


## Snaps

This tutorial will give you a brief overview on how to use element snaps. Snaps can be selected from the *Snaps* menu or from the snaps tool bar on the left side of the drawing area.

Select the *File/New* command to create a new drawing.

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## Snaps

Choose the *Options/Grid snap parameters* command and click on the *Display grid* box so it is checked. Press *OK*. The grid is then displayed in the drawing area. Click on the grid snap button  on the snap tool bar or select the *Grid* option on the *Snaps* pull down menu. As you move the mouse cursor, you will notice the xy coordinate display in the status area only displays whole numbers (i.e. 1, 2, 3, ...). This is because the grid points are located at these positions.

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## Snaps

Choose the *Draw/Line* command and move the cursor near (but not on) the grid point at coordinate (1,1), as in the figure below.



Click the left mouse button. The program will snap to the closest grid point (1,1) and use that coordinate for the first point of the line. As you move the cursor, you can see where the first end of the line is located. You will also notice the second point snaps to the grid.



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## Snaps

Move the cursor over the grid point at (2,1) and click the left mouse button. Choose the *Edit/Select/Select one* command and move the box cursor so the line you just drew passes through it. Click the left mouse button and the line is selected. Choose the *Edit/List* command and you can see the coordinates for the line are exactly (1,1) and (2,1). Press the *OK* button to exit the dialog.

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## Snaps

The *Options/Grid snap parameters* command is used to adjust the grid spacing and grid origin, as well as turn the grid display on and off. The grid does not have to be displayed to use the grid snap mode.


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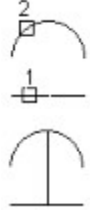
## Snaps

We will use the drawing in the file `tutor6.gcl` for the rest of this tutorial. Choose the *File/Open* command and double click on `tutor6.gcl`. Press *No* when the program asks if you want to save the current document (drawing).

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## Snaps


Choose the *Draw/Line* command and select the *Midpoint*  element snap mode. Move cursor to position 1 in the figure (below-left) and click the left mouse button. The program snaps to the midpoint of the line. Move the cursor to position 2 and click the left mouse button. The drawing will look like the figure below-right.

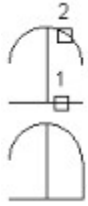


You can only snap to the midpoint of existing lines and arcs.

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## Snaps

Select the *End*  element snap and choose the *Draw/Line* command. Pick positions 1 and 2 in the first figure (below-left) and the line in the second figure (below-right) will be added to the drawing.




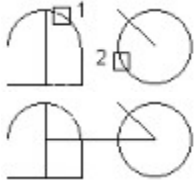
You can only snap to the end of lines and arcs.

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## Snaps

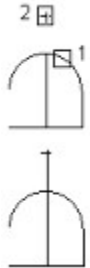
Select the *Center*  element snap and choose the *Draw/Line* command. Pick positions 1 and 2 in the first figure below and the line in the second figure will be added to the drawing. You can only snap to the center of circles and arcs.



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## Snaps

You can change snap modes during a command. Select the *Midpoint*  element snap and choose the *Draw/Line* command. Pick position 1 in the first figure. Select the *Point*  element snap and pick position 2. The line in the second figure will be added to the drawing. The program snapped to the point for the second end of the line.




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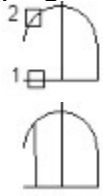
## Snaps

We used snaps to draw lines in this tutorial but snaps can be used any time the program prompts you to enter a point. For example, you can use snaps to draw arcs, circles, points, text and so on. You can also use snaps when specifying positions during editing.

This ends this tutorial.


## Snaps

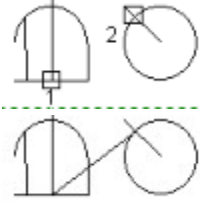
Select the *Nearest*  element snap and choose the *Draw/Line* command. Pick positions 1 and 2 in the first figure. The line in the second figure below will be added to the drawing. The program snapped to the nearest point on the line and arc to the cursor position you picked.



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## Snaps

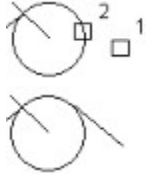
Select the *Intersection*  element snap and choose the *Draw/Line* command. Pick positions 1 and 2 in the first figure. The line in the second figure below will be added to the drawing. The program snapped to the intersection point of the 2 lines for the first point and the line and arc for the second.



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## Snaps

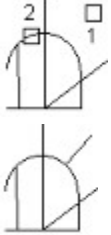
Select the *Tangent*  element snap and choose the *Draw/Line* command. Pick positions 1 and 2 in the first figure. The line in the second figure below will be added to the drawing. The program snapped to the tangent point on the circle for the second point. The tangent snap mode can only be used when specifying the second point of a line and snapping tangent to a circle or arc.



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## Snaps

Select the *Perpendicular*  element snap and choose the *Draw/Line* command. Pick positions 1 and 2 in the first figure. The line in the second figure below will be added to the drawing. The program snapped to the perpendicular point on the circle for the second point. The perpendicular snap mode can only be used when specifying the second point of a line and snapping perpendicular to a circle, arc, or line.



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## Snaps

When you choose a snap mode and pick a point, the program tries to snap to the first drawing element it finds within the cursor box. You should try to avoid having 2 elements pass through the cursor box or the snap you get may not be the one expected. You can zoom in on the drawing to make it easier to select just one element. We will cover zooming and panning in a later tutorial. Also, if the element the program finds within the cursor box does not support the current snap mode, or if no element is found in the box, then the center of the cursor box is used for the position.

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