

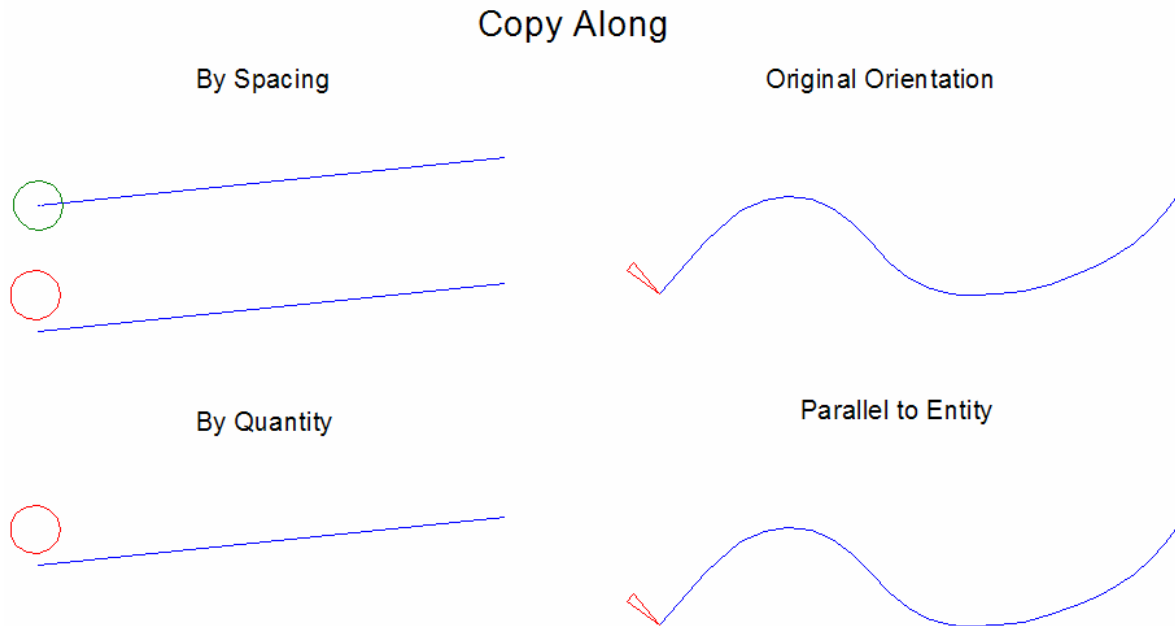
Transforming Entities - Copy Along Exercise

In this exercise you will learn how to **Copy** entities **Along** another entity in RealCAD.

If RealCAD is already running, select **File, Open** on the menu and locate the **Training** folder. Open the file called "**Transform_Entities_Copy_Along_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 "**Transform_Entities_Copy_Along_Exercise.cad**".

The drawing will look as shown below; the same as in the video, except for a few minor colour changes.



There are two ways to copy entities along another entity in RealCAD:

1. **By Spacing**
2. **By Quantity**

And there is an **Orientation** variation within them as well.

This exercise will show you how to use these methods by explaining how it was done in the video.

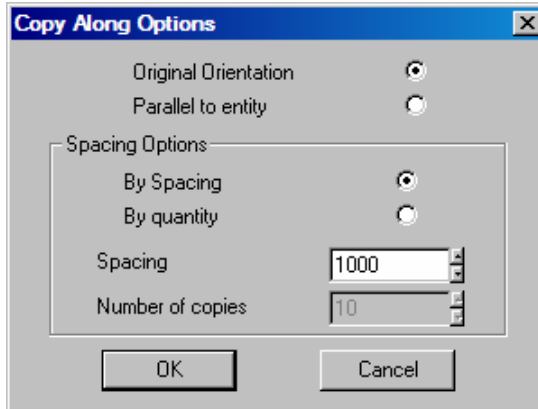
By Spacing

The “By Spacing” copy along method assumes you know how far apart you want the entities spaced as they are copied along the other entity, but you don’t know exactly how many will fit.

1. Select the green circle in the top part of the “By Spacing” area of the screen.
2. Select the **Copy Along** command, as shown below.



3. The following dialog box will be displayed.



4. The “Spacing” option defines the distance between the entities.
5. Click OK.
6. The prompt wants you to “*Locate the origin of the selection*”, ie, the point that will be used as the base point as the entities are copied along the other entity.
7. For this example we’ll use the centre of the circle, which happens to be at the middle of the blue line, so snap to the left end of the blue line. You may see the new Centre/Midpoint object snap symbol, which is a small dot, instead of the more common snapping square, but it doesn’t matter; either one will work.

Centre/Midpoint snap symbol	Snapping Square or Endpoint snap symbol

8. The prompt now wants you to “*Locate the entity to copy along*”.
9. This is the blue line, so select it now.
10. The circle will be copied along the blue line as shown below. The dimensions are shown only to verify the copy distance.

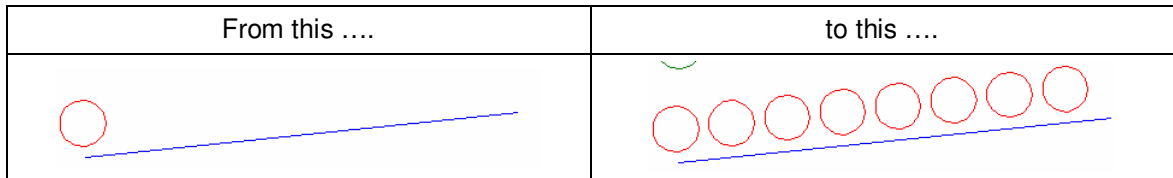


11. Click anywhere on the white background to de-select the blue line.

The entity does not have to be actually on the “copy along” entity, as in the example above; it can be anywhere really.

We’ll repeat the above example, but with a circle that is off the line.

1. Select the red circle in the top part of the “By Spacing” area of the screen.
2. Select the **Copy Along** command.
3. Click OK – we’ll use the same settings as before.
4. Snap to the end of the lower, blue line as the origin of the selection. Don’t snap to the centre of the circle.
5. Select the same blue line as the entity to copy along.
6. The result should be as shown below.

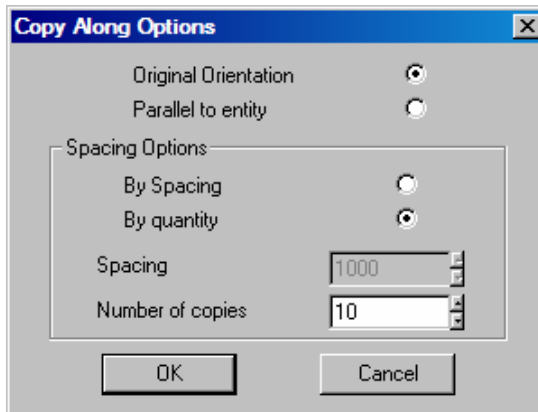


If you want to see what happens if you snap to the centre of the circle as the origin of the selection, undo the operation and try it! 😊

By Quantity

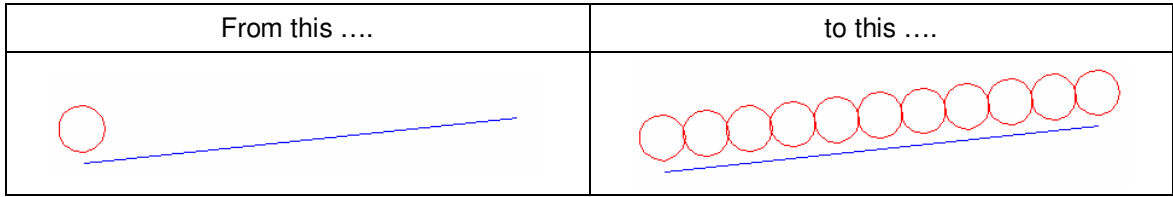
The “By Quantity” copy along method assumes you know how many copies of the entities you want spaced along the other entity, but you don’t know how far apart they should be.

1. Select the red circle in the “By Quantity” area of the screen.
2. Select the **Copy Along** command again.
3. Set the options as shown below.



4. The “Number of Copies” option defines how many copies of the entities you want to have equally spaced along the other entity.
5. Click OK.
6. The prompt wants you to “*Locate the origin of the selection*”, so snap to the left end of the blue line.
7. The prompt now wants you to “*Locate the entity to copy along*”.
8. This is the blue line, so select it now.

- The circle will be copied along the blue line as shown below.



- Count the circles. There will be eleven; the original plus 10 copies and they are equally spaced along the line.
- Click anywhere on the white background to de-select the blue line.

Orientation Variation

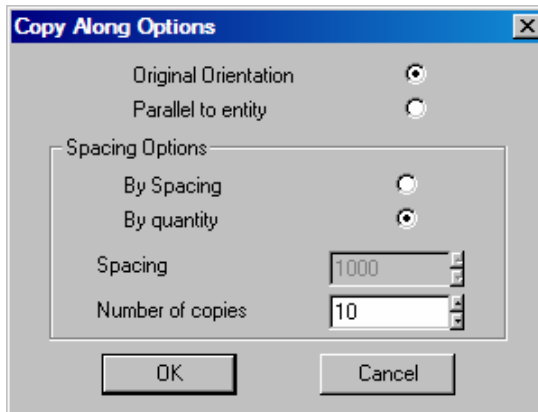
The copied entities can retain their orientation as they are copied or they can rotate to remain parallel to the “copy along” entity.

The “copy along” entity can be a line, an arc, a circle or a curve.

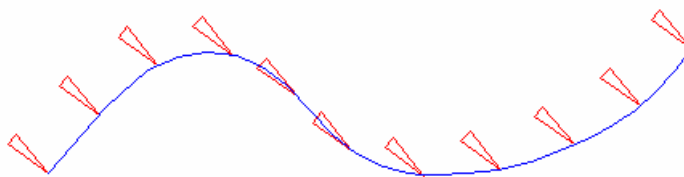
The following steps will demonstrate this variation.

Original Orientation

- Select the red triangle in the “Original Orientation” area of the screen.
- Select the **Copy Along** command.
- Set the options as shown below and click OK.

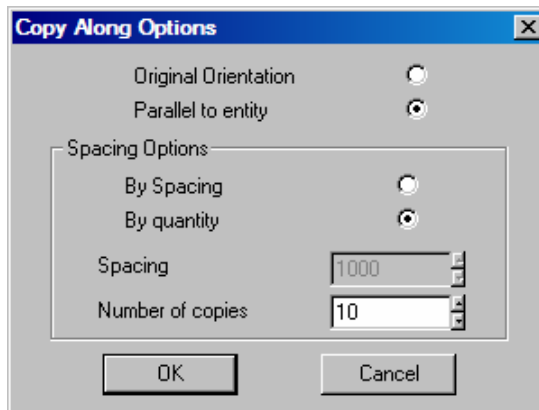


- Snap to the left end of the blue curve as the origin of the selection.
- Select the blue curve, towards its left end, as the “copy along” entity.
- Click anywhere on the white background to de-select the curve.
- The triangle will have been copied as shown below - the copied entities have maintained their original orientation.

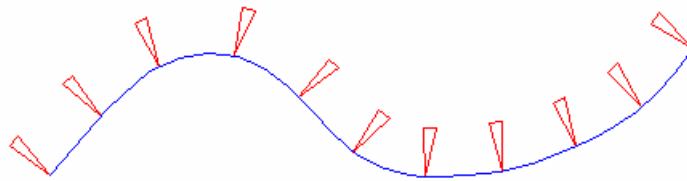


Parallel to Entity

1. Select the red triangle in the “Parallel to Entity” area of the screen.
2. Select the **Copy Along** command.
3. Set the options as shown below and click OK.



4. Snap to the left end of the blue curve as the origin of the selection.
5. Select the blue curve, towards its left end, as the “copy along” entity.
6. Click anywhere on the white background to de-select the curve.
7. The triangle will have been copied as shown below - the copied entities have remained parallel to the “copy along” entity.



And that's how you **Copy** entities **Along** another entity in RealCAD.