



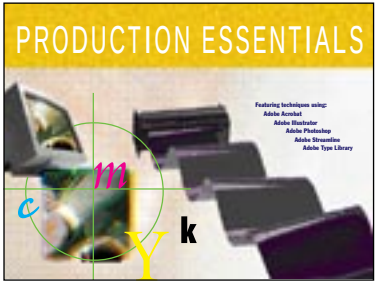


# Professional Studio Techniques

This Acrobat document contains a sampling of 14 techniques from the three Professional Studio Techniques books for Macintosh®, Windows®, and UNIX®.

Design Essentials, Second Edition provides over forty illustrated, step-by-step procedures for creating traditional graphic and photographic effects using Adobe Photoshop and Adobe Illustrator.

Like *Design Essentials*, Imaging Essentials contains over forty illustrated, step-by-step techniques for graphic professionals. This book includes techniques for Adobe Photoshop, Adobe Illustrator, Adobe Dimensions, and Adobe Premiere.

Production Essentials brings together the tips and techniques of over twenty industry experts on the digital production process. It includes tips on Adobe Photoshop, Adobe Illustrator, Adobe Streamline, Adobe Acrobat, and Adobe Type Library software.

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Go to first page of current book section


Click an illustration to zoom in

5 Click a step number to zoom back out

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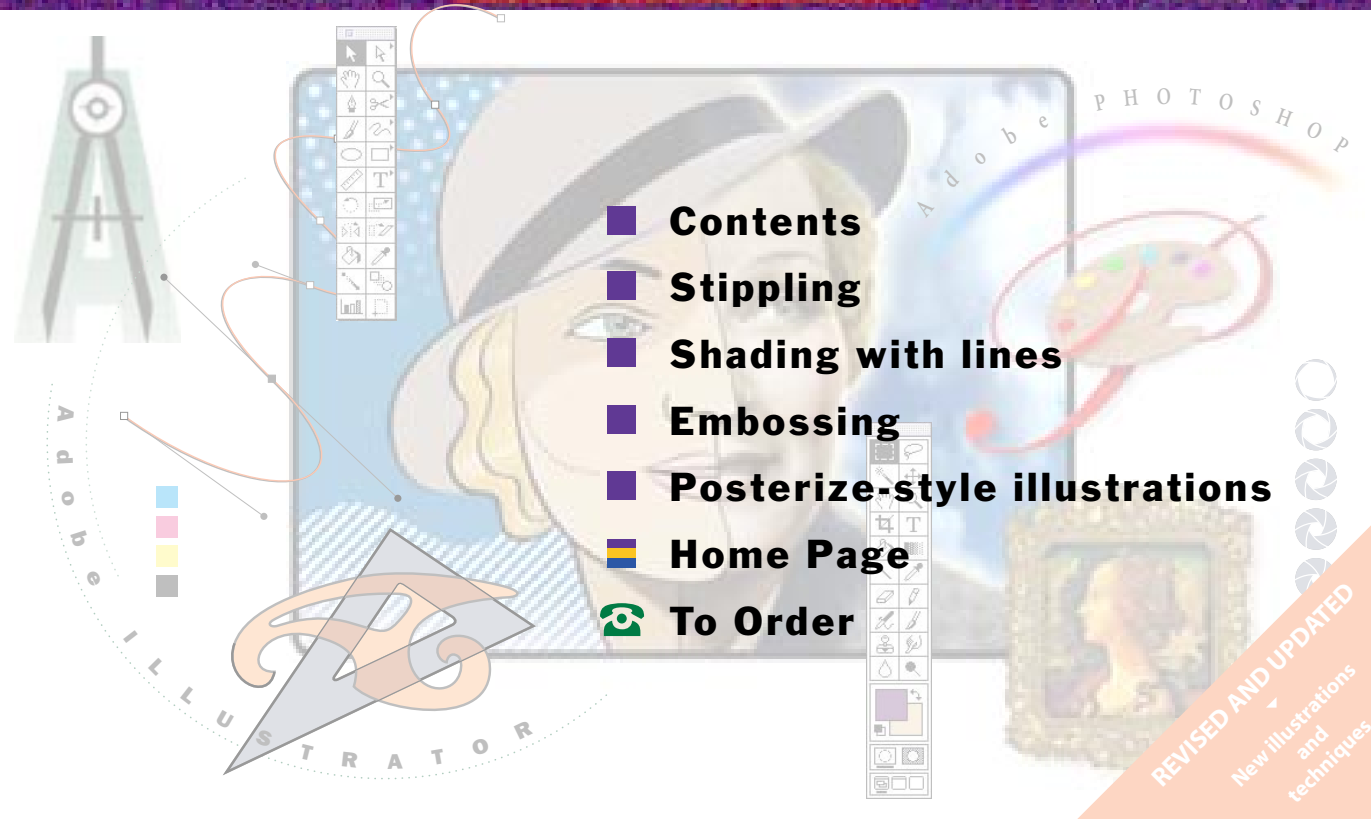
PROFESSIONAL STUDIO TECHNIQUES

# DESIGN ESSENTIALS

SECOND EDITION





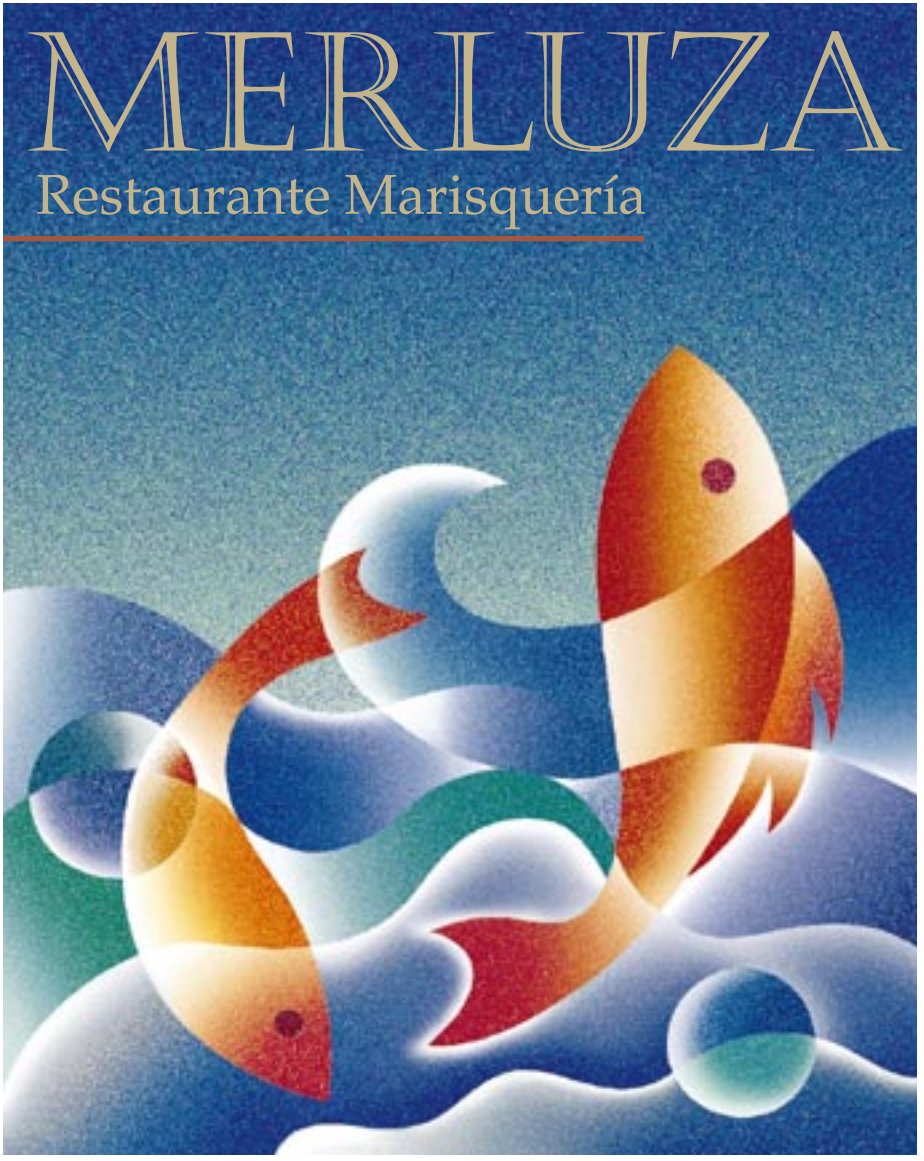

REVISED AND UPDATED

New illustrations and techniques

# Contents

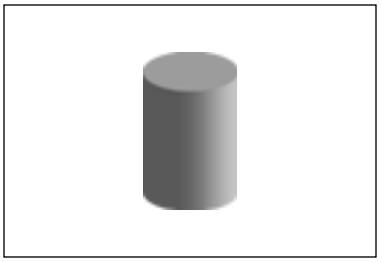
# Stippling

Software needed: Adobe Photoshop 3.0, Adobe Illustrator 5.5 or Adobe Dimensions 2.0



Use this technique to make shaded shapes appear as though they've been spray-painted with several colors of paint through a stencil. To create this effect, you use the Add Noise filter to create several texture masks and then paint through the textures onto different layers. This technique also works well with flat graphics.

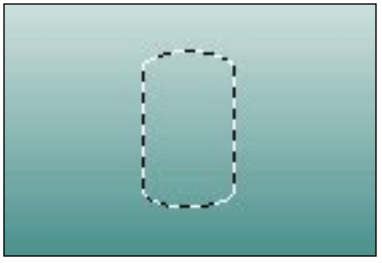
Because the effects of the Add Noise filter vary significantly at different resolutions, in many cases this effect can't be proofed adequately on-screen. You may need to print to accurately proof the results.



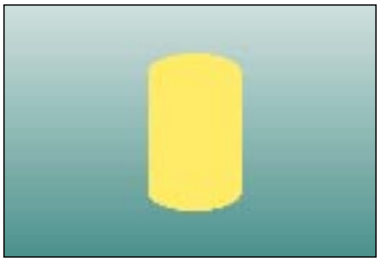
**1.** Create your shaded object in Adobe Illustrator, Adobe Dimensions, or Adobe Photoshop. Make sure that the object is painted with shades of black only. Save the file.

**2.** In Photoshop, open the background file that you want to use for the stippled graphics. Create a new layer, and name it stipple. Then choose Add Layer Mask from the Layers palette pop-up menu.

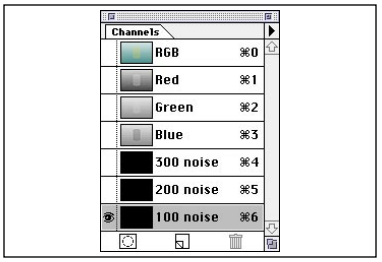
**3.** Option/Alt-click the layer mask in the palette to switch to the temporary layer mask channel. Then choose File > Place to place your shaded object. Position and resize the placed object; then click the hammer icon to rasterize the graphics. Do not yet deselect. If you created your object in Photoshop, copy the object into the layer mask.



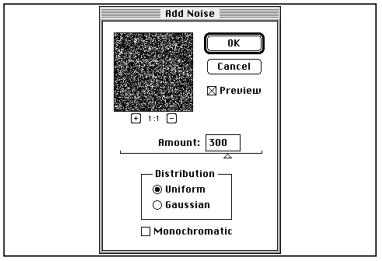
**4.** Create a new layer, and name it base color. (The selection should still be active.)



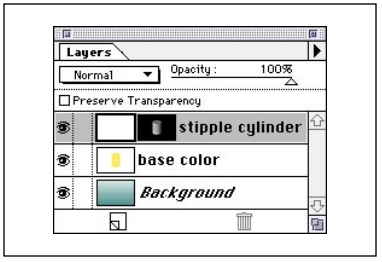
**5.** Fill the selection with the color you want as the base color behind the stipple colors. Then deselect (⌘/Ctrl+D), and drag this layer in the Layers palette just below the stipple layer.




**6.** Now you will create channels that you will paint through to create the stipple effect. Create a channel for each texture you want in your stippled objects. Name each channel after the amount of noise you will put in that channel. In this example, we made three channels.

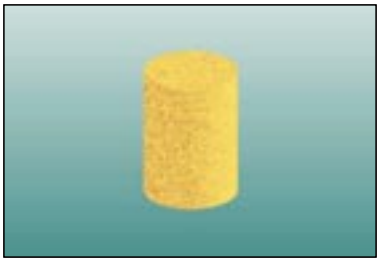



**7.** To create the texture within the channels, select the first channel you created. Choose Filter > Noise > Add Noise, and apply the amount of noise indicated for that channel in the Channels palette (we used 300).

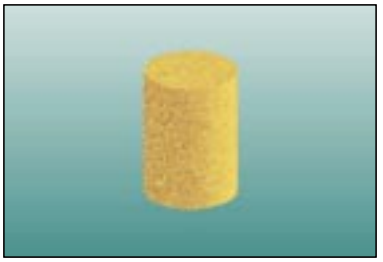



**8.** Repeat step 7 for each channel you created. Reselect the RGB channel, and click the stipple layer mask. Invert the mask (⌘/Ctrl+I) so that it masks everything but the shape area. Then reselect the layer.

**9.** Now pour the first layer of paint through the first channel. Option/Alt-click the channel with the largest amount of noise to load the channel. Hide the edges so that you can more easily see the results (⌘/Ctrl+H). Select a new foreground color and press Option+Delete (Macintosh) or Alt+Backspace (Windows) to fill the selection.

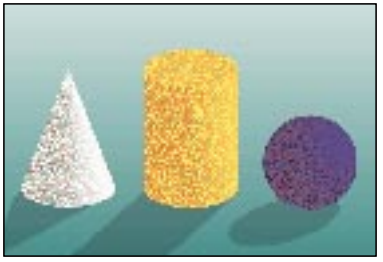


**10.** Now add the second layer of texture. Load the channel containing the next largest amount of noise (we used 200). Hide the edges, choose a new foreground color, and fill the selection.



**11.** Continue loading texture selections and pouring paint through them until you are satisfied with the result. To intensify a color, fill with the same paint twice.

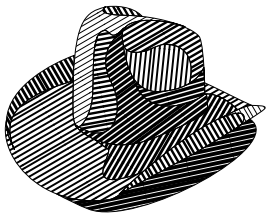
**12.** When you have finished painting, experiment with other layer modes for different effects. In this example, we used the Hard Light mode to intensify the colors. The effects of the modes vary with different colors.



**13.** Repeat this technique for each different colored shape in your illustration. To save RAM, save a copy of the file, and then merge the layers as you finish stippling each shape.

# Shading with lines

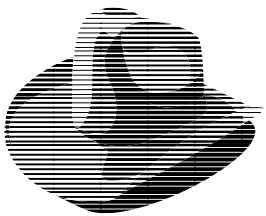
Software needed: Adobe Illustrator 5.5, Adobe Collector's Edition: Patterns & Textures



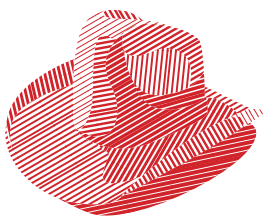
MIXED LINE PATTERNS AND ROTATIONS WITH STROKED SHAPES

50% LINE PATTERN PAINTED WITH DIFFERENT SHADES OF COLOR

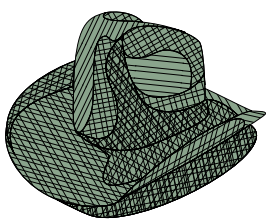
COLOR COPIES PASTED BEHIND PATTERN SHAPES



MIXED LINE PATTERNS AT SAME SIZE AND ANGLE

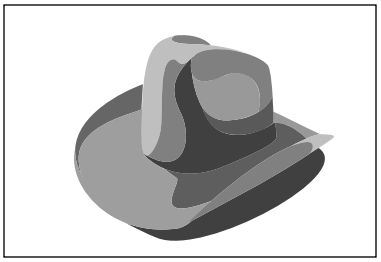


COLORED LINE PATTERN



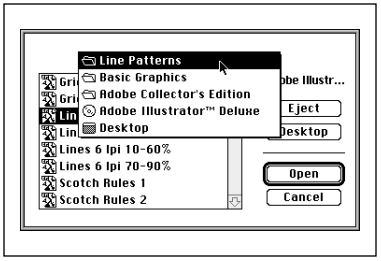
CROSSHATCH METHOD WITH SCOTCH RULE 1 PATTERN; STROKED AND FILLED COPIES PASTED BEHIND

This is a modern version of a very old technique used to add textures to simple drawings. To create this effect, you first create a simple posterized drawing, then you fill each shape with a line pattern. To enhance the effect, you can scale and rotate the line patterns to fit their shapes. The first method in this technique shows how to reproduce tonal variations using different patterns and rotations. The second method shows how to reproduce tonal variations using crosshatching. See the chart at the left for other variations on this technique.

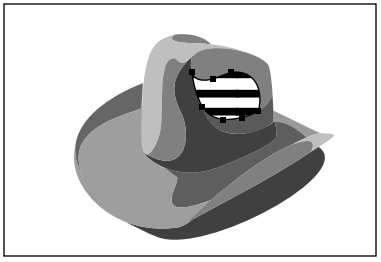


**Tone matching method**

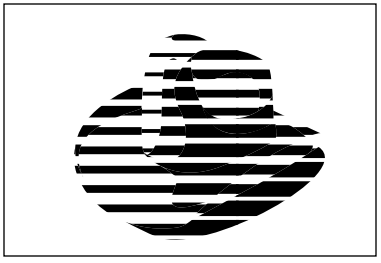
**1.** Create a posterized illustration with simplified shapes that define the tonal areas in the image. For instructions on creating posterized illustrations, see pages 80–81.



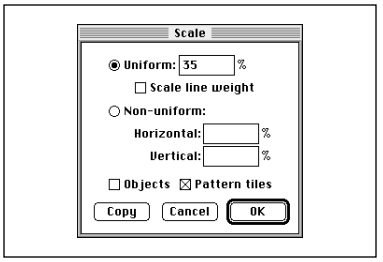

**2.** For this technique, you will need to open two pattern files. Open the Line Patterns folder in the Adobe Collector's Edition folder located on the Adobe Illustrator CD-ROM, and open Lines 10 lpi 10-60% and Lines 10 lpi 70-90%. Keep these files open until you have painted all the shapes with patterns.



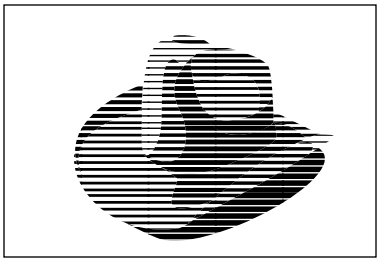
**3.** Return to the illustration file. Select one of the shapes, and note tint percentage. Then click the pattern icon in the Paint Style palette, and select the line pattern with the same percentage. In this example, we selected the pattern *10 lpi-40% to fill a shape that was 40% black. Don't worry about the size of the pattern; you'll scale the pattern in a later step.



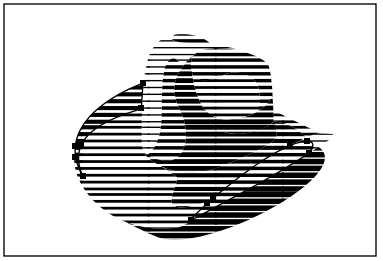
**4.** Continue filling each toned shape with its corresponding pattern tone until all shapes in the image have been filled.



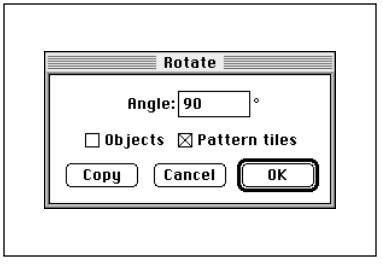

**5.** If desired, scale the patterns to fit the shapes they fill. To scale just the patterns within the shapes, select the shapes, and double-click the scale tool. Deselect the Objects option. Enter the scale percentage, and click OK. You can also scale just the pattern by holding down the P key and dragging with the scale tool.



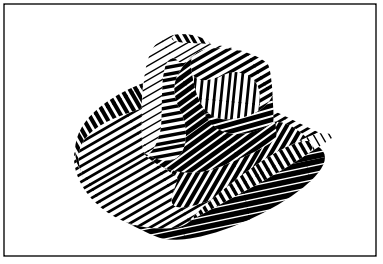
**6.** Once the patterns have been scaled, evaluate the patterns to determine whether they create enough contrast between shapes. You may want to select a pattern with a different tint percentage within some of the shapes to make them darker or lighter.



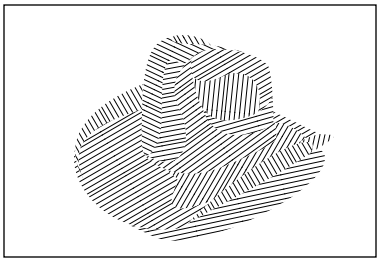
**7.** You can also create contrast between shapes by rotating the patterns at different angles. To do this, first select the shape or shapes that you want to alter.




**8.** To rotate just the patterns within the shapes, select the shapes, and double-click the rotate tool. Deselect the Objects option; this selects the Pattern Tiles option. Enter the desired rotation angle, and click OK. You can also rotate just the pattern by holding down the P key and dragging with the rotate tool.

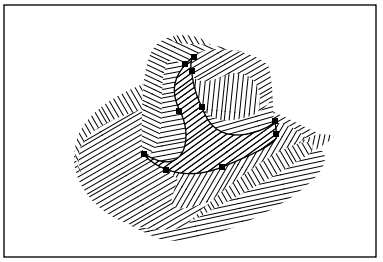


**9.** Continue rotating the patterns within the shapes until the effect is as you want it. Then save the file.

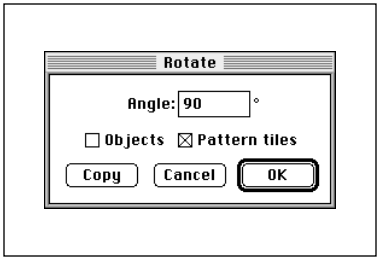


**Crosshatch method**

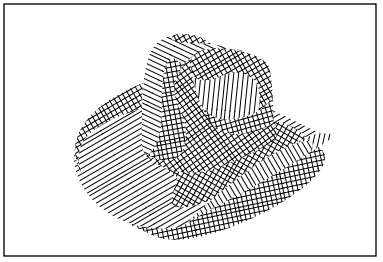
**1.** You can also create contrast between shapes by overlapping patterns at different angles. Follow steps 1 through 5 of the previous method using a line pattern with a transparent background. In this example, we filled all the shapes with the same pattern but at different angles.



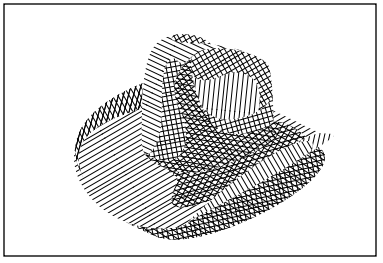
**2.** Select one of the shapes representing a darker tone in the illustration. Copy it to the Clipboard, and paste the copy in front of the selection (⌘F).




**3.** Double-click the rotate tool in the toolbox. Deselect the Objects option, and enter 90°. Click OK to rotate the copy on top of the original.



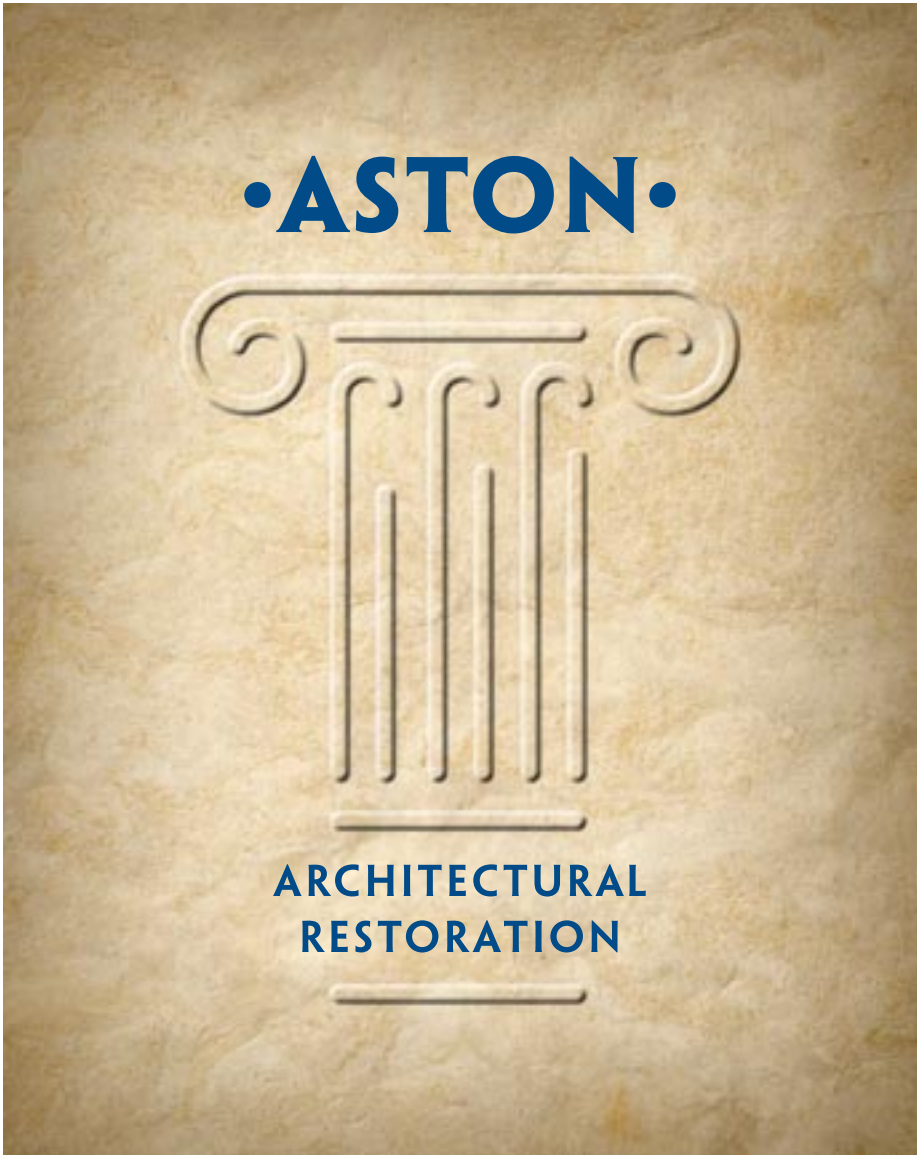
**4.** Continue to copy and rotate the pattern in each shape that represents a darker tone. The image now has two tones: a light tone, represented by the single lines, and a dark tone, represented by the crosshatching.



**5.** To add a third or darker tone, repeat steps 2 and 3 for the shapes representing the darker tones. Add a third copy of the line pattern to these shapes, and rotate the pattern to 45°.

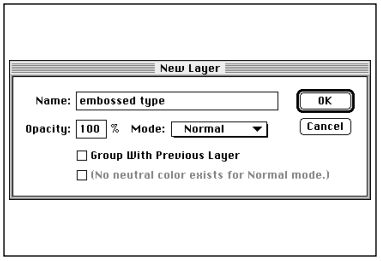
# Embossing

Software needed: Adobe Photoshop 3.0, Adobe Illustrator 4 or later (optional)

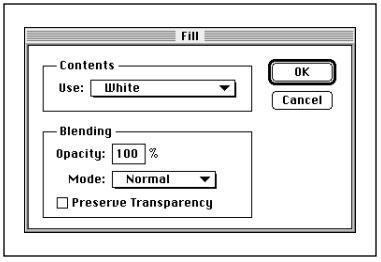


Adobe Photoshop's Emboss filter creates the illusion of raised edges by filling an object with gray and then using the original fill color to create borders around the object. This technique shows how to finesse the edges of an embossed object to give it a more realistic look. In reality, an embossed object often has a harder edge around the base of the object, while the surface edges of the object retain a softer, molded look. To get this effect, you first blur the object before embossing; after embossing, you re-outline the base of the object using the background fill color or texture.

**1.** In Adobe Photoshop, create a surface for your embossed graphics. For the best results, use a textured surface.

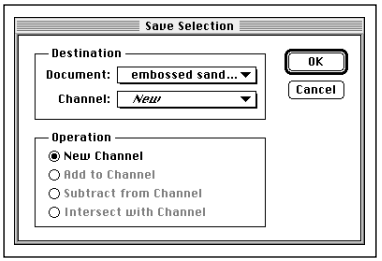



**2.** Open the Layers palette, and create a new layer. Name the new layer after your embossed image.

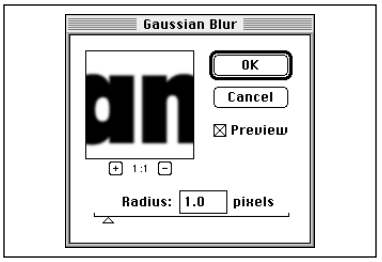



**3.** To fill the layer with white, choose Edit > Fill (Shift+Delete/Backspace), and choose White from the Use pop-up menu. Make sure that the Opacity is 100% and the Mode is Normal; then click OK.

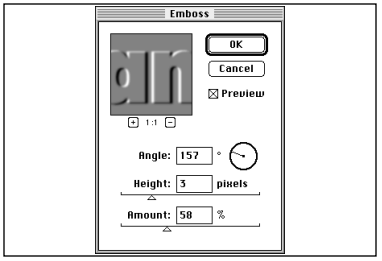

**4.** Add the type or graphic to the new layer, and fill it with black. You can copy and paste images and type directly from Adobe Illustrator; if you do, fill the graphic with black before you bring it into Photoshop. Remember that the Emboss filter uses the fill color of the object to create the raised edges.




**5.** While the type or graphic is still selected, choose Select > Save Selection or use the Channels palette to save the selection to a new channel. You will need to use the selection later in this procedure. Save the file so that you can revert to this step if you don't like the final effect.



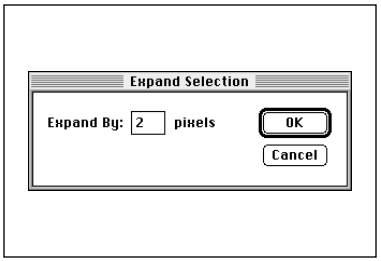

**6.** Deselect everything (⌘/Ctrl+D), and choose Filter > Blur > Gaussian Blur. Choose an amount that will soften the edges of the type or graphic. The amount you should choose depends on the resolution of your image and the texture of your background. A high-resolution image requires more blurring than a low-resolution image.




**7.** Choose Filter > Stylize > Emboss. You may need to adjust the angle to suit the angles in the letterforms. To create a more pronounced effect, increase the Height; to create more contrast, increase the Amount. The Amount you use should result in light and dark grays in the image rather than black and white.


**8.** Examine the results. If you are satisfied with the effect, skip to step 14. If you want to sharpen the outer edges of the object, continue with step 9.


**9.** Load the selection from the channel you created in step 5 by Option/Alt-clicking the channel name in the Channels palette.




**10.** Now choose Select > Modify > Expand to enlarge the selection slightly. Enter an amount that is smaller than the Height you used in step 7. Different amounts will produce different effects; experiment until you are satisfied with the results.


**11.** Choose Select > Inverse to select the background.


**12.** Hide the selection (⌘/Ctrl+H). Then use the eyedropper tool to sample the color of the background.


**13.** Press Option+Delete (Macintosh) or Alt+Backspace (Windows) to fill the selection. This step outlines the edges of the selection with the background color and creates a cleaner, crisper look. Deselect everything (⌘/Ctrl+D).

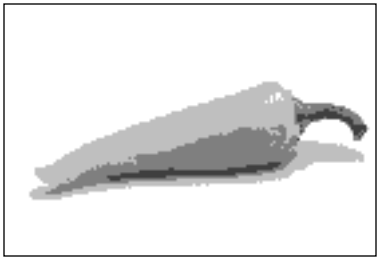

**14.** To combine the embossed graphics with the background texture, choose the Hard Light mode for the embossed layer in the Layers palette. Try the Soft Light mode or lower the transparency for a more subtle effect. If you want to re-emboss the image, choose File > Revert and then begin again with step 6.

# Posterize-style illustrations

Software needed: Adobe Photoshop 2.5 or later, Adobe Illustrator 4 or later

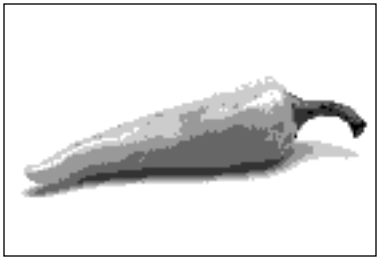
This technique shows how to create a very stylized illustration from a photograph. Reminiscent of early 20th century German poster art, the drawings are made up of flat, simplified shapes and lend themselves well to printing with custom colors. To create the illustration, you start with an existing photograph, simplify it, and trace it in Photoshop using the pen tool. You then copy the paths into Illustrator and paint them. Although you can use Adobe Streamline to produce posterized illustrations automatically, this technique and a little drawing ability will give you the best results.

**1.** Open the Adobe Photoshop file you want to use as a basis for your illustration. If the file is a color file, convert it to Grayscale mode. You will first posterize this image so that you can more easily use it as a template for your pen tool shapes. Posterizing the image simplifies it and breaks up its different tonal areas into distinct shapes.

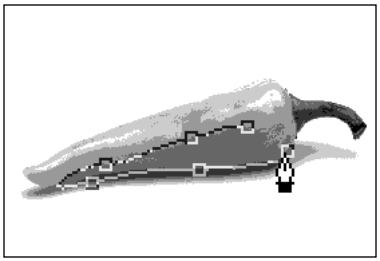


**2.** Choose Image > Map > Posterize, and click the Preview option. Experiment with different numbers of levels, and evaluate the shapes in the image. If you like the effect of the posterization and you're not losing too much detail in the image, click OK and skip to step 5. If important details are lost in the preview, click Cancel and continue with step 3.

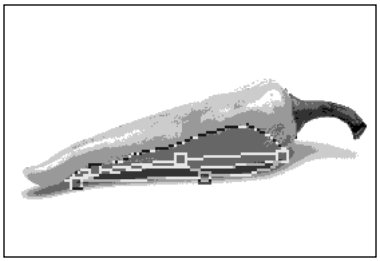
**3.** Use Levels (⌘/Ctrl+L) or Curves (⌘/Ctrl+M) to increase the contrast in the areas that are losing detail. For more information on adjusting a Photoshop file for optimal posterization, see page 78.



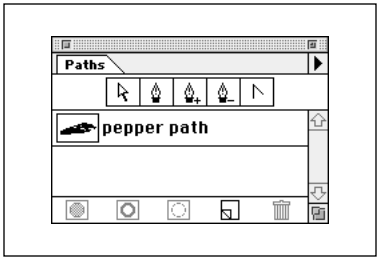
**4.** Choose Image > Map > Posterize again, and re-evaluate different posterization levels. If necessary, repeat steps 2 and 3 until the posterized image contains the shapes you need to create your illustration.



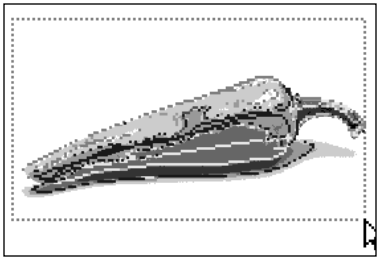
**5.** Select the pen tool from the Paths palette. Begin to trace the shapes in the image.



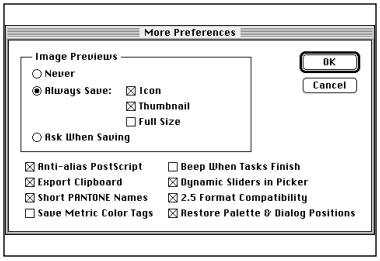
**6.** As you draw, keep in mind that the shapes will overlap in the Illustrator file. For this reason, you can draw certain edges more roughly than others. In this example, we knew the black shadow shape would be layered behind the shape above it, so we let the upper path of the shadow overlap the front of the pepper.



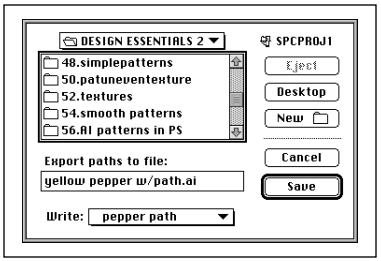

**7.** Save the paths by double-clicking Work path in the Paths palette. If you have more than one subject in the image, you may want to save each set of shapes as separate paths. Name each path after its subject for easy reference.



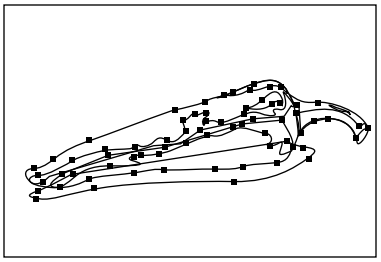
**8.** Click the selection tool, and drag to select the entire subject. Copy the shapes to the Clipboard.



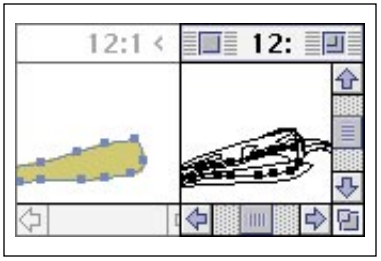

**9.** If you're using Illustrator 5.0 or later and your computer has enough memory to run Photoshop and Illustrator at the same time, open the General Preferences dialog box (⌘/Ctrl+K), click More, and make sure that the Export Clipboard option is selected. Then skip to step 11. Otherwise, continue with step 10.



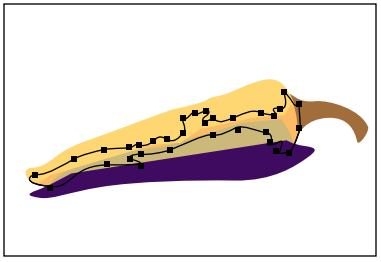

**10.** To save the paths in Illustrator format, choose File > Export > Paths to Illustrator. Photoshop gives the file the same name as the old file with a suffix .ai to indicate that it's an Illustrator file. Save the file.



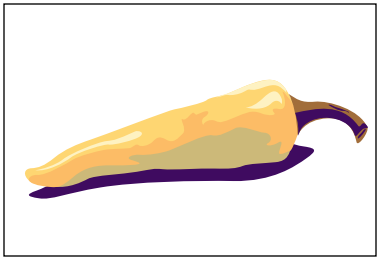
**11.** Start Adobe Illustrator. If you exported the paths, open the file. If you copied the paths to the Clipboard, paste them into a file.




**12.** Paths brought into Illustrator from Photoshop have no fill and no stroke initially and so are not visible in Preview mode. To help you work with the paths, choose Window > New Window and put the second window in Artwork mode. Resize the windows so that you can preview the results as you paint the shapes in Artwork mode.



**13.** If necessary, rearrange the layers as you paint. The layering of the paths is based on the order in which the paths were created. In this example, we brought the selected shape to the front of the artwork.



**14.** Continue filling the shapes with colors. Because the image is now an Illustrator file, the paths can be edited, scaled, and repainted without loss in quality or change in file size. When you are satisfied with the results, save the file.

PROFESSIONAL STUDIO TECHNIQUES

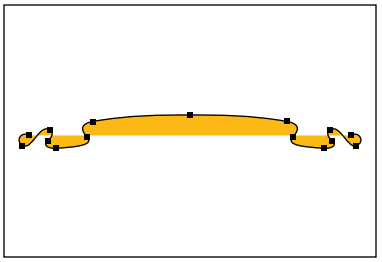
# IMAGING ESSENTIALS

# Contents

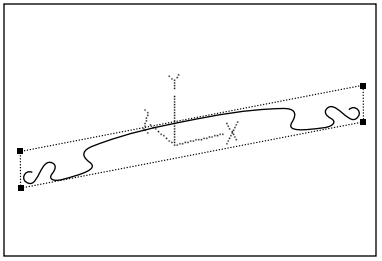
# Banners with type or graphics

Software needed: Adobe Illustrator 3.0, Adobe Dimensions 1.0

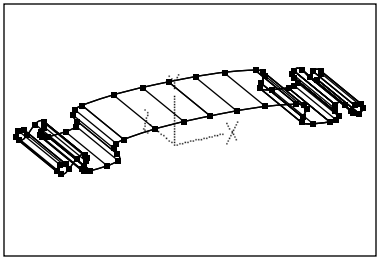
In this technique, you start with two pieces of artwork in Adobe Illustrator—the banner graphics and the banner line art. You then merge the artwork using the Artwork Mapping feature in Adobe Dimensions. The Artwork Mapping feature lets you easily add graphics to any three-dimensional object.



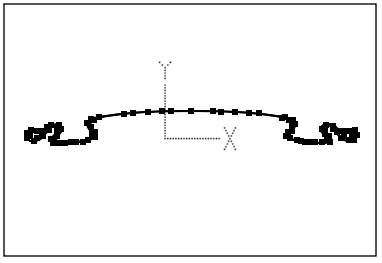
**1.** In Adobe Illustrator, use the pen tool to draw the curve that defines the bottom edge of the ribbon or banner. Make sure that the curve contains only smooth points; straight lines or corner points will cause segmenting of the ribbon. Paint the curve with a Wll of a medium to light color and no stroke. Save the file with a suffix of *.ai*.



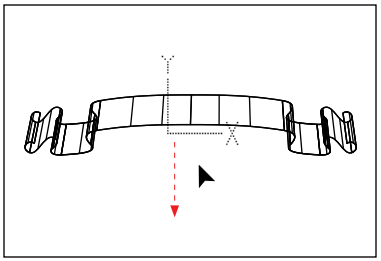
**2.** In a new Adobe Dimensions file, import (⌘-Shift-I) the ribbon artwork. (If you're using Adobe Illustrator 5.0, you can copy the Illustrator file to the Clipboard and paste it into Dimensions.) Make sure that the artwork is selected.



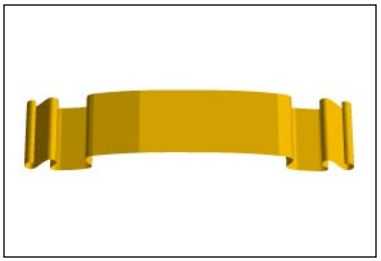
**3.** Choose Extrude from the Operations menu (⌘-Shift-E). Enter a value for the Absolute Depth of the extrusion. Because you will be rotating the banner, this value determines the height of the banner. Click OK.



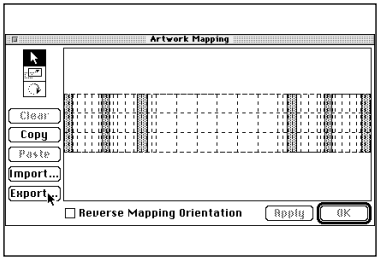
**4.** Change the view to Front (⌘1) and the perspective to Normal. You are now viewing the ribbon from below.



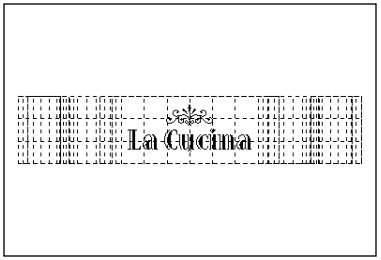
**5.** Using the rotate tool, hold down the Shift key and drag downward to rotate the ribbon on the x axis. When the ribbon face is positioned exactly as you want, release the mouse button and then the Shift key.



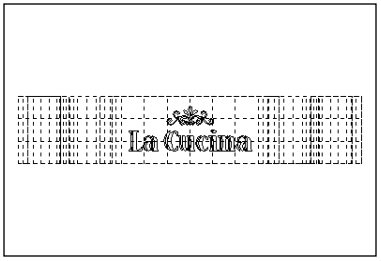
**6.** Create a Draft Render view (⌘Y) to preview the banner. Return to Artwork mode (⌘W) and adjust the rotation if desired.



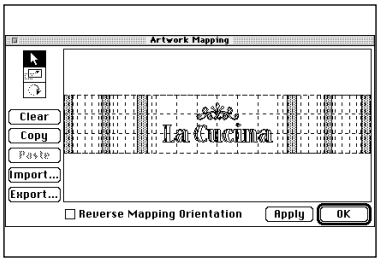

**7.** With the banner selected, choose Artwork Mapping from the Appearance menu (⌘F). A flat rendition of the banner with guidelines is displayed. The white areas represent the visible areas of the banner; the gray areas represent areas that are hidden by the banner folds. Click Export and save the guides as an Illustrator file as *banner.guides.ai*.



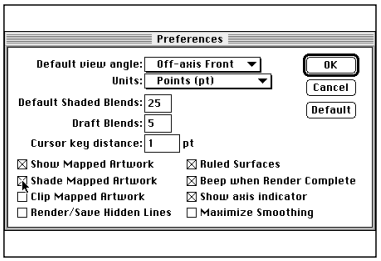

**8.** Open the *banner.guides.ai* file in Adobe Illustrator. Create the graphics or type for the banner and position it using the guides as reference.




**9.** Paint the type. Use light colors that won't disappear when black shading is added to them; the areas where the guides are close together will be shaded in the final artwork. With the type selected, choose Create Outlines from the Type menu. Save the file with the name *banner logo.ai*.




**10.** Return to the Adobe Dimensions file and make sure that the banner is selected. In the Artwork Mapping dialog box, click Import, and select the *banner logo.ai* file. Click Apply to preview the artwork. When you are satisfied with the position, click OK.




**11.** If you want the banner graphics to be shaded, select the Shade Mapped Artwork option in the Preferences dialog box (⌘K).

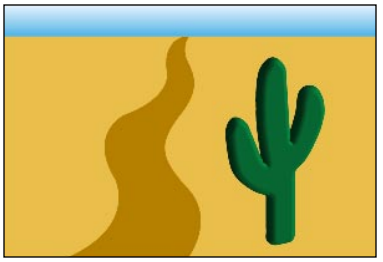

**12.** Preview your work by selecting Shaded Render (⌘-Shift-Y) using a low number of blend steps.


**13.** Now adjust the Lighting (⌘L) and Surface Properties (⌘I). Enter the correct number of blends for your artwork using the guidelines on pages 14–17. You may also want to change the perspective from Normal to Wide as shown in this example. Create a final shaded render, and export the file (⌘-Shift-S) as an Illustrator file.

# Casting a transparent shadow

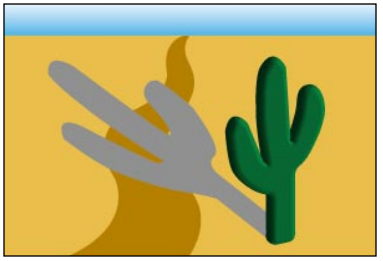
Software needed: Adobe Illustrator 5.0

Designers and illustrators commonly need semitransparent shapes for shadows that overlap other objects in their drawings. Although most drawing programs can't create true transparent objects, you can use Adobe Illustrator 5.0 to easily simulate transparency. Method 1 of this technique shows how to create a semitransparent shadow using solid colors and the Mix Hard filter. Method 2 shows how to create a more subtle effect using gradient fills and the gradient fill tool.

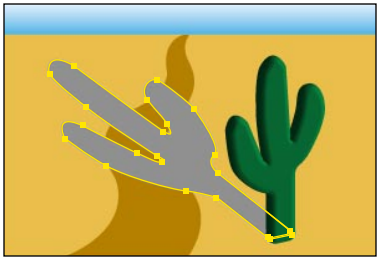


**Method 1**

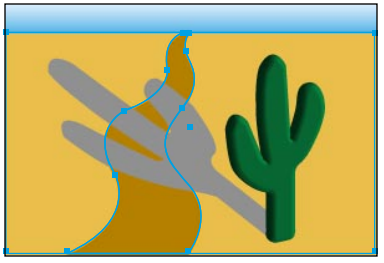
**1.** Make sure that the artwork is sized, colored, and positioned as you want it. If type falls within the shadow area, select the type and choose Create Outlines from the Type menu. If a stroked object falls in the shadow area, select it and choose Objects/Outline Stroked Path from the Filter menu.



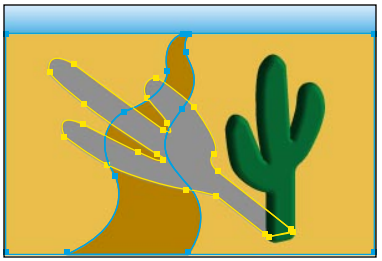
**2.** Create the shadow shape, and fill it with a tint of black. (We used 50% in this example.) Make sure that the shadow is in front of the objects it will shade and behind the object casting the shadow.



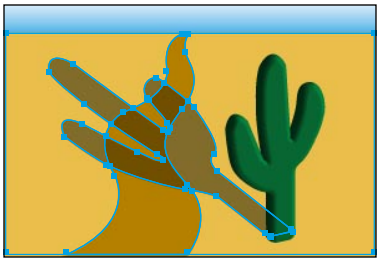
**3.** Select the shadow shape and lock it (⌘1). Locking the shape protects it while you edit the surrounding shapes.



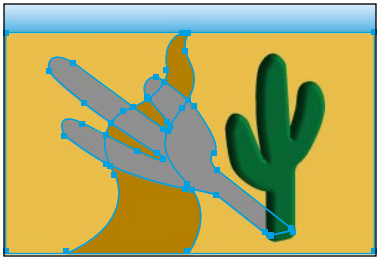
**4.** Select the shape or shapes that fall within the shadow. If any two colors overlap beneath the shadow, choose Pathfinder/Divide Fill from the Filter menu to separate the overlapping colors. In this example, we applied Divide Fill to separate the dark brown fill drawn on top of the sand.



**5.** Unlock the shadow shape (⌘2). Hold down the Shift key and select the objects behind the shadow along with the shadow.

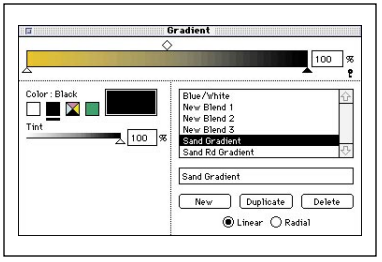


**6.** Choose Pathfinder/Mix Hard from the Filter menu to mix the overlapping colors.

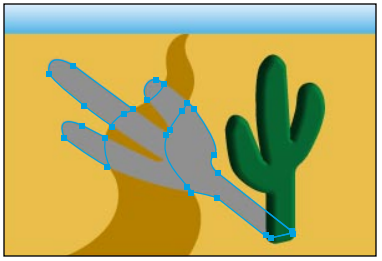


**Method 2**

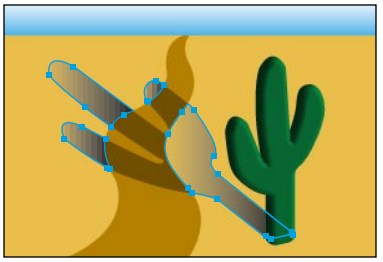
**1.** Follow steps 1 and 2 of the previous method. (It's not necessary to fill the shadow since you'll be filling it with a blend.) Select the shadow and all shapes behind it; from the Filter menu, choose Pathfinder/Divide Fill.



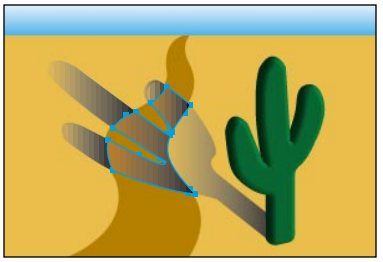

**2.** Open the Gradient palette, and click New. Select the leftmost triangle beneath the gradient bar. Select the eyedropper tool, hold down the Control key, and click a shape within the shadow area of the image to put that color in your blend. Select the rightmost triangle, and define it as 100% black. Name the gradient fill.



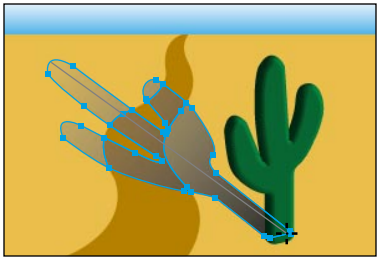
**3.** Repeat step 2 until you have created a gradient fill created for each color that falls within the shadow area. When you have finished, choose the direct-selection tool, hold down the Shift key, and select all shapes of one color. In this example, we selected the shapes in the sand area.



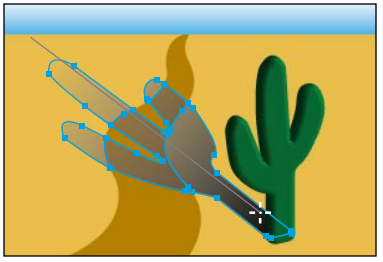
**4.** Use the Paint Style palette to fill the shapes with the corresponding gradient fill. It's not necessary to adjust the direction of the gradient fill yet.



**5.** Continue selecting all shapes of one color within the shadow area and filling them with the corresponding gradient fill.



**6.** Now select all shapes within the shadow. Choose the gradient fill tool, and drag to define the angle and length of the fills. In this example, we dragged from the top of the shadow shape to the bottom to create a blend from 100% color at the top of the shadow to 100% black at the bottom.



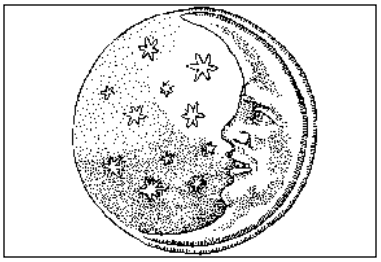
**7.** Experiment with the gradient fill tool to vary the heaviness of the shadow, using Hide Edges (⌘-Shift-H) to help preview the results. In this example, we started the gradient fill line outside the shadow and ended it well inside.

**8.** Deselect everything (⌘-Shift-A) when you are satisfied with the effect.

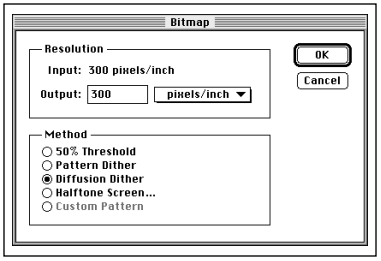
# Enhancing clip art

Software needed: Adobe Photoshop 2.5

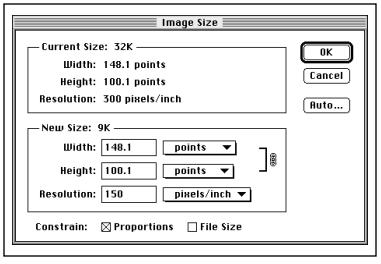
Many of the clip art books available to graphic designers and illustrators contain wonderful old woodcuts and engravings that you can customize for your artwork. This technique shows how to add color to a scanned woodcut in Adobe Photoshop while maintaining the original texture. To do this, you first trace the shapes in the woodcut and fill them with colors or blends; you then paste an inverted copy of the original woodcut on top of the shapes and fill the copy with one or more colors to create the texture.



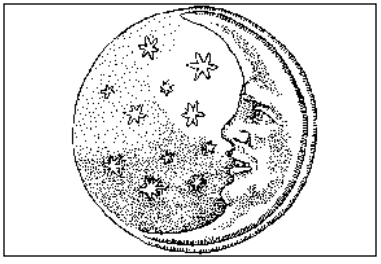
**1.** Scan the image at a larger size than you need, and save the original scan. Saving a larger copy of the image gives you the option of resizing and resampling the image for different situations. Scan the image at 1½ to 2 times the resolution you want for the final artwork. (If you don't plan to resize the image, skip to step 4.)



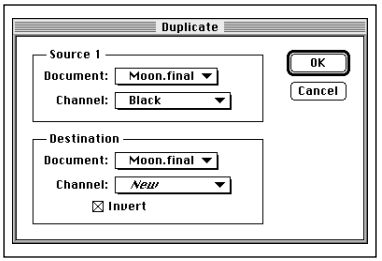

**2.** If the image isn't already a bitmap, choose Bitmap from the Mode menu to convert the image. For this type of image, resampling and resizing in Bitmap mode retains the clarity of the lines and prevents fuzziness. You can use different bitmap conversion options for different effects: we used the default options.



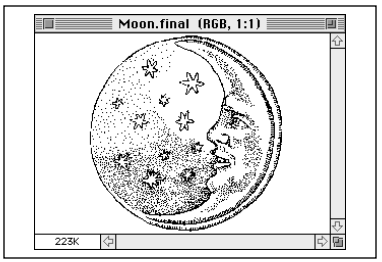

**3.** Choose Image Size from the Image menu and resize the image to the dimensions and resolution you want.



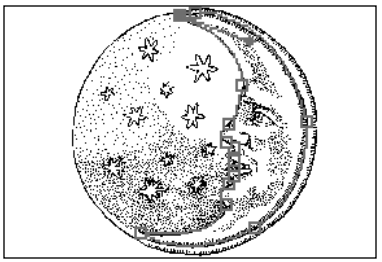
**4.** Now convert the image to Grayscale mode. Converting to grayscale allows you to copy the image into a channel in the next step.



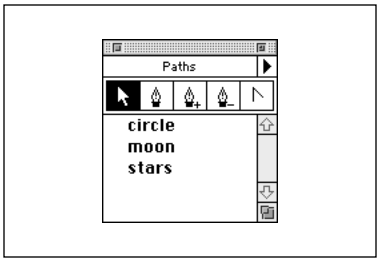

**5.** Choose Calculate/Duplicate from the Image menu. Source 1 should be the black channel of your grayscale file; the Destination should be a new channel of the same file. Select Invert to create a negative of the image, and click OK.



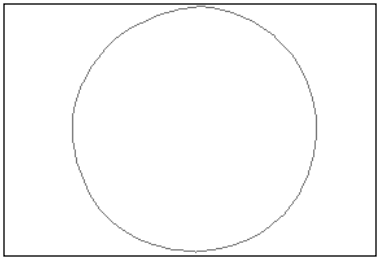

**6.** Convert the image to RGB mode. Because the original image has been saved in a separate channel (now channel #4), you can use the composite RGB channel to create your filled shapes—you'll then delete the original image from the RGB channel.



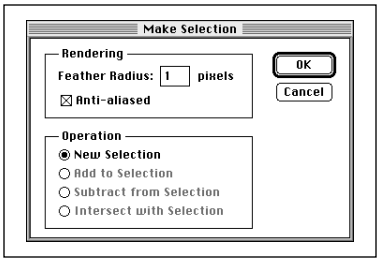
**7.** Open the Paths palette, and use the pen tool to trace the first shape in the woodcut. Because you'll eventually paste the original woodcut texture on top of the filled shapes, it's important to trace within the edges. When you've finished tracing the shape, save the path and name it after the shape so that you can keep track of the different paths.



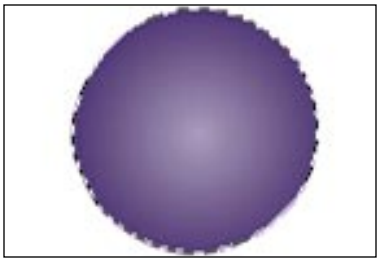

**8.** After saving the path, deselect it by clicking the checkmark next to its name. Then start the next path. If the image contains several shapes that will be filled with the same color, save them as one path. In this illustration, for example, all the stars were drawn and saved as one path.



**9.** Once you've finished tracing the image, select the entire image (⌘A), and delete it from the RGB channel. Select the path of the first shape you want to fill. If the shapes overlap, choose the backmost shape first.



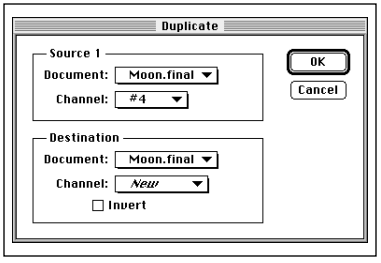

**10.** From the Paths palette, choose Make Selection. Because the edges of the shape will be covered up by the woodcut texture, a 1-pixel feather is sufficient. Click OK.



**11.** Open the Colors palette, and select a foreground and background color for a gradient fill. Use the gradient fill tool to fill the selection.

**12.** When you are satisfied with the fill, deselect the path (⌘D). Click the next path listed in the Paths palette, and repeat steps 9–11 until all the paths are filled with a gradient fill or a color.

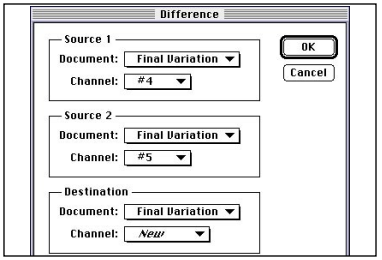
**13.** Choose Load Selection from the Select menu to load the original woodcut from channel #4 on top of the filled shapes. Choose a contrasting color from the Colors palette, and fill the selection (Option-Delete). To better view the results while experimenting with different fill colors, choose Hide Edges from the Select menu (⌘H).




*Enhancement:* You can save portions of the original woodcut in different channels so that you can load and fill the final textures individually. To do this, follow steps 1–12; then choose Calculate/Duplicate to duplicate the woodcut selection channel you created in step 5. Copy channel #4 into a new channel of the same file (channel #5).

2. Select a part of the texture that you want to fill with one color. In this example, we selected the moon. (Note that the marquee shown in this illustration has been slightly enhanced for clarity.)

3. Choose Inverse from the Select menu. Choose black as the foreground color, and fill the selection with black (Option-Delete).




4. Now you'll subtract this new channel from the original channel and place the difference into a third channel. From the Image menu, choose Calculate/Difference. Select channel #4 as Source 1 and channel #5 as Source 2. The Destination should be a new channel of the same file (channel #6). Click OK.

5. Channels #5 and #6 now each contain a portion of the original woodcut. To use more than two colors, repeat the preceding three steps until you have saved each color area in a separate channel. Return to the RGB channel, and load selection #5. Fill the selection using Hide Edges to preview the results. When you are satisfied, deselect.

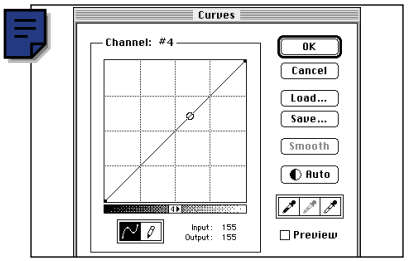
6. Continue loading and filling selections until the texture is complete. (In this example, we filled the moon texture with green and the remaining texture with yellow.) When the artwork is as you want it, delete the unused channels to keep the file size to a minimum.

### *Adjusting Curves to generate a mask*

Often the building blocks you need to create a selection mask are in one of the existing color channels. Determine which channel contains the most contrast in the area that you want to select. We chose the blue channel to create a selection mask for the ocean.

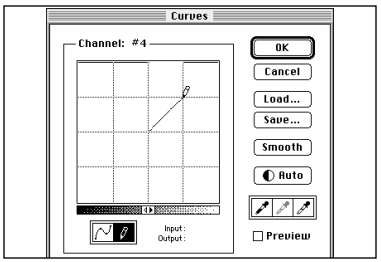
1

Choose Calculate/Duplicate and duplicate the channel into a new channel of the image. Then choose Adjust/Curves from the Image menu. Click the eyedropper icon, and position the eyedropper over the area of the image that you want to make a mask of; note where on the Curves grid the circle indicator falls.



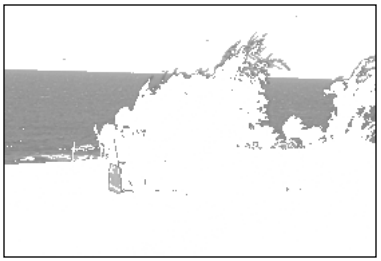

2

Click the pencil icon in the Curves dialog box. Use the pencil to draw a curve across the area of the grid you identified in the previous step. By adjusting the pixel values, you can create a precise selection of the area you want to isolate. Keep redrawing the curve until the selection is as you want it.




3

After making adjustments, click the Smooth button at least once to soften any abrupt transitions in the mask. The smoother the mask, the better the results. Click OK. You now have the outline of your mask. Remember that selection masks act like negatives and that any gray areas will create a semitransparent mask.



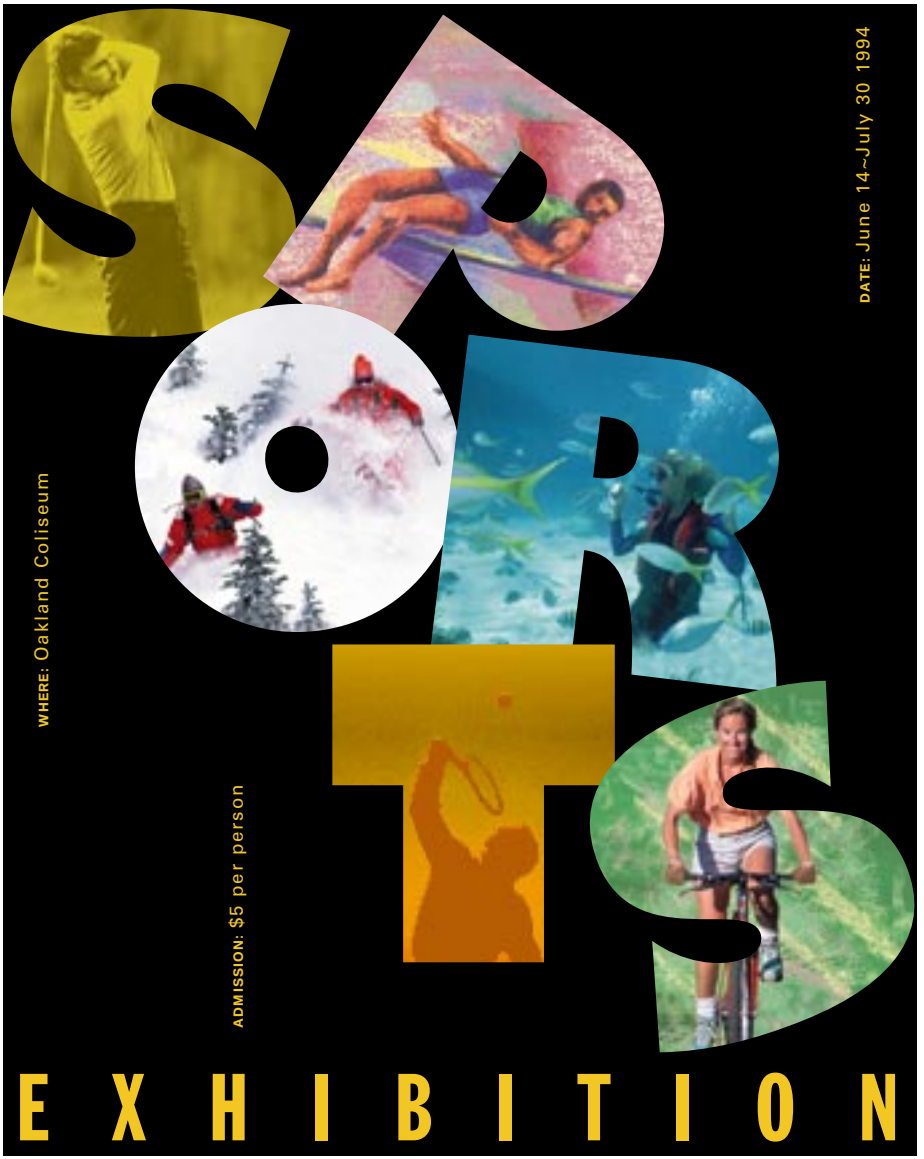
4

If necessary, adjust the contrast to make any gray values black. In this example, we used Levels (⌘L) to adjust the contrast, and then inverted the channel so that the ocean would be the selected area. We then removed some extraneous pixels from the ocean area. The result is a semitransparent mask of the ocean.

5

# Photos masked by type

Software needed: Adobe Illustrator 3.0, Adobe Photoshop 2.0

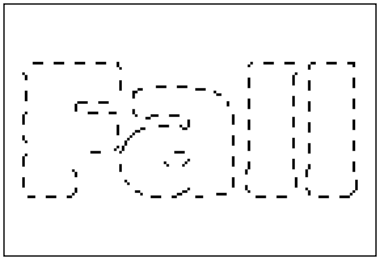


Type masks in Photoshop are a little easier to create and print than in Illustrator. However, because Photoshop generates bitmapped type while Illustrator generates PostScript language outlines, you'll need to decide whether you want the anti-aliased edges of Photoshop's bitmaps or the smooth edges of Illustrator's outlines. With both methods, heavy sans serif typefaces usually make a better mask. In addition, it's a good idea to scan the Photoshop file that you're masking at a higher resolution and size than you need in the final artwork. This will enable you to reposition and resize the photograph inside the type mask as needed.


**Adobe Photoshop method**

**1.** Open the Adobe Photoshop file in which you want to create the type mask. Choose New Channel from the Channels palette, and name the channel type mask. Create the type using the type tool, or use the Place command to place type from Adobe Illustrator into the channel.

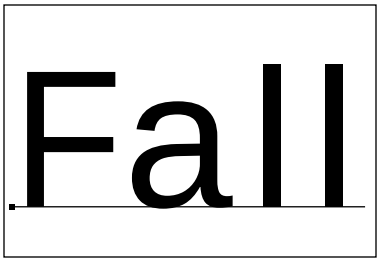

**2.** Deselect the type (⌘D), and choose Map/Invert from the Image menu (⌘I) to invert the channel.



**3.** Return to the composite image channel, and choose Load Selection/type mask from the Select menu.

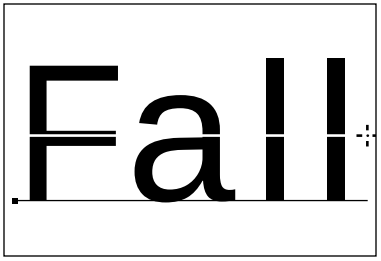
**4.** Open the Photoshop file that you want to mask with the type. Use the rectangular selection tool to select the area that you want to show through the type. Copy it to the Clipboard.


**5.** Return to the Photoshop file containing the active type mask selection, and choose Paste Into from the Edit menu. The photograph is now the floating selection. Drag the photograph into the position you want; then deselect it.



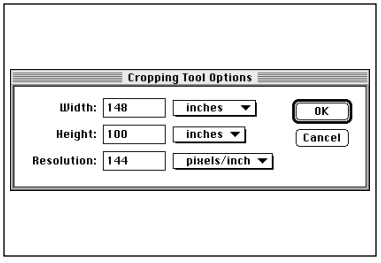

**Adobe Illustrator method**

**1.** Open the Adobe Illustrator file in which you want to create the type mask. Use the type tool to create the type. Use only a few letters to avoid printer memory problems.



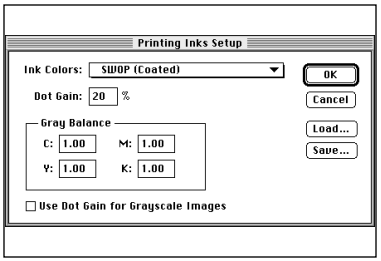

**2.** Select the measure tool, and measure the height and width of the type. Write down these measurements for use in step 4.

**3.** Now switch to Adobe Photoshop, and open the file you want to mask with type.

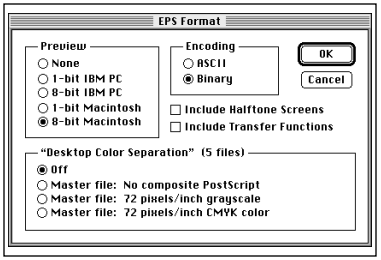



**4.** Because you scanned the Photoshop image at a larger size and resolution than you will print it, you now need to crop the file. Double-click the cropping tool. Enter a height and width slightly larger than the measurements you wrote down in step 2. The resolution should be about twice the line screen (lpi) used to print the image.

**5.** Select the area of the photograph that you want to mask through the type. When you are ready to crop, click the scissors icon inside the cropping marquee.




**6.** Next you need to convert the photograph to a CMYK file. From the File menu, choose Preferences/ Printing Inks Setup. If you plan to print the file using standard U.S. four-color process, choose SWOP. If you plan to print comps to a color printer, choose the printer type. Click OK. Then choose CMYK Color from the Mode menu.




**7.** Use the Save As command to save the file. Select EPS as the format. If you want to see a color preview of the file in Illustrator, select the 8-bit preview option. Click OK.


**8.** Return to the Illustrator file. Choose Place Art from the File menu, and select the EPS file you just created. Choose Send to Back from the Arrange menu (⌘–) to place the image behind the mask. If you're using Adobe Illustrator 3.0 or 4.0, choose Bring to Front from the Edit menu (⌘=).


**9.** Now select both the EPS image and the type, and choose Masks/Make from the Object menu. If you're using Illustrator 3.0 or 4.0, select only the type, and click Mask in the Paint Style dialog box. You can reposition the EPS file by deselecting it and then selecting only the EPS image and moving it around within the mask.

PROFESSIONAL STUDIO TECHNIQUES

# PRODUCTION ESSENTIALS

Featuring techniques using:
Adobe Acrobat
Adobe Illustrator
Adobe Photoshop
Adobe Streamline
Adobe Type Library

# Contents

**To place a low-resolution image into a document for position only (FPO), do not resample down and expect to be able to resample up later. Instead, either scan a low-resolution version or resample a copy of the high-resolution version.**

**Scan a stepped gray wedge, with your image. If your image does not contain any neutral gray areas, the step-ped gray wedge will help you correct any color cast introduced by scanning.**

**RGB FILE SIZE (150-LPI HALFTONE SCREEN)**

| OUTPUT SIZE | 1.5:1 RESOLUTION RATIO | 2:1 RESOLUTION RATIO | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1″ | 2″ | 3″ | 4″ | 5″ | 6″ | 7″ | 8″ |
| 1″ | 149K | 264K / 528K | 792K | 1.03M | 1.29M | 1.55M | 1.80M | 2.06M |
| 2″ | 297K | 594K / 1.03M | 1.55M | 2.06M | 2.58M | 3.09M | 3.61M | 4.12M |
| 3″ | 445K | 890K | 1.30M / 2.32M | 3.09M | 3.86M | 4.64M | 5.41M | 6.18M |
| 4″ | 594K | 1.16M | 1.74M | 2.32M / 4.12M | 5.15M | 6.18M | 7.21M | 8.24M |
| 5″ | 742K | 1.45M | 2.17M | 2.90M | 3.62M / 6.44M | 7.73M | 9.01M | 10.30M |
| 6″ | 890K | 1.74M | 2.61M | 3.48M | 4.35M | 5.21M / 9.27M | 10.80M | 12.40M |
| 7″ | 1.01M | 2.03M | 3.04M | 4.06M | 5.07M | 6.08M | 7.10M / 12.6M | 14.40M |
| 8″ | 1.16M | 2.32M | 3.48M | 4.64M | 5.79M | 6.95M | 8.11M | 9.27M / 16.5M |

**RGB FILE SIZE (175-LPI HALFTONE SCREEN)**

| OUTPUT SIZE | 1.5:1 RESOLUTION RATIO | 2:1 RESOLUTION RATIO | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1″ | 2″ | 3″ | 4″ | 5″ | 6″ | 7″ | 8″ |
| 1″ | 203K | 359K / 718K | 1.05M | 1.40M | 1.75M | 2.10M | 2.45M | 2.80M |
| 2″ | 405K | 808K / 1.40M | 2.10M | 2.80M | 3.50M | 4.21M | 4.91M | 5.61M |
| 3″ | 608K | 1.18M | 1.78M / 3.15M | 4.21M | 5.26M | 6.31M | 7.36M | 8.41M |
| 4″ | 810K | 1.58M | 2.37M | 3.15M / 5.61M | 7.01M | 8.41M | 9.81M | 11.20M |
| 5″ | 1.01M | 1.97M | 2.96M | 3.95M | 4.93M / 8.76M | 10.50M | 12.30M | 14.00M |
| 6″ | 1.19M | 2.37M | 3.55M | 4.73M | 5.92M | 7.10M / 12.6M | 14.70M | 16.80M |
| 7″ | 1.38M | 2.76M | 4.14M | 5.52M | 6.91M | 8.28M | 9.67M / 17.2M | 19.60M |
| 8″ | 1.58M | 3.15M | 4.74M | 6.31M | 7.89M | 9.46M | 11.00M | 12.6M / 22.4M |

Keep these charts handy as you make your decisions during the scanning stage.



## Resizing and Resampling Images

In general, it is always best to capture the correct amount of pixel information, at the size you need, during the scanning stage. Later adjustments may introduce unwanted changes in your image. But since this isn't always possible, you can resize an image using the capabilities of Adobe Photoshop.

Altering the dimensions of an image without adjusting its resolution changes its appearance and quality because the number of pixels per inch remains constant, regardless of the image size. (See "Altering Final Image Size," page 19.)

### Resampling

To retain an image's visual integrity while changing its dimensions, you must also change its resolution. Changing the number of pixels in an image—its resolution—is called resampling.

When resampling, keep in mind that file size is proportional to scan resolution. For instance, the file size of an image scanned at 200 ppi is four times greater than the same image with the same dimensions scanned at 100 ppi.

200-ppi scan resolution; 380kb file size

100-ppi scan resolution; 96kb file size

Resampling down decreases resolution and deletes pixel information from the image. Resampling up increases resolution and creates new pixel information based on existing color values.

Resampling down and then resampling up deteriorates the quality of an image. This happens because once an image is resampled down, the original pixel information is lost and cannot be recaptured unless you rescan the image.

When you resample up, Adobe Photoshop attempts to reconstruct the original color using the existing color information. However, the resulting image is only an approximation of the original and will not be as sharp or as accurate.

## Interpolation

Interpolation is the process by which Adobe Photoshop fills in or deletes pixels when an image is changed significantly. It occurs any time you rotate, scale, skew, change perspective in, or resample an image. Regardless of direction, resampling alters the color of some pixels during interpolation. When you resample up, you essentially create blank pixels. As the image size increases, new pixels are created to fill the blank pixels, based on the color values of surrounding pixels. When you resample down, certain pixels are deleted to make the image smaller, and some of the remaining pixel colors are changed to approximate the visual appearance of pixels that have been deleted. There are three methods of interpolation available in Photoshop: Bicubic, Nearest Neighbor, and Bilinear. Select one based on the output quality you'll need and the type of image you are interpolating.

**Bicubic.** This is the most precise form of interpolation because of its precise method of selecting pixels for emulation. The Bicubic method should be used whenever you need exacting quality. It is the most time-consuming interpolation method.

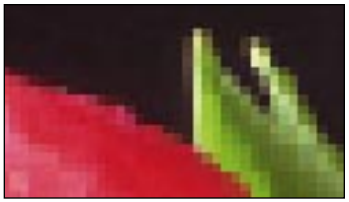
**Nearest Neighbor.** This is the fastest type of interpolation, but not especially subtle in the way it selects pixels to emulate. In most cases, the result is an image with a jagged appearance. Use Nearest Neighbor when you wish to preserve the crisp nature of line art or illustrations that use pixels as design elements; in most cases use Nearest Neighbor when resampling screen shots. (For screen shots, when possible resample down by dividing your original resolution by a whole number, not a decimal. For instance, if your original image was 600 ppi, the best result for resampling would occur at 75, 150, or 300 ppi.)

**Bilinear.** Bilinear interpolation reproduces pixel information in a manner similar to that of Bicubic, but does not provide the same level of detail enhancement; Bilinear also takes less time than Bicubic, but more time than Nearest Neighbor.



Continous-tone image

Enlarged section, Bicubic



Enlarged section, Nearest Neighbor

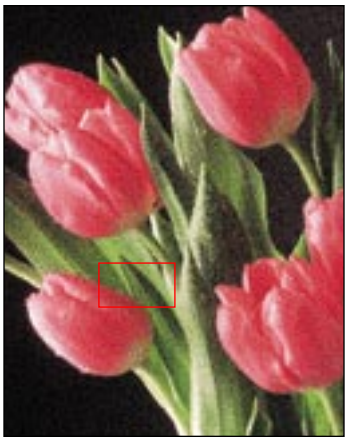
**Apply Unsharp Mask to your image after resampling up, rotating, scaling, skewing, or changing perspectives to help refocus it.**

Grayscale image

Enlarged section, Bicubic

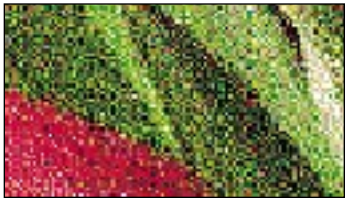
Enlarged section, Nearest Neighbor

**Whenever you resample up, make sure your new file has enough image information to reproduce well at that size.**



Pixelated image

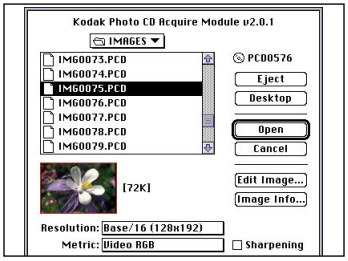
Enlarged section , Bicubic



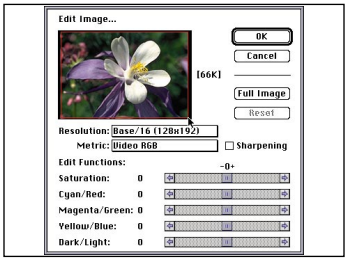
Enlarged section, Nearest Neighbor

## Getting the Best Kodak Photo CD Image

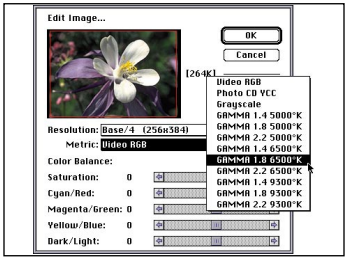
Certain third-party products offer extra functionality beyond what comes with Adobe Photoshop. Using the Kodak Acquire module (version 2.01 for the Macintosh and version 1.0 for the Windows platform), for instance, you can quickly adjust the Gamma and color-temperature values of scans, which usually results in better tonal range than if you used the image as scanned. To do this:



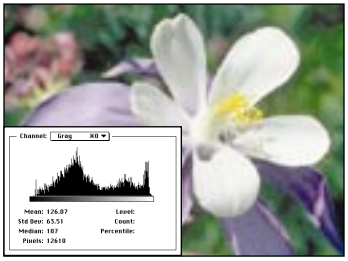

1. In Photoshop, choose Acquire/ Kodak Photo CD and select an image from the disc.




2. Click Edit Image to see a larger preview. Using the pointer tool, roughly crop the preview image by clicking in the upper left-hand corner and dragging the red box to the lower right-hand corner, making sure you crop out any black or white borders.




3. Select the Base/4 (256 × 384) version of the image. Select a Gamma setting and color temperature (a good place to start is 1.8 for Gamma and 6500° Kelvin for temperature). Click OK.




4. Open the image in Photoshop and evaluate it using a histogram (see the next section). To get more tonal range from the scan, try using different Gamma and temperature settings. Evaluate these test settings and write down the ones that give the best results.

5. Using the best Gamma and color-temperature settings determined in step 4, reopen the image at the resolution required for output. Your image is ready for further color correction in Photoshop if necessary.

## Evaluating a Scanned Image

Before spending hours color-correcting or editing images for final reproduction, first evaluate the scans to determine whether adequate pixel information has been captured to achieve the results you want.

To do this, consider how the final image will be used: Should it match, enhance, or differ from the original? To match images to the originals for reproduction, the scanned images should duplicate the colors and detail as they appear in the original images. Enhancing a scanned image to look better than the original is often done to compensate for an inadequate original. For instance, the image might look flat because there isn't enough contrast, or there might be a color cast in the film. Editing or color-correcting an image so that it looks different from the original might be done to change the color of an object, to remove an item you don't want, or to add something you do want.

To evaluate a scan in Adobe Photoshop, examine the image and its histogram. A histogram is a graphic representation of the tonal range of pixels as gray values (or brightness levels) from 0 to 255. To select the histogram used for evaluation, open Image/Adjust/Levels; the Levels dialog box appears. You can view combined channels in RGB or CMYK mode. In RGB mode, the histogram displays the shadow region to the highlight region from left to right. Click the bar at the bottom of the graph to switch to CMYK percentages; in this mode, the percentage values read from light to dark, left to right. You can also examine individual channels by clicking on the Channel pop-up menu in the Levels dialog box and selecting a specific channel. By comparing histograms to the image, you can evaluate scans and determine whether adequate pixel data has been captured for reproduction.

## Adjusting Color Balance

After setting end points and adjusting midtones, examine your image further to determine whether your image has a color balance problem. If a color cast exists—if skin tones seem greenish, for instance, or a neutral area shows a distinct color (see "Why Is Neutrality Important?" on page 29)—you'll need to adjust the color balance.

### Bracketing Photographic Images

Improper color balance is often attributable to imbalances among the color layers of photographic film and improper lighting. Imbalances in film are similar to the variances produced by bracketed exposures.

Photographic film is made up of three layers—cyan, magenta, and yellow, the yellow layer being sandwiched between the cyan and magenta (you can see this for yourself if you slice a piece of film with an X-Acto knife). You can also think of color photographic film as being made up of three grayscale layers, each of which could have a normal exposure or be over-exposed or underexposed. In a perfect world, these three layers would each have a normal exposure and thus produce perfectly balanced color. Despite the best efforts of film manufacturers, however, this is rarely the case. Instead, at least one layer of the film is usually over- or underexposed, causing a color cast that affects the overall neutrality of the image.

By shooting the same scene multiple times with different lens-aperture settings, shutter speeds, and/or filters, a photographer can control how an image is captured on film and compensate, to some degree, for the imbalances among layers of film. This is called bracketing and it is done to ensure that the correct and best exposure for the scene has been captured for reproduction. You can utilize the concept of bracketing to help evaluate and correct color casts in specific channels of RGB or CMYK scanned images.

Normal exposure

Overexposure

Underexposure

## Balancing Bracketed Exposures

In the following example, we examine a bracketed grayscale image and then, using Curves in Adobe Photoshop, balance the overexposure and underexposure to the normal exposure. This approach will help you gain a better understanding of how to identify and adjust color casts in color images.

Normal exposure

Overexposure

Underexposure

Notice the signs of over- and underexposure in this example as compared to the normal exposure. The overexposed image appears lighter overall and has little contrast or detail in the highlight areas. The underexposed image, which is darker overall, has too much detail in the highlights and very little in the shadows.

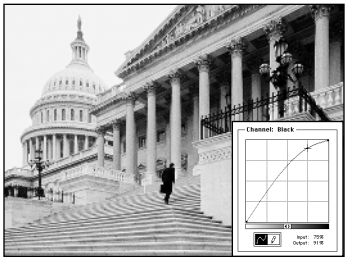
Using the Info palette and the eyedropper tool, we examine tonal values in the highlight and shadow regions of each exposure. In the overexposed image, the percentage values are lower in the highlights and shadows than they are in the normal exposure (see the chart below). In the underexposed image, the opposite is true—both the shadows and the highlights are too dense.

| COMPARISON OF WHITE AND BLACK POINTS | | |
|---|---|---|
| | HIGHLIGHT | SHADOW |
| NORMAL EXPOSURE | 5 | 95 |
| OVEREXPOSURE | 1 | 88 |
| UNDEREXPOSURE | 18 | 98 |

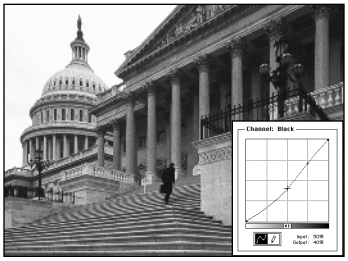
Overexposure after adjustment

Underexposure after adjustment

When the highlight and shadow values in the over- and underexposed images are adjusted to match the values in the normal exposure, notice how the two exposures become more like the normal exposure.




Overexposure after adjustment




Underexposure after adjustment

Finally, by adjusting the over- and underexposed images in the quarter, mid-, and three-quarter tones using Curves, they nearly match the normal exposure. Also notice the differences in the Curves dialog box for each exposure after these adjustments are made.

## Using Curves to Balance Color Casts

To adjust imbalanced color channels that produce color casts, look for areas in your image that you expect to be neutral but are not. Then identify which channels are exposed incorrectly, thus creating the color cast. Correct the cast by "normalizing" the badly exposed channels using Curves. After correcting the color cast, continue to make color corrections as necessary. There are many ways to eliminate color casts; this example uses Curves (see the Adobe Photoshop 3.0 Tutorial for more ideas on how to correct color balance).

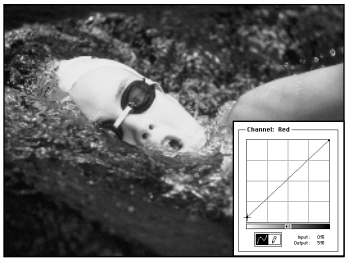
1. Open your image and the Info palette. Double-click on the eyedropper tool and make sure the Sample Size is set to 3 by 3 Average. Using the eyedropper tool, locate the black and white points and look for colors that appear to be out of balance.

2. In the General Preferences dialog box, leave the Color Channels in Color box unchecked. Click on each channel in the Channels palette and examine it in grayscale.

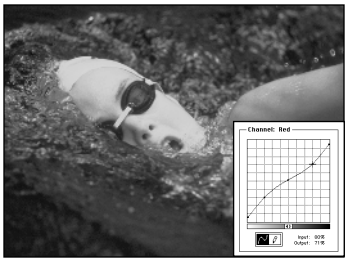
In this example, the Red channel is overexposed, the Green channel appears normal, and the Blue channel is underexposed.

Choose Window/New Window to open a second version of your original image; use it to preview your image in color as you make adjustments to the individual channels in grayscale. (Zoom it down to a smaller size and move it to the side so you can see the channel you're working on.) After adjusting the preview window, highlight the window of your original image.

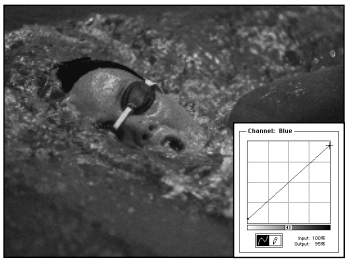
3. View the normal channel (Green in this example) by clicking on it in the Channels palette. Using the eyedropper tool, determine the values of the white and black points located in step 1 (5% and 95% in our example).



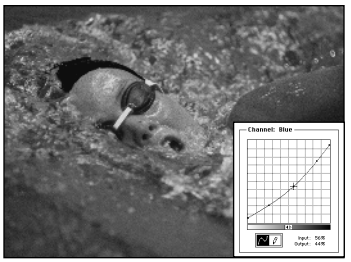

4. Select the overexposed channel (Red in this example). Choose Curves, make sure the Preview box is checked, and set Curves to percentage mode. To darken the image, drag the lower left-hand corner up to the white point value determined in step 3 (5%).




5. Move the upper right-hand corner of the curve down to the shadow value (95%). Adjust the quarter, mid-, and three-quarter tones to "normalize" the channel. Watch the color window as you work; be careful not to introduce too much contrast. Click OK.




6. Select the underexposed channel (Blue in this example). Choose Curves and set the end points of the curve to the white and black points (5% and 95%), as in steps 4 and 5.




7. To normalize the Blue channel, adjust the curve in the midtone region to lighten the image, then click OK.

8. Once satisfied with the adjustments you have made, click on the RGB composite in the Channels palette and close the preview window. The image is now ready for any further color correction.

**BEFORE**

RGB original with a color cast

Red channel (normal exposure)

Green channel (overexposure)

Blue channel (underexposure)

**AFTER**

RGB image with color adjusted

Red channel after adjustment

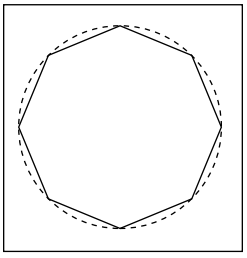
Green channel after adjustment

Blue channel after adjustment

## Setting Flatness for Curves

PostScript interpreters approximate curves by a series of line segments. If the line segments are short enough, the individual line segments will not be visible and the curve will appear smooth. A raster image processor (RIP) calculates a series of short line segments more quickly and easily than it does a perfect curve. The trade-off, then, is between an output device's rendering accuracy and its calculation time.

The PostScript page description language allows some variance in the way an output device renders curves. The level of accuracy in a curve rendering is determined in part by the user's adjustment of the flatness value. The flatness value represents the amount, in pixels, by which a particular curve rendering varies from a perfect rendering. You can adjust this value for complex curves in Adobe Illustrator; in Adobe Photoshop, flatness is used only when you save a clipping path to silhouette an image and place it in other applications.



If the flatness value is set too high, a circle will be made up of lengthy line segments rather than curves, resulting in a polygon instead of a circle. But if the flatness value is set too low, the RIP may have to make many more calculations than are necessary to produce a good-looking curve, resulting in unnecessarily lengthy output times.

Although a straight line is not affected by the flatness value, curves are affected in ways that are difficult to predict and depend upon the resolution of the output device. A flatness value of 25, for instance, may produce angular and sharp-edged output on a 300-dpi laser printer but quite acceptable output on a 3386-dpi imagesetter.

On the other hand, your file may print trouble-free on a 300-dpi laser printer but not on a high-resolution imagesetter (in this case, you would increase the flatness value). The trick is to find a flatness value that works well at the printing device's resolution.

**Setting flatness in Adobe Illustrator.** Rather than changing the flatness value directly, in Adobe Illustrator you instead change the output resolution according to the following formula:

$$\text{FLATNESS} = \frac{\text{PRINTING DEVICE RESOLUTION}}{\text{OUTPUT DEVICE RESOLUTION}}$$

If your artwork contains very long or complex curved paths, you may want to change the flatness value by changing the Adobe Illustrator default Output Resolution setting of 800 dpi. Set the output resolution for all new objects (but not existing objects) in the Document Setup dialog box; for individual existing objects, select the object, then set its Output Resolution value in the Objects/Attributes dialog box. Output Resolution settings must be between 100 dpi and 9600 dpi in Illustrator 5.0 and later versions. Flatness can also be adjusted using an Adobe Illustrator EPSF Riders file (see "EPSF Riders Files," page 93).

**Setting flatness in Adobe Photoshop.** Flatness values in Adobe Photoshop come into play when you use clipping paths. A clipping path is a path drawn with the pen tool and saved with the document in EPS format; it makes everything but the selected area transparent when the image is printed or previewed in another application.

The flatness value for clipping paths is set in the Clipping Path dialog box after you save a clipping path, or it is set in the EPS Format dialog box when you save the file in EPS format (see the user guide for details). Values can range from 0.2 to 100; if you do not enter a value, Adobe Photoshop uses the printer's default setting. In general, a flatness value of 8–10 is recommended for high-resolution printing devices (1200–2400 dpi), and a setting of 1–3 is recommended for low-resolution printing devices (300–600 dpi).

## Trapping Artwork

In offset printing, paper can shift slightly, causing small but unsightly gaps where different-colored elements meet. Traditionally, print vendors compensated for this misregistration in advance by creating a small area of overlap (called trapping) between two adjoining colors.

In digital prepress, traps are created by using the more sophisticated graphics, page layout, and trapping programs. In Adobe Illustrator, for instance, traps are created by selecting some elements in the artwork to overprint others, which results in both inks overlapping and a transparent appearance on press. Since the trap amount varies with press and paper types, it's important to consult your printer to determine how much trapping to apply to any particular image.

Two types of traps can be created digitally: spread traps, in which the object's edge is extended and overprints (overlaps) the background; and choke traps, in which the background's adjoining edge is extended and overprints the object.

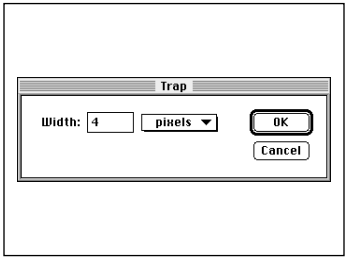


## Trapping with Adobe Photoshop

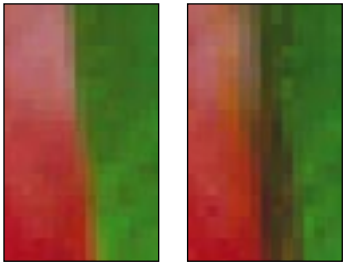
Misregistration is less likely to be visible with photographic images because the process-color dots intermingle throughout the image. If any distinctly different colors in your image touch, however, you may need to trap. Consult your printer to find out how much trapping is appropriate for your project (the trap amount varies with image resolution; that is, a 1-pixel trap width is much more obvious in a 72-ppi image than in a 300-ppi image).

1. Open a copy of the RGB or CMYK image that you want to trap. Convert an RGB image to CMYK mode (the Adobe Photoshop Trap feature works only in CMYK mode).

2. Make a selection, if desired. Here, we selected an area where a green leaf and red berry meet; they have distinctly different colors, which could be a source of misregistration on press.




3. Choose Image/Trap; the Trap dialog box appears. Choose a unit of measurement from the pop-up menu. Enter the trap width in the Width box; click OK.



Before After

4. Photoshop creates allover traps within the selection. In these magnified before-and-after views, you can see the effects of the Trap feature on the selection.

## Trapping with Adobe Illustrator

Adobe Illustrator has extensive trapping capabilities, including the Pathfinder Trap filter plug-in in version 5.5. The complexity of your artwork will determine which method you use. As with the Adobe Photoshop Trap feature, the Illustrator trap filter uses one method among many for trapping and thus is intended to be used with uncomplicated artwork. For example, it works well with simple graphics and type, but if your artwork has gradients, strokes, or other complex elements, you should trap manually.

Analyze the trapping needs of your document before trapping; Illustrator does not trap patterns, for instance. Use the Pathfinder Trap filter when trapping fewer than twenty-five overlapping shapes filled with process and custom colors. Use manual trapping for objects containing fills, text, strokes, or placed images; the Pathfinder Trap filter will ignore these attributes.

Consult with your prepress and press vendors for their trapping requirements before using the trap filter. If you aren't sure about how to create specific traps for your artwork, consider having your prepress vendor's staff produce traps for you. (See the Adobe Illustrator User Guide for more information on trapping.)

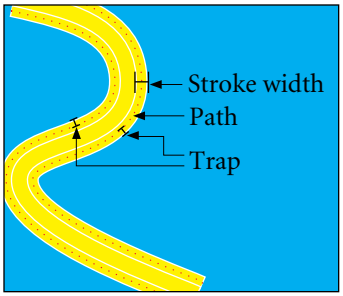
**The Pathfinder Trap filter.** This plug-in compares the two objects you want to trap, then selects the lighter object to overprint (trap) the darker one. If two objects are similar in color density, the Pathfinder Trap filter selects one based on subtle color variations. If you are not satisfied with the results—for instance, if overprinting a blue object on a red background results in a distinctly purple outline—you can use the Reverse Trap option in the Pathfinder Trap dialog box (select Filter/Pathfinder/Trap) to select the other object for overprinting.

The Pathfinder Trap filter works best when you select only two objects at a time. Be sure you have deselected all other objects before applying the trap filter; when too many objects are selected, the trap filter takes a long time to process.

Generally, it is best to scale your graphic to the finished size before you use the trap filter because the trap amount you specify increases or decreases proportionally when you change the scale of the object. If you create a graphic that has 0.5-point traps and scale it to five times its original size, for example, the result will be 2.5-point traps for the enlarged graphic.

**Trapping manually.** The manual trapping method offers far more flexibility than the Pathfinder Trap filter. Spread and choke traps are both available, and you (rather than the program) select which object will overprint another.

Manual trapping is an art; not only must the printer and paper types be considered, but also whether the objects share ink colors, whether they contain gradients or continuous-tone images, and whether any blacks are actually a mixture of process colors. Pages 88–92 show trapping approaches for these and other complexities in an image.



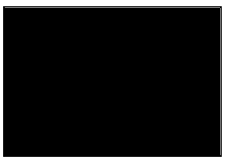

Because a stroke in the Adobe Illustrator program "straddles" a boundary—that is, half of the stroke is on one side of the boundary, and half on the other—you should use a stroke that's double the trap width recommended by your printer.

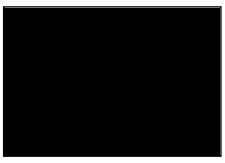
Most approaches make use of the Overprint option in the Paint Style palette, which causes the affected printing inks to overlap on press. To create basic 1-point spread traps for a yellow object on a blue background, for instance, you would create a 2-point yellow stroke for the object and set the stroke to overprint the background.

Since the object itself is not set to Overprint, the blue background drops out ("knocks out") beneath it. Because the stroke straddles the object's boundary, only the outer 1 point overprints the background, creating the appropriate amount of trap.

In general, misregistration is less noticeable when adjacent objects share at least one color. Whenever one object is black, you can introduce shared colors by converting the black to a two- or four-color black (black plus either one or three process colors). The multicolor black is also much richer than 100% black alone, and two-color blacks are easier than four-color blacks to register on press.


100% black


Two-color black


Four-color black


## Manual Trapping

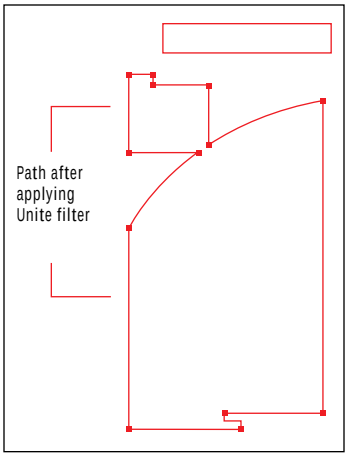
**Manual trapping is a subjective process in which there are no set rules, so two very different approaches may work equally well on the same artwork.**

**The following pages show the techniques that were applied to the complex trapping problems in two illustrations – the first created with both Adobe Illustrator and Adobe Photoshop and the second created in Adobe Illustrator alone.**

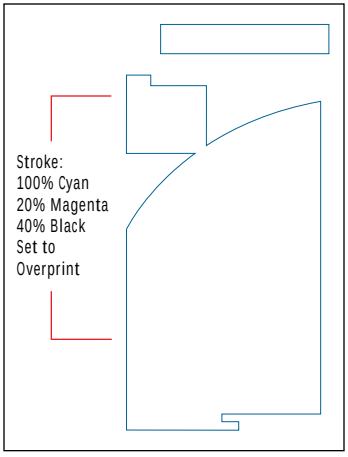
**All trapping is created using Adobe Illustrator.**

**Trapping Backgrounds to Photographic Images**

1. To trap masks used to frame placed EPS images on a background, open the Layers palette, then choose New Layer in the pop-up menu. Name the new layer Trap. Select a color from the Selection Color pop-up menu that is different from the mask color in the artwork layer; click OK.




2. Select all masks on the artwork layer that need trapping, then copy (⌘C) and select Paste In Front (⌘F). To move the copied masks to the Trap layer, click on the small colored square to the right of the artwork layer in the Layers palette and drag it up to the Trap layer. Hide the artwork layer by clicking the dot beneath the eye icon in the Layers palette. If any masks overlap (as in this example), apply the Unite filter (Filter/Pathfinder/Unite).




3. Stroke the trap shapes using the background color; make the stroke widths double your trap width and set the strokes to Overprint. These strokes are your traps. Click on the space beneath the eye icon in the Layers palette to see the entire artwork again.

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