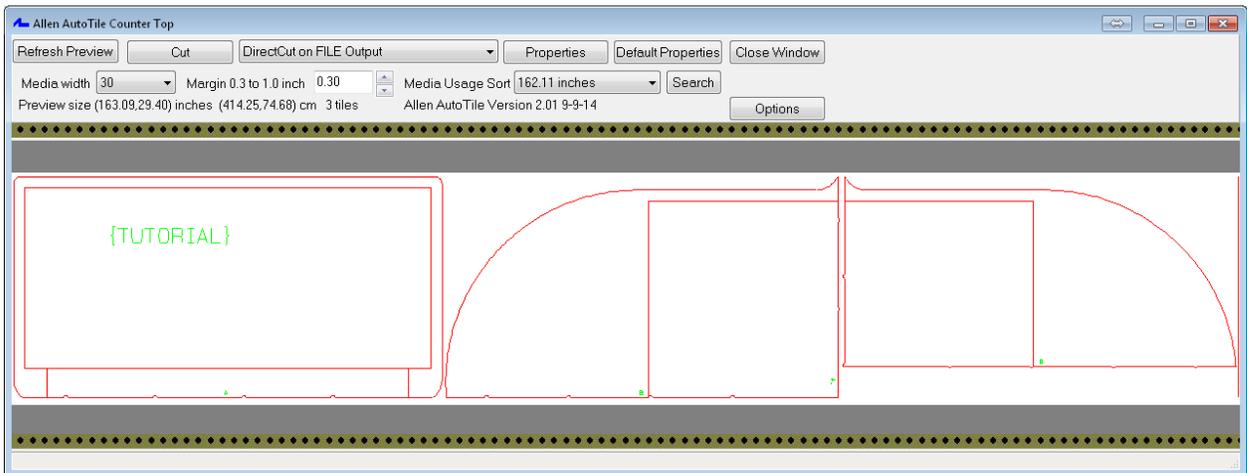
Click on the  button on the Allen Tile toolbar (or file -> Allen DirectCut tiling) and click on the  button on the option tool bar, right click to indicate we are through selecting objects. The Allen Tile Options menu is displayed.



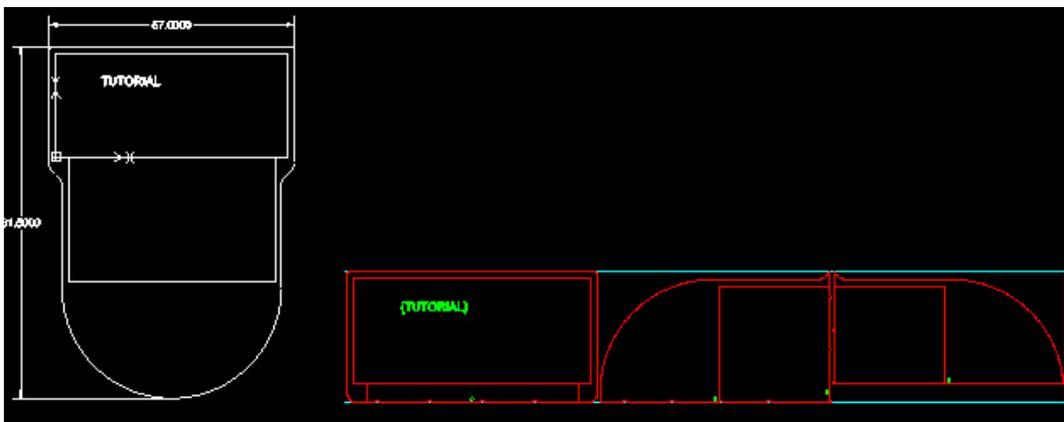
Note the tile program picks up the part number and we select one tile line to have tiles continue through cutouts.



Selecting minimum media usage tiles counter top into 4 pieces and selecting minimum tiles creates a 3 piece countertop. The tile program breaks our countertop into 3 pieces using about 8 more inches of media.



At this point we have a choice of loading the template maker with 30" media and clicking on the CUT button to cut the 165.11 x 29.4 or we close the window and tile pieces are exported back in to AllenCAD.



File saved as tut14.dwg. All saved files can be downloaded separately at the place where you got this file.