Apache OpenOffice

Version 4.1

Draw Guide

AOO Documentation Team

Chapter 9

Organization Charts, Flow Diagrams, and More

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Acknowledgments

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Note for Mac Users

Some keystrokes and menu items differ 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/Linux	***Mac equivalent***	***Effect***
Tools > Options menu selection	**OpenOffice > Preferences**	Access setup options
Right-click	*Control+click*	Open context menu
Ctrl (Control)	⌘ (Command)	Used with other keys
F5	*Shift+⌘+F5*	Open the Navigator
F11	*⌘+T*	Open Styles & Formatting window

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Drawing an Organization Chart

Even though Draw does not have an organization chart toolbar, you can draw these charts by drawing rectangles and connector lines (see Figure 1). You can indicate hierarchies by using a color progression, from dark to light tones or vice versa. Your color choices should maintain a good contrast between text color and background so you can easily read the printed diagram.

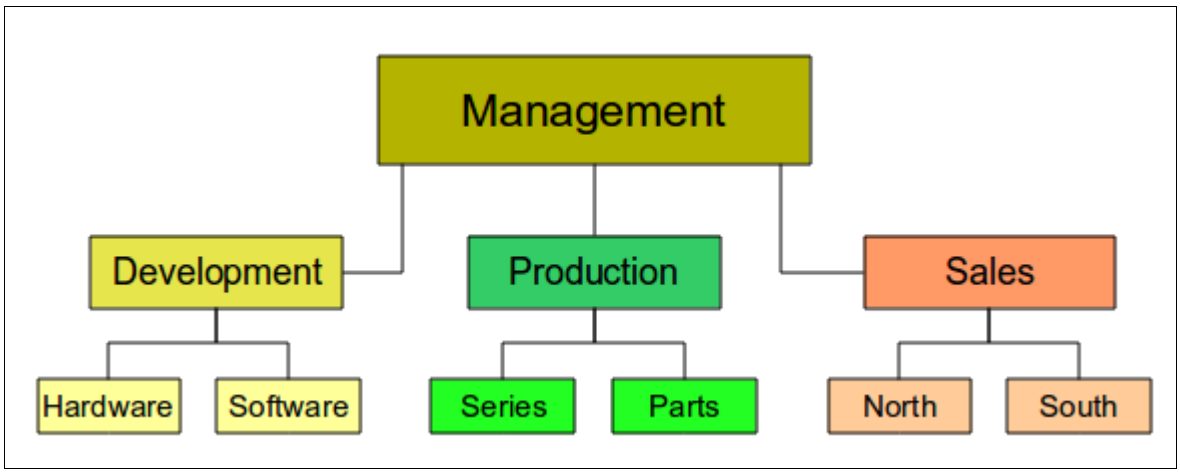


Figure 1: Example of an Organization Chart

Before you begin, prepare a setup page or draft with snap lines (shown in Figure 2) to assist in drawing the various hierarchies, responsibility paths, and typical boxes you will use in drawing the chart.

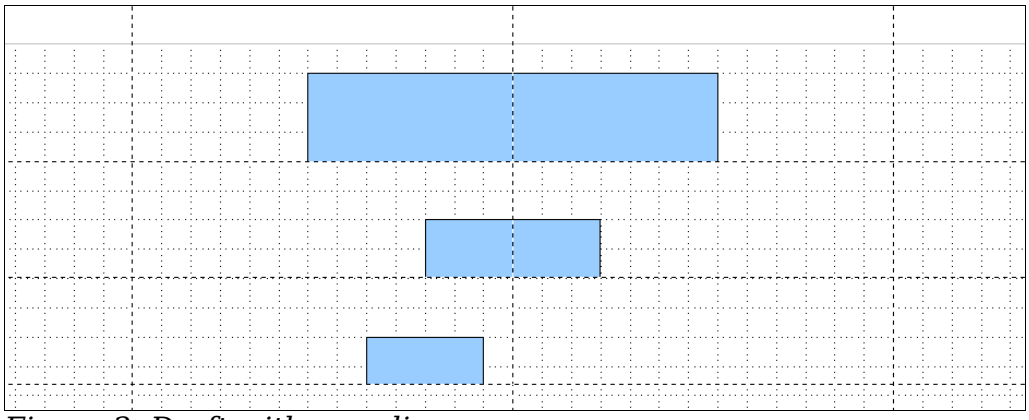


Figure 2: Draft with snap lines

Place and dimension the individual boxes according to the size of the overall chart. The exact size, and particularly the width, position, and color, will be fixed later. It is sometimes easier to draw only one box per level. That way, you can copy and paste this box and move the copies to the desired positions. Using styles can also be helpful; see the relevant section in Chapter 4 (Changing Object Attributes).

You can also select one or more boxes and use **Edit > Duplicate** to make copies (see Figure 3). The spacing of the duplicated objects relative to the original can be controlled using the placement fields for the X and Y axes. Note that positive values for X and Y are to the right and downwards from the original object.

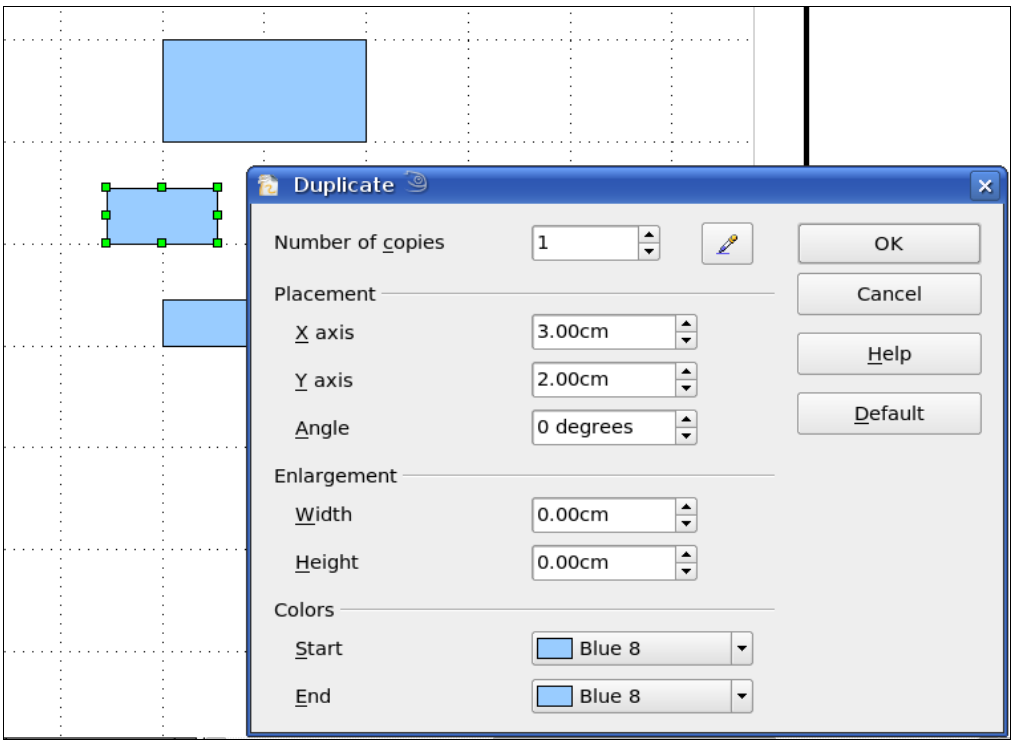


Figure 3: Duplicating an object

The replication technique to use is up to you. The draft for the example in this chapter should look similar to that in Figure 4.

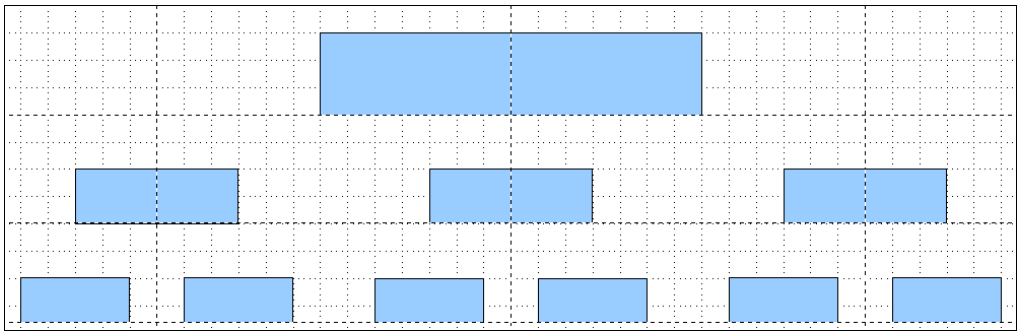


Figure 4: The finished draft

The next step is to add text to the boxes, most easily by inserting it as a text element within the box. Activate the  icon on the Options toolbar, then double-click the box to enter text into it. Alternatively, select the box and press *F2*. You should then see a blinking cursor in the box, and the Text Formatting toolbar should be visible.

Set the text formatting and type the text. Depending on the length and format of the text, you may need to adjust the size of the box and the spacing to neighboring boxes, or change the formatting of the text to fit the box. Adjustments can be made initially with the mouse and fine-tuned with the Position and Size dialog.

Now set up the fill colors and save the drawing. The connections between the boxes are not drawn with ordinary lines, but rather with Draw's connectors. How to draw these connectors and add text to them is described in "Glue Points and Connectors" starting on page 8.

In addition, you can use dynamic text frames instead of boxes. These frames offer the advantage of automatic line breaks. Figure 5 shows the sequence of text input into a

frame, adding borders, and setting the background color. The Line and Filling toolbar may not be visible until you have set a line type for the frame. Set the line type using **Format > Line**, or right-click the text frame and select *Line*. All of the tools for setting the text properties, line type, and background color are also available in the Sidebar once the text frame object is selected.

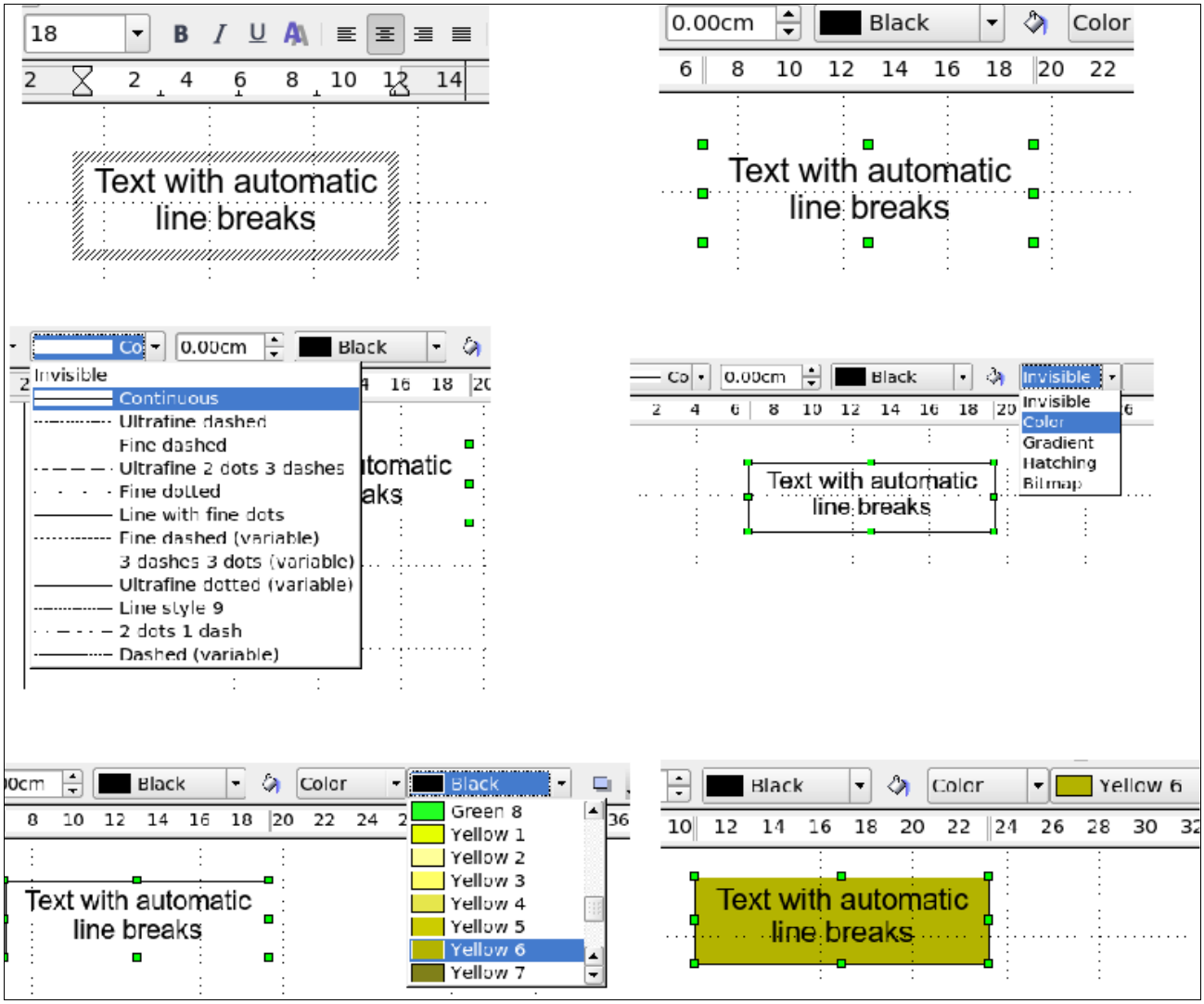


Figure 5: Working with text frames

Drawing a Flow Diagram

For drawing flowcharts, Draw offers a separate toolbar (Figure 6); click the flowchart icon on the main Drawing toolbar.

The easiest way to draw a flowchart is to follow the same setup procedure as for organization charts. Select the symbols from the toolbar and drag them into position as described in Chapter 2 (Drawing Basic Shapes). See Figure 7 for an example of a typical flowchart.

The individual symbols must be exactly positioned if the connectors joining them are to form a vertical line. The midpoints of all the symbols that lie in a vertical straight line should have the same X coordinate, and those on the same level on a horizontal line should have the same Y coordinate.

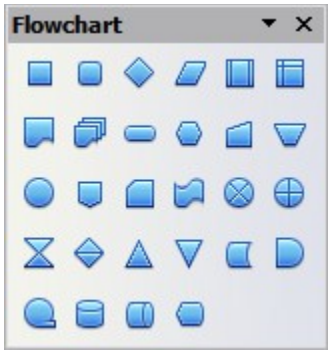


Figure 6: The Flowchart toolbar

Select the shapes that should lie in a vertical straight line and center them using **Modify > Alignment > Centered**. For those on a horizontal line, select the shapes and center them with **Modify > Alignment > Center**. You can also set snap lines if you need several vertical lines.

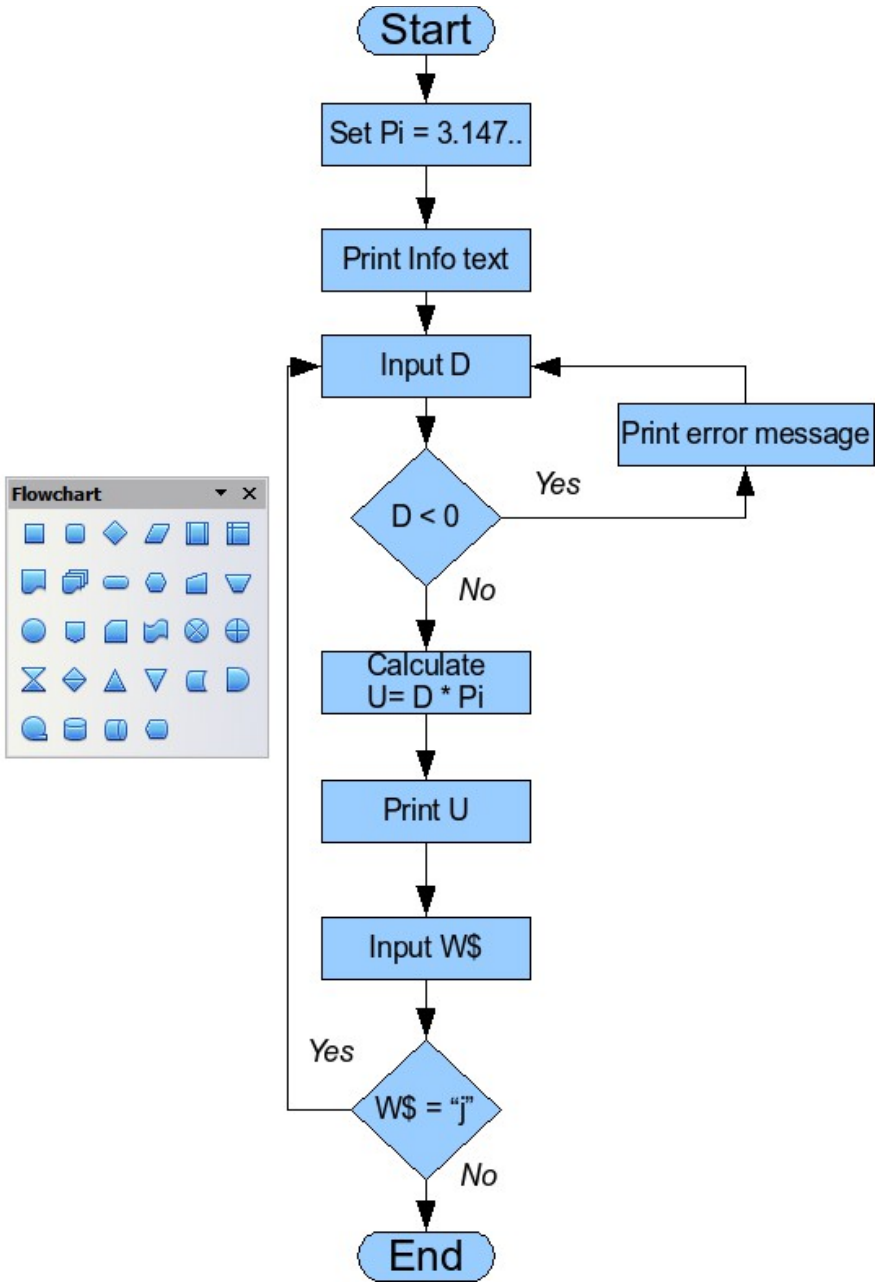


Figure 7: Example of a flow diagram

After adding text and setting the fill color, you can join individual symbols together and add text to the connectors. This technique is described in the next section.

Glue Points and Connectors

These elements were briefly introduced in Chapter 2 (Drawing Basic Shapes). This section describes how to use them.

Connectors are lines or arrows whose ends automatically dock to a connection or glue point on an object. Connectors are particularly useful when drawing organization charts, flow diagrams, and mind maps. The connecting lines between the symbols remain intact even when the latter are moved or rearranged.

The Connector Toolbar

Click on the arrow of the button on the Draw toolbar to open the Connectors toolbar.

If the type of connector you want isn't shown, drag the toolbar to make it float, then click the arrow in the toolbar's title bar. In the list that appears, click on **Visible buttons** to open a menu from which you can activate additional types of connectors (Figure 8).

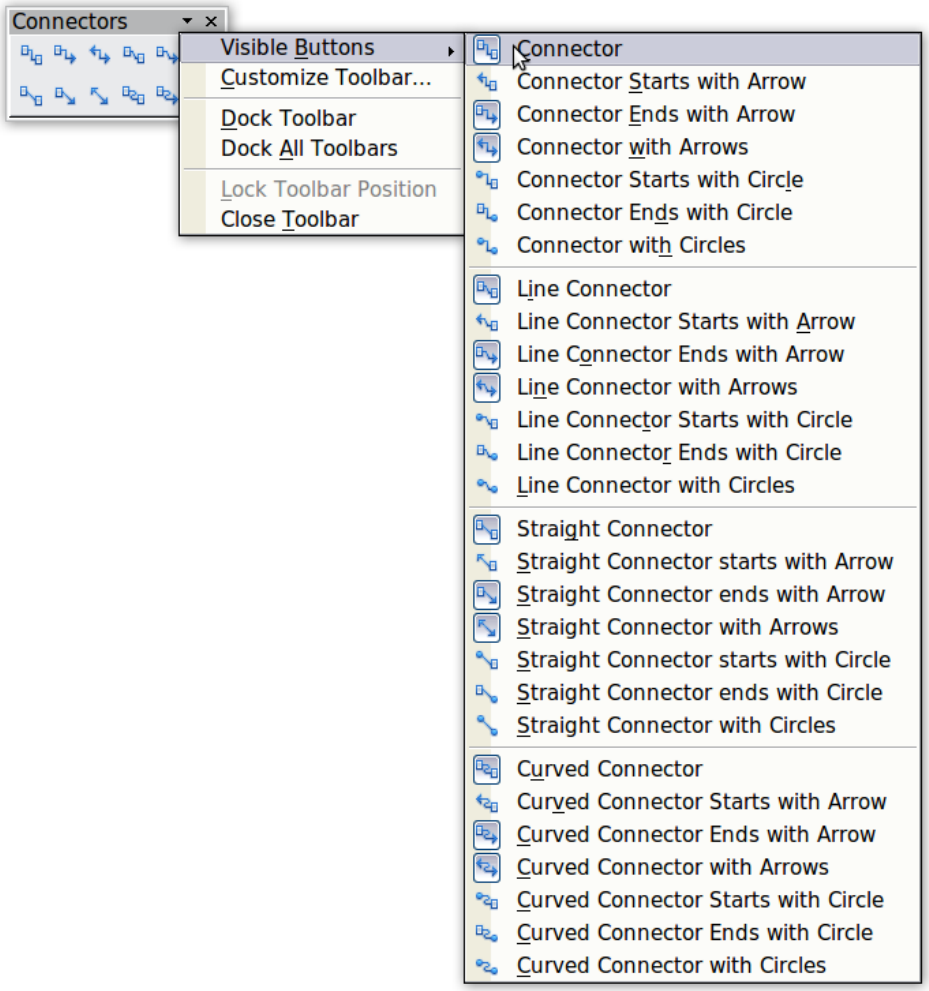


Figure 8: Activating additional connectors

Connector types fall into four groups:

- *Standard connectors* – the line segments run vertically and horizontally. All angles are right angles. The connector does not bend around the objects it binds.
- *Line connectors* – consist of a line segment and two smaller horizontal or vertical segments at the ends.
- *Straight connectors* – consist of a single line.
- *Curved connectors* – are based on Bézier curves, as described in Chapter 10 (Advanced Draw Techniques).

You can modify all the connector types from the context menu. Select **Connector** to change from one connector type to another (as well as some other properties). With the Line pane on the Sidebar, you can change the appearance of the line (color, arrow style, and line style) but not the connector type.

Drawing Connectors—Basics

When you choose a connector from the toolbar, the mouse pointer changes to . As you move the cursor over an object, the available connection points (also referred to as glue points) become visible. To connect two shapes, move the mouse cursor over a glue point, click and hold down the left mouse button to establish the first point, and then, while pressing the left mouse button, drag the mouse cursor to the other glue

point. Then release the mouse button. The ends of the line are now docked, and the connection is established (see Figure 9).

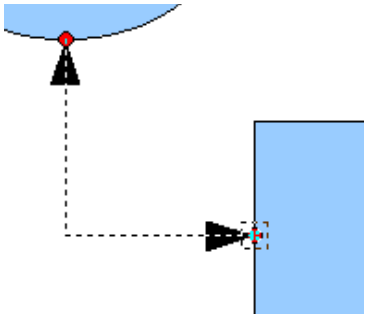


Figure 9: Gluing a connector to a shape

As with all other objects, connectors have one or more control points to simplify the construction of the drawing. You can use these points to change the shape, length, and proportions of the connector line (see Figure 10).

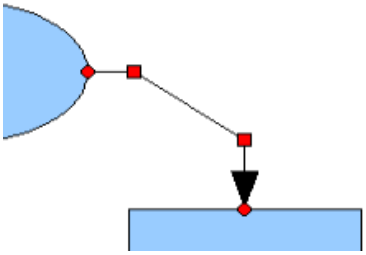


Figure 10: Control points of a connector

To remove a connector from an object, either move the end of the connector away from the glue point of the object or simply delete the connector entirely.

Editing Glue Points

Glue points can be edited using a separate toolbar (see Figure 11). This toolbar appears when you click on the *Glue Points* icon  on the Drawing toolbar or select **Edit > Glue Points** from the main menu.

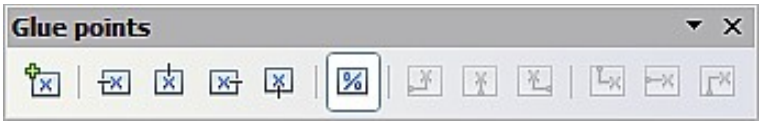
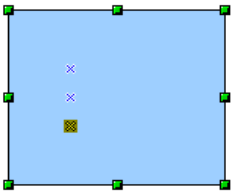


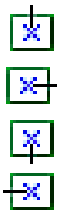
Figure 11: The Glue points toolbar

The following briefly describes the function of each button on this toolbar.

Use this button to insert a new glue point into an object you have drawn. If the object is filled, you can place a glue point anywhere inside the object or on its frame. With unfilled objects, you can place a glue point only on the outside frame, but you can then drag it inside the object, provided that the *Glue Points* icon on the Drawing toolbar is still active.



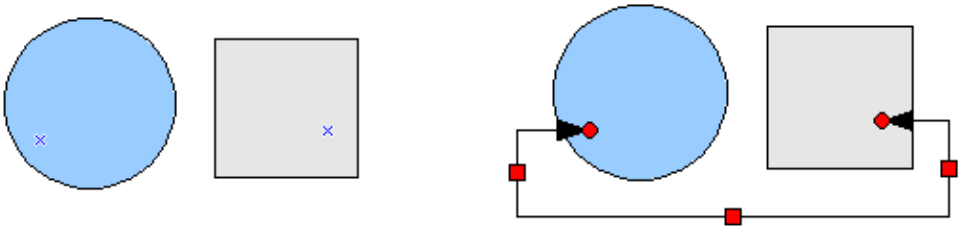
The glue points you add remain visible while the *Glue Points* icon is active. They appear as small blue crosses. A selected glue point has a gray square behind the cross. You can move a selected glue point with the mouse or delete it with the *Del* key.



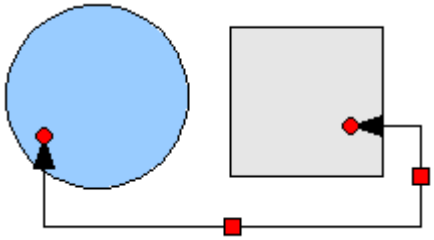
Use these four buttons to choose one or more directions permitted for a connector to join to a particular glue point.

Activate *Glue Points* and then choose the direction. If, for example, you activate only the  button, every connector will be forced to come to that glue point from the left side.

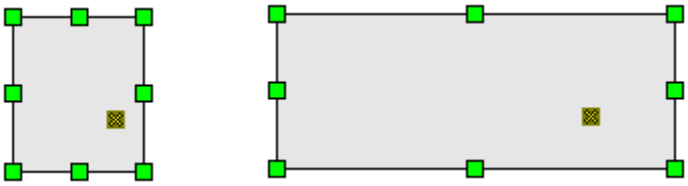
In the drawing on the left below is a glue point in the circle with a left entry, and one in the square with a right entry. The effect of this when adding a connector between the two glue points is shown in the drawing on the right



If you are in glue point editing mode and add another direction to a glue point (for example, by activating the  button), Draw tries to optimize the length of the connector. For the example above, the connection inside the circle would change as shown below.



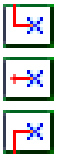
If the *Glue Point Relative* button is active (as it is by default), the glue point will move when you change the size of the object, as shown below.



If the *Glue Point Relative* button is deactivated, the remaining buttons on the toolbar, previously grayed out, become active. With these buttons, you can decide how a glue point will be placed when the size of the object is changed.

These buttons determine how the horizontal position of a glue point changes when you resize the object containing the glue point. You can choose whether the glue point remains at a fixed distance from the left edge of the object, from a vertical line through the middle, or from the right edge of the object when you change the size of the object. If the width of the object becomes less than that distance, the glue point is attached to the object frame.

The following example shows what happens when an object's width is changed, and the glue point is set to be a fixed distance from the left frame.



These buttons determine, in a similar manner, the vertical position of a glue point when the size of the object is changed.

Adding Text to Connectors

To add text to a connector, double-click the connector. The end and control points become active, and the familiar flashing text cursor appears, with the cursor position determined by the most recent setting. The Text pane of the Sidebar appears, and the Text Formatting toolbar also appears under the menu bar. Use this toolbar to set text properties, then insert the text directly.

If you draw a connector and then click on it, only the endpoints and control points become visible. Despite this, a connector has its own object frame—in this case, an invisible one. You can picture it easily by imagining a rectangle enclosing the start and end points of the connector (Figure 12).

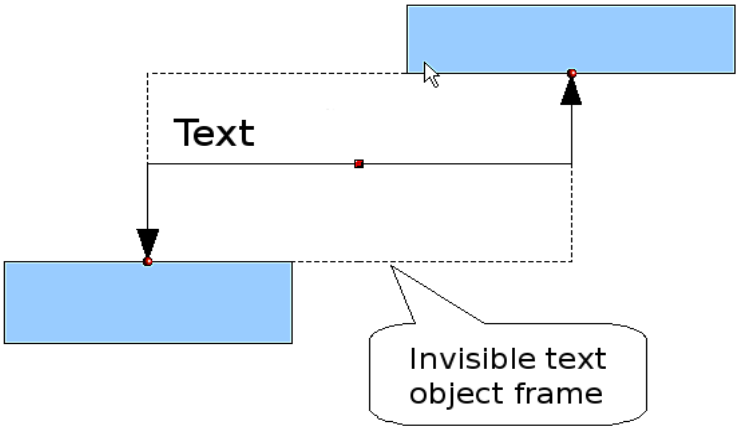


Figure 12: Object frame of a connector

When you add text to a connector, the location of the text is relative to this rectangle. The exact position of the text can be set in the Text dialog (Figure 13). This dialog appears when you double-click on text and then choose **Text** from the pop-up menu, or when you single-click on the connector and select **Format > Text** from the menu bar.

Take particular note of the *Spacing to borders* and *Text anchor* sections in the Text dialog. In the *Text anchor* section, you can see the possible locations for the text. In the example below, the text is anchored at the top left. In the *Spacing to borders* section at the lower left, *negative* values of spacing will position the text *outside* the frame.

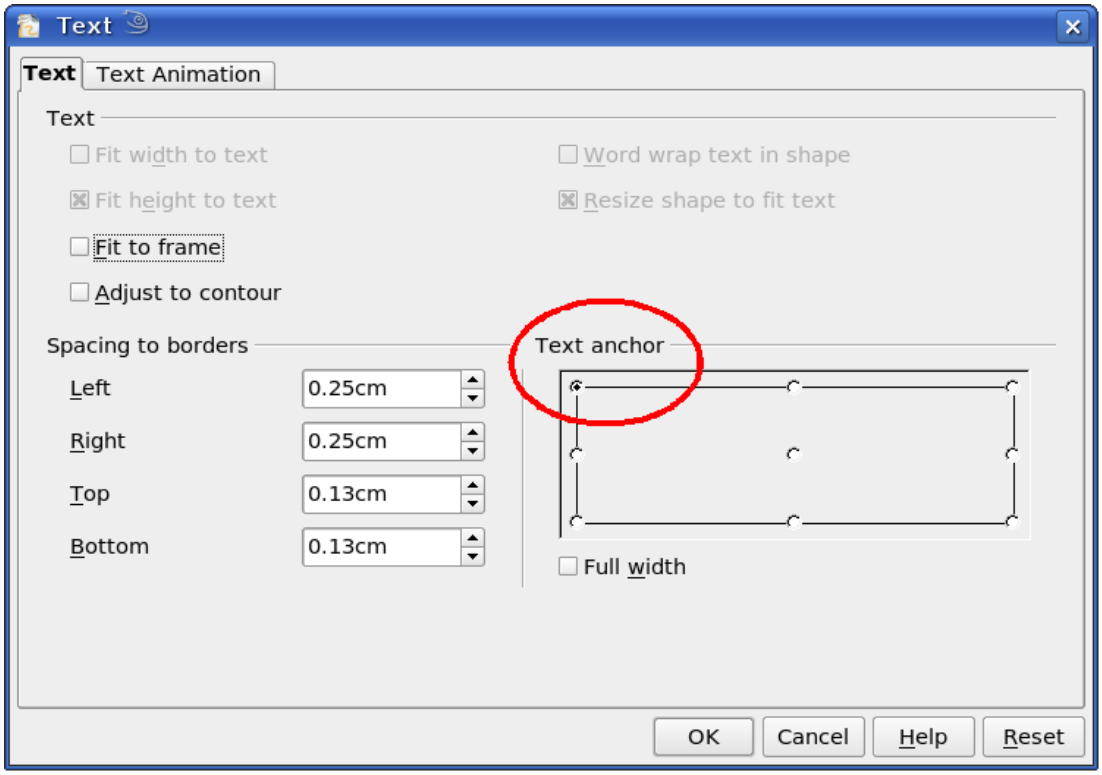


Figure 13: The Text dialog

Adjusting Text to Suit the Connecting Line

If you want the text to follow the slope or curve of a line, you need to activate and use the Fontwork tool. To add this tool to the Draw toolbar:

1) Choose **Tools > Customize** from the menu bar.
2) On the Toolbars tab, select *Drawing* from the Toolbars pull-down list. In the *Toolbar content* section, click **Add**.
3) In the Add Commands dialog, select *Format* from the left-hand list, and select the command *Fontwork*. Click **Add**, then **Close** to return to the Customize dialog.
4) In the list of commands under *Toolbar Content,* move the Fontwork icon to the location you want by using the up/down arrows, and then click **OK**.

To write slanting text, follow these steps:

1) Add the text to the connector as described earlier. The anchor location of the text is not important at this stage (Figure 14).
2) Select the object with the text (in this case, the connector) and click on the Fontwork icon to open the Fontwork dialog (Figure 15).
3) To make the text lie along the inclined line, click the **Rotate** icon and set the distance to the line you wish.

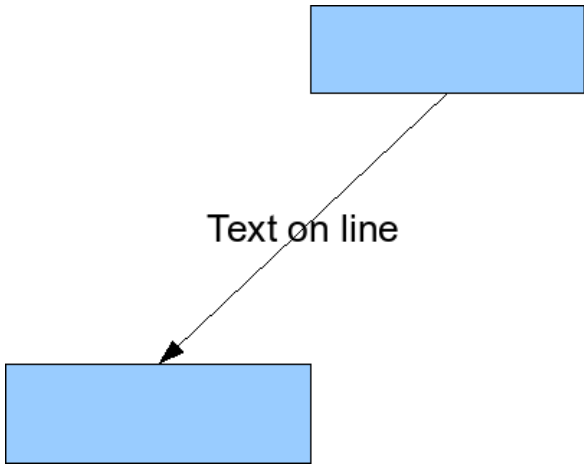


Figure 14: Adding text to an inclined line, Step 1

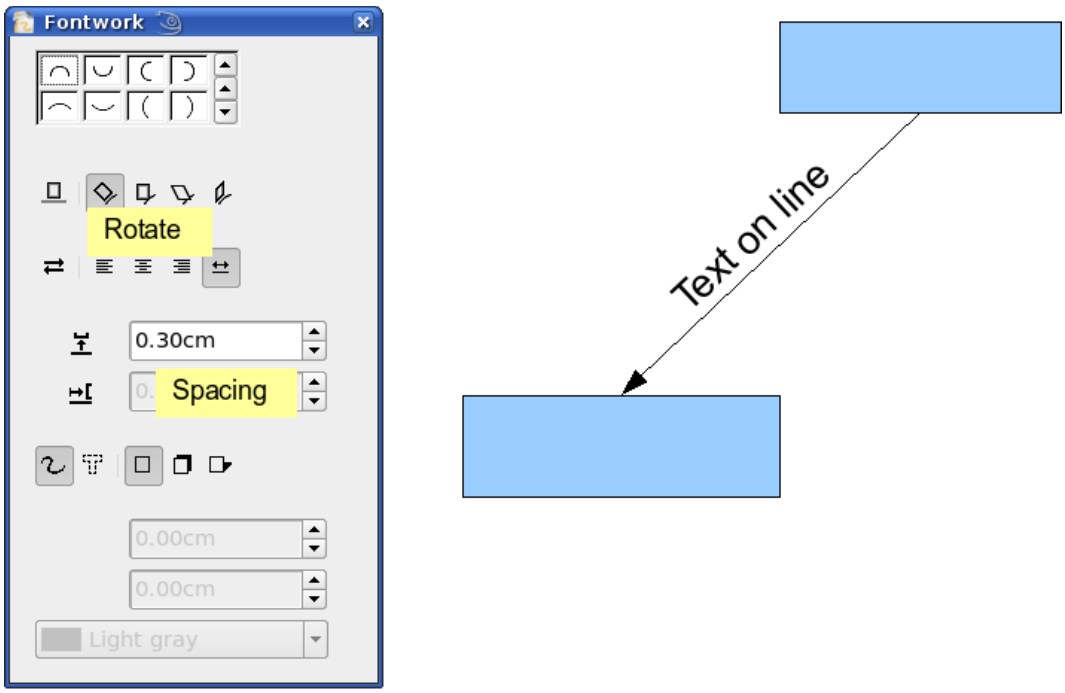


Figure 15: Adding text to an inclined line, Step 2

The Fontwork dialog provides many other possibilities for manipulating text. You can, for example, rotate the text 180 degrees with the Orientation icon, as done in the example above, or place the text under the line by assigning a negative value to the spacing between text and line.

In addition, you can use the Fontwork dialog to generate curved text that follows the shape of a curved line. Experiment a little to investigate the possibilities.