

LibreOffice
The Document Foundation

Draw Guide

Chapter 5 *Combining Multiple Objects*

Grouping, Combining, Merging, and Positioning

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Note for Mac users

Some keystrokes and menu items are different on a Mac from those used in Windows and Linux. The table below gives some common substitutions for the instructions in this chapter. For a more detailed list, see the application Help.

Windows or Linux	Mac equivalent	Effect
Tools > Options menu selection	LibreOffice > Preferences	Access setup options
<i>Right-click</i>	<i>Control+click</i> and/or <i>right-click</i> depending on computer setup	Opens a context menu
<i>Ctrl (Control)</i>	⌘ (Command)	Used with other keys
<i>F5</i>	<i>Shift+⌘+F5</i>	Opens the Navigator
<i>F11</i>	<i>⌘+T</i>	Opens the Styles and Formatting window

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Grouping objects

Grouping of objects is similar to putting objects into a container. You can move the objects as a group and apply global changes to the objects within the group. A group can always be undone and the objects that make up the group can always be manipulated separately.


Temporary grouping

A temporary grouping is when several objects are selected. Any changes to object parameters that you carry out are applied to all of the objects within the temporary group. For example, you can rotate a temporary group of objects in its entirety.

To cancel a temporary grouping of objects simply click outside of the selection handles displayed around the objects.

Grouping

To group objects together permanently, first select the objects by clicking on each object in turn

while holding down the *Shift* key. You can also use the **Select** icon  on the Drawing toolbar and draw a selection rectangle around the objects using the mouse cursor. Selection handles will then appear around all the objects within the group (Figure 1).

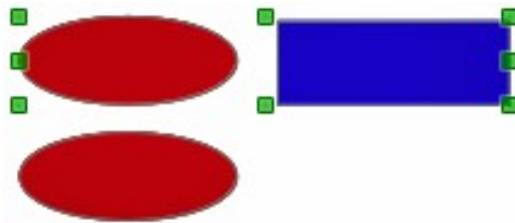


Figure 1: Grouping objects

Right-click on the group and select **Group** from the context menu. You can also select **Modify > Group** from the main menu bar or use the keyboard shortcut *Control+Shift+G*.

When objects are grouped, any editing operations carried out on that group are applied to all objects within the group. If you click on one object in the group, the whole group is selected.

The objects within a group also retain their own individual properties and can be edited independently. See “Editing individual objects” on page 4 for more information.

Ungrouping

To undo or ungroup a group of objects, right-click on the group and select **Ungroup** from the context menu. You can also select **Modify > Ungroup** from the main menu bar or use the keyboard shortcut *Control+Alt+Shift+G*.

Editing individual objects

You can individually edit an object within a group without ungrouping the group. To do this, right-click on the group and select **Enter group**, or press the *F3* key, or double-click on the group. When you enter a group, objects outside the group cannot be selected for editing and appear pale (Figure 2).

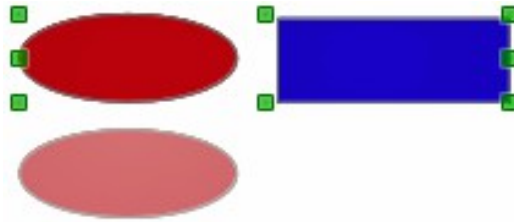


Figure 2: Entering groups

Once inside the group, click on any object to individually edit it (Figure 3).

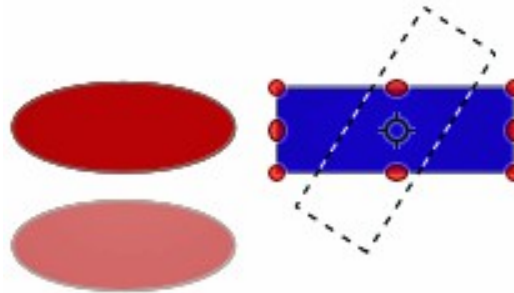


Figure 3: Editing inside a group

To leave a group, right-click on the group and select **Exit group**, or press *Ctrl+F3* key, or double-click outside the group.

Nesting groups

You can create a group of groups, which is more commonly known as nesting groups. When you create nested groups, Draw retains the individual group hierarchy and remembers the order in which groups were selected. That is, the last individual group selected will be on top of all the other groups within a nested group.

Ungrouping and entering a nested group works in exactly the same way as for individual groups.

Combining objects

Combining objects is a permanent merging of objects that creates a new object. The original objects are no longer available as individual entities and cannot be edited as individual objects. Any editing of a combined object affects all the objects that were used when combination was carried out.

Combining

Select the objects you want to combine, then right-click on the selection and select **Combine** from the context menu. You can also select **Modify > Combine** from the main menu bar or use the keyboard shortcut *Control+Alt+Shift+K*. At first glance, the results can seem rather surprising, but once you understand the rules governing combination in Draw, combining objects will become clearer.

- The attributes (for example, area fill) of the resulting object are those of the object furthest back. In Figure 4, it is the circle.
- Where the objects overlap, the overlapping zone is either filled or empty depending on the number of overlaps. When the number of overlaps is even, you get an empty space; when the number is odd, you get a filled area. An example of this is shown in Figure 5.

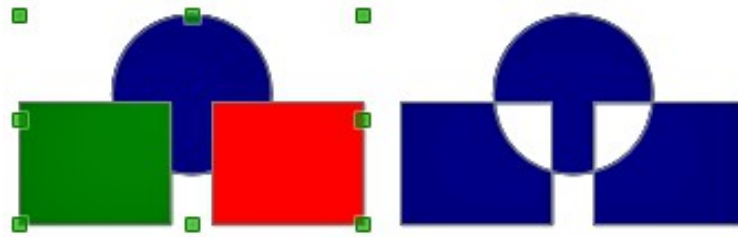


Figure 4: Combining objects

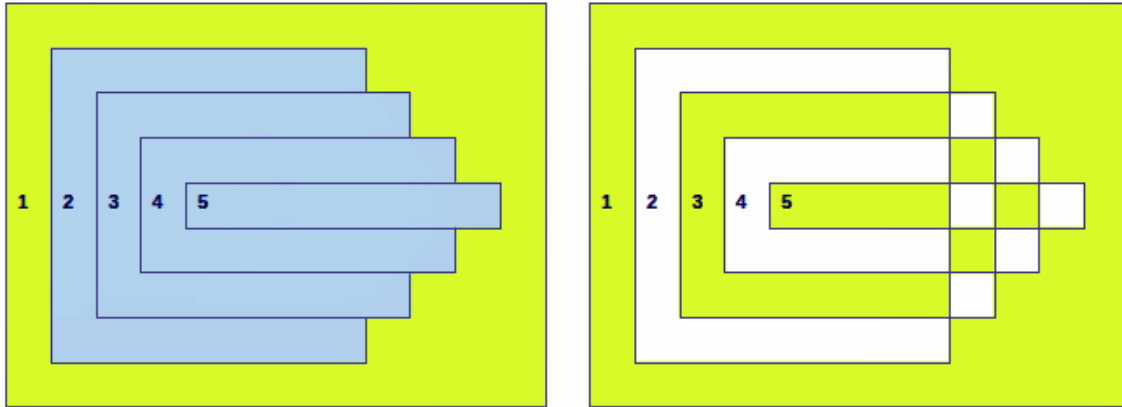


Figure 5: Area fill on overlapping objects

Tip

You can reorder objects so they are further back or further forward in the arrangement order. Right-click on the object and select **Arrangement** from the context menu. See also “Positioning objects” on page 12.

Splitting a combination

An object which is a combination of several objects can be split into individual entities by selecting **Modify > Split** from the main menu bar or using the keyboard shortcut *Control+Alt+Shift+K*. The original objects will retain the formatting of the combined object and will **not** revert back to their original formatting (Figure 6).

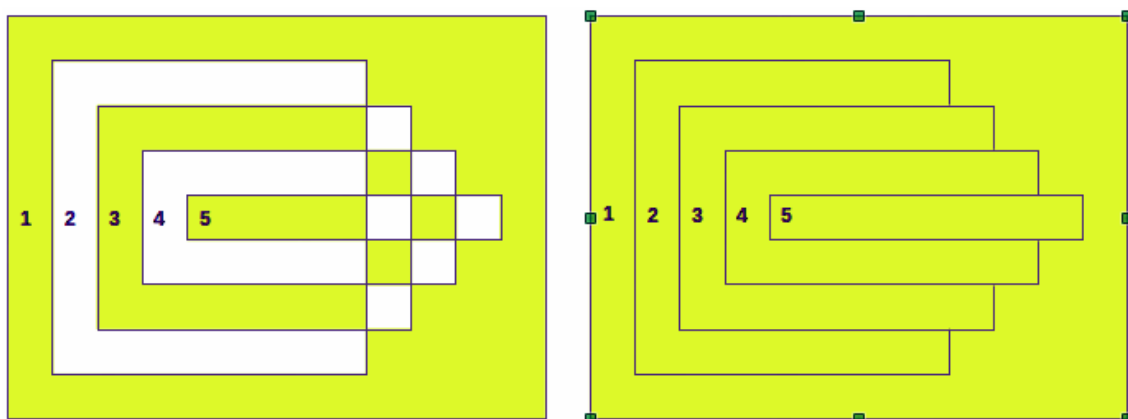


Figure 6: Splitting a combined object

Breaking a combination

An object which is a combination of several objects can be broken into its constituent parts by selecting **Modify > Break** from the main menu bar. The original objects are broken into their constituent parts; for example, a rectangle will be broken into four separate lines and the area fill will be lost (Figure 7).

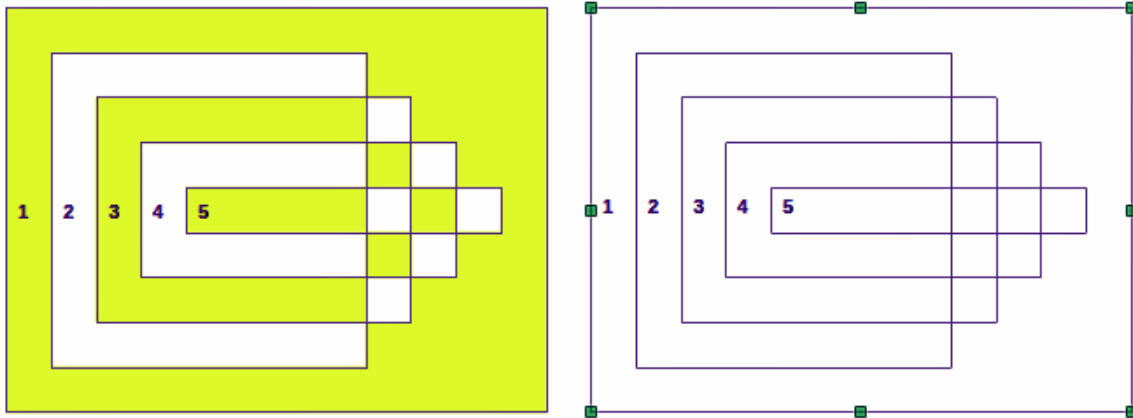


Figure 7: Breaking a combined object

Connecting lines

The constituent parts of an object can be connected together by selecting all the constituent parts of the object and selecting **Modify > Connect** on the main menu bar. This connects the parts together and closes the object resulting in the area becoming filled in the same way as before the object was broken.

Merging, subtracting, or intersecting objects

After you have selected more than one object, the Merge, Subtract, and Intersect functions become available, allowing you to create a new object with a new shape. After selecting several objects, go to **Modify > Shapes** on the main menu bar or right-click and select **Shapes** from the context menu.

Merge

When you merge objects, a new object is created with a shape that follows the shape of the merged objects. The area fill of the merged object is determined by the area fill of the object that is at the rear of all the other objects (Figure 8).



Figure 8: Merging objects

Subtract

When you subtract objects, the front object is subtracted from the objects behind. This leaves a blank space that the subtracted object occupied (Figure 9).

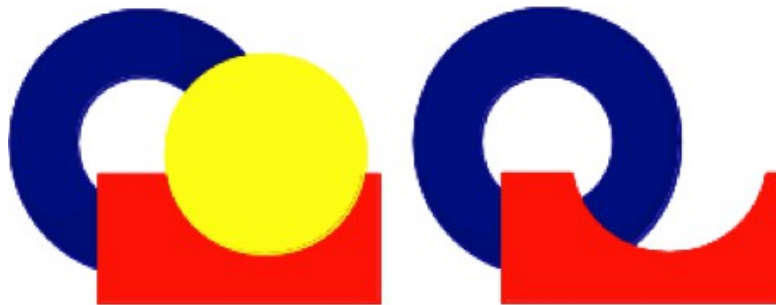


Figure 9: Subtracting objects

Intersect

When you intersect objects, the front objects and the exposed area of the object at the rear are removed. This creates a new object from the area of the object at the rear that was covered by the objects at the front (Figure 10).

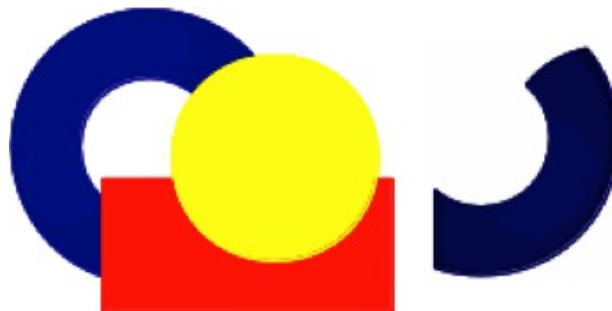








Figure 10: Intersecting objects

Practical example

The following example in Table 1 shows how you can use the merge, subtract and intersect functions to create a knife with a wooden handle.

Table 1: Creating a knife

Draw an ellipse and then a rectangle overlapping half of its width.	
Select both shapes, right-click, and select Shapes > Subtract from the context menu.	
Draw another rectangle and put it over the top half of the ellipse.	

Select both shapes, right-click, and select Shapes > Subtract from the context menu.	
Draw a small ellipse covering just the lower right corner.	
Select both shapes, right-click, and select Shapes > Subtract from the context menu. The knife blade shape is now complete.	
To make the handle, draw a rectangle and an ellipse.	
Merge the shapes together.	
Position the handle on the blade. Select the handle and blade, then group together to create a drawing of the knife.	

Duplication and cross fading

Duplication

Duplication makes copies of an object while applying a set of changes (such as color or rotation) to the duplicates. The **Duplicate** dialog (Figure 11) has the following options:

- **Number of copies** – enter the number of copies you want to make.

Placement – sets the position and rotation of a duplicate object with respect to the selected object.

- **X axis**-- enter the horizontal distance between the centers of the selected object and the duplicate object. Positive values shift the duplicate object to the right and negative values shift the duplicate object to the left.

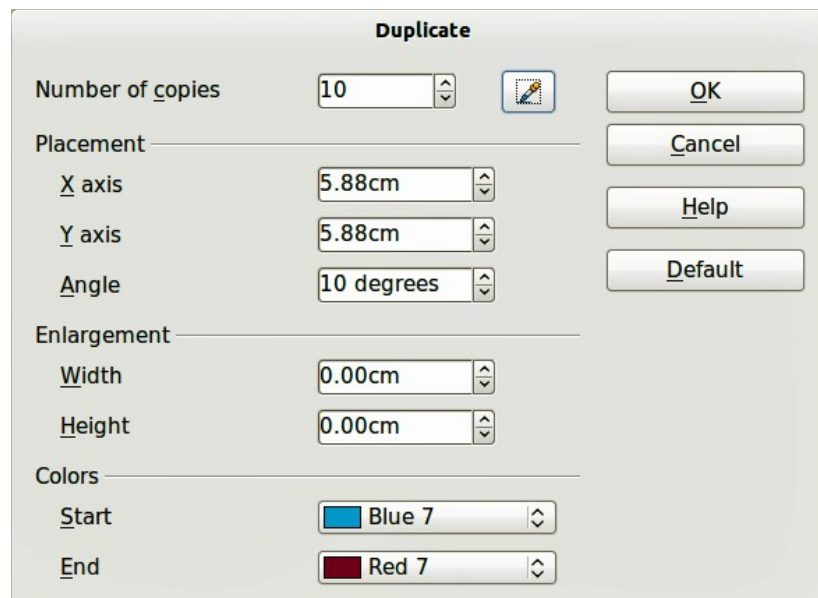


Figure 11: Duplicate dialog

- *Y axis* – enter the vertical distance between the centers of the selected object and the duplicate object. Positive values shift the duplicate object down and negative values shift the duplicate object up.
- *Angle* – enter the angle (0 to 359 degrees) by which you want to rotate the duplicate object. Positive values rotate the duplicate object in a clockwise direction and negative values in a counterclockwise direction.
- **Enlargement** – sets the size of a duplicate object.
 - *Width* – enter the amount by which you want to enlarge or reduce the width of the duplicate object.
 - *Height* – enter the amount by which you want to enlarge or reduce the height of the duplicate object.
- **Colors** – sets the colors for the selected object and the duplicate object. If you make more than one copy, these colors define the start and end points of a color gradient.
 - *Start* – choose a color for the selected object.
 - *End* – choose a color for the duplicate object. If you are making more than one copy, this color is applied to the last copy.

To duplicate an object or group of objects:

- 1) Select an object or group of objects.
- 2) Go to **Edit > Duplicate** or use the keyboard shortcut *Shift+F3* to open the **Duplicate** dialog (Figure 11).
- 3) Select the number of copies, placement, enlargement, and the start and end colors for your duplicate copies.
- 4) Click **OK** and your duplicate copies are created. An example of a duplication is shown in Figure 12. Each duplicate object is a separate object.
- 5) To group the duplicate objects into one group, see “Grouping objects” on page 4.
- 6) To combine the duplicate objects into one object, see “Combining objects” on page 5.



Figure 12: Duplication example

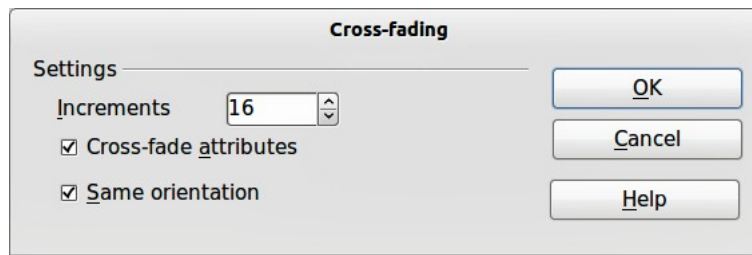


Figure 13: Cross-fading dialog

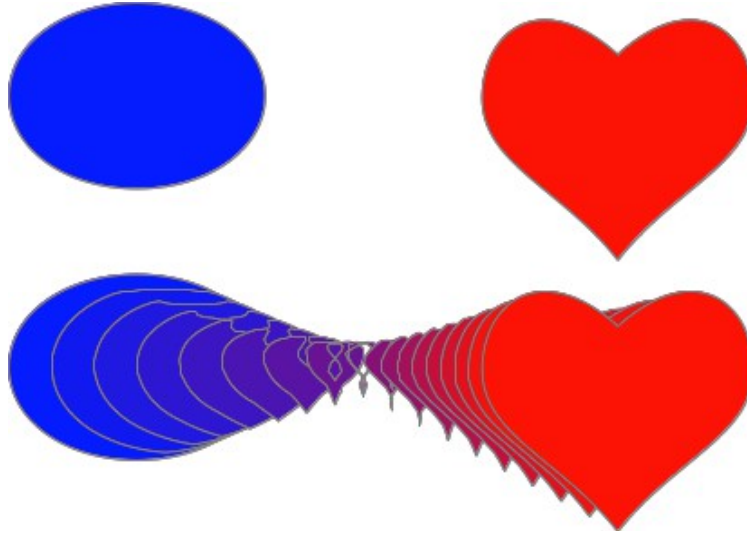


Figure 14: Cross-fading example

Cross fading

Cross-fading transforms one object shape into another object shape. The result is a new group of individual objects that includes the start and end objects with the intermediate steps show the transformation from one object shape to another object shape.

The options available in the **Cross-fading** dialog (Figure 13) are:

- **Increments** – enter the number of shapes you want between the two selected objects.
- **Cross-fade attributes** – applies cross-fading to the line and fill properties of the selected objects. For example, if the selected objects are filled with different colors, a color transition between the two colors is applied.
- **Same orientation** – applies a smooth transition between the selected objects.

To cross-fade two objects:

- 1) Select two objects and go to **Edit > Cross-fading** on the main menu bar to open the **Cross-fading** dialog (Figure 13).
- 2) Select the number of increments for the transformation.
- 3) If necessary, select **Cross-fade attributes** and **Same orientation**.
- 4) Click **OK** to perform the cross-fading. An example of cross-fading is shown in Figure 14. The object created is a group of objects.
- 5) To ungroup this group of objects so that you can use the individual objects, see “Ungrouping” on page 4.

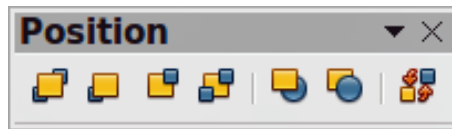


Figure 15: Position toolbar




Figure 16: Position tools

Positioning objects


Arranging objects

When you combine, merge, subtract or intersect objects, the end result varies depending on which object is at the front and which object is at the back. Each new object that you place on a drawing automatically becomes the front object and all the other objects move backwards in the positioning order. Arranging objects allows you to change the order in which objects are positioned.

First select one or more objects, then click on the **Arrange** icon  on the Drawing toolbar to open the *Position* toolbar (Figure 15 and Figure 16).

- **Bring to Front** – brings the selected object to the front of the group.
- **Bring Forward** – brings the selected object forward one step.
- **Send Backward** – sends the selected object one step backward.
- **Send to Back** – sends the selected object to the back of the group.
- **In Front of Object** – moves the selected object in front of another selected object.
- **Behind Object** – moves the selected object behind another selected object.
- **Reverse** – reverses the order of the selected objects. This tool is grayed out if only one object is selected.

Aligning objects

To make your drawing look more professional, you can align objects with each other. Select one or more objects and click on  on the Drawing toolbar to open the **Align** toolbar (Figure 17 and Figure 18).

- **Left** – aligns the left edges of the selected objects. If only one object is selected, the left edge of the object is aligned to the left page margin.
- **Centered** – horizontally centers the selected objects. If only one object is selected, the center of the object is aligned to the horizontal center of the page.



Figure 17: Align toolbar

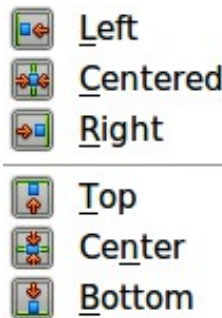


Figure 18: Align tools

- **Right** – aligns the right edges of the selected objects. If only one object is selected, the right edge of the object is aligned to the right page margin.
- **Top** – vertically aligns the top edges of the selected objects. If only one object is selected, the top edge of the object is aligned to the upper page margin.
- **Center** – vertically centers the selected objects. If only one object is selected, the center of the object is aligned to the vertical center of the page.
- **Bottom** – vertically aligns the bottom edges of the selected objects. If only one object is selected, the bottom edge of the object is aligned to the lower page margin.

Distributing objects

Distributing objects allows you to space three or more objects evenly along the horizontal axis or the vertical axis. Objects are distributed using the outermost objects in the selection as base points for spacing.

Select at least three objects. To open the Distribution dialog (Figure 19), go to **Modify > Distribution** on the main menu bar or right-click and select **Distribution** from the context menu.

Horizontal distribution specifies the horizontal distribution between the selected objects.

- *None* – does not distribute the objects horizontally.
- *Left* – distributes the selected objects so that the left edges of the objects are evenly spaced from one another.

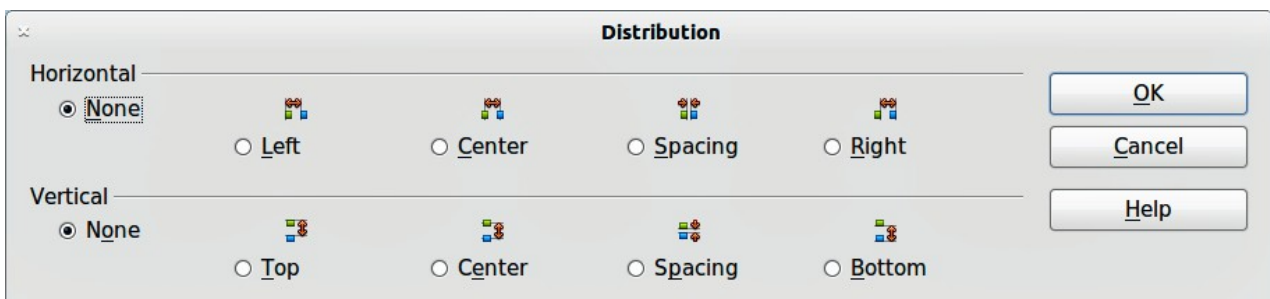


Figure 19: Distribution of spacing between objects

- *Center* – distributes the selected objects so that the horizontal centers of the objects are evenly spaced from one another.

- *Spacing* – distributes the selected objects horizontally so that the objects are evenly spaced from one another.
- *Right* – distributes the selected objects so that the right edges of the objects are evenly spaced from one another.

Vertical distribution specifies the vertical distribution between the selected objects.

- *None* – does not distribute the objects vertically.
- *Top* – distributes the selected objects so that the top edges of the objects are evenly spaced from one another.
- *Center* – distributes the selected objects so that the vertical centers of the objects are evenly spaced from one another.
- *Spacing* – distributes the selected objects vertically so that the objects are evenly spaced from one another.
- *Bottom* – distributes the selected objects so that the bottom edges of the objects are evenly spaced from one another.