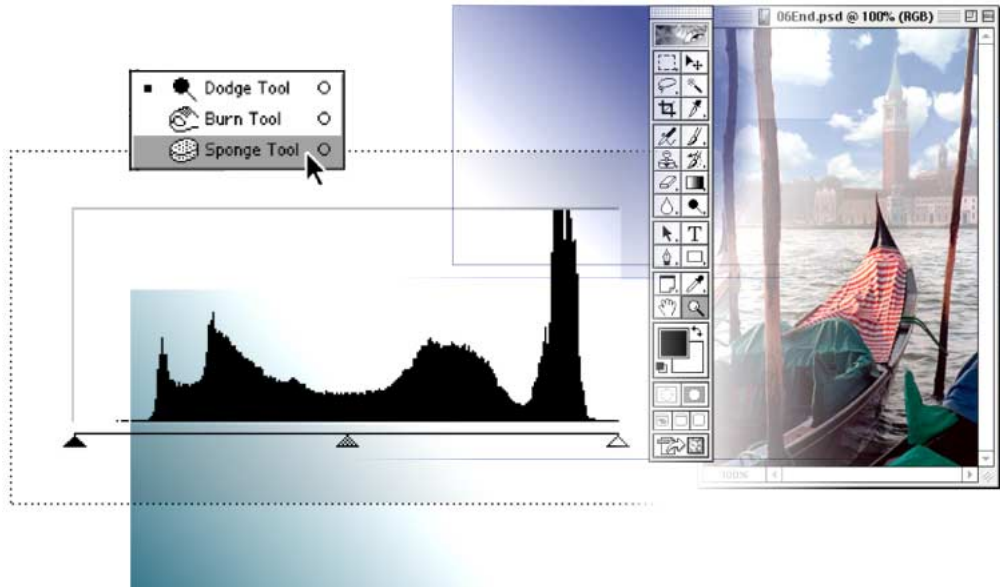


6 Photo Retouching



Adobe Photoshop and Adobe ImageReady include a variety of tools and commands for improving the quality of a photographic image. This lesson steps you through the process of acquiring, resizing, and retouching a photo intended for a print layout. The same workflow applies to Web images.

In this lesson, you'll learn how 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 clone 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.

This lesson will take about 60 minutes to complete. The lesson is designed to be done in Adobe Photoshop, but information on using similar functionality in Adobe ImageReady is included where appropriate.

If needed, remove the previous lesson folder from your hard drive, and copy the Lesson06 folder onto it. As you work on this lesson, you'll overwrite the start files. If you need to restore the start files, copy them from the *Adobe Photoshop Classroom in a Book* CD.

Note: *Windows users need to unlock the lesson files before using them. For information, see "Copying the Classroom in a Book files" on page 3.*

Strategy for retouching

You can retouch photographic images in ways once available 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.

Photoshop provides a comprehensive set of color correction tools for adjusting the color and tone of individual images. ImageReady has a more basic set of color correction tools, including Levels, Auto Levels, Brightness/Contrast, Hue/Saturation, Desaturation, Invert, Variations, and the Unsharp Mask filter.

Basic steps

Most retouching 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 that the image requires. Photoshop supports the CMYK color mode for preparing an image to be printed using process colors, as well as RGB and other color modes. ImageReady supports only RGB mode used for on-screen display.

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 by 7 inches, and its final size in the print layout will be 3.75 inches by 6 inches.

For more information about CMYK and RGB color modes, see Lesson 12, “Producing and Printing Consistent Color.”



Original image



Image cropped and retouched



Image placed into page layout

For the Web: The printed page versus on-screen display

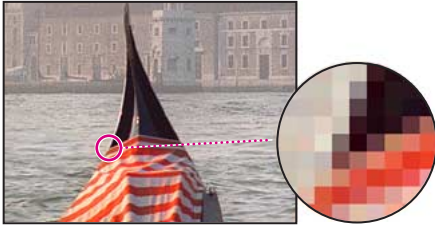
Although you can create publications for both paper and on-screen use, remember that a computer screen and a printed page are very different. Keep these differences in mind when you create publications for either medium—or for both media:

- Text can be small and still very legible on paper, because the dots of ink on paper are much finer than the dots of light used in a monitor. Therefore, avoid small text and finely detailed graphics on-screen. Note that this means it is more difficult to use formatting such as multiple columns effectively on-screen.
- Computer monitors come in all sizes, and you can rarely guarantee that your online readers all have the same monitor size. So design for the smallest monitor you expect people to have—typically a 15-inch monitor. By contrast, when you print to paper, you know what size the paper is and can design the publication accordingly. However, a page in an HTML or PDF publication can be any length.
- A computer screen is horizontal, while most printed pages are vertical. This fact fundamentally affects the format of your pages.
- A printed publication is usually read sequentially—even to flip through the publication the reader must turn from one page to the next. In an online publication, the reader can go anywhere any time, either by indicating what page to go to or by clicking on a link that goes to somewhere else, such as to another publication entirely.

—From the *Official Adobe Electronic Publishing Guide*, Chapter 1, “What Is Electronic Publishing?”

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 a photographic image

Types of resolution

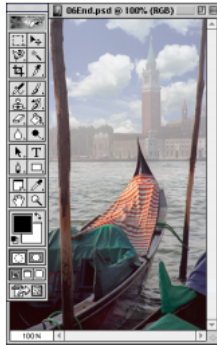
In computer graphics, there are different types of resolution:

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. Images in Photoshop can vary from high resolution (300 ppi or higher) to low resolution (72 ppi or 96 ppi), whereas images in ImageReady are fixed at 72 ppi.

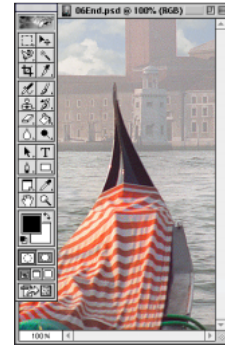
The number of pixels per unit of length on a monitor is the *monitor resolution*, usually measured in dots per inch (dpi). Image pixels are translated directly into monitor pixels. In Photoshop, if the image resolution is higher than the monitor resolution, the image appears larger on-screen than its 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. ImageReady images have a consistent image resolution of 72 ppi and display at the monitor resolution.



3.75 in. x 6 in. @ 72 ppi;
file size 342K



3.75 in. x 6 in. @ 200 ppi;
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.

Keep in mind that the higher the image resolution, the larger the file size and the longer the file takes to download from the Web.

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).

 For complete information on resolution and image size, see Adobe Photoshop 6.0 online Help.

Getting started

Before beginning this lesson, restore the default application settings for Adobe Photoshop. See “Restoring default preferences” on page 4.


You’ll start the lesson by viewing the finished Venice image that you’ll retouch for the magazine layout.

1 Start Adobe Photoshop.

If a notice appears asking whether you want to customize your color settings, click No.

2 Choose File > Open, and open the file 06End.psd from the Lessons/Lesson06 folder.

3 When you have finished viewing the file, either leave the file open for reference or close it without saving changes.

 For an illustration of the finished artwork for this lesson, see the gallery at the beginning of the color section.

Now you’ll open the start file and begin the lesson by viewing the photograph you will be retouching. (Although the photograph for this lesson was originally scanned at 200 dpi, 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.)


4 Choose File > Open, and open the file 06Start.psd from the Lessons/Lesson06 folder.

Cropping an image

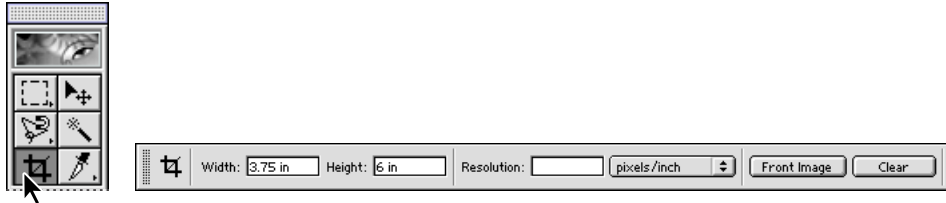
Now you’ll use the crop tool to trim and scale the photograph for this lesson so that it fits the space designed for it. You can use either the crop tool or the Crop command to crop an image.

You can decide whether to delete or discard the area outside of a rectangular selection, or whether to hide the area outside of the selection. In ImageReady, the Hide option is useful when creating animations with elements that move from off-screen into the live image area.

For more information on cropping, see “Cropping the completed image” on page 53.

- 1 Select the crop tool (.
- 2 In the tool options bar, enter the dimensions of the finished image—**3.75** in the Width text box and **6** in the height text box.

Note: In ImageReady, select the Fixed Size option in the tool options bar before entering the dimensions.




- 3 Next draw a marquee around the image, making sure that you include the top of the tower and the orange tarp in the lower right gondola.

Notice that as you drag the marquee it retains the same proportion as the dimensions you specified for the target size. When you release the mouse button, the options change in the tool options bar, and a cropping shield will display outside the selected area. You can deselect this option in the tool options bar if you prefer not to see the shield.

After dragging the marquee in Photoshop, make sure that the Perspective option is not selected in the tool options bar.

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.

- 4 Move the pointer outside the crop marquee. The pointer turns into a curved double arrow (.

- 5 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


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



Marquee resized



Image cropped

 *In Photoshop and ImageReady, you can use the Trim command to discard a border area around the edge of the image, based on transparency or edge color.*

- 8 Choose File > Save to save your work.

Adjusting the tonal range

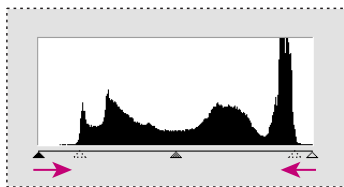
The tonal range of an image represents the amount of *contrast*, or detail, in the image and is determined by the image's distribution of pixels, ranging from the darkest pixels (black) to the lightest pixels (white). You'll now correct the photograph's contrast using the Levels command.

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

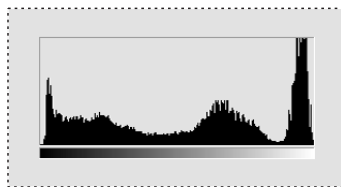
Notice the histogram in the Levels dialog box. The triangles at the bottom of the histogram represent the shadows (black triangle), highlights (white triangle), and midtones or gamma (gray triangle). If your image had colors across the entire brightness range, the graph would extend across the full width 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.

Note: *ImageReady does not have a Histogram command. To adjust and view a histogram, use the Levels command.*

4 Choose File > Save.

Using the color adjustment tools

All Adobe Photoshop and ImageReady color adjustment tools work essentially the same way: by mapping existing ranges of pixel values to new ranges of values. The difference between the tools is the amount of control they provide.

You can use most color adjustment tools in three ways: applying them to one or more channels, to a regular layer, or to an adjustment layer. When you make color adjustments to a channel or a regular layer, you permanently alter the pixels on that layer.

If you make adjustments to an adjustment layer in Photoshop, your changes reside only in the adjustment layer and do not alter any pixels. At the same time, you can make adjustments to multiple layers at once. The effect is as if you are viewing the visible layers through the adjustment layer above them. This lets you experiment with color and tonal adjustments without permanently altering pixels in the image. You can even limit the adjustment to specific areas of the image by painting the layer mask of the adjustment layer. When you transfer an image with an adjustment layer to ImageReady, you can view the layers but not edit them.

—From Adobe Photoshop 6.0 online Help

You can also adjust the contrast (highlights and shadows) and the overall mix of colors in an image automatically using the Image > Adjust > Auto Contrast command. Adjusting the contrast maps the darkest and lightest pixels in the image to black and white.

This remapping causes the highlights to appear lighter and the shadows to appear darker and can improve the appearance of many photographic or continuous-tone images. (The Auto Contrast command does not improve flat-color images.)

The Auto Contrast command clips white and black pixels by 0.5%—that is, it ignores the first 0.5% of either extreme when identifying the lightest and darkest pixels in the image. This clipping of color values ensures that white and black values are representative areas of the image's content, rather than extreme pixel values.

Removing a color cast

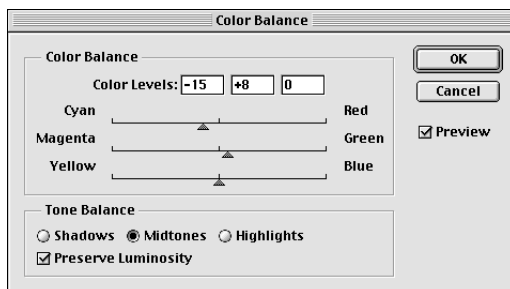
Some images contain color casts (imbalances of color), which may occur during scanning or which may have existed in the original image. The photograph of the gondolas has a color cast—it's too red.

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.

Now you'll 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.

Although ImageReady does not have adjustment layers, you can use the Auto Contrast or Variations command to perform a similar correction. However, the correction affects the entire image, not just a layer. For the greatest control, jump to Photoshop to use an adjustment layer, and then return to ImageReady.

- 1 Choose Layer > New Adjustment Layer > Color Balance.
- 2 In the New Layer dialog box, click OK to create the adjustment layer and to display the Color Balance dialog box.
- 3 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).



- 4 Click OK to apply the changes to the Color Balance adjustment layer.

Notice that a Color Balance layer has appeared in the Layers palette.

5 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.

6 Choose File > Save.

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

Adjusting color balance

Every color adjustment affects the overall color balance in your image. You have numerous ways to achieve similar effects, so determining which adjustment is appropriate depends on the image and on the desired effect.

It helps to keep a diagram of the color wheel on hand if you're new to adjusting color components. You can use the color wheel to predict how a change in one color component affects other colors and also how changes translate between RGB and CMYK color models. For example, you can decrease the amount of any color in an image by increasing the amount of its opposite on the color wheel—and vice versa. Similarly, you can increase and decrease a color by adjusting the two adjacent colors on the wheel, or even by adjusting the two colors adjacent to its opposite.

For example, in a CMYK image you can decrease magenta by decreasing either the amount of magenta or its proportion (by adding cyan and yellow). You can even combine these two corrections, minimizing their effect on overall lightness. In an RGB image, you can decrease magenta by removing red and blue or by adding green. All of these adjustments result in an overall color balance containing less magenta.

—From Adobe Photoshop 6.0 online Help

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 lower right corner of the image. The Replace Color command is not available in ImageReady.

1 In the Layers palette, select the Background.

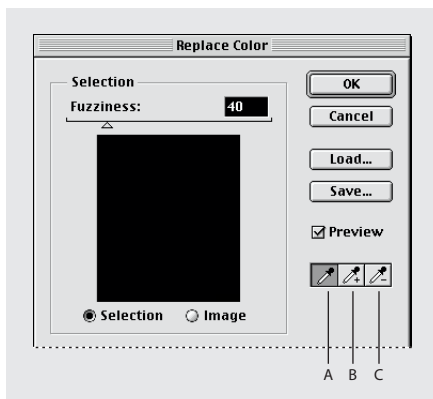
- 2 Select the zoom tool (⌘), and click once on the tarp to zoom in on it.
- 3 Select the rectangular marquee tool, and draw a selection around the tarp. Don't worry about making a perfect selection, but be sure to include all of the tarp.



- 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.

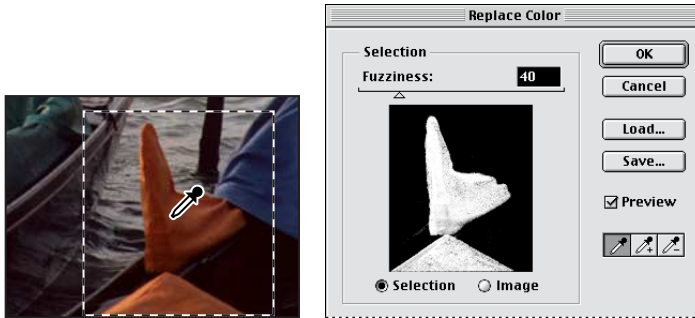
You will now use the eyedropper tool to select the area of color that will be masked and replaced with a new color. Three eyedropper tools are displayed in the Replace Color dialog box.





*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 Select the eyedropper tool in the Replace Color dialog box, and click once on the orange tarp to select it.



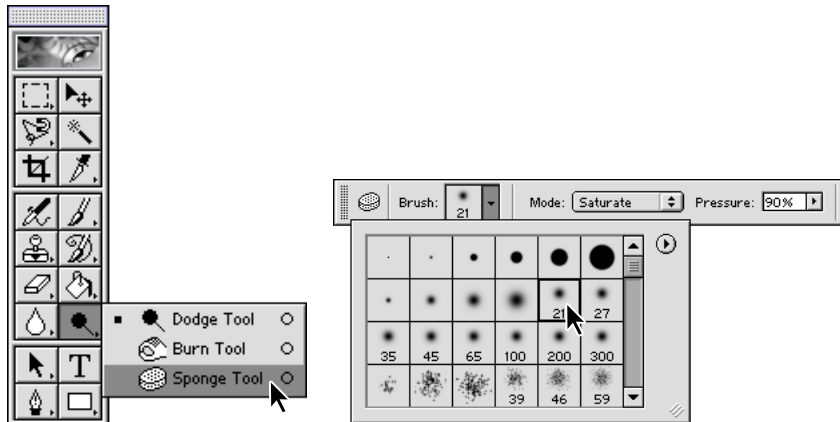
- 6 Then select the eyedropper-plus tool, and click and drag over the other areas of the tarp until the entire tarp is highlighted in white in the dialog box.
- 7 Adjust the tolerance level of the mask by moving the Fuzziness slider to **61**.
Fuzziness controls the degree to which related colors are included in the mask.
- 8 Select the eyedropper-minus tool () and click in the black area around the selection in the Replace Color dialog box to remove any white.
- 9 In the Transform area of the Replace Color dialog box, drag the Hue slider to **+160**, the Saturation slider to **-20**, and the Lightness slider to **-40**.
The color of the tarp is replaced with the new hue, saturation, and lightness.
- 10 Click OK to apply the changes.
- 11 Double-click the hand tool () to fit the image on-screen.
- 12 Choose Select > Deselect.
- 13 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 Select the sponge tool (), hidden under the dodge tool ().
ImageReady also has a sponge tool hidden under the clone stamp tool ().

- 2 In the tool options bar, choose Saturate from the Mode menu. To set the intensity of the saturation effect, enter **90** in the Pressure text box.
- 3 Click the arrow to display the Brush pop-up palette, and 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. The more you drag over an area, the more saturated the color becomes.



Original



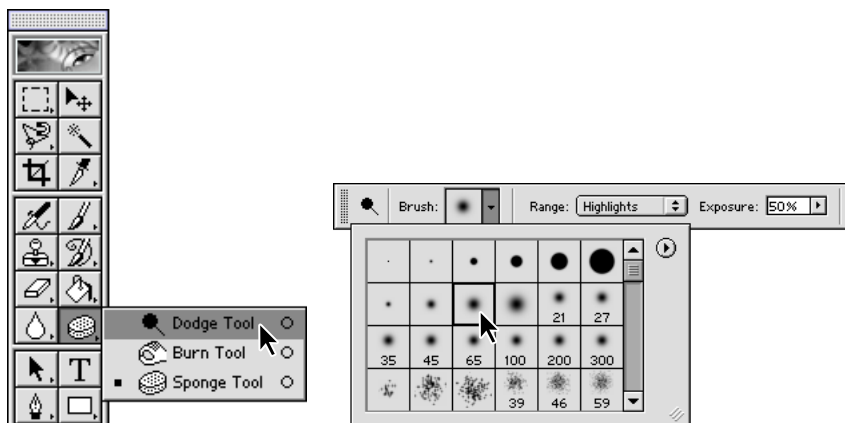
Result

Adjusting lightness with the dodge tool

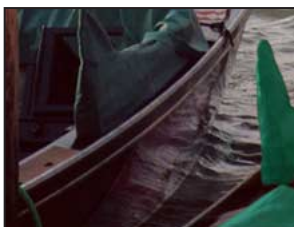
Next you'll use the dodge tool to lighten the highlights along the gondola's hull and exaggerate the reflection of the water there. The dodge tool is based on the traditional photographer's method of holding back light during an exposure to lighten an area of the image.

- 1 Select the dodge tool (☼) hidden under the sponge tool (🧽).
- ImageReady also has a dodge tool hidden under the clone stamp tool (👤).

- 2 In the tool options bar, choose Highlights from the Range menu, and enter 50 in the Exposure text box.
- 3 Select a medium, feathered brush from the second row of the Brush pop-up palette.



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

*Original**Result*

Removing unwanted objects

You can remove unwanted objects from a photograph. Using the clone 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 (Q); then click the small boat to magnify that part of the image.
- 2 Select the clone stamp tool (S).

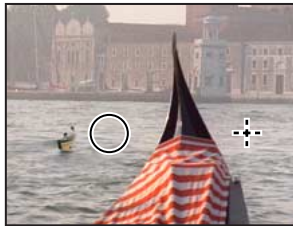
3 In the tool options bar, make sure that the Aligned option is deselected. In the Brush pop-up palette, choose a medium-size brush from the second row.

Note: The Aligned option allows you to apply the entire sampled area, regardless of how many times you stop and resume painting. If Aligned is deselected, the sampled area is applied from the initial sampling point each time you stop and resume painting.

4 Center the clone 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 will blend well with the area around the object you are removing.



Clicking to sample image



Dragging to paint over image


5 Click or drag the clone stamp tool over the boat to paint over it with a copy of the water you just sampled. Notice the cross hair that follows your cursor as you paint; it represents the point from which the clone stamp tool is cloning.

6 Double-click the hand tool 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 ()

2 In the tool options bar, enter **16** in the Tolerance text box.

3 Using the magic wand tool, click to select part of the sky. Then hold down Shift and click the rest of the sky to select it.


4 Choose File > Open and open the file Clouds.psd from the Lessons/Lesson06 folder.

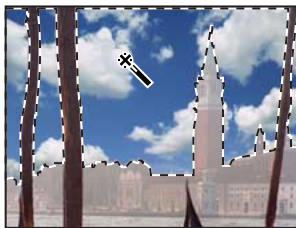
5 Choose **Select > All**, and choose **Edit > Copy** to copy the selection to the Clipboard. Close the Clouds.psd file.

6 In the 06Start.psd file, choose **Edit > Paste Into** to paste the clouds into the current selection.

Notice that a new layer has been added to the Layers palette.

Note: *ImageReady does not have a Paste Into command. To replicate the effect, select the sky as shown in step 3, and delete it. Open the Clouds.psd file, and copy it as in steps 4 and 5. Then choose **Edit > Paste**, and move the cloud layer beneath the boat layer.*

7 Select the move tool () , and drag the clouds into the position you want.



Sky selected



Clouds pasted into sky

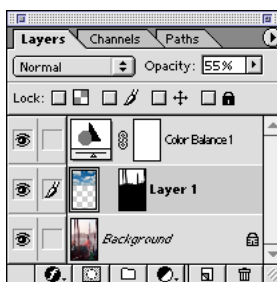


Clouds moved into position

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

8 With the clouds layer still selected, adjust the Opacity in the Layers palette. Either use the slider bar or type any number from **01** (1%) to **100** (100%) in the Opacity text box (we used 55%).

9 Choose **File > Save**.



Opacity set to 55%



Result

Now you'll 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.

10 Choose Layer > Flatten Image.

11 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.

2 In the Unsharp Mask dialog box, make sure that the Preview option is selected so that you can view the effect before you apply it. The preview will show in either the Unsharp Mask dialog box thumbnail or your document window. 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.



3 Drag the Amount slider until the image is as sharp as you want (we used 60%).

4 Drag the Radius slider to determine the number of pixels surrounding the edge pixels that affects the sharpening. The higher the resolution, the higher the Radius setting should be. Since our image is only 72 dpi, we used a Radius of 0.5 pixel.

Note: For high-resolution images, a Radius between 1 and 2 is recommended.

5 If you desire, you can adjust the Threshold slider. This determines how different the sharpened pixels must be from the surrounding area before they are considered edge pixels and subsequently sharpened by the Unsharp Mask filter. The default Threshold value of 0 sharpens all pixels in the image.

6 Click OK to apply the Unsharp Mask filter.

 For complete information on the Unsharp Mask filter, see “Sharpening the image” in Adobe Photoshop 6.0 online Help.

Sharpening the image

Unsharp masking, or USM, is a traditional film compositing technique used to sharpen edges in an image. The Unsharp Mask filter corrects blurring introduced during photographing, scanning, resampling, or printing. It is useful for images intended for both print and online.


The Unsharp Mask filter locates pixels that differ from surrounding pixels by the threshold you specify and increases the pixels' contrast by the amount you specify. In addition, you specify the radius of the region to which each pixel is compared.

The effects of the Unsharp Mask filter are far more pronounced on-screen than in high-resolution output. If your final destination is print, experiment to determine what dialog box settings work best for your image.

—From Adobe Photoshop 6.0 online Help

Saving the image for four-color printing

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.

 For complete information on color modes, see “Converting between color modes” in Adobe Photoshop 6.0 online Help.

You can perform these tasks in Photoshop only. ImageReady does not have printing capability. It uses only one color mode, RGB, for on-screen display.

1 Choose Image > Mode > CMYK Color.

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 Save As dialog box, choose TIFF from the Format menu.
- 4 Click Save.
- 5 In the TIFF Options dialog box, select the correct Byte Order for your system and click OK.

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

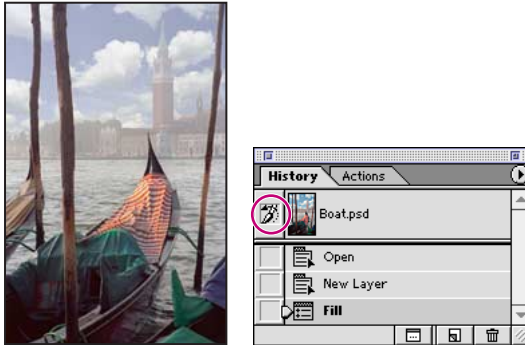


On your own: Painting with the art history brush



In Photoshop, you can simulate the texture of painting with different colors and artistic styles using the art history brush tool. The art history brush paints with stylized strokes, using the source data from a specified history state or snapshot. The brush works well with realistic images to let you create painterly, impressionistic effects. Try out different settings to see the variety of effects you can create in the same image. (ImageReady does not have an art history brush.)

- 1 Choose File > Open, and open the image you want to paint.
- 2 Choose File > Save As, rename the file, and save it, to retain a copy of your original image for future use.
- 3 For a variety of visual effects, experiment with applying filters or filling the image with a solid color before painting with the art history brush tool. For example, add a layer to the image, fill it with white, and then use the art history brush tool to paint.

4 In the History palette, click the icon of the state or snapshot to use as the source for the art history brush tool. A brush icon appears next to the source history state.



You can select any history state to be your source by clicking in the left column, and if you're not satisfied with an effect, you can return to a previous state or the snapshot by clicking the state thumbnail.


5 Select the art history brush tool () hidden under the history brush tool () .

6 In the tool options bar, select a brush from the Brush pop-up palette. For interesting effects, try using a texture, noncircular, or custom brush. The brush corresponds to the size of individual paint strokes, not the total area covered by the paint.

7 Drag in the image to paint.

When you've practiced painting with the brush to see how it works, experiment with the settings to create various effects:

- Control the shape of the paint stroke by choosing an option from the Style pop-up menu in the tool options bar.
- Try out different blending modes using the Mode pop-up menu, and vary the opacity.

 For information on setting tool options, see “Painting” in Adobe Photoshop 6.0 online Help.

- Vary how much the paint color changes from the color in the source state or snapshot by adjusting the Fidelity. The lower the fidelity, the more the color will vary from the source.

- Set the area covered by the paint strokes using the Area option. Try increasing the size to enlarge the covered area and increase the number of strokes.
- Control the distance between brush marks using the Spacing option. Type a number or use the slider to enter a value that is a percentage of the brush diameter.
- Select a small brush to maintain the image integrity and reveal the brush stroke. The larger the brush you use, the greater the distortion will be to the image.

If you are using a pressure-sensitive tablet, select either of the following Brush Dynamics options:

- Size to have increased pressure result in a larger area covered by the paint. Note that Size refers to the area of coverage, not the brush size.
- Opacity to have increased pressure result in more opaque paint.

Review questions

- 1 What does resolution mean?
- 2 How can you use the crop tool in photo retouching?
- 3 How can you adjust the tonal range of an image?
- 4 How can you correct a color cast in a photograph?
- 5 What is saturation, and how can you adjust it?
- 6 Why would you use the Unsharp Mask filter on a photo?

Review answers

- 1 The term *resolution* refers to the number of pixels that describe an image and establish its detail. The three different types of resolution include *image resolution*, measured in pixels per inch (ppi); *monitor resolution*, measured in dots per inch (dpi); and *printer or output resolution*, measured in ink dots per inch.
- 2 You can use the crop tool to trim, scale, and straighten an image.
- 3 You can use the black and white triangles below the Levels command histogram to control where the darkest and lightest points in the image begin and thus extend its tonal range.
- 4 In Photoshop, you can correct a color cast with a Color Balance adjustment layer. The adjustment layer lets you change the color of the image as many times as you like without permanently affecting the original pixel values.
- 5 Saturation is the strength or purity of color in an image. You can increase the saturation in a specific area of an image with the sponge tool.
- 6 The Unsharp Mask filter adjusts the contrast of the edge detail and creates the illusion of a more focused image.