

# Drawing with Object Snaps - Endpoint and Perpendicular

This exercise will teach you how to use the **Endpoint** and **Perpendicular** object snaps in RealCAD.

All points, lines, arcs and curves have end points that can be snapped to.

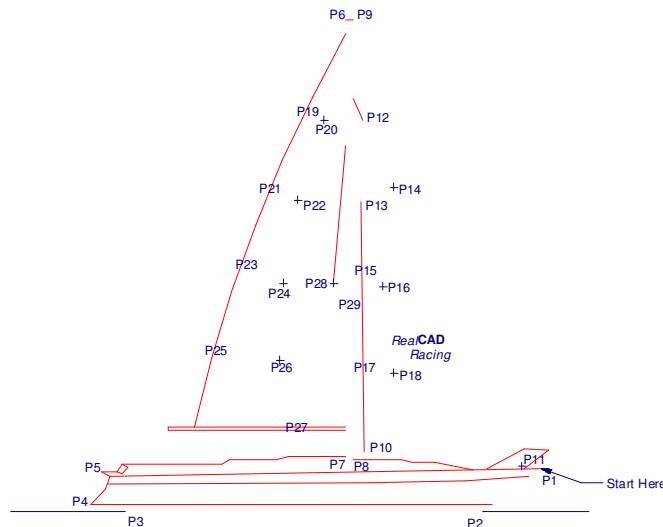
Lines, arcs and circles can have lines drawn perpendicular to them.

If RealCAD is already running, select **File, Open** on the menu and locate the **Training** folder. Open the file called "**Drawing\_with\_Object\_Snaps-Endpoint\_and\_Perpendicular-exercise.cad**".

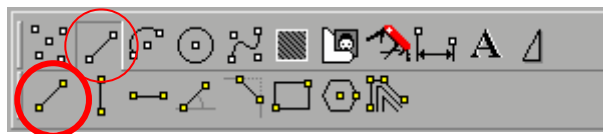
If RealCAD is not running, start it and select **Open Existing Drawing** from the Startup menu. Locate the **Training** folder and open the file called "**Drawing\_with\_Object\_Snaps-Endpoint\_and\_Perpendicular-exercise.cad**".

Remember, if you make a mistake at any stage, you can always **Undo** it. Refer back to the **Undo and Redo** video if you need to refresh your memory.

**Step 1:** If necessary, **maximise** the view of the drawing so it fills your viewing area and use the **Zoom** function to make the image fill your view.



**Step 2:** Select the **Insert Line** command from the icon menu.



Now look at the prompt! It will ask you to 'Select the start of the line'.

In this exercise we are going to explore how to **snap** onto some existing geometry as we draw. This makes our drawing very accurate.

**TIP:** Remember to use the zoom tools to assist you to see the drawing more easily and find the endpoints.

**Step 3:** Move your cursor to where it says **Start Here** at position P1 in the drawing and **snap** to P1.

As in the previous exercise, notice that your cursor changes as you get near the end of the line. A small **SQUARE** should appear, as shown below. This indicates you have found the **end point** of the line.



**Step 4:** Continue **snapping** to P2, P3, P4, P5, P6, P7, P8 and P9 and then click your **RMB** to stop drawing that sequence of lines.

**Step 5:** Start a new line by **snapping** to P10.

**Step 6:** **Snap** to P11, then up to P12, P13 and P14. Click your **RMB** to end those lines.

**Step 7:** Now move your cursor over the line at about position P15. This time you will notice that your cursor displays a **DIAMOND**, as shown below, and **NOT a square**. There are no points to snap to but there is a line you can lock onto.



**Step 8:** When you see the **diamond**, click your **LMB** and notice your new line is now attached to the selected line and extends away from it. Now move your cursor to P16 and **snap** to that point. Click your **RMB** to stop drawing lines.

**Step 9:** Repeat Step 8 for P17 and P18 and again for the pairs of points P19 through to P28. Do NOT click your **RMB** after P28 as we have one more line to draw. You will again notice that the lines you draw are **perpendicular** to the entity you are selecting.

**Step 10:** Draw the last line by moving your cursor over the vertical line at about P29 (the mast of the boat) until you see the diamond then left click the mouse button.

**Step 11:** Click your **RMB** twice to stop the **Insert Line** command completely.

And there's your completed yacht! 😊

**Note:** If you don't want to snap onto an entity, you can temporarily disable the diamond by simply holding down the **Ctrl** key on your keyboard before you click.

If you want to save your drawing as it is, select **File → Save** from the menu; it will be saved under its original name. If you do not want to save your drawing, select **File → New** from the menu and select **No** when asked if you want to save it.

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That completes this exercise.

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