



Draw Guide

Chapter 5

Combining Multiple Objects

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Note

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Using LibreOffice on macOS

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

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

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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:

- 1) Select the objects you want to group using one of the following methods. Selection handles will then appear around all the objects selected for the group (Figure 1).
 - Click on each object in turn while holding down the **Shift** key.
 - Use the **Select** tool on the **Drawing** toolbar and draw a selection rectangle around the objects using the cursor.
- 2) Group the selected objects using one of the following methods:
 - Right-click on the group and select **Group** from the context menu.
 - Go to **Shape > Group > Group** on the main menu bar.
 - Use the keyboard shortcut **Ctrl+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 group objects” on page 5 for more information.

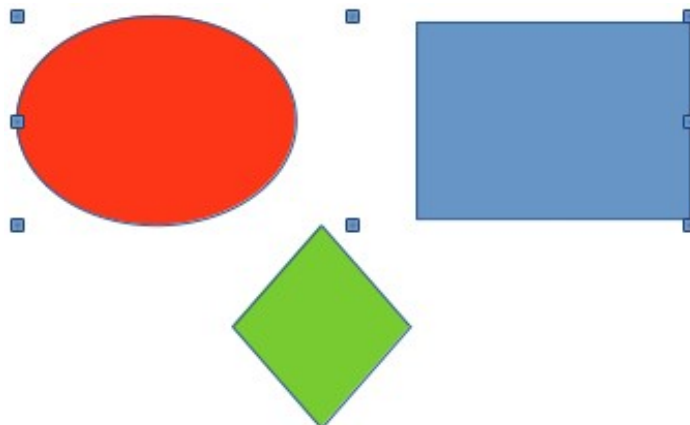


Figure 1: Grouping objects

Ungrouping

To undo or ungroup a group of objects:

- 1) Select the group of objects which is indicated by selection handles appearing around the group (Figure 1).
- 2) Ungroup the group of objects using one of the following methods:
 - Right-click on the group and select Ungroup from the context menu.
 - Go to **Shape > Group > Ungroup** on the main menu bar.
 - Use the keyboard shortcut **Ctrl+Alt+Shift+G**.

Editing individual group objects

You can individually edit an object within a group without ungrouping the group.

- 1) After selecting a group, enter the group using one of the following methods. When you enter a group, objects outside the group cannot be selected for editing (Figure 1).
 - Right-click on the group and select **Enter Group** from the context menu.
 - Go to **Shape > Group > Enter Group** on the main menu bar.
 - Press the **F3** key.
 - Double-click on the group.
- 2) Once inside the group, click on any object to individually edit it (Figure 2).
- 3) After making your changes to an individual object, exit the group using one of the following methods:
 - Right-click on the group and select **Exit Group** from the context menu.
 - Go to **Shape > Group > Exit Group** on the main menu bar
 - Use the keyboard combination **Ctrl+F3**.
 - Double-click outside the group.

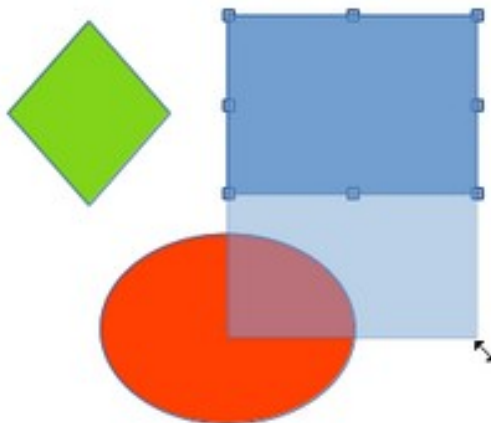


Figure 2: Editing in a group

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 in “Grouping” on page 4, “Ungrouping” on page 5 and “Editing individual group objects” on page 5.

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

- 1) Select the objects you want to combine.
- 2) Combine the selected objects using one of the following methods:
 - Right-click on the selection and select **Shapes > Combine** from the context menu
 - Go to **Shape > Combine** on the main menu bar.
 - Use the keyboard combination **Ctrl+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 3, it is the circle and Figure 4 it is the yellow rectangle.
- Where the objects overlap, the overlapping zone is either filled or empty depending on whether the overlap is even numbered or odd numbered. Figure 4 shows that where the overlap number is even, you get an empty space and where the overlap number is odd, you get a filled area.

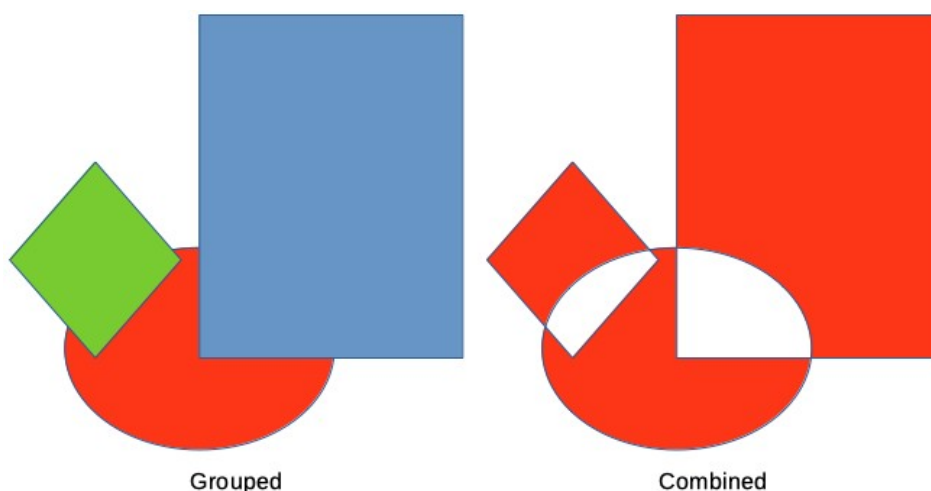


Figure 3: Combining objects

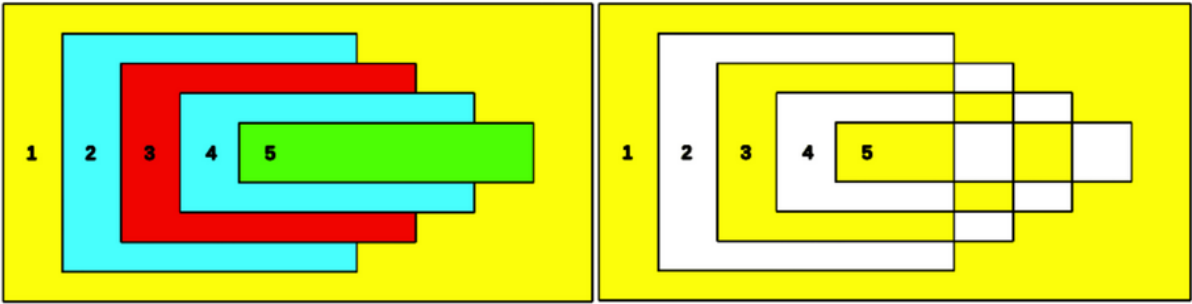


Figure 4: Area fill on overlapping objects



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 and select one of the options available. For more information, see “Arranging objects” on page 13.

Splitting combined objects

An object which has been combined from several objects can be split into individual objects using one of the following methods after selecting the combined object:

- Going to **Shape > Split** on the main menu bar
- Using the keyboard shortcut `Ctrl+Alt+Shift+K`.

However, the original objects will retain the formatting of the combined object and will not revert back to their original formatting.

In Figure 5, the left graphic is the original object, as shown on the left in Figure 4. The right graphic is the result of splitting and the individual objects have taken the formatting of the combined object, as shown on the right in Figure 4.

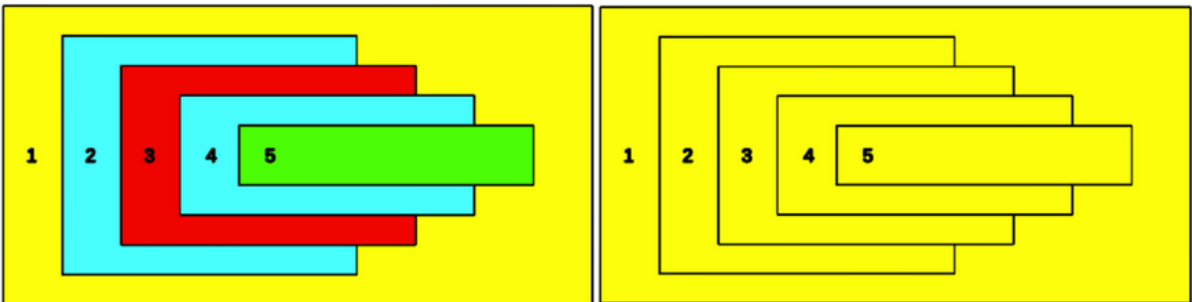


Figure 5: Splitting a combined object

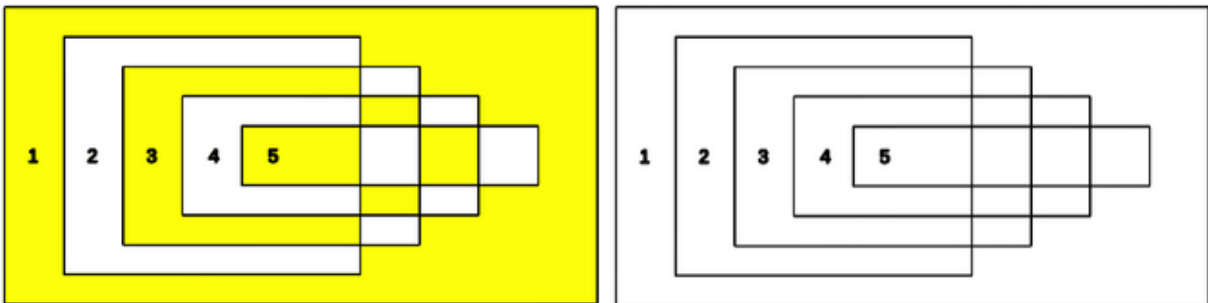


Figure 6: Breaking a combined object

Breaking combined objects

When an object is combined from several objects, the combined object can be broken into its constituent parts by going to **Shape > Break** on the main menu bar. This means that 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, as shown by the right graphic in Figure 6. The left graphic in Figure 6 is the original combined object.

Connecting lines

The constituent parts of an object can be connected together by selecting all the constituent parts of the object and going to **Shape > Connect** on the main menu bar. This connects the parts together and closes the object resulting in the area becoming filled with the area fill it had 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. This allows you to create a new object with a new shape.

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, as shown in Figure 7.

After selecting several objects, use one of the following methods to merge the objects:

- Go to **Shape > Merge** on the main menu bar.
- Right-click on the selected objects and select **Shapes > Merge** from the context menu.

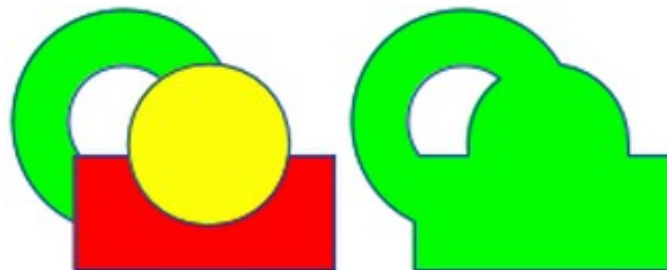


Figure 7: Merging objects

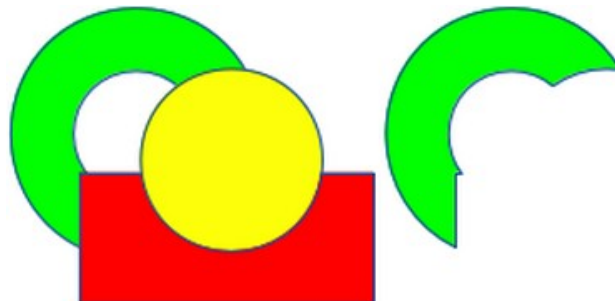


Figure 8: Subtracting objects

Subtract

When you subtract objects, the objects at the front are subtracted from the object behind. This leaves a blank space that the subtracted objects occupied creating a new shape, as shown in Figure 8.

After selecting several objects that overlap each other, use one of the following methods to subtract objects:

- Go to **Shape > Subtract** on the main menu bar.
- Right-click on the selected objects and select **Shapes > Subtract** from the context menu.

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, as shown in Figure 9.

After selecting several objects that overlap each other, use one of the following methods to intersect objects:

- Go to **Shape > Intersect** on the main menu bar.
- Right-click on the selected objects and select **Shapes > Intersect** from the context menu.

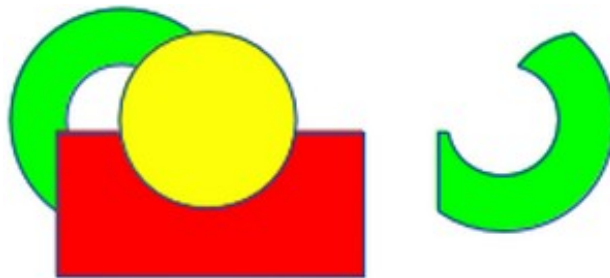


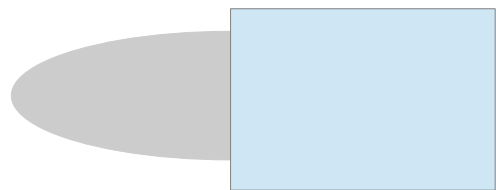
Figure 9: Intersecting objects

Practical example

The 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.

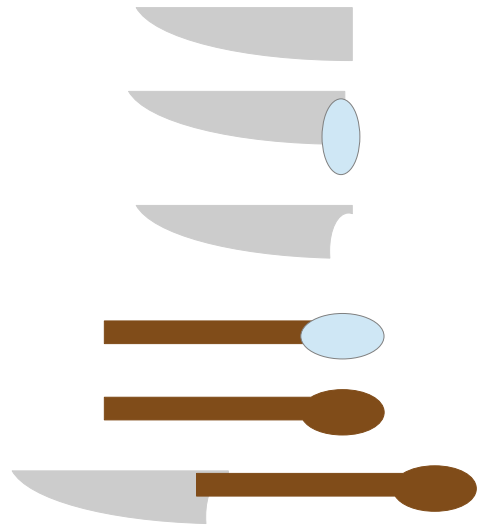
Draw a small ellipse covering just the lower right corner.

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.

To duplicate an object or group of objects:

- 1) Select an object or group of objects, then duplicate the object(s) using one of the following methods to open the **Duplicate** dialog (Figure 10):
 - Go to **Edit > Duplicate** on the main menu bar.
 - Go to **Shape > Duplicate** on the main menu bar.
 - Use the keyboard shortcut **Shift+F3**.
- 2) Select the number of copies, placement, enlargement, and the start and end colors for your duplicate copies.
- 3) Click **OK** and your duplicate copies are created. An example of a duplication is shown in Figure 11. Each duplicate object is a separate object.
- 4) To group the duplicate objects into one group, see “*Grouping objects*” on page 4.
- 5) To combine the duplicate objects into one object, see “*Combining objects*” on page 6.

The **Duplicate** dialog (Figure 10) 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.
 - *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.

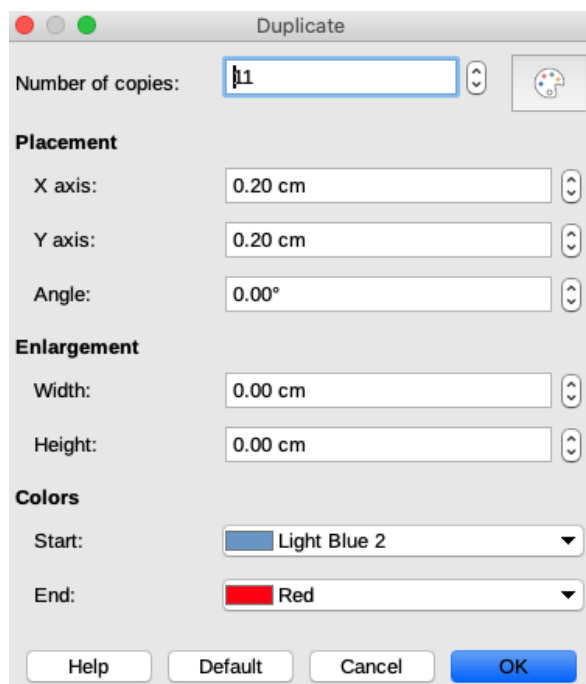


Figure 10: Duplicate dialog

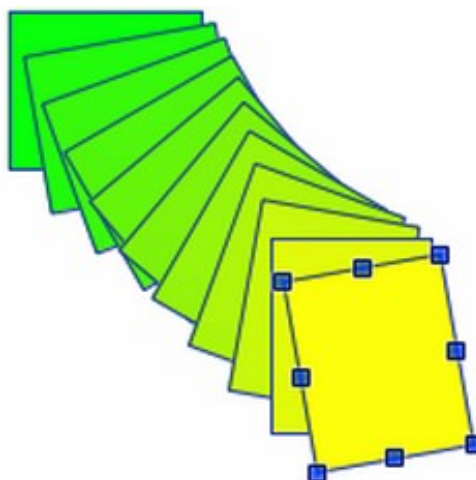


Figure 11: Duplication example

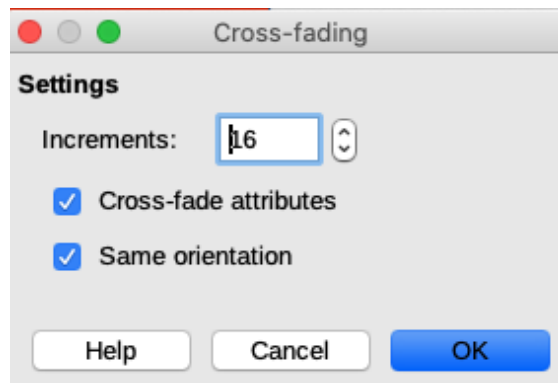


Figure 12: Cross-fading dialog

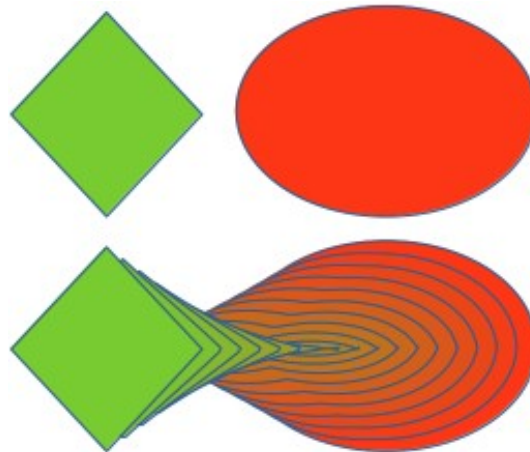


Figure 13: Cross-fading example

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. The intermediate steps show the transformation from one object shape to another object shape.

To cross-fade two objects:

- 1) Select two objects and go to **Shape > Cross-fading** on the main menu bar to open the **Cross-fading** dialog (Figure 12).
- 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 and close the **Cross-fading** dialog. An example of cross-fading is shown in Figure 13 with **Same orientation** deselected. 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 5.

The **Cross-fading** dialog has the following options:

- **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.

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 positioning order. Arranging objects allows you to change the order in which objects are positioned.

First select one or more objects, then use one of the following methods to select a positioning arrangement:

- Click on small triangle to the right of the **Arrange** icon on the **Standard** toolbar to open a pop up toolbar.
- Click one of the positioning icons on the **Line and Filling** toolbar.
- Click on **Shape > Arrange** on the main menu bar and select one of the arrangement options.

The positioning tools available are as follows and shown in Figure 14:

- **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.



Note

The positioning tools can be turned into a floating toolbar by clicking at the top of the pop up toolbar and dragging it to a new position on your drawing workspace.

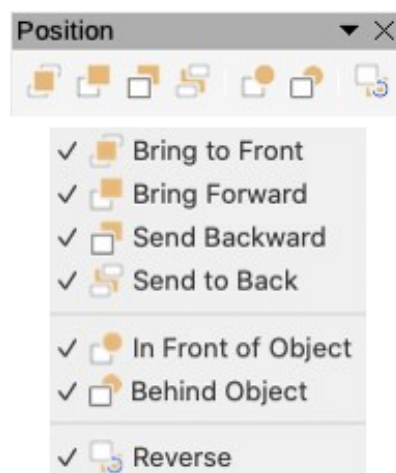


Figure 14: Position toolbar

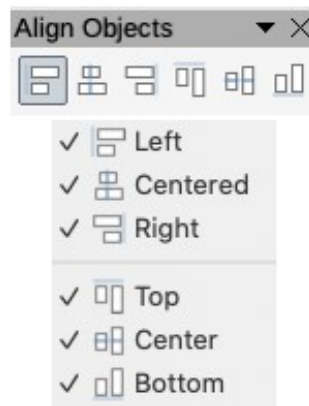


Figure 15: Align Objects toolbar

Aligning objects

To make your drawing look more professional, you can align objects with each other. Select one or more objects and use one of the following methods to align objects:

- Click on small triangle to the right of the **Align** icon on the **Line and Filling** toolbar to open a pop up toolbar.
- Go to **Shape > Align** on the main menu bar and select the alignment required.

The alignment tools available are as follows and shown in Figure 15:

- **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.
- **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.



Note

The alignment tools can be turned into a floating toolbar by clicking at the top of the pop up toolbar and dragging it to a new position on your drawing workspace.

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, then use one of the following methods to open the **Distribution** dialog (Figure 16) and arrange the objects:

- Go to **Shape > Distribution** on the main menu bar.

- Right-click and select **Distribution** from the context menu to open.
- Click on the **Distribution** icon on the **Line and Filling** toolbar.

The options available in the **Distribution** dialog are explained as follow:

- **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.
 - *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.

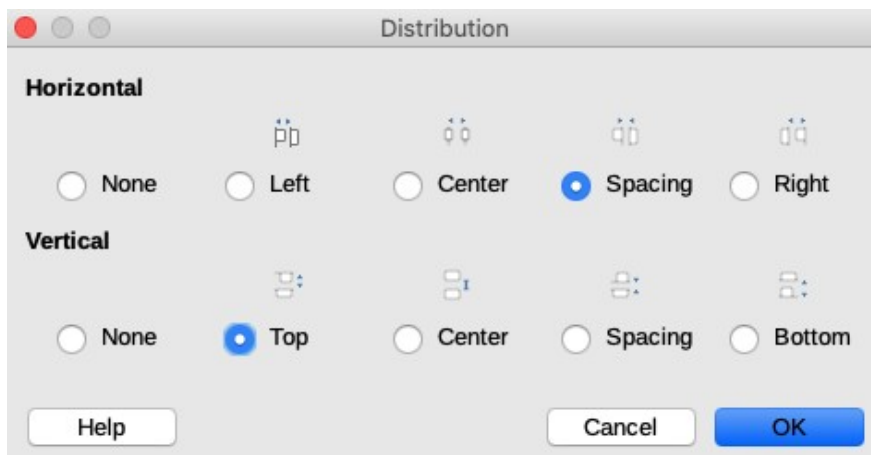


Figure 16: Distribution dialog