

# Photo Retouching



*Adobe® Photoshop® provides you with a variety of tools and commands for improving the quality of a photographic image. This lesson explains techniques for basic image correction by stepping you through the process of acquiring, resizing, and retouching a photo intended for a print layout.*

In this lesson, you will learn to do the following:

- Choose the correct resolution for a scanned photograph.
- Crop an image to final size.
- Adjust the tonal range of an image.
- Remove a color cast from an image using an adjustment layer.
- Use the Replace Color command to change the hue and saturation of a selected color in a photograph.
- Adjust the saturation and brightness of isolated areas of an image using the sponge and dodge tools.
- Use the rubber stamp tool to eliminate an unwanted object from an image.
- Replace parts of an image with another image.
- Apply the Unsharp Mask filter to finish the photo-retouching process.
- Save an Adobe Photoshop file in a format that can be used by a page layout program.

## Strategy for retouching

In Photoshop, you can retouch photographic images in ways once left only to highly trained professionals. You can correct problems in color quality and tonal range created during the original photography or during the image's scan. You can also correct problems in composition and sharpen the overall focus of the image.

### Basic steps

Most retouching in Photoshop follows these general steps:

- Check the scan quality and make sure that the resolution is appropriate for how the image will be used.
- Crop the image to final size.
- Adjust the overall contrast or tonal range of the image.
- Remove any color casts.
- Adjust the color and tone in specific parts of the image to bring out highlights, midtones, shadows, and desaturated colors.
- Sharpen the overall focus of the image.

## Intended use

The retouching techniques you apply to an image depend in part on how the image will be used. Whether an image is intended for black-and-white publication on newsprint or for full-color Internet distribution will affect everything from the resolution of the initial scan to the type of tonal range and color correction the image requires.

To illustrate one application of retouching techniques, this lesson takes you through the steps of correcting a photograph intended for four-color print publication. The image is a scanned photograph of Venice that will be placed in an Adobe PageMaker® layout for an A4-size magazine. The original size of the photo is 5 inches x 7 inches and its final size in the print layout will be 3.75 inches x 6 inches.



Original image



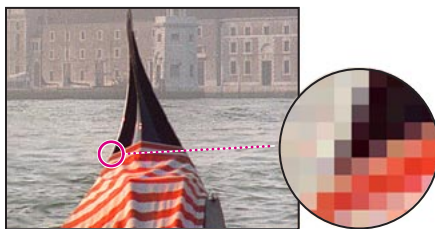
Image cropped and retouched



Image placed into page layout

## Resolution and image size

The first step in retouching a photograph in Photoshop is to make sure that the image is the correct resolution. The term *resolution* refers to the number of small squares known as *pixels* that describe an image and establish its detail. Resolution is determined by *pixel dimensions* or the number of pixels along the width and height of an image.



Pixels in photographic image

## Types of resolution

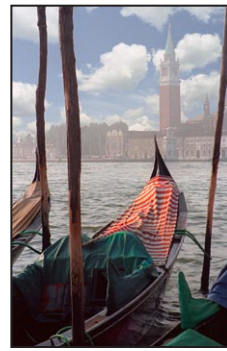
In computer graphics, there are different types of resolution:

The number of pixels per unit of length in an image is called the *image resolution*, usually measured in pixels per inch (ppi). An image with a high resolution has more pixels, and therefore a larger file size, than an image of the same dimensions with a low resolution.

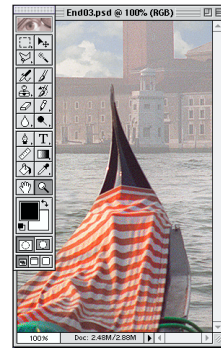
The number of pixels per unit of length on a monitor is the *monitor resolution*, usually measured in dots per inch (dpi). In Adobe Photoshop, image pixels are translated directly into monitor pixels. Thus, if the image resolution is higher than the monitor resolution, the image appears larger on screen than its specified print dimensions. For example, when you display a 1-inch-by-1-inch, 144-ppi image on a 72-dpi monitor, the image fills a 2-inch-by-2-inch area of the screen.



3.75 in. x 6 in. @ 72 ppi; 100% view on screen  
file size 342K



3.75 in. x 6 in. @ 200 ppi; 100% view on screen  
file size 2.48 MB



The number of ink dots per inch produced by an imagesetter or laser printer is the *printer* or *output resolution*. Higher resolution printers combined with higher resolution images generally produce the best quality. The appropriate resolution for a printed image is determined both by the printer resolution and by the *screen frequency* or lines per inch (lpi) of the halftone screens used to reproduce images.

## Resolution for this lesson

To determine the image resolution for the photograph in this lesson, we followed the computer graphics rule of thumb for color or grayscale images intended for print on large commercial printers: Scan at a resolution 1.5 to 2 times the screen frequency used by the printer. Because the magazine in which the image will be printed uses a screen frequency of 133 lpi, the image was scanned at 200 ppi (133 x 1.5).

*Note:* For more information on resolution and image size, see Chapter 3, “Getting Images Into Photoshop,” in the Adobe Photoshop User Guide.

## Getting started

Before beginning this lesson, delete the Adobe Photoshop Preferences file to restore the program's default settings. To delete the Preferences file in Windows®, exit Photoshop, and then delete the Adobe Photoshop 5 Prefs file in the Adobe Photoshop Settings subdirectory inside the Photoshop5 directory. To delete the Preferences file in Mac® OS, quit Photoshop, locate the Adobe Photoshop 5 Prefs file in the Adobe Photoshop Settings folder inside the Adobe Photoshop 5.0 folder, drag the file to the Trash, and choose Special > Empty Trash.

After you have deleted the Preferences file, restart the Photoshop program. Then open the final image to see how the adjustments you'll make affect the final artwork.

1 Choose File > Open. Locate and open the Training\Lesson03 folder in the Adobe Photoshop 5.0 application folder or on the tutorial CD. Then select End03.psd and click Open.

2 If you like, choose View > Zoom Out to make the image smaller, and leave it on your screen as you work. If you don't want to leave the image open, choose File > Close.

Now open the start file to view the photograph you will be retouching. (Although the photograph for this lesson was originally scanned at 200 dpi as described above, the file in which you will be working is actually a low-resolution file. The resolution was changed to limit the file size and to make work on the exercises more efficient.)

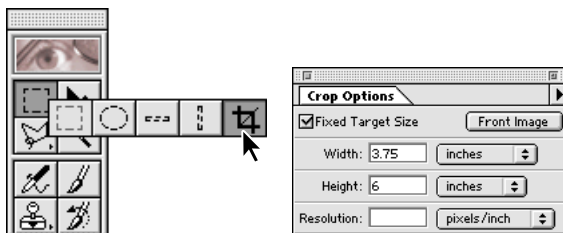
3 Choose File > Open. Locate and open the Lesson03 folder, select Start03.psd, and click Open.

4 Choose File > Save As, type the name **Work03.psd**, and click Save.

## Cropping an image

Once you've scanned an image and opened it in Photoshop, you're ready to retouch it. To start, you'll use the crop tool to scale the photograph for this lesson so that it fits the space designed for it.

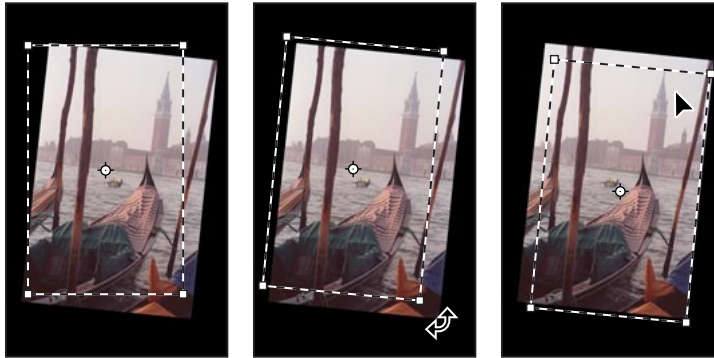
1 Hold down the mouse button on the rectangular marquee tool (☐) in the toolbox, and drag to the crop tool (✂) to select it. Then double-click the crop tool to display its Options palette, select Fixed Target Size, and enter the dimensions of the finished image—3.75 inches (width) by 6 inches (height).



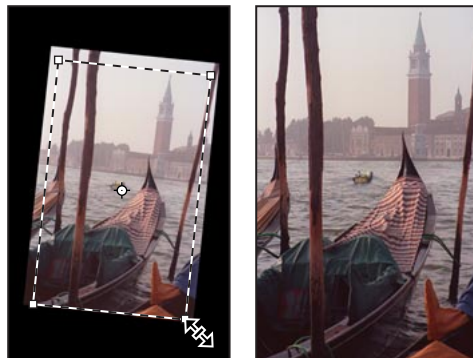
2 Next drag a marquee around the image, making sure you include the top of the tower and the orange tarp in the bottom right gondola. Notice that as you drag the marquee it retains the same proportion as the dimensions you specified for the target size.

Because the photograph was scanned in slightly crooked, you'll now use the crop tool to straighten the image before applying the new dimensions to it.

- 3 Move the pointer outside the crop marquee, and drag clockwise until the marquee is parallel with the image.
- 4 Place the pointer within the crop marquee, and drag until the right edge of the marquee lines up with the right edge of the image.

*Initial crop marquee**Marquee rotated**Marquee moved*

- 5 If necessary, fine-tune the size of the marquee by dragging its bottom right corner handle.
- 6 Press Enter (Windows) or Return (Mac OS). The image is now cropped.

*Marquee resized**Image cropped*

- 7 Choose File > Save.

## Adjusting the tonal range

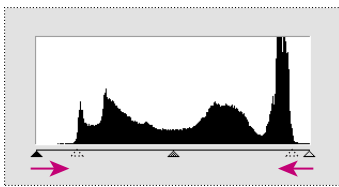
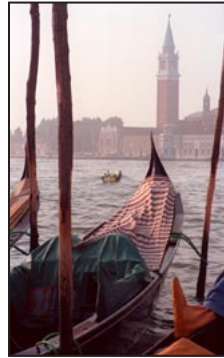
The tonal range of an image represents the amount of *contrast*, or detail, in the image and is determined by the image's distribution of pixels, ranging from the darkest pixels (black) to the lightest pixels (white). You'll now correct the photograph's contrast using the Levels command.

- 1 Choose Image > Adjust > Levels, and make sure that the Preview option is checked.

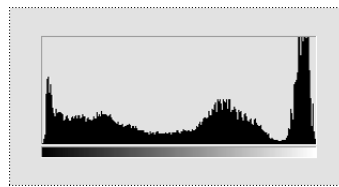
Notice the histogram in the dialog box. The triangles at the bottom of the histogram represent the shadows (black triangle), highlights (white triangle), and midtones or gamma (gray triangle). If your image had colors across the entire brightness range, the graph would extend across the full width of the histogram, from black triangle to white triangle. Instead, the graph is clumped toward the center, indicating there are no very dark or light colors.

You can adjust the black and white points of the image to extend its tonal range.

2 Drag the left and right triangles inward to where the histogram indicates the darkest and lightest colors begin. Click OK to apply the changes.



Increasing shadows (black triangle) and adding highlights (white triangle)



Result

3 Choose Image > Histogram to view the new histogram. The tonal range now extends throughout the entire range of the histogram. Click OK.

4 Choose File > Save.

## Removing a color cast

Some images contain color casts (imbalances of color), which may occur during scanning or which may have existed in the original image. The photograph of the gondolas has a color cast—it's too red.

*Note: To see a color cast in an image on your monitor, you need a 24-bit monitor (one that can display millions of colors). On monitors that can display only 256 colors (8 bits), a color cast is difficult, if not impossible to detect.*

You will now use a Color Balance adjustment layer to correct the photograph's color cast. An adjustment layer lets you edit an image as many times as you like without permanently changing the original pixel values. Using an adjustment layer to adjust color balance is a particular advantage for images you plan to print. After you see the color proof or printed copy, you can make additional changes to the image, if necessary.

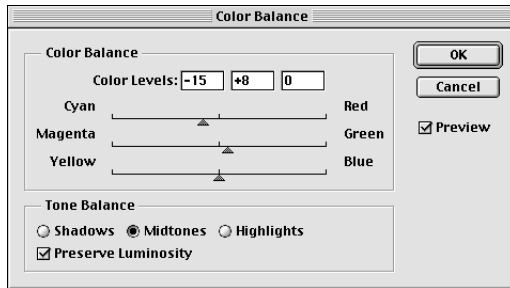
1 Choose Layer > New > Adjustment Layer.

2 For Type, choose Color Balance.

3 Click OK to create the adjustment layer and to display the Color Balance Layer dialog box.

4 Select the Preview option.

5 To adjust the midtones so that they're less red, drag the top slider to the left (we used -15) and the middle slider to the right (we used +8).



6 Click OK to apply the changes to the Color Balance adjustment layer. Notice that a Color Balance layer has appeared in the Layers palette.

7 In the Layers palette, click the eye icon next to the Color Balance layer to hide and show the layer. You'll see the difference between the adjusted colors and the original colors.

8 Choose File > Save.

*Note: When you double-click an adjustment layer in the Layers palette, the corresponding dialog box appears, where you can edit the values of the adjustment layer.*

## Replacing colors in an image

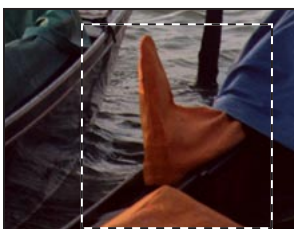
With the Replace Color command, you can create temporary masks based on specific colors and then replace these colors. *Masks* let you isolate an area of an image, so that changes affect just the selected area and not the rest of the image. Options in the Replace Color command's dialog box allow you to adjust the hue, saturation, and lightness components of the selection. *Hue* is color, *saturation* is the purity of the color, and *lightness* is how much white or black is in the image.

You'll use the Replace Color command to change the color of the orange tarp in the gondola at the bottom right corner of the image.

1 In the Layers palette, select the background.

2 Select the zoom tool (Q), and click once on the tarp to zoom in on it.

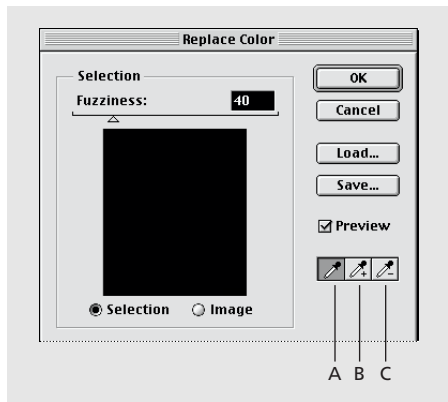
3 Hold down the mouse button on the crop tool, drag to select the rectangle marquee tool, and then drag a selection around the tarp. Don't worry about making a perfect selection, but be sure to include all the tarp.





4 Choose Image > Adjust > Replace Color to open the Replace Color dialog box. By default, the Selection area of the Replace Color dialog box displays a black rectangle, representing the current selection.

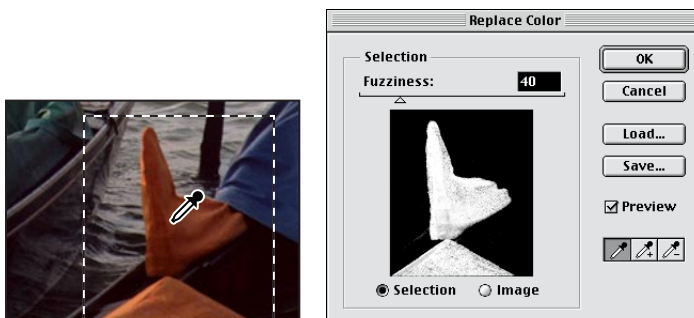
You will now use the eyedropper tool to select the area of color that will be masked and replaced with a new color. Three eyedropper tools are displayed in the Replace Color dialog box.



A. Select single color B. Add to selection  
C. Subtract from selection

The first eyedropper tool (👉) selects a single color, the eyedropper-plus tool (👉+) is used to add colors to a selection, and the eyedropper-minus tool (👉-) is used to subtract colors from a selection.

5 Click the eyedropper tool in the dialog box, and click once on the orange tarp to select it.



6 Then select the eyedropper-plus tool, and drag over the other areas of the tarp until the entire tarp is highlighted in white in the dialog box.

7 Adjust the tolerance level of the mask by moving the Fuzziness slider to 61. Fuzziness controls the degree to which related colors are included in the mask.

8 In the Transform area of the Replace Color dialog box, drag the Hue slider to 149, the Saturation slider to -17, and the Lightness slider to -39. The color of the tarp is replaced with the new hue, saturation, and lightness.

9 Click OK to apply the changes.

10 Double-click the hand tool (👉) to fit the image on screen.

11 Choose Select > Deselect.

12 Choose File > Save.

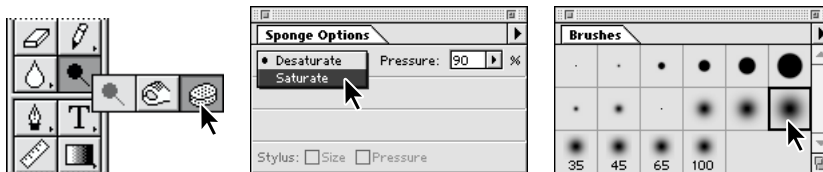
## Adjusting saturation with the sponge tool

Now you'll saturate the color of the gondolas in the foreground using the sponge tool. When you change the saturation of a color you adjust its strength or purity. The sponge tool is useful in letting you make subtle saturation changes to specific areas of an image.

1 Hold down the mouse button on the dodge tool (☼) in the toolbox, and drag to the sponge tool (🌀).

2 Click the Options tab and choose Saturate from the pop-up menu. To set the intensity of the saturation effect, click the arrow next to the Pressure text box, and drag the Pressure pop-up slider to 90%.

3 Select a large, feathered brush from the second row of the Brushes palette.



4 Drag the sponge back and forth over the gondolas to saturate their color.



Before

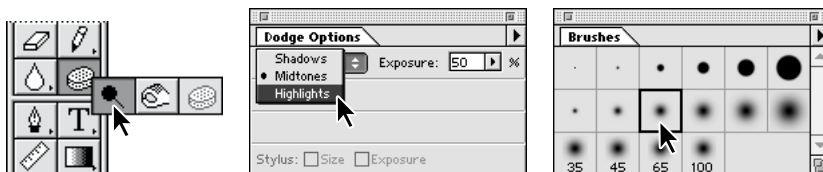
After

## Adjusting lightness with the dodge tool

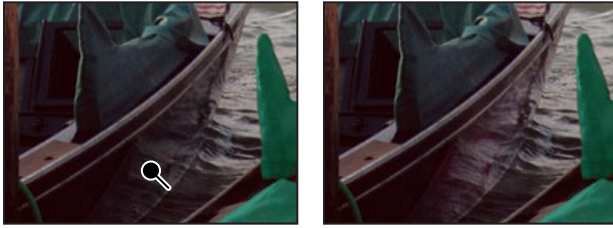
Next you'll use the dodge tool to lighten the highlights along the gondola's hull and exaggerate the reflection of the water there. The dodge tool is based on the traditional photographer's method of holding back light during an exposure to lighten an area of the image.

1 Hold down the mouse button on the sponge tool, and drag to the dodge tool (☼). Then choose Highlights from the menu in the Tool Options palette, and set Exposure to 50%.

2 Select a medium, feathered brush from the second row of the Brushes palette.




- 3 Drag the dodge tool back and forth over the gondola's hull to bring out its highlights.

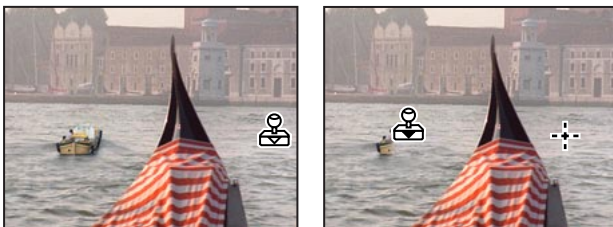
*Before**After*

## Removing unwanted objects

With Adobe Photoshop, you can remove unwanted objects from a photograph. Using the rubber stamp tool, you can remove an object or area by “cloning” an area of the image over the area you want to eliminate.

You'll eliminate the small boat near the center of the image by painting over it with a copy of the water.



- 1 Select the zoom tool; then click the small boat to magnify that part of the image.
- 2 Choose File > Preferences > Display & Cursors. For Painting Cursors, click Brush Size; then click OK.
- 3 Double-click the rubber stamp tool () in the toolbox, and make sure that the Aligned option in the Rubber Stamp Options palette is deselected.
- 4 Center the rubber stamp tool over the water between the large gondola and the post to its right. Then hold down Alt (Windows) or Option (Mac OS), and click to sample or copy that part of the image. Make sure that the area you sample blends well with the area around the object you are removing.

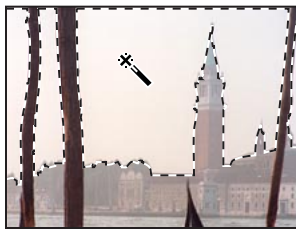
*Clicking to sample image**Dragging to paint over image*

- 5 Drag the rubber stamp tool over the boat to paint over it with a copy of the water you just sampled. Notice the crosshair that follows your cursor as you paint; it represents the point from which the rubber stamp tool is cloning.
- 6 Double-click the hand tool in the toolbox to fit the image on screen.
- 7 Choose File > Save.

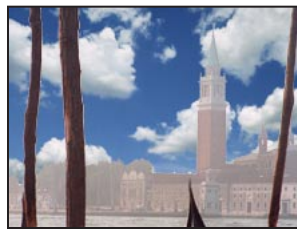
## Replacing part of an image

Because the sky is fairly drab and overcast in this photograph, you'll replace it with a more interesting sky from another file. You'll begin by selecting the current sky.

- 1 Select the magic wand tool () . Click to select part of the sky. Hold down Shift, and click the rest of the sky to select it.
- 2 Open the Clouds.psd file located in the Lesson03 folder.
- 3 Choose Select > All; then choose Edit > Copy. Close the Clouds.psd file.
- 4 Choose Edit > Paste Into to paste the clouds into the current selection. Notice that a new layer has been added to the Layers palette.
- 5 Select the move tool () , and drag the clouds into the position you want.



*Sky selected*



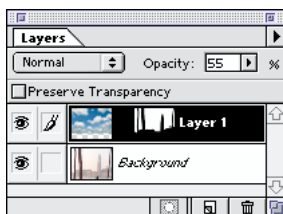
*Clouds pasted into sky*



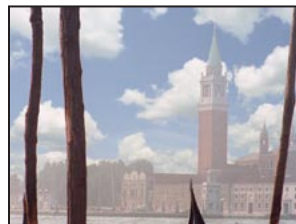
*Clouds moved into position*

Now you'll change the clouds' opacity to make them blend better with the rest of the image.

- 6 Use the keyboard shortcut of typing any number from 01 (1%) to 100 (100%) to set the new cloud layer's opacity (we used 55%).
- 7 Choose File > Save.



*Opacity set to 55%*



*Result*

You will now flatten the image into a single layer so that you can apply the Unsharp Mask filter, the final step in retouching the photo. Because you may want to return to a version of the file with all its layers intact, you will use the Save As command to save the flattened file with a new name.

- 8 Choose Layer > Flatten Image.
- 9 Choose File > Save As. In the dialog box, type a new filename, and click Save.

## Applying the Unsharp Mask filter

The last step you take when retouching a photo is to apply the Unsharp Mask filter, which adjusts the contrast of the edge detail and creates the illusion of a more focused image.

1 Choose Filter > Sharpen > Unsharp Mask. Make sure that the Preview option is selected so that you can view the effect before you apply it. To get a better view, you can place the pointer within the preview window and drag to see different parts of the image. You can also change the magnification of the preview image with the plus and minus buttons located below the window.



2 Drag the Amount slider until the image is as sharp as you want (we used 120%); then click OK to apply the Unsharp Mask filter.

*Note:* For more information about the Unsharp Mask filter, see Chapter 6, “Making Color and Tonal Adjustments,” in the Adobe Photoshop User Guide.

## Saving the image

Before you save a Photoshop file for use in a four-color publication, you must change the image to CMYK color mode so that it will be printed correctly in four-color process inks. You can use the Mode command to change the image's color mode.

**Note:** For more information on color modes, see Chapter 4, "Choosing a Color Mode," in the Adobe Photoshop User Guide.

1 Choose Image > Mode > CMYK.

You can now save the file in the correct format required for Adobe PageMaker and your publication. Because PageMaker uses the Tagged-Image File Format (TIFF) for images that will be printed in process or CMYK colors, you will save the photo as a TIFF file.

2 Choose File > Save As.

3 In the dialog box, select TIFF from the Save As menu (Windows) or Format menu (Mac OS).

4 Click Save.

5 In the TIFF Options dialog box, click the correct Byte Order for your system.

The image is now fully retouched, saved, and ready for placement in the PageMaker layout.



This tutorial is excerpted from *Adobe Photoshop Classroom in a Book®*, part of the official training series for Adobe graphics and publishing software. Published by Adobe Press, the series is available in several languages. For purchasing information, contact Macmillan Publishing at <http://mcp.com> or 1-800-428-5331.



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