

Bonus Chapter 4

Getting More Graphic

In This Chapter

- ▶ Curving and connecting
 - ▶ Applying cool bitmap filtering
 - ▶ Using lively layering
 - ▶ Animating text
 - ▶ Applying thrilling 3-D effects
-

From shapes and curves to animating text, from filtering bitmaps to mind-blowing 3-D, OpenOffice.org Draw has it all, as you can see in this chapter. It's an easy-to-use yet full-featured draw program that can make an artist out of anyone — and maybe a Picasso out of an artist.

Angling Those Curves

The Curves feature in Draw allows you to create all kinds of professional-looking art with incredible ease. Whether you want to draw cartoons (for example, the cartoon elephant shown later in Figure 3) or more elaborate, real-life art, the Curve feature can fulfill your needs.

Long-click the Curves icon on the Main toolbar to view the four curve icons and four polygon icons on the draggable toolbar. The curve icons are Curve, Curve-filled, Freeform Line, and Freeform-Line-filled. Curves can be created from any of these icons.

To create a simple curve, click the Curve icon, and click and drag a short distance in the Draw document to define the first endpoint and arc of the curve. Then release the mouse button and move the mouse to define the endpoint. Now double-click, and your curve is created. Don't worry if it's not exactly

the right size or orientation — or even the right curve. Just get it close, and then you can resize it, flip it, rotate it, and duplicate it as well as group curves together. Or, you can change the curve by clicking the Edit Points icon on the Object toolbar.

To create a curve that loops around, click the Curve icon and then click and drag a short distance in the Draw document to define the first endpoint and arc of the curve. Then release the mouse button and move the mouse to define the endpoint. Now click and drag the mouse to generate a control line with which you can adjust the curve that you just created, and then release the mouse button. The control line turns into a new curve. Move the mouse so that the new curve curls over the first curve. Then double-click to complete the curlicue.

Editing Curves and Polygons

The Edit Points feature is a veritable powerhouse for creating art. It is not only used for simple curves but also for polygons. And because you can turn just about anything into either a curve or a polygon by choosing Modify⇨Convert, this feature is fairly universal. For example, you can use it to create the elephant that's shown later in Figure 3. Use rough shapes to outline the art, as shown in Figure 1. Merge the shapes, and then apply edit points to refine the art, as shown in Figure 2. Then add a few finishing touches to create the picture that's shown in Figure 3. Using curves, shapes, and edit points is a great way to quickly create nice work.

To use edit points, perform the following steps:

1. Select the object that contains points that you want to edit.

This object can be a curve or a polygon. A complex merged shape, such as the one shown in Figure 2, qualifies as a polygon.

- Pulling points on polygons produces straight lines.
- Pulling points on curves creates curves along with control lines and control points to refine the curve.



To apply edit points to a shape, choose Modify⇨Convert⇨To Curve or Modify⇨Convert⇨To Polygon. You can change a curve into a polygon if you want to straighten some of it, or you can pull straight lines from its points.

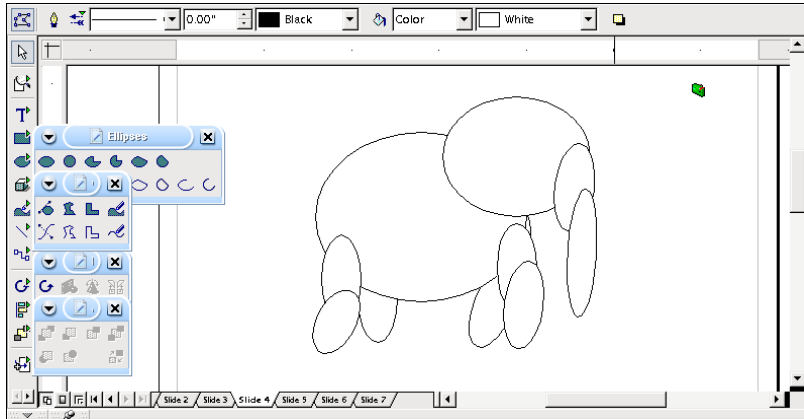
2. Click the Edit Points icon on the Object toolbar. This is the first icon on the left.

The Object toolbar changes to the Edit Points toolbar, which consists of such icons as Move Points and Insert Points.

The handles on your selected object change from green to blue. Draw calls these handles *data points*.

If the Edit Points icons do not appear on the Object toolbar, your selected object is not in the proper format. To correct this, choose **Modify**⇨**Convert**⇨**To Curve**, and then repeat Step 2.

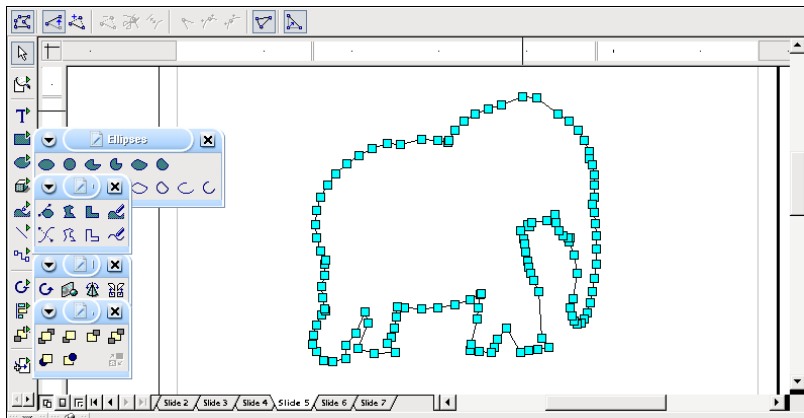
Figure 1:
Merge
shapes to
create a
rough
outline of an
elephant.



3. Edit your curves and polygons in the following ways:

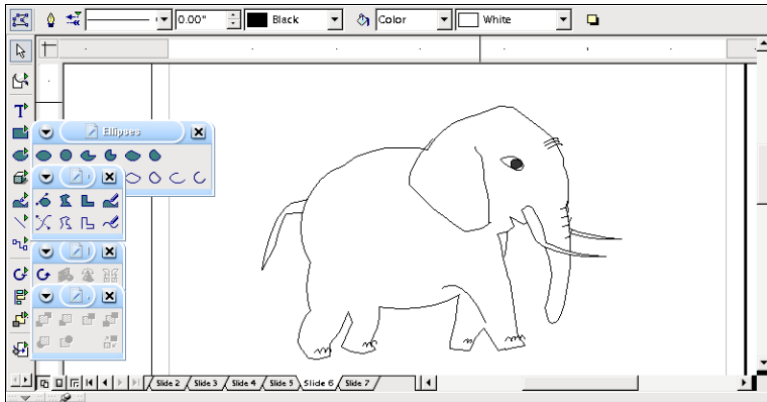
- To reshape your curve or polygon, pull a data point. Pulling a data point on a polygon creates straight lines between points. Pulling a data point on a curve reshapes your curve.
- To modify your curve with greater precision, click a data point of a curve. One or two control points and control lines appear.

Figure 2:
Using edit
points, you
refine shape
of the
elephant.



Control points are attached to control lines, which emerge from the handle that you select. Click and drag on a control point. Moving a control point changes the shape of the curve. Then, when your curve is just the way you want it, deselect your control point by clicking anywhere in the draw document or by clicking another data point. Your control point(s) and control line(s) then vanish.

Figure 3:
Adding a few extra
details
creates your
finished
drawing.



Sometimes a control point may look like a data point. If you are not sure whether a square is a control point or data point, roll your mouse over it. If your cursor turns white and a symbol appears like two strings twisted together, the square is a control point.

- To add a new data point, click the Insert Point icon and then click and drag slightly on the curve or polygon at the location that you want to add a point. A new data point appears.
- To delete a data point, click it and press Backspace.

Don't expect the Eliminate Points icon to delete a selected data point. The function of the Eliminate Points icon is to delete unnecessary points according to the tolerance that you set in Tools⇨Options-Drawing⇨Grid.

- To split your curve or polygon in two, select the data point at which you want to split the curve or polygon and click the Split Curve icon on the Edit Points Object toolbar.
- To change a straight line of your object into a curve or vice versa, select the data point that you want to convert and click the Convert to Curve icon.
- To display two control lines and points when you click a curve data point, select the data point and click the Corner Point icon.

- If you want the two curves that a data point joins to join smoothly, click the Smooth Transition icon.
- If you want the two curves that a data point joins to join smoothly and symmetrically, click the Symmetric Transition icon.
- To omit points that are not needed, click the Eliminate Points icon. You can set the tolerance for this feature in the Points Reduction spin box found in Tools⇨Options⇨Drawing⇨Grid.



If you select an object to change the line size or color, for example, and the Edit Points feature appears automatically on the Object toolbar, click the Edit Points icon to make the Edit Points Object toolbar disappear.



If the Edit Points Object toolbar is active and you want to change your area color or line size or color, for example, but your combo boxes are not showing, you can always choose Format⇨Area or Format⇨Line.

Filtering Those Bitmaps (and Everything Else, Too)

OpenOffice.org Draw comes complete with a toolbar of bitmap filters; these filters are incredibly powerful and fun to use. Filters are cool because they do so much with so little effort from you. For example, the pot of flowers that's shown in Figure 4 has been converted to a bitmap and had some filters applied to it.

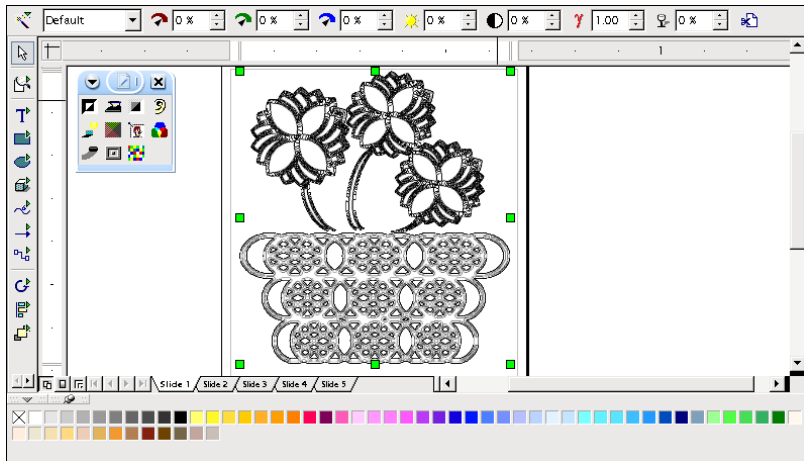


Figure 4: A pot of flowers is filtered with the Charcoal Sketch filter.

To apply one or more filters to an object, perform the following steps:

1. Select your object, and choose Modify⇨Convert⇨Bitmap.

The Object toolbar changes to the Bitmap Object toolbar, as shown in Figure 4. Using this toolbar, you can modify the percentage of red, green, or blue; the brightness; the contrast; and the transparency of your bitmap. You can also choose Black/White or Greyscale from the combo box.

2. Click the Filter icon on the Bitmap Object toolbar.

The Filter icon is the first icon on the left. It brings up the draggable Filter toolbar, which contains these filters: Invert, Smooth, Sharpen, Remove Noise, Solarization, Aging, Posterize, Pop Art, Charcoal Sketch, Relief, and Mosaic.

3. Click the appropriate filter to apply it to the bitmap.

As you click, the bitmap changes to the new filtered image. To achieve the effect that's shown in Figure 4, we clicked the Sharpen filter four times and then clicked the Charcoal Sketch filter.

Filters can be a lot of fun, so have fun!

Loving Those Layers

Did you ever try to select an object and end up selecting an object behind the one that you really wanted to select? Wouldn't it be useful to lock some objects in place so that they couldn't be selected by accident, such as a fancy background? Or, did you ever feel like focusing on just one object at a time and hiding all the other parts of your image? Or, are you a Web designer who wants to have all your buttons automatically separated so that you can easily find and program them? You can do all these things using layers.

To create layers, choose View⇨Layer. Three layer tabs replace the Slide tab or tabs at the bottom of the Draw window. The layer tabs are labeled Layout, Controls, and Dimension Lines. (Draw automatically puts any dimension lines that you draw on the Dimension Line layer, and any buttons that contain actions are put on the Controls layer. You can't delete these three default layers.)

To use your new layers, just select the layer that you want and then add or draw any objects that you want on that layer. It's that simple.

To create a new custom layer, follow these steps:

1. **Right-click on a layer name and choose Insert Layer from the shortcut menu that appears.**

The Insert Layer dialog box appears.

2. **Type a new name in the input box, and select the properties that you want to apply to the layer: Visible, Printable, and/or Locked. Then click OK.**

Your new layer name appears on a new tab at the end of the line of layer tabs.

3. **To modify your layer, select the layer tab that you want to modify, right-click it, and choose Modify from the shortcut menu that appears.**

The Modify Layer dialog box appears, which is similar to the Insert Layer dialog box. You can rename the layer, make it visible or hidden, lock it, or make it printable or not printable.

When you are switching between layers, locking and hiding the layers makes it easier to quickly complete complex art projects.

4. **To view your slide tabs again, choose View⇧Layer.**



The order of the layers in Draw does not specify the arrangement from top to bottom. An object can be on the last layer yet still be on top, if it is the last object that you created.

Animating Text

Moving text adds sparkle to your Web site or presentation. And it's amazingly easy to do.

To animate text, perform the following steps:

1. **Select the text box that contains the text that you want to animate.**

Make sure that your text box is big enough to accommodate your animation in the direction or directions that you plan for it to move — unless you just want the text to blink.

2. **Choose Format⇧Text, and click the Text Animation tab of the Text dialog box.**

3. **In the Effects combo box, choose Blink, Scroll Through, Scroll Back and Forth, or Scroll In.**

Scroll Through scrolls like a marquee. Scroll Back and Forth scrolls back and forth in the text box. (Be sure that the text box is large enough to give the text room to move back and forth.) Finally, Scroll In just scrolls the text in and stops.

4. Choose the direction of your scroll by clicking a direction arrow.
5. Select the **Start Inside** check box or the **Text Visible When Exiting** check box to activate either of those features.
6. Select the **Continuous Animation Cycles** check box, or deselect this check box and choose the number of animation cycles. Also, choose the **Increment**, which regulates the speed at which the animation appears.

For example, if you want your text to race across the page, choose a higher increment.

7. If you want your animation to be delayed, deselect the **Automatic** check box and choose a delay from the spin box.
8. Click **OK**.

The Text dialog box closes.

9. **Deselect the text box.**

Your animation occurs just as you specified.

Thrilling 3-D Effects

OpenOffice.org offers powerful 3-D effects. Shapes, lines, curves, and even text can be converted to 3-D. And once a component is converted, it can be modified, grouped with other 3-D or 2-D objects, rotated, and given shadows, textures, lighting effects, and more.

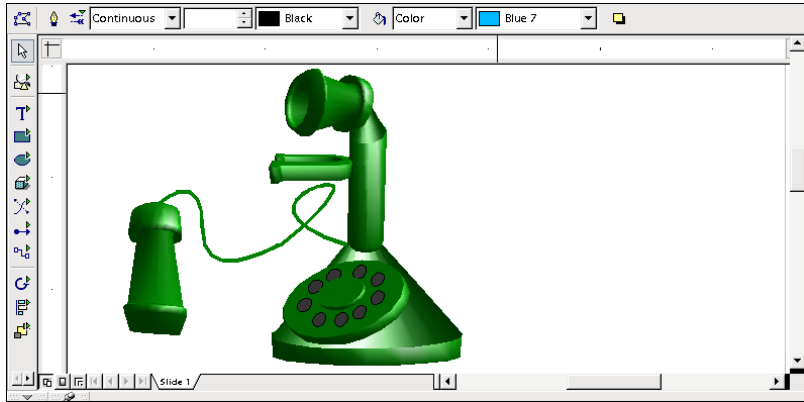
Your object can be converted into 3-D by giving it depth, or it can be rotated using the 3-D rotation feature. For instance, the speaker and earpiece of the old-fashioned telephone that is shown in Figure 5 are both the letter *Z* that was converted to a 3-D rotation object and then lengthened slightly. The handle for the earpiece is the letter *U*, which has been extruded (given depth) with the 3-D feature. The dial comprises two circles that were converted to 3-D. (The holes on the dial are 2-D ovals.)

The best part about OpenOffice.org Draw's 3-D feature is that it's easy to use, regardless of whether you are an artist.

3-D basics

Draw offers several ways to create 3-D objects. The simplest way is to use the 3-D toolbar, which is found on the Main toolbar. Long-click the 3-D icon, and a draggable toolbar of 3-D icons appears. These icons are Cube, Sphere, Cylinder, Cone, Pyramid, Donut, Shell, and Half-Circle. Click the icon of your choice, and click and drag in the document window. The object of your choice appears.

Figure 5:
An old-fashioned telephone that was created using OpenOffice.org Draw's 3-D tools.



To rotate your 3-D shape, click the Rotation icon either on the Main toolbar or on the Effects toolbar, which you can open by long-clicking the Effects icon on the Main toolbar. Then click your 3-D object. Red handles appear, along with a center indicator. Corner handles rotate the object in 2-D, and the other handles rotate it in a 3-D perspective.

You can also make your 3-D object bigger in either direction, just like a 2-D object. Just select the object and pull the handles.

To create a 3-D object, select a shape, line, curve, or text. Practically anything converts to 3-D — even grouped objects. (When selecting text, click the deselected text so that no cursor appears. If a cursor is showing, the text will not convert to 3-D.) Choose **Modify** → **Convert** → **To 3D**. Your shape transforms into 3-D. Figure 6 shows the 3D Effects dialog box.

To create a 3-D rotation object, perform the following steps:

1. Create and select the object that you want to change to a 3-D rotation object.

You can use the following ideas:

- A slanted line becomes a cone.
- A circle becomes a donut-shaped object.
- The letter *T* makes a nice doorknob shape. (Or, if the *T* is slanted, it makes a nice stubby candleholder.)
- And of course, the letter *Z* makes a great telephone speaker and earpiece, as shown in Figure 5.

Letters can be upright, slanted, or sideways to make different effects. And curves are also wonderfully expressive in 3-D.

Unfilled shapes do not convert to 3-D, unless you change their lines to fills. (See the following Tip.)

Text must be selected with a single click. A cursor must not appear in the text box.

2. Choose **Modify**⇨**Convert**⇨**To 3D Rotation Object**.

Your 3-D rotation object appears. Sometimes the details of the object are unclear. Rotating the object, zooming in or enlarging it, and changing its color can all help to define the object's complex shape.



The 3-D rotation tool can be addictive. Don't stay up all night 3-D-ing crazy curves and the entire alphabet in all your fonts!

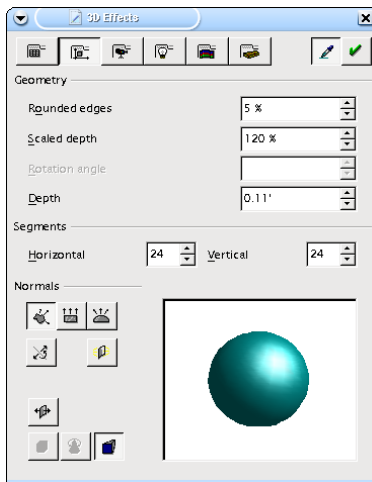


Unfilled shapes do not convert to 3-D, unless you change their lines to fills. You can do this by copying and pasting one shape over another and then offsetting it slightly. Then select both shapes and choose **Modify**⇨**Shape**⇨**Merge**. The lines of your shape are now fills instead of lines. You can now convert to 3-D.



When working with 3-D, make sure that your unit of measurement is either Millimeter, Centimeter, Inch, Point, or Pica. It should not be Meter, Kilometer, Foot, or Mile. The spin boxes for the 3-D effects work better with smaller units of measurement. To change the unit of measurement, choose **Tools**⇨**Options**⇨**Drawing**⇨**General**. Then choose the unit of measurement from the combo box.

Figure 6:
The
Geometry
panel of the
3D Effects
dialog box
lets you
create
custom-
made 3-D
objects.





Before modifying a 3-D object, be sure that Help⇨Tips is selected. Otherwise, it's not always easy to decipher the icons in the 3D Effects dialog box.

To modify the shape of your 3-D object or to create a 3-D object from a 2-D object, perform the following steps:

1. Select your 2-D object or 3-D object.

For example, Figure 6 shows that you can select an unfilled circle and convert it into a pipe.

2. Choose Format⇨3D Effects.

The 3D Effects dialog box appears, showing lots of luscious-looking donuts.

3. Click the Geometry button, the second button from the left in the 3D Effects dialog box.

The Geometry panel appears, as shown in Figure 6.

4. Choose the percentage of Rounded edges and Scaled depth, and select the Depth.

Experiment until your object looks good. To get the shape that is shown in Figure 6, we chose 5% Rounded edges, a Scaled depth of 120%, and a Depth of 3.35 cm.

5. If you want your object to show some jaggedness instead of smooth corners, choose smaller values in the Segments spin boxes.

Segments are the number of longitudinal lines and latitudinal lines that define your object. More segments mean greater definition of curves. Draw offers 24 horizontal and 24 vertical segments as the default. Very small values drastically change the shape of your 3-D object. This feature has no effect on extruded 2-D objects.

6. To emphasize the flatness of the sides of your 3-D object, change the Normals option to Flat. To emphasize the roundness of the object, change the Normals option to Round. Or, just let Draw decide how to deal with these settings by clicking the Object-Specific button, which is the default.

Normals options specify the way that light bounces off your object. For instance, to create a more realistic coin from an extruded circle, you could choose the Flat Normal option to show some ridges around the sides of the coin.

7. Select the object:

- To modify a 3-D object, click the Assign button in the upper-right corner of the 3D Effects dialog box. (It's the button with the green check mark.)

- To extrude a 2-D object, click the Convert to 3D button at the bottom of the dialog box.
- To create a 3-D rotational object, click the Lathe button.

Your object transforms.



To create a 3-D rotation object with a space in the middle — like a donut — create two circles, place them side by side, group them, and then convert the group to a 3-D rotation object. A donut appears, with an extra circle in the middle. To get rid of that extra circle, choose **Modify**⇨**Enter Group** and delete the middle part, so just the hole remains. Then choose **Modify**⇨**Exit Group**.

Texturing

Textures are bitmaps that wrap around your 3-D object the way that you would expect them to look on a real object. You can choose from a large variety of bitmaps that Draw provides, or you can import your own bitmaps. Check out the section “Bitmapping brilliantly,” in Chapter 21, to find out how to create and refine your own bitmaps. Or, read about the bitmap filtering options in this chapter. Textures are a whole world in themselves, but fortunately Draw makes them easy to apply.

To map a texture on a 3-D object, select the object and choose **Bitmap** from the **Area Style/Filling** combo box on the **Object** toolbar. Then select your bitmap from the available choices. (Mapping a texture on a 3-D object is similar to applying a bitmap to a 2-D object, except Draw puts perspective into the 3-D bitmap.)

Texture maps start with default settings that are set by Draw. To change the default settings, such as mapping the image flatter or rounder or changing it to black and white, Draw allows you to do this.

To modify a texture, perform the following steps:

- 1. Select the 3-D object for which you want to modify the texture.**
- 2. Choose **Format**⇨**3D Effects**.**

The 3D Effects dialog box appears. Notice that the bitmap or color of the object that you selected appears on a sphere in the Preview area.

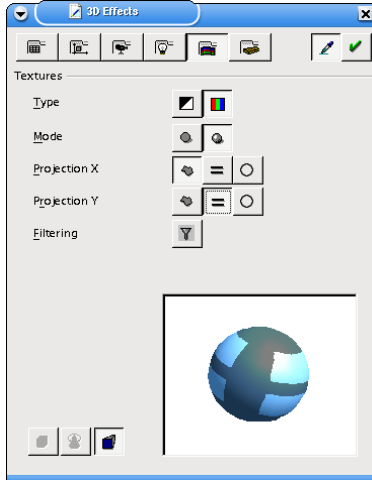
- 3. Click the **Textures** button at the top of the 3D Effects dialog box.**

The Textures panel appears, as shown in Figure 7. The figure shows a custom-made bitmap that has been mapped to a 3-D sphere to look like a child’s ball.

- 4. To change your texture to black and white, click the **Black and White** button, which is a Type choice in the Textures panel.**

The sphere in the Preview window changes to black and white, unless the light source is colored. You may also need to modify the light-source color to make your image black and white.

Figure 7:
The Textures panel of the 3D Effects dialog box allows you to tweak your textures.



5. Choose the Mode, either Texture and Shading or Texture only. Also, choose your type of projection on the X and Y axes. These options can be Object-Specific (the default), Parallel, or Circular.

Your texture changes in the Preview area. Try different combinations until you find the one that you like the best. Figure 7 shows Projection Y changed to Parallel.

6. If you want a fuzzy look, turn off filtering by clicking the Filter icon.

Turning off filtering sometimes adds a nice blurring effect to the image.

7. Click the Assign button in the upper-right corner of the dialog box.

Your selected object changes to adopt the new texture. If the result wasn't exactly what you had in mind, try again. Sometimes it takes a few tries to get it right.

Lighting

Casting shadows wherever you want, changing the ambient light color or the color of the light source, and brightening or dulling the highlight are all features that add subtlety to your work. You can also change the look of your 3-D object to metal, chrome, plastic, wood, or even gold, or you can create a user-defined gradient.

The look of your 3-D object not only depends on the color, gradient, or bitmap of the object but also on several light-source colors, intensities, and angles that you use. The types of light are as follows:

- ✓ Ambient light is simply the surrounding light, which comes from no particular direction.
- ✓ Specular light is like a beam of light. Draw allows you to change the angle of this beam.
- ✓ Illumination color is the color of the object.

To change the ambient light color and light-beam color and angle, perform the following steps:

1. Select a 2-D or 3-D object for which you want to modify the lighting.

A 2-D object automatically extrudes in Step 5, becoming a 3-D object.

2. Choose Format → 3D Effects, and click the Illumination button at the top of the 3D Effects dialog box. This button shows a light bulb icon.

The Illumination window appears. A sphere appears in the Preview window of the Illumination window. This sphere shows the same lighting and texture as your selected object. A group of eight buttons indicating eight light sources are available. At present, OpenOffice.org 1.1 has only one of these light sources available for use. We can look forward to the rest in future free upgrades.

3. Choose the color for both the ambient light source and the light-beam source. Either use the combo boxes or click the Color Dialog button to open the Colors dialog box, and click in one of the boxes to choose your color.

The left box is limited to 256 colors, and the right box offers millions of colors. If you clicked the Color Dialog button, click OK after choosing your color to close the dialog box.

Watch your changes occur in the Preview area. Remember, your object is not in the Preview area, just a sphere with the same color, bitmap, or gradient as your object and the same lighting effects.

4. Click and drag the light source in the Preview area to choose the angle by which the light source should strike your object.

Move the light source in any direction up to 180 degrees vertically and 180 degrees horizontally to get the angle just right.

5. To adjust the intensity of the light source, click the Materials tab on the top bar of the 3D Effects dialog box and choose the Specular Intensity from the spin box that is shown.

The Materials window contains several color settings, and each is set to your selected object. You can change these settings if you want. The combo box has ready-made lighting and object color options that you can apply to your 3-D object to make it look like gold, metal, wood, chrome, or plastic, or you can play with the colors and create your own look. You may simply want to adjust the Specular intensity.

Watch the highlight on your object grow as you decrease the Specular Intensity.

6. Click the Assign button in the upper-left corner of the dialog box.

The new lighting effect is applied to your 3-D object. (And any 2-D object that was selected now becomes 3-D as well.)

Shading and shadows

Shading is another great 3-D effect. Draw provides three methods of shading: Gouraud, Phong, and Flat. Draw also allows you to create shadows and to choose the angle of the shadow.

To apply shadows and shading to a 3-D object, perform the following steps:

- 1. Select your 3-D object.**
- 2. Choose Format → 3D Effects, and click the Shading button in the 3D Effects dialog box.**

The Shading window appears.

- 3. Choose Gouraud, Phong, or Flat shading from the Mode combo box.**

Think of your 3-D object as a polygon with lots of tiny sides to it.

- Flat shading applies a *single* color to each individual polygon side.
- Gouraud shading *blends* colors from one polygon side to another
- Phong shading *averages* the color of each pixel depending on the pixels surrounding it.

Phong is the most processor-intensive shading.

- 4. Click the Shadow button to automatically generate shadows for your 3-D object. Choose the angle of the shadow from the Surface Angle spin box.**

Watch the preview change.

- 5. To tweak the shadow a bit, select different Camera Distance and Focal Length settings.**



Watch the shadow and even the shape of the sphere change in the Preview area.

After applying a long Camera Distance, you can't always view your object closely again without choosing Edit→Undo.

6. Click the Assign button.

Your shadows and shading effects are now assigned to your object.

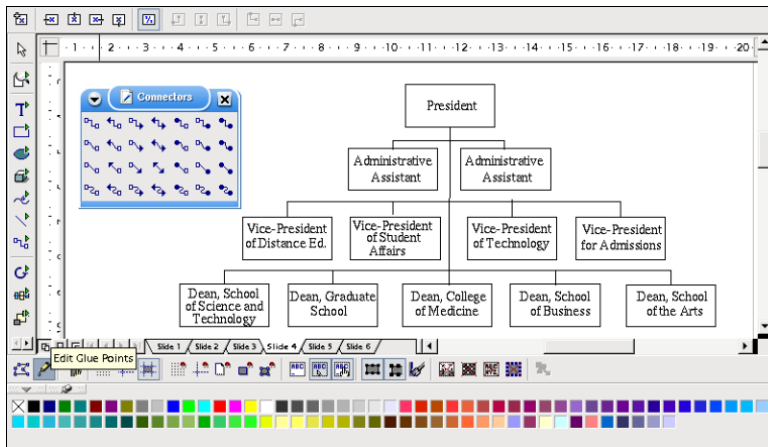


For complex objects, such as the telephone that was shown in Figure 5, not all of the individual components create believable-looking shadows. For those components, you need to draw the shadows and connect them to others that are correctly generated. To easily draw a shadow, copy the part of the 3-D image that you want to create a shadow for, choose Format→3D Effects, click the Illumination button, and then click the Light Source 1 icon to turn off the light source. Click the Assign button, and your 3-D object now appears like a 2-D object. Just color the lines and area gray like a shadow, rotate the object into place, and use the Arrange icon, choosing Send to Back.

Creating Flow Charts, Org Charts, and Family Trees

Connectors are great for creating such displays as flow charts, organizational charts, and family trees. Draw offers a large assortment of connector types on the Connector toolbar, as shown in Figure 8, and allows you to insert “glue points” wherever you want. Using Draw’s connectors is a snap!

Figure 8:
An organizational chart is created using OpenOffice.org Draw’s connectors.



To create a flow chart or organizational chart, such as the organizational chart that is shown in Figure 8, perform the following steps:

1. Create the boxes for your chart, and lay them out in your Draw document.

An easy approach for this is to draw one rectangle with no fill, duplicate as many rectangles as you need, and align them in rows, as shown in Figure 8.

2. Long-click the Connectors icon on the Main toolbar.

The Connectors toolbar appears with lots of connector options.

3. For each connection, apply these steps:

- Click the Connector of your choice.

We used the connector in the upper-left corner of the toolbar to create Figure 8.

- Move the mouse over the first box to which you want to attach the connector.

The connection sites, called *glue points*, appear as Xs.

- Click a glue point, and drag the connector from one glue point of your choice to another.

If no glue point exists where you need one, see the instructions in the following list to add a glue point.

- If you are not using a Line connector or a Straight connector, you can adjust the connection line. Click the connection line so that the handles appear, and drag the small square handle to adjust the line.

Do this to center the line between your rows or columns of boxes or to modify the curve of the curve connector.

You may want to add a glue point where no glue point exists. To add a glue point, perform the following steps:

1. Choose View → Toolbars → Option Bar to make the Option toolbar visible at the bottom of the document window. Then click the second icon from the left, which is Edit Glue Points.

This makes the Edit Glue Points Object toolbar visible, as shown in Figure 8.

2. Select the object to which you want to attach the glue point.

3. Click the Insert Glue Point icon on the Edit Glue Points Object toolbar. It is the first icon on the left.

- 4. Click the selected object at the place where you want to insert the glue point.**

A small box that contains an *X* appears. The next time that you try to use a connector, this new glue point will be available to you.