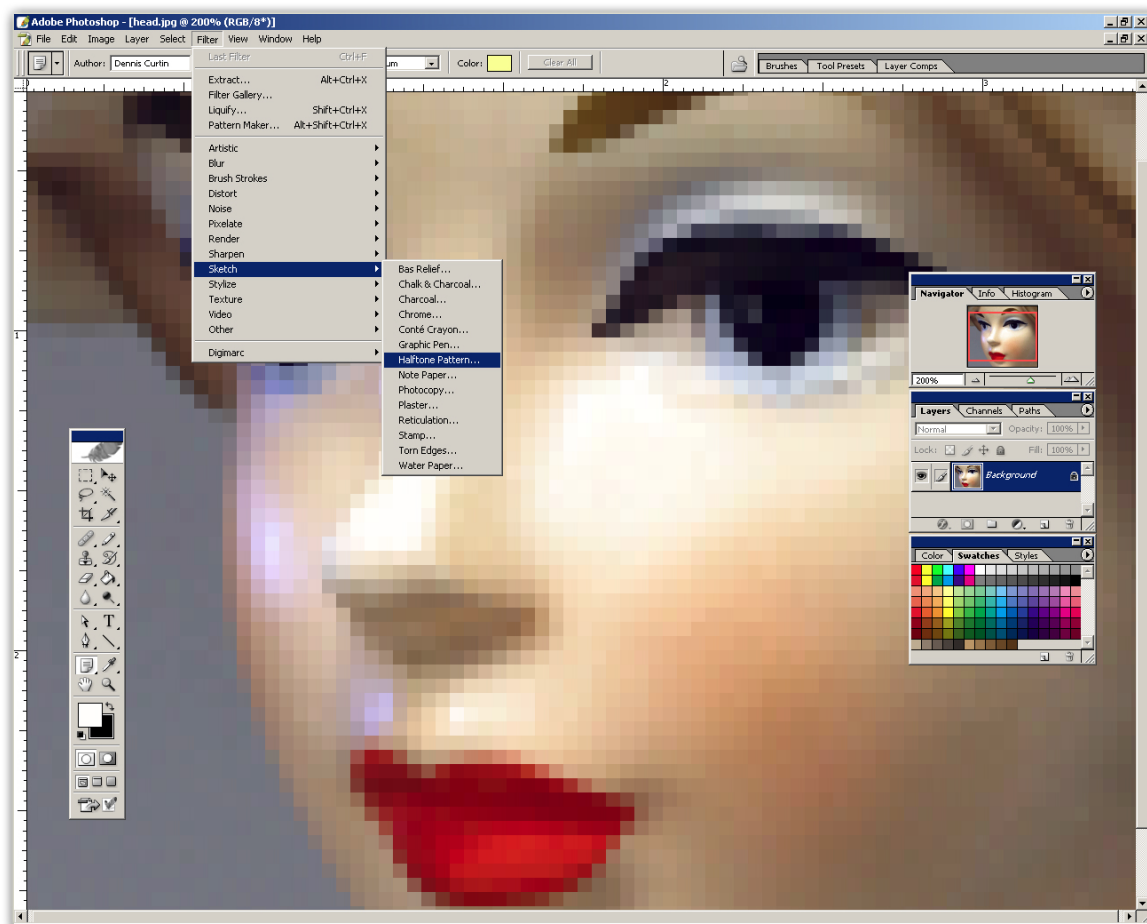


A SHORT COURSE IN

PHOTOSHOP CS

FOR DIGITAL PHOTOGRAPHERS

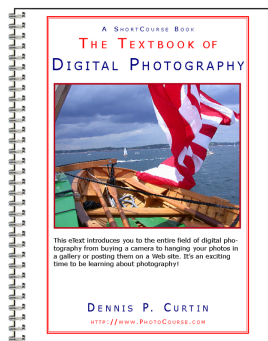


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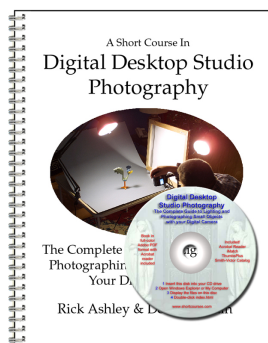
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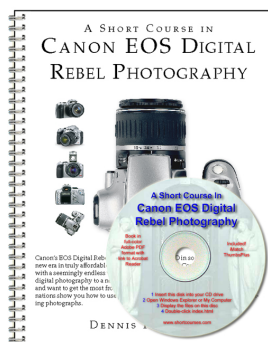
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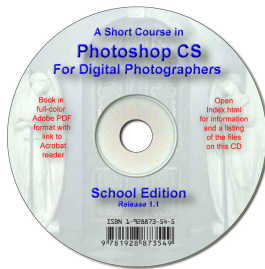
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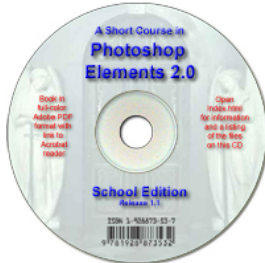
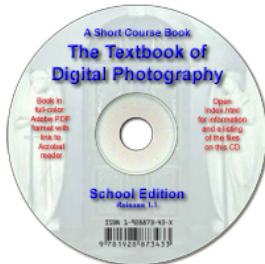
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The *Textbook in Digital Photography Project* was established by ShortCourses.com to develop and distribute high-quality yet affordable materials in digital photography for both classroom and independent study. With photography texts from traditional publishers reaching \$80 or more, it is time to try a new approach more attuned to the digital era—full-color, fully searchable PDF eTexts that can be displayed on any computer using Adobe’s free Acrobat reader. eTexts and PDF files are revolutionizing the publishing and printing businesses in many ways including the following:

■ **Timeliness.** Since large quantities of inventory aren’t required, we can revise and update materials as needed instead of on a fixed schedule every 2 or 3 years. In a rapidly evolving field such as digital photography these frequent revisions are often required to keep materials up to date.

■ **Distribute and print.** Textbook publishers work on a *print and distribute* basis. This means they take enormous risks, tie up massive amounts of capital, and bear high marketing, sales, warehouse, shipping, and billing costs. All of these costs are passed on to students. The emerging model, used by this eText, is called *distribute and print*. Using this model, materials are distributed around the world electronically and then printed where needed.

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The materials included in *The Textbook in Digital Photography Project* introduce you to all aspects of the rapidly emerging world of digital photography. The project materials currently available include the following:

■ **The core text—*The Textbook of Digital Photography***—introduces the entire panorama of digital photography and includes the following topics:

- Introduction to the digital camera and digital images (Chapter 1)
- Introduction to the digital darkroom (Chapter 2)
- Camera controls and creative photography (Chapters 3–6)
- Flash and studio lighting (Chapter 7–8)
- Sharing and displaying digital images (Chapter 9–10)
- Exploring beyond the standard still image (Chapter 11)
- Understanding pixels and image sizes (Chapter 12)
- Caring for your camera, scanning, and shooting RAW images (Appendix)

■ **Lab manuals** on photo-editing present Photoshop and Photoshop Elements. These comprehensive, yet easy to follow guides, can be used with or without the core text.

■ **Supplements** are published periodically between editions to keep materials more timely or to expand coverage in selected areas. Be sure to frequently visit the project’s Web site (www.photocourse.com) for an up-to-date listing of what’s available. For additional information on digital photography, visit the publisher’s Web site at www.shortcourses.com.

PREFACE

IMAGEREADY

■ Photoshop CS comes with a companion program, ImageReady, that is not discussed in this book.

Photoshop CS is the undisputed leader in photo-editing software. Widely used by photographers, graphic artists, printers, designers, and other creative professionals, it has something for everyone. It's this breadth that lies at the heart of its complexity—there are tools for everyone and everything.

Our goal in this book is to simplify your introduction by focusing on those aspects of Photoshop that are most useful to digital photographers. From this single perspective, the program becomes much easier to master because you follow a single main road through the program. Detours along the many back roads of the program are left for another time and another book.

We recognize that digital images can be edited in a wide variety of ways. In some cases you're a photographer trying to improve an image by eliminating or reducing its flaws. In other cases you are a graphic artist taking an image to a new place, making it something it never was, or incorporating it as one element in a larger project. In this book we focus on the photographic aspects, but in the process introduce you to many of the same tools you need to combine photography and the graphic arts.

This book is divided into eight chapters and an appendix.

■ *Chapter 1 Getting Started* introduces you to the Photoshop CS screen display and tools. This chapter lays the foundation for the rest of the book.

■ *Chapter 2 Working with Image Files* introduces you to basic procedures such as opening, saving and printing images.

■ *Chapter 3 Fixing Your Images* shows you how to evaluate tones, colors, sharpness, and other characteristics of an image and how to select the tools you use to fix or improve it.

■ *Chapter 4 Working with Selections* shows you how to select areas of an image to copy, move, or enhance.

■ *Chapter 5 Working with Layers* discusses how you use layers to adjust your images.

■ *Chapter 6 Painting & Drawing* shows you how to use the program's painting, drawing, and erasing tools used to improve selected areas of an image.

■ *Chapter 7 Creating and Using Masks* shows how you work on specific channels or areas of your images.

■ *Chapter 8 Automating Tasks* shows you how to automate processes involving more than one image. These processes include printing contact sheets and picture packages, creating a Web gallery, stitching images into panoramas, creating PDF presentations including slide shows, and batch renaming files, creating actions and batch processing files.

■ *Chapter 9 Color Management* discusses how to make sure your prints match what you see on the screen.

Photoshop CS runs on both Mac and PC systems and you will find minor differences between the two platforms. These differences are limited to a few keys on the keyboard and a few menu commands. Although this book features the PC version of the program, you should be able to master the Mac version using this book.

TIPS

■ Ctrl on PCs often performs the same functions as Command (key with symbol) on Macs.

■ Alt on PCs performs the same functions as Option on Macs.

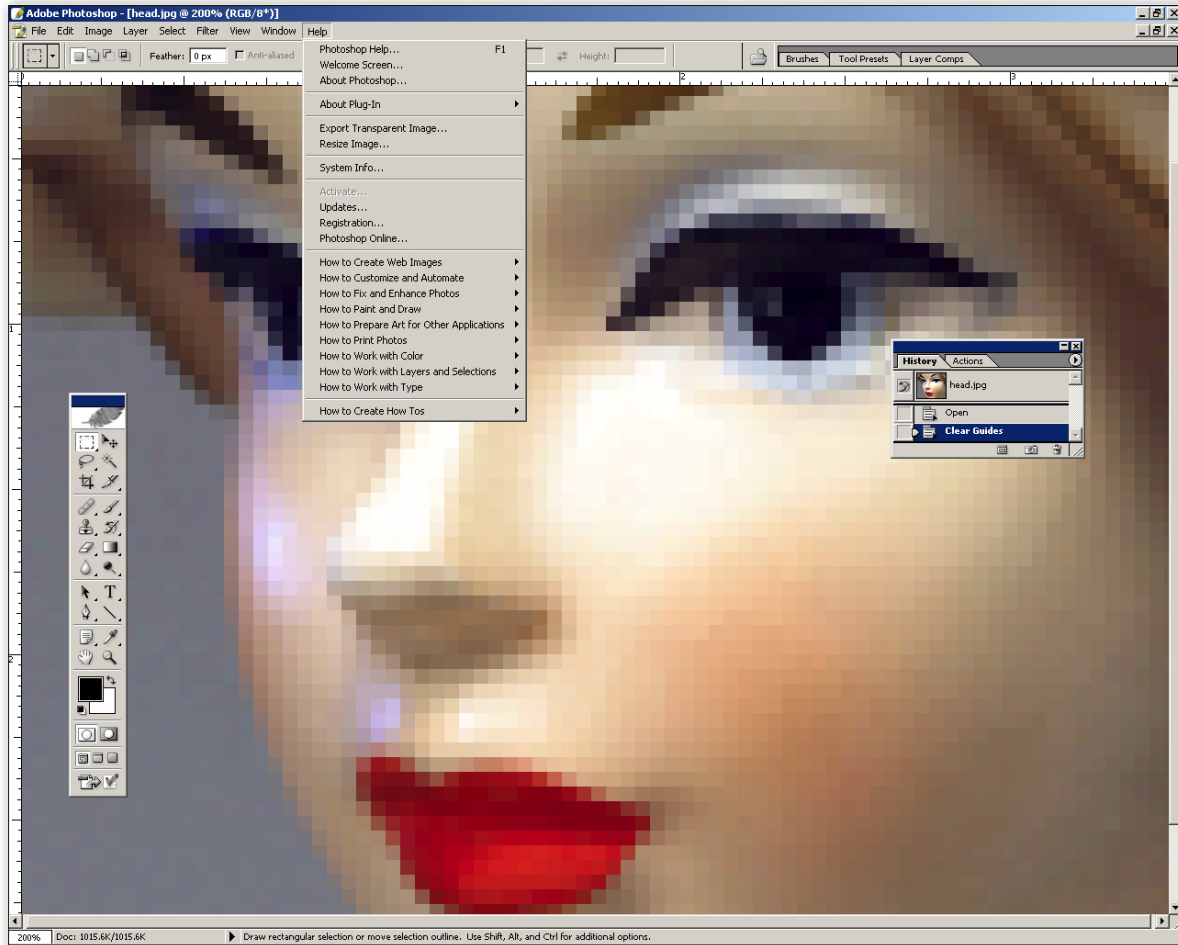
■ Enter on PCs performs the same role as Return on Macs.

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Chapter 1

Getting Started



CONTENTS

- Developing a Process ■
- Starting and Quitting Photoshop ■
- Learning Photoshop ■
- Using the Toolbox ■
- Using Palettes ■
- Basic Commands ■
- Undoing Changes

Photoshop is a powerful program suitable to even the most technically oriented photographer. Because it can do so much, it initially looks complicated, and in many ways it is. However, since it's a program you won't outgrow, it's worth the time it takes to master it. In this chapter we lay the foundation for everything to come. You'll learn about the screen display, help system, the toolbox, palettes, basic commands and undoing mistakes. Once you understand this material, you will be ready for the chapters that follow on viewing, opening, printing and editing your images.

Photoshop runs on both Windows and Macintosh systems. The major differences are the names of a few keys on the respective keyboards, a few menu names, and operating system level dialog boxes used for basic operations such as opening, saving, and printing images. This book features the Windows version from which all of our screen illustrations are taken. However, if you are familiar with the Mac, you should have no difficulty following the discussion presented here.

DEVELOPING A PROCESS—YOUR WORKFLOW



As unlikely as it seems, disasters do happen. Rick Ashley, my coauthor on "The Digital Desktop Studio" book took a short vacation during which he got a phone call that his studio was on fire. It contained a lifetime of work—negatives, prints, letters, equipment. All was lost. Rick was reduced to just the camera he had with him at the time and a few things he'd loaned to others. In this photo by Rick, his studio is in that floorless and ceilingless space on the third floor.

When working with digital photos it helps to have your own process for storing and backing up your photos. This process—often called a *workflow*—is simply a series of steps that you consistently follow to save time and reduce anxiety in the long run. The more methodical you are, the easier things are down the road. Here is one approach developed over the years by experienced photographers.

Step 1. Take the pictures. This is the fun part, but if there is one secret it's "take a lot of them." The more you take the more the law of averages works in your favor, but the more time you'll have to spend sorting and selecting the best.

Step 2. Create a folder system on your hard drive into which you copy the photos that you have taken.

Step 3. Copy the images to the computer, and after checking that they copied correctly, delete them from the camera's memory card. The best way to check that they copied correctly is to look at them with a thumbnail image viewer or asset manager. To be really cautious, don't delete images from the memory card until you have completed the next step, or even better—until you need the card for other photos.

Step 4. Copy the images from your camera's memory card or the computer to a CD/DVD or other storage device so you have a backup of everything you shot. This is the most important backup you will make because it protects the original images. If you don't make any additional backups, you may have to redo a lot of work, but at least your original images won't be lost. To be really cautious, make two backups and store them so the same accident can't happen to both.

Step 5. Delete bad photos from the computer's hard disk since they are just taking up space that you can use for other photos. You can be fairly aggressive, because you already have a backup of the original photos should your definition of "bad" ever change.

Step 6. Create a project folder and copy into it all of the photos you may want to include in the current project. A project may be as small as a series of photos to be printed or e-mailed, or as large as a DVD slide show with background music. Use the same project folder for all project-related files including those created by other programs. This keeps everything together and easy to backup.

Step 7. Make your final selection of photos. Go through all of the project photos and delete any that you don't want included.

Step 8. Edit the photos if any of them need it. You may want to remove red-eye, boost saturation, or adjust levels and sharpness. Many digital photos can be improved dramatically with just a little tweaking.

Step 9. Copy the final photos to a project CD/DVD or other storage device. You've invested effort in selecting and editing these photos so backing them up at this point would be prudent.

Step 10. Assemble the final project, whatever it may be.

Step 11. Copy the final project files to a CD/DVD or other storage device. In some cases this might be a master disc that you make copies from for distribution. In other cases it's a backup disc to put away in a safe place.

TIP

■ To manage a collection of images, you need a program called an *asset manager* that stores filenames, thumbnails, and other information about each image in a database. Leading programs in this area are Cumulus from Canto and Portfolio from Extensis.

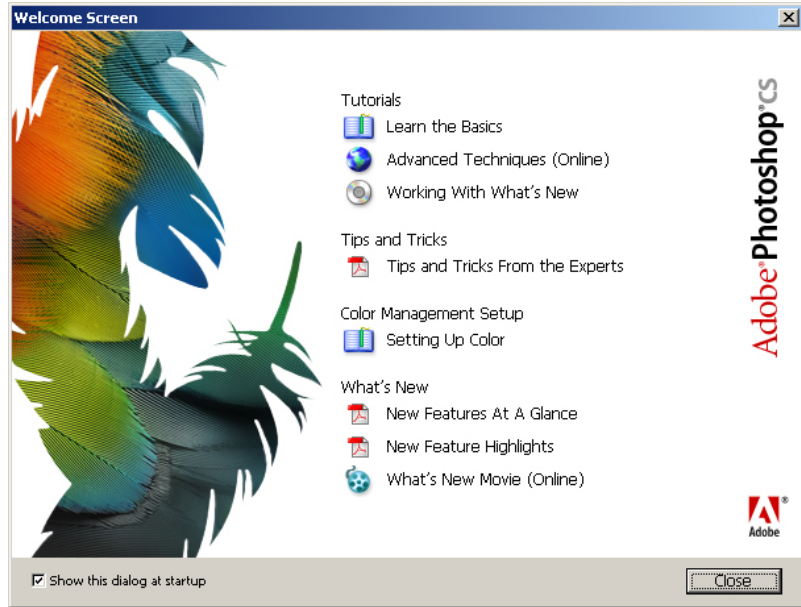
STARTING AND QUITTING PHOTOSHOP

TIPS

■ If you have problems launching the program, or if other users have changed settings, rebuild your Photoshop preferences file. To do so, as you start the program, hold down Shift+Ctrl+Alt. When asked if you want to delete the settings file, click *Yes*.

■ If you click the Welcome screen's *Show this dialog at startup* check box to turn it off, you can still display the Welcome screen by choosing *Help>Welcome Screen*. To then see it each time you start up the program, click the check box to turn it back on.

You start Photoshop just as you start other programs. When the program loads you may first see a *welcome screen*.



THE WELCOME SCREEN

The Welcome Screen has a number of clickable elements described on page 11. Click the *Close* button to close the Welcome screen so you can use Photoshop itself.

PHOTOSHOP'S WORK AREA

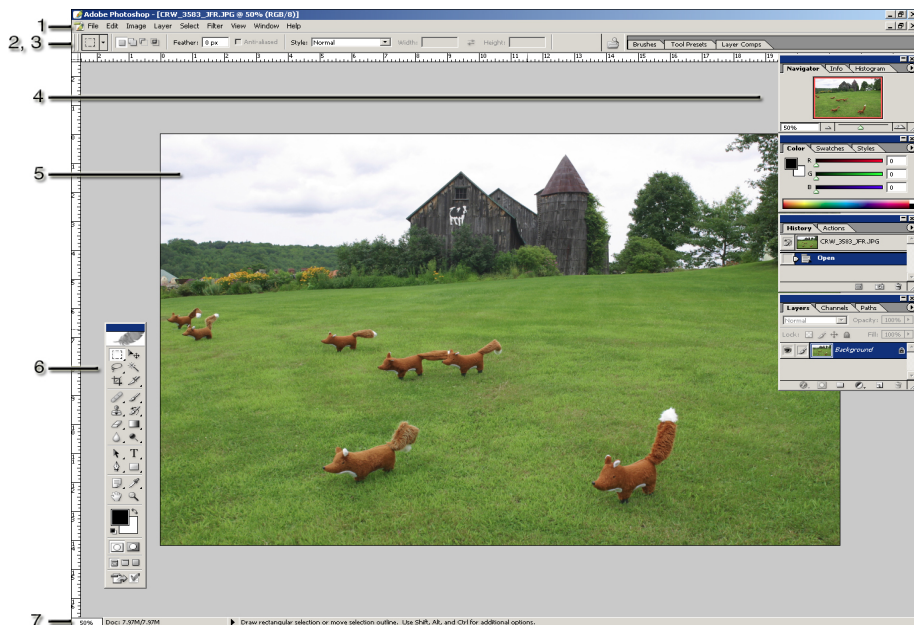
The work area contains menus, buttons, palettes, and tools that you use to edit your images.



The dialog box that appears when you restore settings to their default settings.

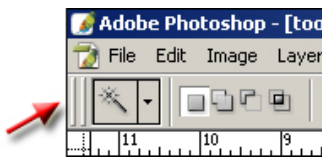


The toolbox has three icons that change the screen mode when an image is open. From left to right they are *Standard Screen Mode*, *Full Screen Mode with Menu Bar*, and *Full Screen Mode*.

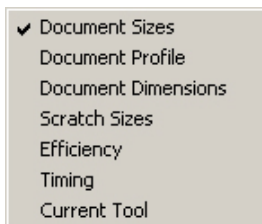


TIP

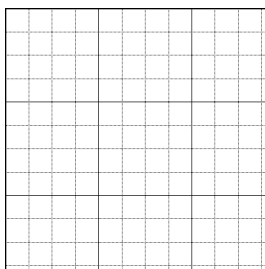
■ The options bar is usually “docked” at the top of the application window and palettes are often docked in the palette well. You can drag and drop them into the image area where they “float.” Drag the option bar by its gripper bar and palettes by their tabs. To return them to their default positions, select *Window>Workspace>Reset Palette Locations*.



Gripper bar



Clicking the triangle on the status bar lets you select what's displayed.



The grid lets you align tools and selections more accurately.

1. *Menu bar* displays the main menu listing the names of menus that you click to pull down so you can choose from groups of related commands. For example, the *Help* menu lists many of the help commands you can use to learn more about the program.
2. *Options bar* displays options for the tool that's currently selected in the toolbox (page 13). This bar can be displayed or hidden with the *Window>Options* command.
3. *The palette well*, at the far right end of the options bar, organizes and keeps handy the palettes you use to edit your images (page 16). This well isn't displayed when the screen is set to a resolution of 800 x 600 or less.
4. *Palettes* used to monitor and modify images are displayed when you select commands from the *Window* menu (page 16).
5. *Active image area* displays images you have opened to view, edit or print.
6. *Toolbox* holds the various tools you use when editing images (page 13).
7. *Status Bar* at the bottom of the application window displays information arranged in three sections when an image is open. This bar can be displayed or hidden with the *Window>Status Bar* command.

- *The leftmost section* displays the current magnification of the image (page 32).
- *The middle section* displays the document size but you can click the triangle to select other information to be displayed here.
- *The rightmost section* displays information about the currently selected tool and a progress bar that helps you follow the progress of an operation.

MANAGING THE WORK AREA

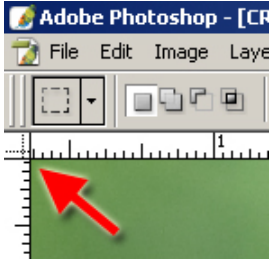
When editing images, there are ways to manage your work area so you have access to the necessary tools, but not so many that the image is obscured.

- *To hide or display the toolbox, status bar, or options bar*, pull down the *Window* menu and click *Tools*, *Status Bar*, or *Options*.
- *To open a palette*, click its tab in the palette well, drag it into the image area by its tab, or pull down the *Window* menu and click its name.
- *To show or hide all open palettes, the options bar, and the toolbox*, press Tab. To show or hide just palettes, press Shift+Tab.
- *To return the toolbox, palettes and the options bar to their default positions*, select *Window>Workspace>Reset Palette Locations*.

GRID

Displaying a non-printing grid over the image provides a guide when performing operations such as selecting or rotating an image. When turned on, the menu commands you use have check marks in front of them.

- *To turn the grid on or off*, select *View>Show>Grid*.
- *To have things snap to the grid lines*, select *View>Snap To>Grid*.
- *To change the grid settings*, select *Edit>Preferences>Guides, Grid & Slices*.



The rulers' origin is in the upperleft corner of the image.

RULERS & GUIDES

Rulers along the left and top of the image window help you precisely position the cursor, selections, shapes, type, and other tools and image elements. You can turn these rulers on and off by selecting *View>Show Rulers* or *View>Hide Rulers*.

As you move the mouse pointer about the screen, markers on the rulers track its position. You can use these markers to measure the width or height of any area of an image, or precisely position tools. The ruler is initially set to inches, but you can change to another unit of measurement by double-clicking either ruler to display the Preferences dialog box.

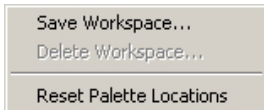
The ruler's *origin*—the place where the two rulers intersect and numbering starts at zero (0)—is initially aligned on the top left corner of the image. At times you may want to move the origin so you can measure from a different point on the image. To move it, point to the intersection of the rulers in the upperleft corner of the window, and drag diagonally down into the image area. A set of cross hairs lets you position it precisely and the new zero origin is set where you release the mouse button. To reset the ruler origin to its default value, double-click the upperleft corner where the rulers intersect.

The ruler origin determines the grid's alignment. If you drag the origin to a new position, the grid will shift so one intersection aligns with the origin.

When the rulers are displayed, you can point to them with any tool and drag a guide into the work area. You can use guides to align elements added to a photo or to indicate an area to be cropped.

TIP

■ Check out the *View>Extras* and *View>Show* commands that hide and display various screen elements such as guides.



The *Window>Workspace* menu.

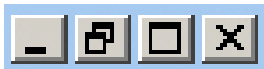
MANAGING THE WORKSPACE

The positions of all open palettes and movable dialog boxes are saved when you exit the application. By saving a screen layout as a workspace, you'll be able to return to it, even if you move a palette or close the toolbox. Saved workspaces also work with the File Browser (page 25), allowing you to save your preferred File Browser setup.

■ To save the current workspace layout, select *Window>Workspace>Save Workspace* to display the Save Workspace dialog box. Enter a descriptive name for the workspace, and click *Save*.

■ To choose a previously saved workspace, select *Window>Workspace* and select any workspace listed at the bottom of the submenu.

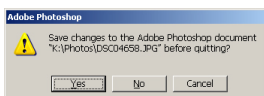
■ To delete a workspace, select *Window>Workspace>Delete Workspace* to display the Delete Workspace dialog box. Click the *Workspace* drop-down arrow to select the workspace you want to delete, and click *Delete*. When asked to confirm the deletion, click *Yes*.



Icons on Photoshop's window include (from left to right) *Minimize*, *Restore Up/Down*, *Maximize*, and *Close*.

QUITTING THE PROGRAM

When you are finished with Photoshop, you exit the program by clicking the application's close button or by selecting *File>Exit*. If you do so while there is an unsaved image open, you will be asked if you want to save it. Click *Yes* to save the file or *No* to exit without saving it.



The dialog box that appears when you exit with unsaved changes.

LEARNING PHOTOSHOP

Photoshop provides you with many forms of help including tool tips, a searchable help system, detailed step-by-step instructions, and tutorials.

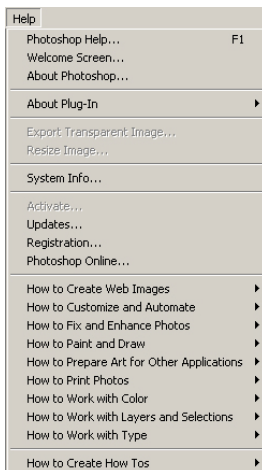


The Welcome Screen.

THE WELCOME SCREEN

The *Welcome Screen* lists many resources and is displayed when you first start Photoshop (unless you have turned it off), or you can display it at any time by selecting *Help > Welcome Screen*. The screen gives you access to the following:

- *Tutorials* include *Learning the Basics* from the help system, *Advanced Techniques* on Adobe's Web site, and *Working with What's New* that describes the training video included with the program.
- *Tips and Tricks* opens a 56 page PDF file with many interesting techniques you can try.
- *Color Management Setup* displays help on a number of topics related to making colors in a print match those displayed on the screen and in the original scene.
- *What's New* has sections for *New Features at a Glance* (a 2-page PDF file), *New Feature Highlights* (a 10-page PDF), and a *What's New Movie* command that takes you to the Adobe Web page listing Flash animations.
- *Show this dialog at startup* check box has to be on (containing a check mark) for the Welcome Screen to appear when you start the program.
- *Close* button closes the Welcome Screen so you can use Photoshop itself.



The Help menu lists commands and at the bottom of the menu, tutorials.

■ *Color Management Setup* displays help on a number of topics related to making colors in a print match those displayed on the screen and in the original scene.

■ *What's New* has sections for *New Features at a Glance* (a 2-page PDF file), *New Feature Highlights* (a 10-page PDF), and a *What's New Movie* command that takes you to the Adobe Web page listing Flash animations.

■ *Show this dialog at startup* check box has to be on (containing a check mark) for the Welcome Screen to appear when you start the program.

■ *Close* button closes the Welcome Screen so you can use Photoshop itself.

USING HELP

To display help, select *Help > Photoshop Help* or press F1 to open help in your browser's window. It has two sections, bookmarks on the left and contents on the right. You navigate through it just as you would navigate a Web site. At the top of the bookmarks section are links to *Using Help*, *Contents*, *index*, *Site Map*, and *Search (Find on Acrobat 5)*.

- *Using Help* lists topics on how to use the help system.
- *Contents* lists topics much like the contents page in a book.
- *Index* lists letters you can click to find topics listed alphabetically.
- *Site Map* contains links to all topics in Help and all entries in the Index.
- *Search* displays a text box into which you can type any term and click the *Search* button to find related topics.

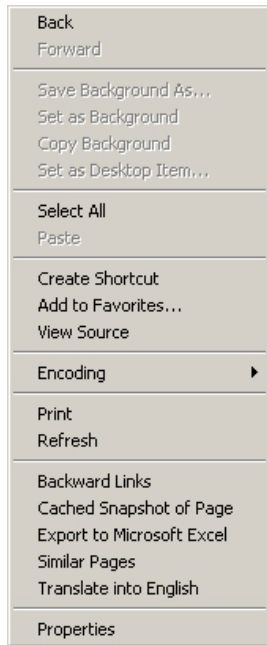
Once you locate a topic or section of interest, you can use your browser's *Find* command to search the page, or its *Print* command to print it. You can also click *Next*, *Previous*, and *Top* links to move through pages in sequence.



Using Help contents screen.

OTHER RESOURCES

In addition to the Welcome Screen and help system, there are many other resources you can draw on to learn more about Photoshop.



Right-clicking the help topics displays your browser's pop-up menu. It varies depending on what you click and what browser you use.

■ *The entire on-line help system is also available as a 750 page PDF file. The file *PhotoshopCSHelp.pdf* is on the application's CD in a folder named *Help*. Copy it to your desktop so it's readily available.*

■ *The Adobe Studio site at www.studio.adobe.com has tips, tutorials, and free downloads.*

■ *Video Workshop CD that accompanies Photoshop contains more than 60 minutes of video tutorials that you can view on your computer. For a description of this CD, click the *Working with What's New* icon on the Welcome screen (page 11).*

■ *Tool tips are displayed when you point to a tool, button, or some other screen elements, and pause. (Tool tips are usually not available in dialog boxes.)*

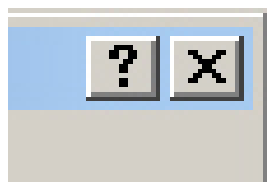
■ *Adobe Online gives you access to updates that correct bugs, enhance features, or provide additional help. With your computer connected to the Internet, try these:*

- *To go to Adobe Online's Photoshop site, click the feather icon at the top of the toolbox or select *Help>Photoshop Online*.*

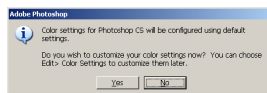
- *To download updates when available, select *Help>Updates*.*

■ *Some dialog boxes have a Help button indicated by a question mark icon. To learn about elements in the dialog box, click this button to add a question mark to the mouse pointer, then click the element you want to know more about. A descriptive panel will be displayed. To close the panel click anywhere or press any key.*

■ *Photoshop CS does not include a quick reference card, but you can print one of the shortcut commands that let you operate the program without using menus. To do so select *Edit>Keyboard Shortcuts* to display the Keyboard Shortcuts dialog box. Click the *Summarize* button to display the Save dialog box. Click *Save*, then *OK* to replace the file and a complete list of keyboard shortcuts is displayed in your browser where you can view or print it.*



A dialog box help button indicated with a question mark icon.

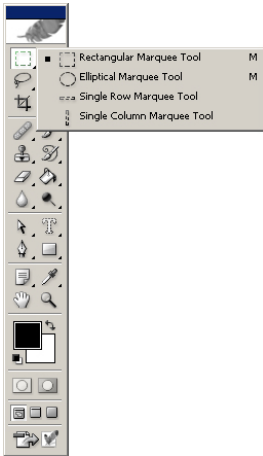


The first time you start Photoshop after installing it or restoring its default settings (page 8), a dialog box appears asking if you want to customize color settings.

SYSTEM PROBLEMS

- Photoshop uses disk space, called a *cache*, to store thumbnail and file information to make loading times quicker when you return to a previously viewed folder. If your system slows or you need to free up room on your hard disk drive you can purge the cache although this also deletes ranking, flag, and stored thumbnails from the File Browser (page 28). To purge the cache for the selected folder, select *File>Purge Cache* from the File Browser's menu (not the main menu on the menu bar). To purge the entire cache select *File>Purge Entire Cache*. For other cache commands search for the term "cache" in Help.
- If you have problems launching the program, or if other users have changed settings, rebuild your Photoshop preferences file. To do so, as you start the program hold down Shift+Ctrl+Alt. When asked if you want to delete the settings file, click *Yes*.
- If your prints look different from the image on the screen, you have to use color management (page 182).

USING THE TOOLBOX



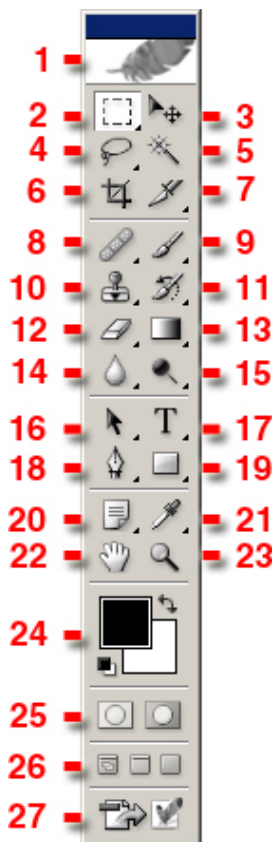
To display hidden tools, point to any tool with a small triangle in its lower right corner and hold down the mouse button.

When Photoshop starts, the toolbox is displayed in the work area. You can hide and reshown it at any time with the *Window>Tools* command. The toolbox contains icons representing tools you use to edit photos, although there are actually more than you see because some are hidden.

SELECTING TOOLS

Point to any tool in the toolbox and its name and keyboard shortcut are displayed in a tool tip. The currently selected tool is highlighted.

- To select a tool, click it in the toolbox, or press the tool's keyboard shortcut (page 19) given in its tool tip.
- To display hidden tools when a tool has a small triangle, point to the tool and hold down the mouse button then click the tool you want to select. A small square indicates which tool is currently selected. To cycle through the hidden tools, hold down Alt as you repeatedly click the tool, or hold down Shift and repeatedly press the tool's shortcut key.
- To move the toolbox, drag it by its title bar (which has no title).
- To display or hide the toolbox, select *Window>Tools*.
- To set tool preferences select *Edit>Preferences>General*. Choices include showing or hiding tool tips or resetting all tools.



The toolbox.

TYPES OF TOOLS

The tools from which you can choose are briefly described below along with the keyboard shortcut you can press to select them. Page references indicate the section where each tool is discussed in the most detail in this book. For tools that have hidden tools, all versions are listed with the default tool boldfaced.

1. **Adobe Online** takes you to Adobe's Photoshop Web site (page 11).
2. **Rectangular (M)**, *Elliptical*, *Single Row*, and *Single Column* marquee tools select regularly shaped areas of your image by dragging or clicking the mouse (page 88).
3. **Move (V)** moves guides, selections and layers by dragging (page 10, 96, 111). To temporarily switch to this tool while using another tool, hold down Ctrl.
4. **Lasso (L)**, *Polygonal Lasso* (straight-edged), and *Magnetic Lasso* (snap-to) draw around an irregularly shaped area to select it (page 90).
5. **Magic Wand (W)** selects areas of the image with pixels of exactly the same or similar colors (page 92).
6. **Crop (C)** selects a rectangular area of the image for cropping (page 54).
7. **Slice (K)** creates slices and *Slice Select* selects the slices.
8. **Healing Brush (J)** paints with a sample or pattern to repair imperfections in a image, *Patch* repairs imperfections in a selected area of an image using a sample or pattern, and *Color Replacement* replaces a selected color with a new color (page 137).

TIPS

■ When you select a tool the mouse pointer changes, sometimes to cross hairs, sometimes to a circular brush shape, and sometimes to an icon matching the tool's icon.

■ Each pointer has a different hot spot where actions begin and end.

■ You can customize pointers by selecting *Edit > Preferences > Display & Cursors*.

■ For more on toolbox tools, search help for *toolbox overview*.

■ When you select a tool, a brief description of its function is displayed on the status bar.

■ When you right-click an image, a menu pops up. The menu choices depend on what tool you have selected.

9. Brush (B) paints brush strokes and *Pencil* paints hard-edged strokes (page 129).

10. Clone stamp (S) and *Pattern stamp* copy an area of the image, or a pattern, to other areas of the image (page 137).

11. History Brush (Y) tool paints a copy of the selected state or snapshot into the active image. *Art History brush* tool paints with stylized strokes that simulate the look of different paint styles, using a selected state or snapshot (page 137).

12. Eraser (E), *Background eraser*, *Magic eraser* erase pixels you drag over (page 134).

13. Gradient (G) fills areas with a gradual blend of selected colors and *Paint Bucket* fills areas with a color or pattern (page 141).

14. Blur (R) blurs edges you drag over, *Sharpen* sharpens them, and *Smudge* smudges them (page 137).

15. Dodge (O) lightens areas in an image, *Burn* darkens them, and *Sponge* changes the color saturation (page 137).

16. Path selection (A) selects paths or path components showing anchor points, direction lines, and direction points. *Direct Selection tool* selects a path segment.

17. Horizontal Type (T), *Vertical type*, *Horizontal type mask*, and *Vertical type mask* enter text on an image (page 120).

18. Pen (P), *Freeform Pen*, *Add Anchor Point*, *Delete Anchor Point*, and *Convert Point* draw freehand lines on an image.

19. Rectangle (U), *Rounded Rectangle*, *Ellipse*, *Polygon*, *Line* and *Custom shape* tools draw shapes (page 143).

20. Notes (N) tool make notes and *Audio Annotation* tool adds audio annotations to images.

21. Eyedropper (I) sets foreground or background colors (page 126), *Color Sampler* places up to four Color Samplers in the image that display color information in the Info palette (page 67), and *Measure* measures distances, locations, and angles.

22. Hand (H) moves an image within its window when it's too large to display completely in the window (page 32). To use this tool when another tool is selected, hold down the spacebar.

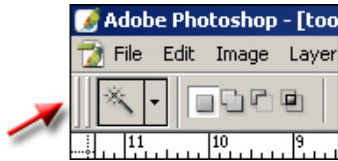
23. Zoom (Z) zooms the image in and out (page 32).

24. Foreground and background colors show the currently selected colors and display the color picker when clicked so you can change the colors (page 126).

25. Edit in Standard Mode (G) and **Edit in Quick Mask Mode** let you create masks that select an area to be affected by a command (page 149).

26. Standard Screen (F) includes icons for (from left to right) *Standard Screen Mode*, *Full Screen Mode with Menu Bar*, and *Full Screen Mode*. The same commands are also available on the *View* menu.

27. Edit in ImageReady (Shift+Ctrl+M) is not covered in this book.



You can use the gripper bar at the far left end of the options bar to drag it anywhere in the work area. To redock it at the top of the screen choose Window>Workspace>Reset Palette Locations.

TIP

■ When you point to a label for a text box containing a value the mouse pointer changes to indicate you can drag left or right to change the value.

THE OPTIONS BAR

When you select many tools, such as those you use to type, select, paint, draw, sample, edit, move, annotate, and view images, the options bar below the menu bar displays settings specific to the selected tool. To learn about a tool and its options search for the tool’s name in help.

- To display options on the options bar, click a tool that has options.
- To display or hide the options bar, select Window>Options.
- To display a tool tip, hold the mouse pointer over any element on the options bar.

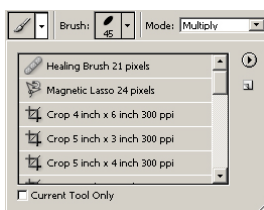
PRESET TOOLS

Adobe provides presets for all tools (the default settings), but for some it provides more than one set.

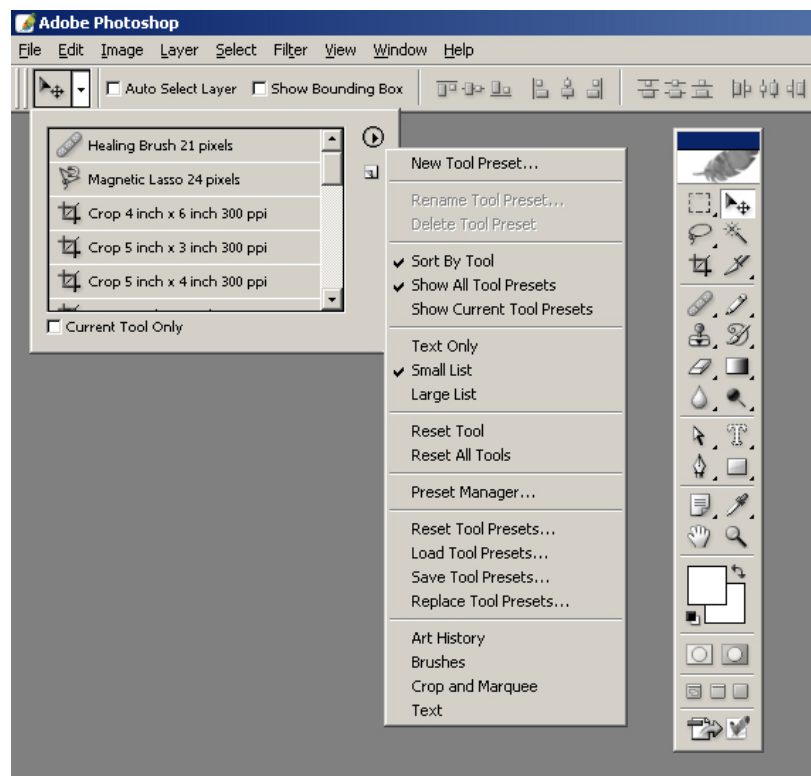
- To display the tool preset picker, click the tool preset picker icon at the far left end of the options bar or select Window>Tool Presets to display the Tool Presets palette, scroll through the list of preset tools and click the one you want to use. (Not all tools have extra presets.)
- To limit the listed presets to those for the currently selected tool, turn on the Current Tool Only check box.
- To return the selected tool or all tools to default settings, click the triangle icon to display the picker’s or palette’s menu, and then select Reset Tool or Reset All Tools.

You can create and edit tool presets, and save and load them for future use. This is not difficult since all of the necessary commands are listed on the tool presets picker’s menu, but a detailed discussion is outside the scope of this book.

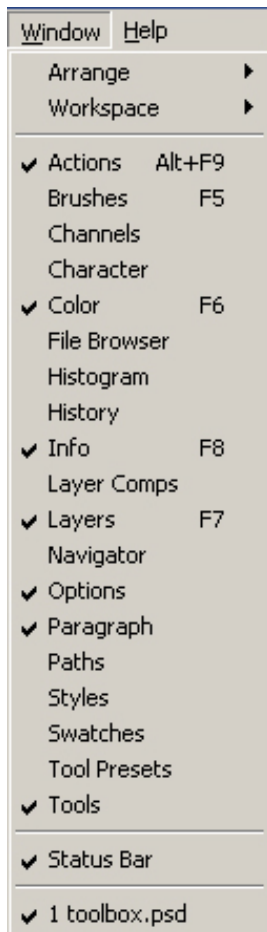
Here the Move tool was selected in the toolbox, then the tool preset picker button was clicked on the options bar to display the tool preset palette. Finally the palette’s triangle was clicked to display the palette menu.



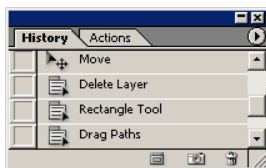
The Tool Presets palette is almost identical to the tool preset picker.



USING PALETTES



The *Window* menu on the menu bar lists all of the palettes and clicking the name of one opens or closes it. Those preceded by check marks are open.



Palettes are usually stored together with other palettes in groups. Here are the *History* and *Action* palettes in a group window.

As you edit images, you'll find many controls and much information organized into compact and convenient palettes. All of these palettes are listed on the *Window* menu and some are stored in the palette well on the right end of the options bar. (The palette well isn't displayed when the screen resolution is set to 800 x 600 or below.)

■ To open a palette, pull down the *Window* menu and click its name. (Those that are already open have check marks in front of their name.)

- If the palette is in the palette well, it is pulled down.
- If the palette isn't already open or in the palette well, it opens in the work area—usually accompanied by other palettes in a group window.
- If the palette is in a group that is already open, it moves to the front of the group.

■ To close a palette group, click its close (X) button or the palette's name on the *Window* menu.

THE PALETTES

■ *Actions palette* (page 172) records and manages commands so they can be played back to automate repetitive procedures.

■ *Brushes palette* (page 129) lets you select preset brushes and design custom brushes.

■ *Channels palette* (page 58) lets you create and manage channels and monitor their effects on editing.

■ *Character palette* (page 120) provides options for formatting text.

■ *Color palette* (page 126) displays the color values for the current foreground and background colors and lets you change them.

■ *File Browser* (page 26) displays thumbnails of the images in the currently selected folder and helps you manage the images on your system.

■ *Histogram palette* (page 57) displays tonal and color information about your images.

■ *History palette* (page 21) lets you return to a previous state of an image, or periodically capture snapshots you can return to.

■ *Info palette* (page 67) displays color, distance, and size information about the pixels you point to or select.

■ *Layer Comps palette* creates and manages layer comps so you can view multiple versions of a layout.

■ *Layers palette* (page 105) lists all layers, layer sets, and layer effects in an image and provides buttons to create, hide, display, copy, and delete layers.

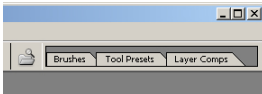
■ *Navigator palette* (page 32) displays a thumbnail of the active image and has controls you can use to zoom and scroll around it.

■ *Paragraph palette* (page 120) sets formatting options for paragraphs in a type layer.

■ *Paths palette* lists the name and a thumbnail image of paths and vector masks and lets you select and manage them.

TIP

■ Some palettes display scroll bars when the palette's contents can be scrolled.



The palette well.

TIPS

■ To see the palette well, the options bar must be displayed. If it isn't, select *Window>Options*.

■ The palette well isn't displayed when the screen is set to a resolution of 800 x 600 or less.

Many palettes have icons at the bottom of the palette. Point to each and pause to display a tool tip.

- *Styles palette* (page 120) lets you choose preset layer styles.
- *Swatches palette* (page 126) displays colors from which you can select a foreground or background color.
- *Tool Presets palette* (page 15) lets you load, edit, and create libraries of tool presets. You can also save and reuse your own tool presets.

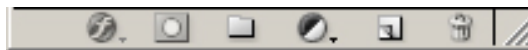
THE PALETTE WELL

You can store frequently used palettes in the palette well at the right end of the options bar. This makes it easy to access them when needed and to get them out of your way when finished.

- *To open a palette* in the palette well, click its tab or pull down the *Window* menu and click its name. To close it, click its tab, click another tab, or click anywhere outside the palette in the work area. You can also select the palette's name on the *Window* menu.
- *To move a palette from the palette well into the work area*, drag it by its tab and drop it where you want it to float.
- *To dock a palette floating in the work area in the palette well*, drag it (and not the entire group) by its tab into the palette well so the well is highlighted and drop it, or click the triangle in the upperright corner of the palette to display the palette menu and then click *Dock to Palette Well*.
- *To remove a palette from the palette well*, drag it by its tab into the work area so it floats and then click its close (X) button.

PALETTE ICONS

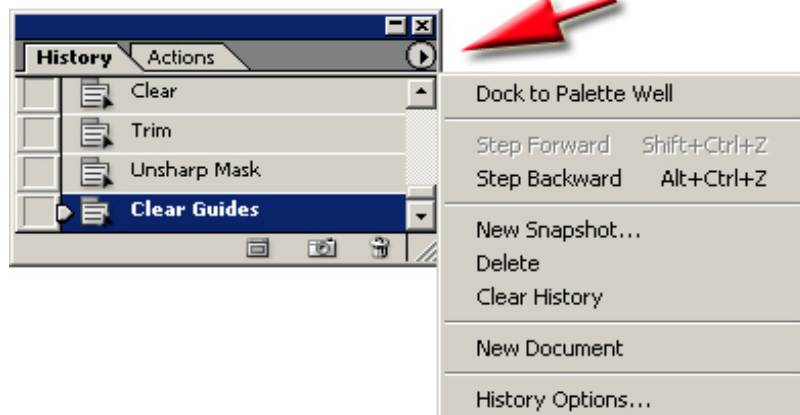
Most palettes have icons along their bottom border such as a trash can. Point to these icons for a tool tip describing what they are used for. These buttons are not displayed when a palette is minimized.

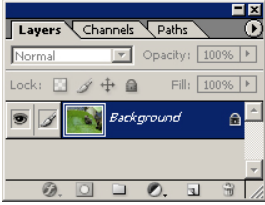


PALETTE MENUS

Palette menus list commands specific to the palette. The only exception is the *Dock to Palette Well* command that appears on all palette menus. To display a palette's menu, click the triangle icon in the upperright corner of the palette. (If the palette is in the palette well, first click its tab to display the triangle.)

Clicking a palette's triangle icon displays the palette menu.





A palette group that includes the Layers, Channels, and Paths palettes.

GROUPING PALETTES

When floating in the work area, palettes are always contained in a group window. This makes it easy to view and use multiple palettes and also move them as a group. To make your work even easier, you can drag palettes from one group to another, to a new group window, or to the palette well. The only rule is that you have to drag them by their tabs, one at a time. If you create your own groups and have favored locations for your palettes, you can save these settings by saving the workspace (page 10).

- To move a palette from one group window to another, drag a palette's tab to another palette so the target palette is highlighted, then drop it. (Not all palettes can be grouped.)
- To remove a palette from a group, drag its tab and drop it outside of any existing group to create a new group.
- To move a palette to the front of its group, click its tab or select its name on the *Window* menu.

DISPLAYING AND HIDING PALETTES

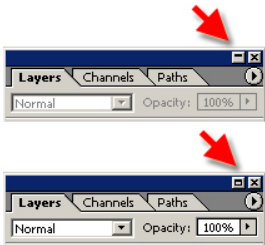
Palettes can easily cover and obscure parts of the image you want to see while editing. However, there are ways to temporarily hide their group windows without closing them.

- To show or hide open palettes, the options bar, and the toolbox, press **Tab**.
- To show or hide all palettes, press **Shift+Tab**.

SIZING AND ARRANGING PALETTES

Since palettes often cover part of the image area, there are times when you want to move their group windows or even change their size.

- To move a group window elsewhere on the screen, drag the group's title bar. To move it to the closest side of the screen, hold down **Shift** as you drag and release it.
- To collapse a group window to display palette titles only, click the group window's Minimize button, or double-click a palette's tab.
- To expand a group window to see the palette's contents, click the group window's Maximize button, or click a palette's tab.
- To change the size of a group window, drag one of its corners. Not all palettes can be resized.



The Minimize button (top) collapses a palette group window and the Maximize button (bottom) expands it to display all of its options.

USING PALETTE DEFAULT POSITIONS

After rearranging palette groups, their positions are remembered when you exit Photoshop and restart it later. However, you can return everything to its default position.

- To reset palettes to their default positions, select *Window>Workspace>Reset Palette Locations*.
- To specify palette locations when you start Photoshop, select *Edit>Preferences>General*, and then turn the *Save Palette Locations* check box on or off. When off, the default settings are used.



A palette group window without this size box in the lower-right corner cannot be resized.

BASIC COMMANDS

TIPS

- To adjust the entire image, make sure nothing is selected (page 86).
- To adjust only a single layer, select that layer in the Layers palette (page 105).
- To adjust just a portion of your image, select that portion (page 86).

TIP

- The *Preview* check box in many dialog boxes, when on, lets you see the effects of your changes.



Icons that indicate drop-down or pop-up menus are always triangular.

TIP

- When you point to a label for a text box containing a value the mouse pointer changes to indicate you can drag left or right to change the value.

This book assumes some computer background because Photoshop works in many respects just as hundreds of other programs do. However, there are a few things to be aware of that may be new to you. Here are some of them.

LAYERS AND SELECTIONS

When learning Photoshop, you will often encounter the terms *layer* and *selection* before they are discussed in detail. When first learning how to edit digital photos you can safely ignore these terms because all commands affect the entire digital photo when you first open it. However, if you add layers or make a selection, the effect of many commands are limited to just areas of the image. Here is an advance look at what these two terms mean.

- *Layers* (page 104) are like panes of glass laid over an image to make adjustments, add type, draw shapes, or copy one image into another. If you want to delete the effects a layer has on the image beneath it, you just delete the layer. The image itself remains unaffected.
- *Selection* (page 86) refers to using tools to draw a selection border around one or more areas in an image. When you first open an image no areas are selected so the effects of commands are not restricted to a specific area.

CANCELLING AN OPERATION

Some of the operations that you perform on an image take time, and when the operation is in progress, you can't perform other tasks. You can keep track of its progress by checking the progress bar on the status bar at the bottom of the screen. To have a beep alert you when a process is complete, select *Edit>Preferences>General*, and turn on the *Beep When Done* check box. To cancel process before it has finished, hold down Esc.

MENUS

Photoshop has a variety of menus you use to execute commands.

- *Menu bar* at the top of the work area lists names of menus that pull down to list commands. In this book we use the style “...choose *Image>Adjustments>Levels*” to guide you through the menu commands. In this example, the first name in the sequence, *Image*, is the name of a menu on the menu bar. After clicking that menu name, you then click the second command, *Adjustments*, to display a submenu displaying the *Levels* command that you click to display a dialog box.
- *Drop-down or pop-up menus* are displayed when you click drop-down arrows or triangle icons on the options bar, in dialog boxes, or on palettes.
- *Context-sensitive menus* or palettes appear when you right-click in the image window. What menu appears depends on what tool is selected.
- *Palette menus* are displayed when you click a palette's triangle icon.

KEYBOARD SHORTCUTS

In some cases, you have to work through 2 or 3 menus to get to the setting you want. When learning the program, or when only a casual user, this is a good way to work because it's easier to remember how to do things. However, there is a much faster way to work that you can adopt over time. As you

TIPS

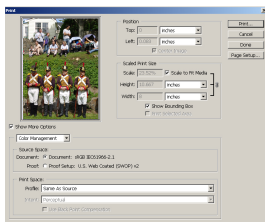
- Ctrl on PCs often performs the same functions as Command (key with symbol) on Macs.
- Alt on PCs performs the same functions as Option on Macs.
- Enter on PCs performs the same role as Return on Macs.



When you see a Cancel button in a dialog box, hold down Alt to see if it changes to a Reset button that lets you start over.



Many tools are adjusted by dragging sliders along a slider bar. Sometimes you can point to the name of the slider and drag to change the setting.



Dialog boxes can appear complicated because they offer so many choices. In most cases, however, you need to change only a few settings and leave the others set to their default values.

work through menu commands, you'll see that some command names are followed by keyboard shortcuts such as Alt+Ctrl+Z to undo changes. The plus signs connecting the keys means you press them together, not one after another. Pressing these shortcut keys bypasses the menus. To work faster, begin by memorizing the keyboard shortcuts for the commands you use most often.

MODIFIER KEYS

In many situations, tools work one way when you use them alone and another way when you hold down a key as you use them. These *modifier keys* on PCs include Ctrl, Shift, and Alt; and on Macs, Command, Shift and Options.

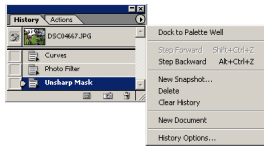
- When keys are used in combination, they are shown connected by a plus sign. For example, Shift+Ctrl+Alt.
- When a key should be held down when you click or drag the mouse, it is indicated by +click added to the key as in Alt+click or Alt+drag.
- At times, when you press a key is important. For example, you may need to start dragging and then press a key. Pressing it before you drag won't have the same result.

DIALOG BOXES

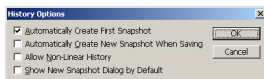
When you select many commands, particularly menu commands followed by an ellipsis (...), a dialog box is displayed. Although some dialog boxes have many settings, in most cases you'll probably only adjust a few. The rest can be left set to the defaults that Adobe has chosen because they work with most images, most times.

- To select the entire entry in a text box, click in the text box and press Shift+Enter.
- To increment the value in numeric text boxes:
 - Click in the text box then press the up or down arrow keys to change the value in increments of 1, or hold down Shift while you press the arrow keys to increment the value in steps of 10.
 - Point to the title of the box and drag left or right to change the value in the box just as if you were dragging a slider.
- To display menus, click the drop-down arrows or triangle buttons.
- To turn square check boxes and round option buttons (sometimes called radio buttons) on and off, click them.
- To move between text boxes, when the cursor is already in one text box, press Tab or Shift+Tab.
- To close a dialog box without applying your adjustments to the image, click Cancel. Hold down Alt and the button often changes to Reset so you can click it to restore the default settings and try again.
- To see the effects of your changes as you make them, turn on the Preview check box. Sometimes, clicking the check box on or off, or even clicking the preview itself, toggles the change on and off so you can see it more clearly.
- To apply your changes to the image and close the dialog box, click OK.

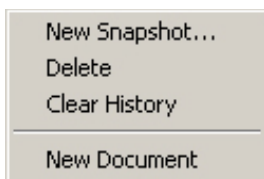
UNDOING CHANGES



The History palette displays a list of the changes you made to the image in the current session.



The History Options dialog box.



Right-clicking a state displays a menu.

TIP

■ It's important to note that the undo command and history palette only undo changes made during the current session. Once you close an image and reopen it, you can no longer undo changes. To be sure you don't irrevocably change an image, always work on a copy, not the original. To be able to undo changes at a later date, use adjustment layers (page 116) and layer masks (page 150).

One of the most reassuring things about editing images is how many ways there are to undo mistakes short of closing a file without saving it.

UNDO COMMANDS

- The *Edit>Undo...* command undoes the most recent change and *Edit>Redo...* redoes it.
- The *Edit>Step Forward* and *Edit>Step Backward* commands scroll through changes so you can select a stage from which to continue.
- The *File>Revert* command restores the image to the last saved version. This is the same as closing the file without saving it and then reopening it.

THE HISTORY PALETTE

The History palette, displayed by selecting *Window>History*, lists both states and snapshots that you can use to undo changes:

- **States** are changes you have made to the image. They are added to the history palette automatically as you make them, with the most recent change at the bottom of the list. By default, up to the last 20 changes made in the current session are listed.
- **Snapshots** can be taken to record an image exactly as it is at any point. By default, a *snapshot* of the original image is displayed at the top of the palette, but you can take others. Snapshots have a number of advantages:
 - You can name a snapshot so it's easy to identify.
 - Snapshots are stored for an entire work session.
 - If you take snapshots before and after a procedure you can switch back and forth between them to more easily see the changes.

You can delete any changes and restore the image to a previous state by deleting *states* or selecting a snapshot. It's as if you backed up to a previous point to start over from there.

■ *To take a snapshot of the image*, click the palette's *Create New Snapshot* button or select *New Snapshot* from the palette menu.

■ *To select a state or snapshot*, click it or drag the slider to it.

■ *To delete a state or snapshot*, and all states that follow, select it and click the Trash can icon, drag and drop it on the icon, or select it and then choose *Delete* from the palette menu. (If you don't like the results, select *Edit>Undo*.)

■ *To return to the image as it was when you took a snapshot*, select the snapshot to undo all changes that followed it.

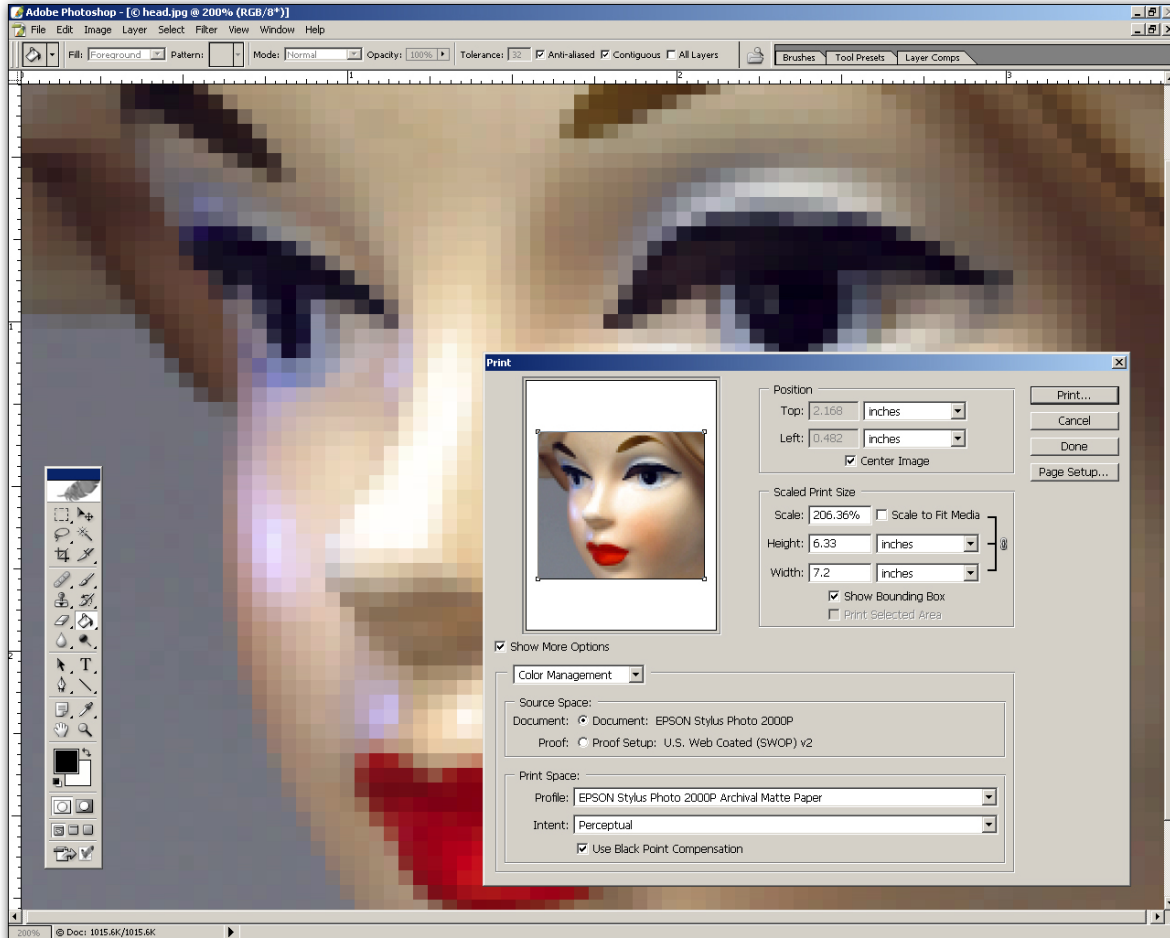
■ *To delete a state or select a snapshot without deleting all states that follow*, display the palette's menu, select *History Options* and turn on *Allow Non-Linear History*.

■ *To clear all states*, without undoing the changes they represent, display the palette's menu and select *Clear History*. This cannot be undone.

■ *To create a new document from the selected state or snapshot*, drag it onto the *Create new document from current state* button.

Chapter 2

Working with Image Files



CONTENTS

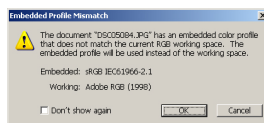
- Opening and Closing Image Files
- The File Browser—Introduction
- The File Browser—Viewing, Opening & Managing Files
- The File Browser—Organizing and Finding Files
- The File Browser—The Metadata Palette
- Zooming Images and Image Windows
- Working with Multiple Images
- Saving Image Files
- Printing Images
- Optimizing Images for the Web

Your digital camera (or scanner) stores images in files that are then copied to the computer for editing. As your collection grows, managing images so you can find them later becomes very important. To assist you, Photoshop has a File Browser that displays thumbnails of images and lets you manage the collection using features such as keywords, ranking, flagging, and sorting. In this chapter you learn how to use the File Browser and other methods to organize, view, open, print and save images. These are important procedures that support the main functions of a photo-editing program—editing and improving images—discussed in the chapters that follow.

OPENING AND CLOSING IMAGE FILES

TIPS

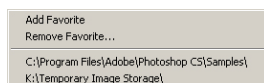
- To change the displayed size of the photo you're editing (not its actual size), hold down Ctrl and press the plus (+) and minus (-) keys on the numeric keypad.
- When editing an image, are you working on a copy? If not, immediately save the image in the Photoshop PSD format using the *File>Save As* command.



When opening an image, you may see an *Embedded Profile Mismatch* dialog box. This box is explained on page 185.



The *Open* dialog box buttons include *Go To Last Folder Visited*, *Up One Level*, *Create New Folder*, *View Menu*, and *Favorites*.

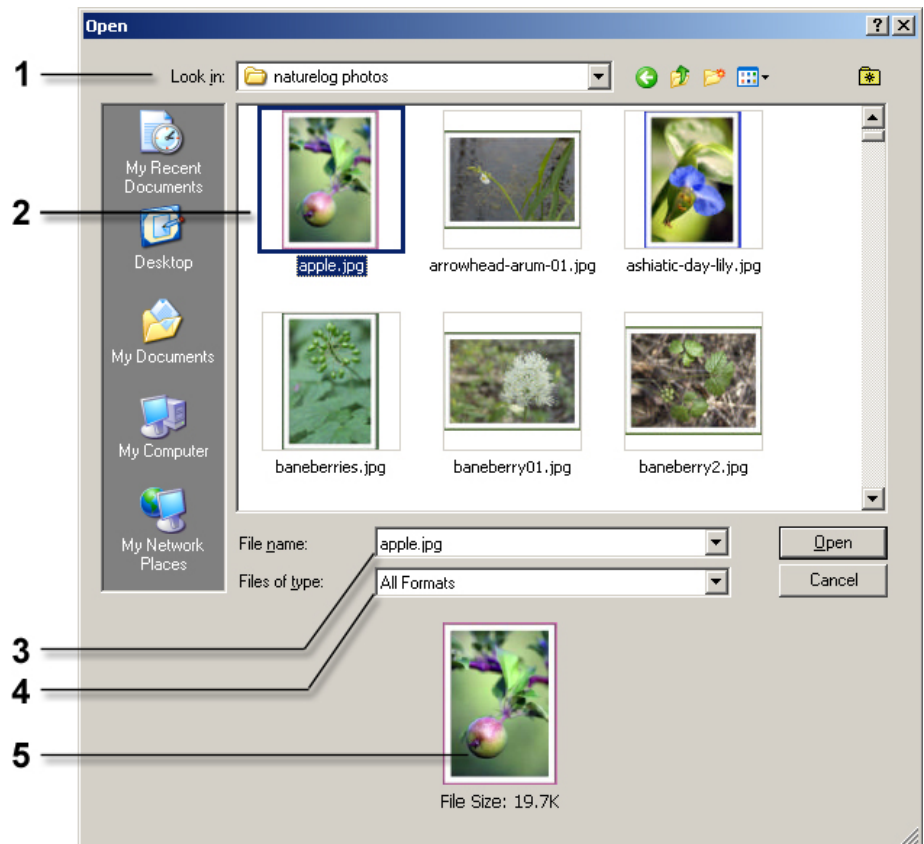


Clicking the *Favorites* button displays a menu you use to add, remove, or jump to favorite folders.

To work on an image the first step is to open it. To be safe, always open a duplicate of the image rather than the original so if anything goes wrong, you haven't permanently altered or lost the image. If you haven't already made a copy to work on, one way to do so is to open the image, then immediately save it in the Photoshop (PSD) format with the *File>Save As* command (page 35). This ensures that you are working on a duplicate image in a format that preserves all of the file's characteristics. Repeatedly opening, saving, and closing JPEG images degrades them slightly each time.

OPENING IMAGE FILES

You can open an image file by selecting *File>Open* to display the *Open* dialog box where you select a file and then click the *Open* button. The dialog box offers the following settings:

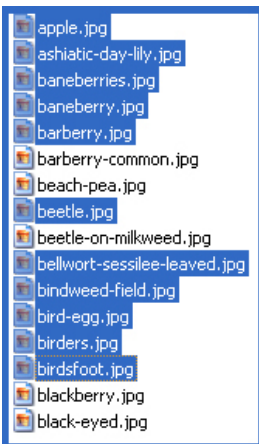


1. *Look in* displays the name of the selected folder. Click its drop-down arrow to display a tree so you can select another drive or folder. *Buttons* to the right include *Go To Last Folder Visited*, *Up One Level*, *Create New Folder*, *View Menu*, and off to the right, *Favorites*. (Point to any button except *Favorites*, to display its name.)

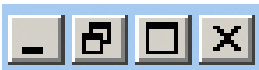
2. *File area* displays files in the selected folder. Since most image filenames are meaningless, you can click the *View Menu* drop-down arrow and click the *Thumbnails* command to see what each image looks like.

TIP

■ One way to open a group of image files is to select them in Windows Explorer and drag them to the Photoshop icon on the task bar. If you then pause a moment, the program opens and you can drop them into the working area.



Keyboard commands can select any groupings of files to open.



Icons on image windows include (from left to right) Minimize, Restore Up/Down, Maximize, and Close.

The dialog box that appears when you close a file with unsaved changes.

3. *File name* text box displays the name of the file that will open when you click the *Open* button. Click any image file to enter its name in this box or click the drop-down arrow to select from a list of the most recently opened files.
4. *Files of type* is normally set to *All Formats* so all files are displayed. To list just those files in a specific format, click the drop-down arrow and select a file type.
5. *Thumbnail* of the selected file, and its file size, is displayed at the bottom of the dialog box when you select a file and pause a moment.

After opening a file and then closing it, you can reopen it by selecting *File>Open Recent* to display a list of the 10 files you have worked with most recently. You can change the number of files listed on the menu by choosing *Edit>Preferences>File Handling*.

SELECTING MULTIPLE FILES

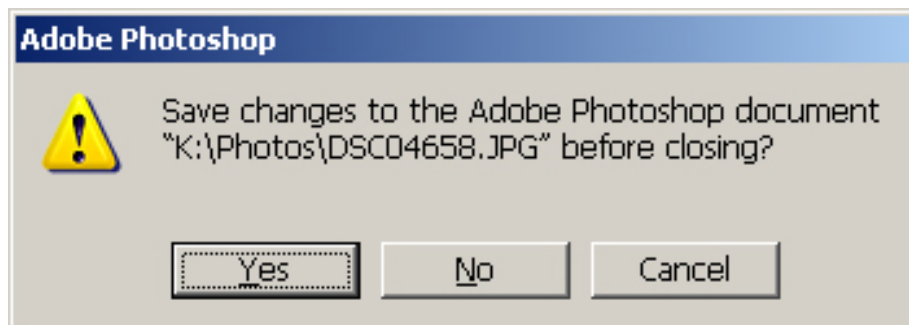
Whenever a dialog box opens for you to select files, you can select more than one file so they open together. Many of these procedures work in combination with each other.

- *To select or unselect a single file*, click it.
- *To select or unselect multiple files*, click the first then hold down Ctrl while you click other files to select or unselect them.
- *To select a series of consecutive files*, click the first image in the series and hold down Shift when you click the last.
- *To select more than one set of consecutive files*, click the first image in the first set and hold down Shift when you click the last image in that set. Then, hold down Ctrl to select the first image in the second set, and Ctrl+Shift while you click the last image in that set.

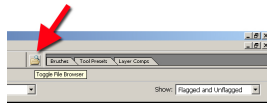
CLOSING IMAGE FILES

When you are finished with an image file, you close it. When you do so without first saving it, you will be asked if you want to save it. Click *Yes* to save the file or *No* to close the file without saving it. Closing a file without saving it is a good way to abandon any changes you don't want to keep.

- *To close the active image*, click the close (X) button on its window or select *File>Close* from the main menu.
- *To close all images*, select *File>Close All* from the main menu.



THE FILE BROWSER—INTRODUCTION

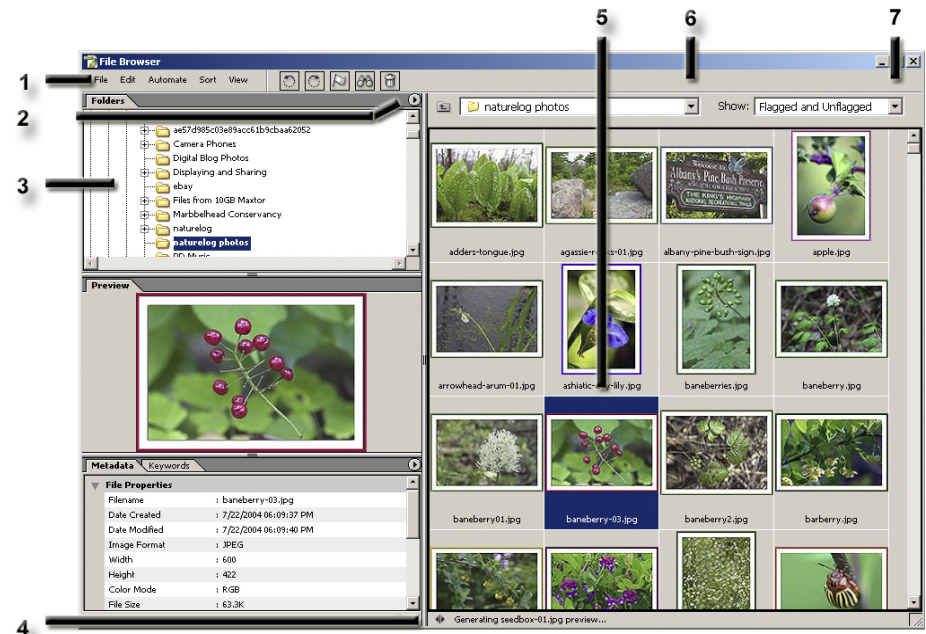


The *Toggle File Browser* button is to the left of the palette well on the options bar.



The *File Browser* shortcut buttons include (left to right) *Rotate Counter-clock Wise*, *Rotate Clock Wise*, *Flag*, *Search*, and *Delete File*.

The *File Browser* makes it easy to locate, view, select, open and manage your images. To display the *File Browser*, click the *Toggle File Browser* button on the options bar or select *Window>File Browser* or *File>Browse* from the main menu.



The *File Browser* window is divided into several sections.

1. *Toolbar* lists menus and shortcut buttons used to work with your files.
2. *Palette triangle* icons display a palette's menu when clicked.
3. *Palettes*, of which there are four, are used to navigate through the folders on your computer (*Folders*), view enlarged thumbnails (*Preview*), view information embedded in image files (*Metadata*), and search for files (*Keywords*).
4. *Toggle Expanded View* double arrow button hides or displays the palette area.
5. *The main window* displays thumbnails of images in the selected folder.
6. *Location bar* displays the current folder and its drop-down arrow lets you select other folders including favorites.
7. *Show drop-down arrow* lets you specify if flagged images, unflagged images, or both (the default) are displayed in the main window (page 29).

You can adjust the size of various sections, perhaps to make the *Preview* palette display thumbnails almost full-screen. You can also dock palettes, and minimize or maximize them just as with other palettes. You cannot, however, move palettes outside of the palette area. Photoshop remembers any changes until you change them again. To prevent this, save the original workspace (page 10) before making changes. You can then save other workspaces with different *File Browser* setups and switch among the original and customized layouts with the *Window>Workspace* command.

TIPS

■ *File Browser* uses an area on the hard disc called a *cache* to store thumbnail and file information. If your system slows down or you need additional memory, you can purge the cache (page 12).

■ When the *File Browser* is open, two menus are displayed. To avoid confusion we refer to them as *Photoshop's main menu* and the *File Browser menu*.

THE FILE BROWSER—VIEWING, OPENING & MANAGING FILES



File Browser's View menu.

When you select a folder in the File Browser's *Folders* palette, the contents of the folder are displayed in the main window. When you then select an image in the main window, a preview of it is shown in the Preview palette and information about it is displayed in the Metadata and Keywords palette.

VIEWING FOLDERS AND IMAGES

The File Browser's *View* menu lists a number of commands that specify how files are displayed. (The main menu also has a *View* menu that list different commands.)

- *To show or hide subfolders in the main window along with files*, select *View>Folders*. Double-clicking any displayed folder then opens it.
- *To view files that Photoshop can't open* (spreadsheets, for example), select *View>Unreadable Files*.
- *To select the selected folder in Windows Explorer*, choose *View>Reveal Location in Explorer*.
- *To refresh the view* to be sure you have the most recent list of images and folders after adding, deleting, or renaming files or folders, choose *View>Refresh*. Closing and reopening the File Browser also refreshes the view.
- *To change the view*, select one of the thumbnail sizes or *Details* from the *View* menu.

SELECTING AND OPENING IMAGES

The File Browser makes it easy to select and open one or more image files just by opening a folder and then pointing and clicking.

- *To select files* in the File Browser's main window, do any of the following:
 - Click the thumbnail of a file. (Clicking the name selects it so you can rename the file.)
 - Shift+click to select contiguous images.
 - Ctrl+click to select noncontinuous images.
 - Choose *Edit>Select All* from the File Browser menu bar to select all of the files in the current folder.
- *To open the selected file(s)* in the File Browser's main window, do one of the following:
 - Press Enter.
 - Double-click any one of the selected files to open all of them.
 - Select *Open* from the palette menu.

MANAGING IMAGES

You use the File Browser's *Folders* palette and *File* and *Edit* menus to manage your image files. (The main menu also has *File* and *Edit* menus that list different commands from those discussed here.)

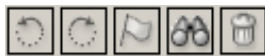
TIPS

- Once you have the File Browser arranged the way you like it, you can save the layout by saving the workspace (page 10).
- If you return to the same folder repeatedly, you'll save time by making it a favorite folder (page 29)



Many commands are available when you select one or more images and right-click the selection to display the context menu.

The File Browser's Preview window can be enlarged to fill most of the screen just by dragging its borders.



The File Browser shortcut buttons include Rotate Counter-clock Wise (far left) and Rotate Clock Wise (second from left).



If a thumbnail in the File Browser has a lock icon, it means the image is read-only and can't be edited. To change this, you use Windows Explorer to change its properties.

■ To create a new folder, select the drive or folder in which you want to create it, then select *File>New Folder*, type a name, and press Enter.

■ To delete files or empty folders, select them and then click the Trash button on the toolbar, drag and drop them on Trash button, press the Delete key, or select *File>Delete*.

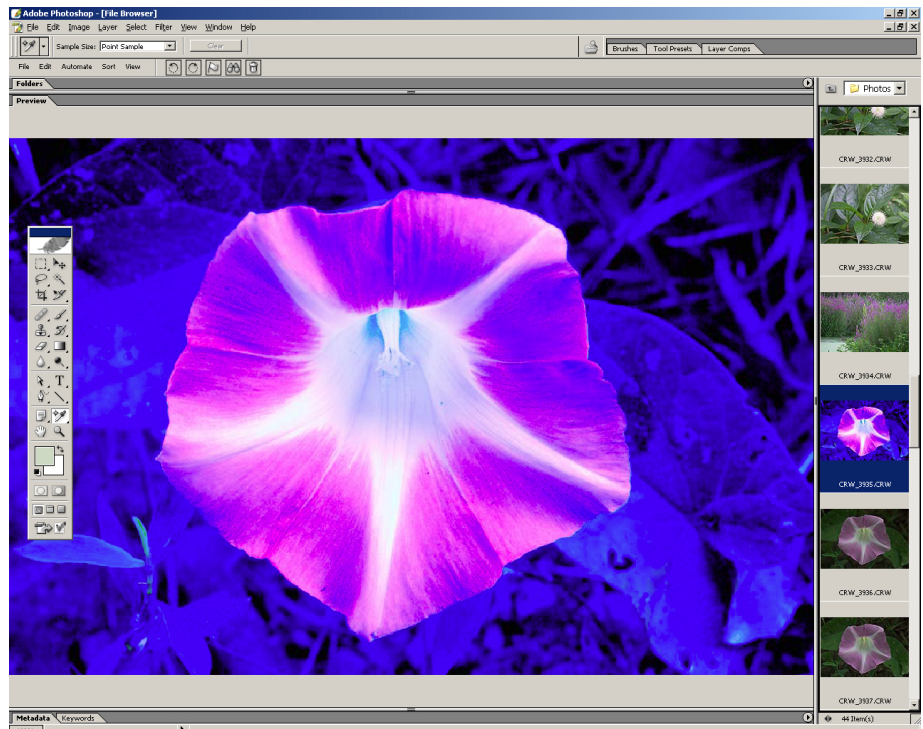
■ To copy files, select them and then Alt+drag them to the same or a different folder.

■ To move files, select them and then drag them to a different folder.

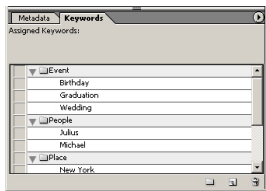
■ To attach an image to an e-mail message, drag the image from the File Browser and drop it into the e-mail message.

■ To rotate files, select one or more and then click the rotation buttons or select *Edit>Rotate* and select one of the rotate commands. These commands only rotate an image in Photoshop. To have the rotation also apply when the image is opened in other applications, such as a slide show program or Web browser, open the rotated image in Photoshop and save it, or select *Edit>Apply Rotation* from the File Browser menu.

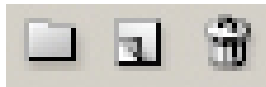
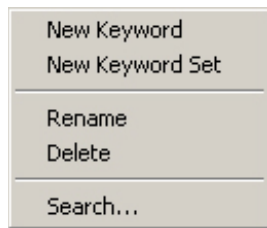
■ To rename a file or folder select it and then click its filename, or right-click the file or folder to display the context menu, then choose *Rename*. Type a new name, and press Enter. To display the next filename for editing, press Tab. To display the previous filename for editing, press Shift+Tab.



THE FILE BROWSER—ORGANIZING AND FINDING FILES



The File Browser's Keywords palette.



To manage keywords, use the *New Keyword Set*, *New Keyword*, or *Delete Keyword* buttons at the bottom of the palette (bottom) or click the palette's triangle to display its menu (top).



A triangle indicates if a set of keywords is collapsed (left) or expanded (right).



File Browser's Sort menu.

As your collection of photos gets larger it becomes harder to find the images you want to edit or print. To help, the File Browser offers you a variety of ways to manage your collection. The more images you have, the more important these tools become.

WORKING WITH KEYWORDS

The Keyword palette lets you attach keywords to image files and locate them later by searching for the keywords. Unlike techniques discussed later in this section, these keywords travel with the file you attach them to so they can be used by others to whom you distribute images. Keywords are organized into sets and you can assign individual keywords or entire sets to one or more selected files. Although Photoshop comes with a few keywords listed in the Keywords palette, the chances are that eventually you will want to create your own. To begin, with File Browser displayed, click the tab for the Keywords palette.

- To expand or collapse a set of keywords, click the triangle to its left.
- To attach or detach a keyword or keyword set to or from selected files, click the box to the left of the keyword or keyword set in the palette, or double-click the keyword or keyword set. A check mark is displayed in the box next to any keywords added to a file that's been selected.
- To add a new keyword to a set, select the set's heading marked with a triangle or select any keyword in the set, and then click the *New Keyword* button, type the keyword, and then click *OK*. (You can also right-click the selected set or display the palette menu and select *New Keyword*.)
- To create a new keyword set, click the *New Keyword Set* button, type the name of the set, and then click *OK*. (You can also right-click the selected set or display the palette menu and select *New Keyword Set*.)
- To rename a keyword or set, select it then click the palette's triangle icon (not a set's triangle icon) to display the palette menu. Select *Rename* on the menu and type a new name. The previous keyword remains attached to files and doesn't change automatically. However, it is listed in a set named *<Other Keywords>*. To attach the renamed keyword to images, you have to select the images and then click the box to the left of the keyword.

- To move a keyword to another set, drag and drop it there.
- To delete a keyword, select it by clicking its name, and then click the *Delete Keyword* button. The deleted keyword remains attached to the files to which it is attached and is listed in a set named *<Other Keywords>*.

SORTING FILES

The File Browser's *Sort* menu lets you sort files in a variety of ways, for example, by filename, rank, size and type. To sort in ascending or descending order select *Sort>Ascending Order* as needed. A check mark indicates that files are sorted in ascending order. No check mark indicates that the current sort is in descending order.

TIPS

- You can't add keywords to open files.
- Purging the cache (page 12) deletes ranking, flag, and thumbnail information.
- To add copyright notices to your images see the Metadata palette (page 30).

RANKING FILES

Ranking files lets you use your own criteria to sort files. For example, you can rank files as A, B, or C to indicate three levels of interest and then sort the images by those ranks so the most important files are listed first.

- *To rank one file*, click the *Rank* text box below the image thumbnail, type a rank containing letters or numbers, and press Enter, or to assign a rank to the next or previous image, press Tab or Shift+Tab. To edit a rank, use this same procedure. If the rank box isn't displayed, choose *View>Show Rank* from the File Browser menu bar (*View>Large Thumbnail* must be selected to access the command.)
- *To rank more than one file*, select them, then choose *Edit>Rank* from the File Browser menu, enter a rank, and press Enter.
- *To sort by rank*, choose *Sort>Rank*.
- *To clear rankings*, select the files and then choose *Edit>Clear Ranking*. If prompted to confirm the removal of rankings, click *Yes*.

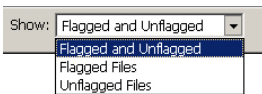
FLAGGING FILES

Flagging is a fast way to separate out a few important files. For example, when downloading and reviewing new images, you can flag those you want to keep or use first. You can then use the *Show* menu to display just flagged, unflagged, or both (the default).

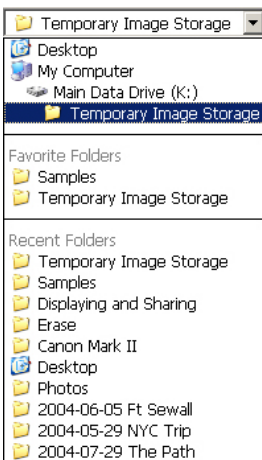
- *To flag or unflag files*, select the files and click the *Flag File* button on the toolbar or right-click one of the files and select *Flag* from the context menu. When flagged, a flag icon is displayed at the bottomright of the thumbnail.
- *To specify how flagged files are displayed*, click the *Show* drop-down arrow or select *View>Flagged Files* from the File Browser menu and select *Flagged and Unflagged* (the default), *Flagged Files*, or *Unflagged Files*.



File Browser's Flag icon.



The Show menu.



The Location menu lists a tree you can navigate through or favorite and recent folders you can jump to directly.

USING FAVORITE FOLDERS

If you use a folder frequently, you can use the File Browser's *File* menu to add it to a list of favorite folders so you can switch to it more quickly.

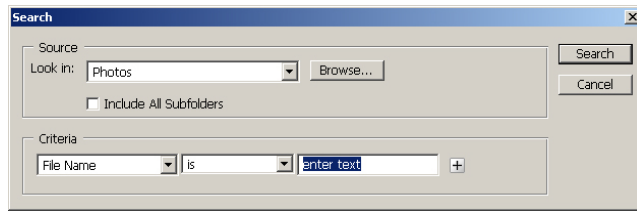
- *To add a selected folder to Favorites*, select *File>Add Folder to Favorites*. You can also right-click the folder and select the same command from the context menu. The folder is listed in the Folders palette under a new heading *Favorite Folders* marked with a gold star, and on the *Location* drop-down menu under the heading *Favorite Folders*.
- *To jump to a favorite folder*, click its name in the Folders palette, or click the *Location* bar's drop-down arrow and it will be listed under the *Favorites* section heading. There is also a *Favorites* button on the Open dialog box displayed with the main menu's *File>Open* command.
- *To remove a folder from Favorites*, select the folder in the Folders palette under the heading *Favorite Folders* and select *File>Remove Folder from Favorites*. You can also right-click the folder and select the same command from the context menu.

SEARCHING FOR FILES

You can search for files using up to 12 search criteria. To begin, choose *File>Search* from the File Browser’s menu to display the Search dialog box. (You can also use the *Search* command on the *Keywords* palette menu.)



The criteria you can search for range from file names to metadata.



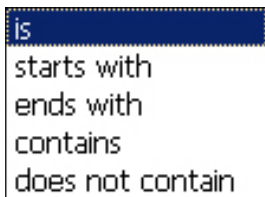
■ *Look in* displays the currently active folder. Click the *Browse* button to navigate to any folder you want to search. The drop-down arrow lists selected folders and the Results folder.

■ *Include all Subfolders* check box, when on, expands the search into any subfolders stored in the *Look in* folder.

■ *Criteria* drop-down arrows let you specify criteria for your search:

- Select what you want to search for from the leftmost menu.
- Select a limiter from the center menu. The choices here depend on what you selected to search for.
- Enter text in the text box at the right, if needed.
- To add another search criteria, click the plus sign button.
- To remove a search criteria, click the minus sign button.

■ *Search* button initiates the search and adds a *Search Results* folder at the bottom of the tree in the Folders palette. Images that match the criteria are displayed in the main window when that folder is selected. To return to your original view, select the folder that you searched.



The limiters you can use depend on what it is you are searching for. These are for File Name.

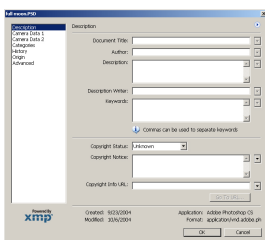
ADDING A COPYRIGHT NOTICE

To add a copyright notice to your image, you first create a template and then apply it to selected images.

■ To create a copyright template, select a photo in the File Browser, then choose *File>File Info* from the File Browser menu to display the File Info dialog box with *Description* highlighted.

- *Copyright Status* drop-down arrow lets you select *Copyrighted*.
- *Copyright Notice* text box is where you type in your name and any other information you’d like to be able to apply to all your images.
- *Copyright Info URL* text box is where you can enter your Web address.
- *Triangle icon* in the upperright corner of the dialog box displays a menu so you can select *Save Metadata Template*. Enter a name for the template, and then click *OK*. Click *OK* to close the File Info dialog box.

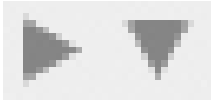
■ To apply the copyright information to other images, select them in the File Browser, and then select *File>File Info* from the File Browser menu. Click the triangle icon and select the copyright template name listed at the top of the menu. The copyright information is automatically filled in for you in the File Info dialog box. Click *OK* to apply it to the selected images. It’s listed in the IPTC section of the Metadata palette.



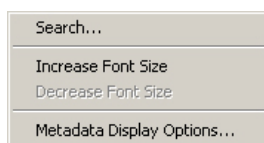
The File Info dialog box.

THE FILE BROWSER—THE METADATA PALETTE

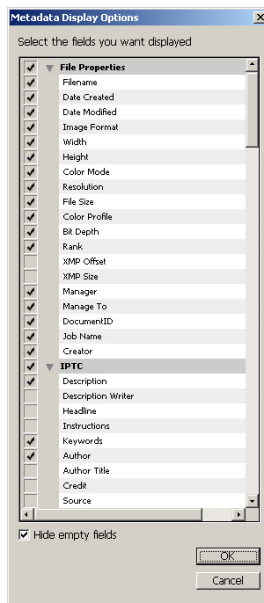
The File Browser's Metadata palette displays all information attached to a selected image file. Metadata is data (information) about data (an image file).



A triangle indicates if a metadata category is collapsed (left) or expanded (right).



The Metadata palette menu.



You can specify what metadata are displayed using the Metadata display options dialog box.

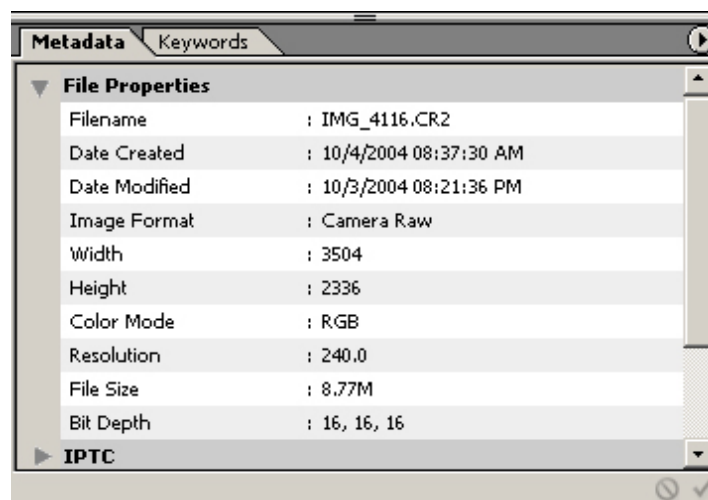


The IPTC Metadata palette's Cancel and Apply buttons.

TYPE OF INFORMATION

Metadata information is listed under a number of headings with triangle icons that you click to collapse or expand. The categories include the following:

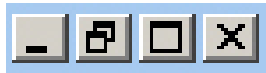
- **File Properties** describes such characteristics as size, creation, and modification dates.
- **IPTC**, the only category of editable metadata, lets you add a caption for your files, as well as copyright information (page 30). This information is attached to the image file and travels with it.
- **Camera Data (Exif)** is added when you capture a photo and includes information about the camera settings used to capture it.
- **GPS** displays navigational information captured with a digital camera equipped with GPS technology.
- **Camera Raw** displays information about files in the Camera Raw format.
- **Edit History** displays a list of changes made to images perhaps for your records, client records, or legal purposes.



VIEWING AND EDITING METADATA

- **To view metadata** just select a file. If more than one file is selected, only the metadata that is common to all of the files is displayed.
- **To expand or collapse categories**, click the triangles in the headings.
- **To add or edit IPTC metadata**, click the pencil icon to the left of the field you want to edit, and type in the text box. Press Tab to move through fields and when finished, click the palette's *Apply* button (the check mark).
- **To customize your view of metadata** select *Metadata Display Options* from the Metadata palette menu or from the File Browser's *Edit* menu. In the Metadata Display Options dialog box, select or deselect metadata fields you'd like to view or hide. Select the *Hide empty fields* option if you don't want to view fields containing no information. When you're done, click *OK*.

ZOOMING IMAGES AND IMAGE WINDOWS



Icons on image windows include (from left to right) Minimize, Restore Up/Down, Maximize, and Close.

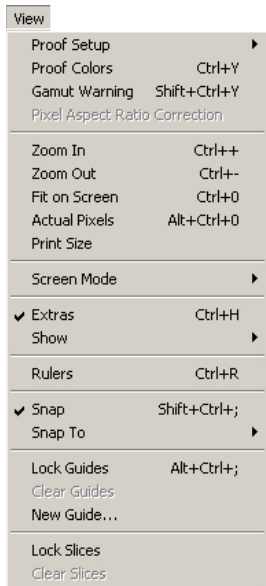
When you open a digital photo, the image appears in a window that Adobe calls a *document window*. While editing, you can zoom both the photo and its window, rearrange windows, and scroll around enlarged images to examine details or make precise selections. You can zoom the size at which a photo is displayed a number of ways. The window’s title bar displays the zoom percentage (unless the window is too small for the display to fit), as does the status bar.

■ **Keyboard shortcuts** include holding down Ctrl while pressing the plus (+) and minus (-) keys on the numeric keypad. Normally, when you press them to zoom an image, the image’s window doesn’t automatically change size. To make it do so, select *Edit>Preferences>General* and turn on the *Zoom Resizes Windows* check box.

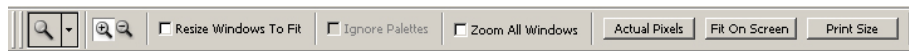
■ **Buttons in the upperright corner of application and image windows** size or close windows or applications.

■ **The View menu** lists commands that zoom the image.

■ **The Zoom tool** quickly zooms an image up or down. To use it, click it in the toolbox, change its settings on the options bar, then click in the image to zoom it up to 1600%.



The View menu lists zoom commands and their keyboard shortcuts.



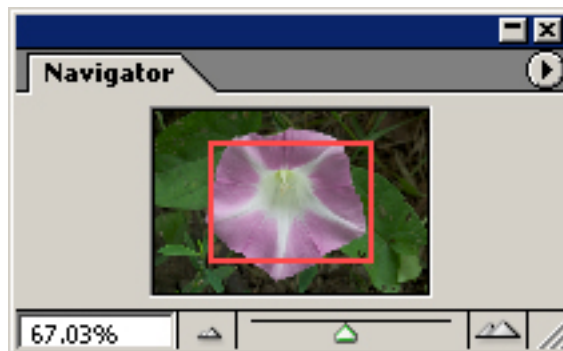
- **Zoom In and Zoom Out buttons** (to the right of the tool preset picker) specify the direction of zoom.
- **Resize Windows To Fit** check box, when on, resizes the window when you magnify or reduce the view of the image with the Zoom tool. (It has no effect with keyboard shortcuts.) When off, the window maintains a constant size regardless of the image’s zoom.
- **Ignore Palettes** check box, when on, allows an image window to enlarge under any palettes close to the right edge of the screen. When off, some commands won’t enlarge a window past these palettes.
- **Zoom All Windows** zooms all open images by the same amount when you zoom any one of them.
- **Actual Pixels, Fit On Screen, and Print Size** buttons zoom the image to the indicated sizes. (These choices are also available when you select the Hand tool to scroll an enlarged image.)

■ **The Navigator palette** zooms and navigates the image. To display it, select *Window>Navigator*.



The Zoom tool displays Zoom In and Zoom Out buttons on the options bar.

The Navigator palette displays a red view box outlining the area displayed on the screen. You can drag the box to scroll around the enlarged image.



TIPS

■ When the Zoom or Hand tool is selected, right-click in the image area and select a zoom setting from the context menu.

■ The Zoom tool pointer is shaped like a magnifying glass. The + or - indicates the direction of zoom. When neither is displayed, you have reached one of the limits.



The toolbox has three icons that change the screen mode when an image is open. From left to right they are Standard Screen Mode, Full Screen Mode with Menu Bar, and Full Screen Mode.

TIP

■ Colors are displayed most accurately when an image is displayed at its actual size (100%). You should use this setting when making corrections.

ZOOMING AN IMAGE

■ To zoom the image incrementally:

- Hold down *Ctrl* and press the plus (+) or minus (-) key on the numeric keypad.
- Drag the slider in the Navigator palette or click the zoom buttons.
- Select the Zoom tool and then the Zoom in button on the options bar. Drag over the area you want to zoom. The area inside the zoom marquee is displayed full-screen when you release the mouse button. After selecting an area you can move the selection border if you don't release the mouse button while you hold down the spacebar and drag.
- Select the Zoom tool, click the Zoom in or Zoom out buttons on the options bar, then click the center of the area you want to size. When the maximum (1600%) or minimum (1 pixel) zoom limit is reached, the + or - in the magnifying glass disappears. To switch between zooming in and zooming out without clicking the options bar, hold down *Alt*.
- Select *View>Zoom In* or *View>Zoom Out*. When a limit of zoom is reached, the command is dimmed.

■ To zoom the image to a specific percentage, type the percentage into the Zoom text box on the status bar or in the Navigator palette and press *Enter*.

■ To zoom the image to its actual pixel size (100%), so you can see what it will actually look like when displayed on a monitor just like yours:

- Double-click the zoom tool.
- Select the Zoom or Hand tool and click the Actual Pixels button on the options bar.
- Select *View>Actual Pixels (Alt+Ctrl+O)*.
- Type 100% into the Zoom text box on the status bar or in the Navigator palette and press *Enter*.

■ To enlarge the image to fill the screen:

- Double-click the hand tool.
- Select the Hand or Zoom tool and click the Fit On Screen button on the options bar.
- Select *View>Fit on Screen*.

■ To zoom to the approximate printed size, as specified in the Document Size section of the Image Size dialog box (page 51).

- Select the Zoom tool, click the Print Size button on the options bar.
- Select *View>Print Size*.

SCROLLING AROUND AN ENLARGED IMAGE

When the image is zoomed larger than its window, you can scroll around it.

■ Select the Hand tool and drag the image. To use the Hand tool while another tool is selected, hold down the spacebar as you drag the image.

■ Use the window scroll bars.

■ Display the Navigator palette (page 32) and drag the red view box or click anywhere in the thumbnail to center the view box on that point.

WORKING WITH MULTIPLE IMAGES

TIPS

- The Zoom and Hand tools have options that let you zoom or move all windows when you zoom or move one.
- When duplicate images are zoomed to the same size, rapidly pressing **Ctrl+Tab** repeatedly makes them flash by and any changes jump out at you.

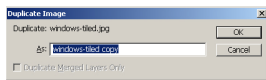
You can open a number of different images when you want to edit, print or compare them. But that isn't the only reason to have more than one image window open. One important reason is to have two views of the same image at different levels of zoom. Another is to have two copies of the same image—one edited and the other unedited.

TWO VIEWS OF THE SAME IMAGE

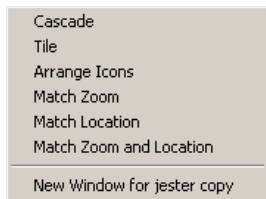
Having two views of the same image lets you see it at two levels of magnification. For example, you can have one view zoomed to a high magnification to work on a detail while the other view shows the effects of your changes on the image displayed at its actual size (100%). Editing changes made to either view are reflected in both windows because both display the same image. To open multiple views of the same image, select *Window>Arrange>New Window for (filename)*.

DUPLICATING AN IMAGE

Making a duplicate image and then closing the original is one way to ensure the original isn't changed. However, duplicating an image also lets you experiment with and compare before and after versions as you make changes. The changes made to one copy don't affect the other so it's easier to see the effects of your changes. To duplicate an image choose *Image>Duplicate* to display the Duplicate Image dialog box. Enter a name for the duplicated image and click **OK**. Although named, the duplicate image isn't saved unless you use the *File>Save* command.



The Duplicate Image dialog box.



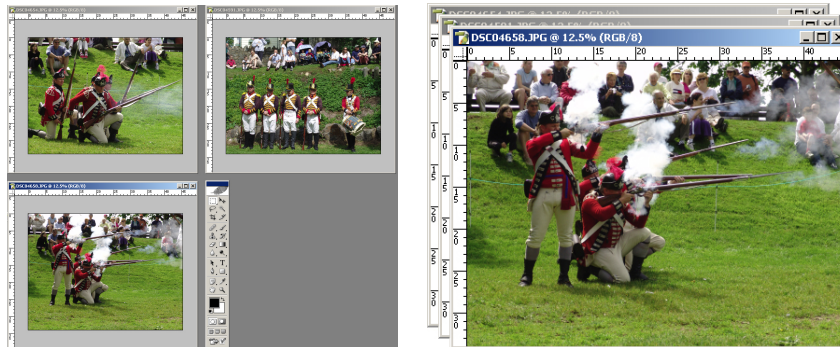
When working with multiple images, commands on the View menu match their zooms, locations, or both. After selecting one of the commands, **Shift+click** in one of the images to match their zooms or locations.

Tiled windows (left) and cascaded windows (right).

ARRANGING MULTIPLE IMAGES

When two or more windows are open at the same time, you can size and drag them as needed or select *Window>Arrange* to display a submenu, then select one of the following commands:

- *Tile* displays windows side by side.
- *Cascade* displays overlapping windows cascading down and across the screen.



SELECTING WINDOWS

When there is more than one image open, the title bar of the active window is a darker blue. You can quickly switch between or among images by pressing **Ctrl+Tab**, or by pulling down the *Window* menu and selecting one of the images listed at the bottom of the menu.

SAVING IMAGE FILES

TIPS

- The *Save for Web* command is discussed on page 43).
- To save an image that arrives by e-mail or that you see on a Web page, right-click it to display a menu with a save command.
- When working on a JPEG image you can save it repeatedly during a session without affecting its quality. It's only compressed once, when you close it.

When saving image files, there are a few basic rules that make your life easier and less anxious:

- *Always work on a copy and not the original.* If you open an original image to edit it, your very first step should be to save it in a new folder, under a new name, or in a new format (ideally PSD) so you don't inadvertently overwrite the original file later.
- *Save your working copy in Photoshop's native (PSD) format.* This format ensures that all of the image data are saved.
- *Save the final copy in a format fit to its purpose.* Different file formats cater to the needs of different applications. The file format you choose depends on the content of your image and how you plan to use it. For example, if you're saving a digital photo for use on the Web, you should choose the JPEG format. If you are going to make a print from the image, save it in PSD format. If you are moving the image to another application such as a desktop publishing program, you might save it as a TIFF file or even leave it in the PSD format if the application supports that format.

THE SAVE COMMAND

The main menu's *File>Save* command saves changes you've made to an image using the file's original format. If you use this command to save a new file that hasn't been saved before, or to which certain adjustments have been made, the Save As dialog box described below appears. The problem with using this command to save a JPEG image is that each time you close, reopen, and resave a JPEG file, it is compressed again—gradually reducing its quality over time. It's best to first save the image in PSD format with the *File>Save As* command and then use this command to save that file whenever you want. PSD files aren't compressed.

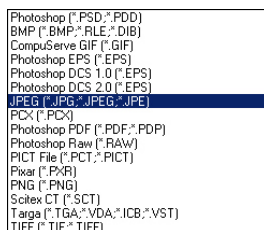
THE SAVE AS COMMAND

The *File>Save As* command displays the Save As dialog box where you can specify a location, filename, and format when you save a file. In the dialog box, select one or more of the following options although not all are available for all formats:

- *Save in* displays the name of the folder in which the file will be saved. To select another folder, click the drop-down arrow and the four buttons to the right—*Go to Last Folder Visited*, *Up One Level*, *Create New Folder*, and *View Menu*.

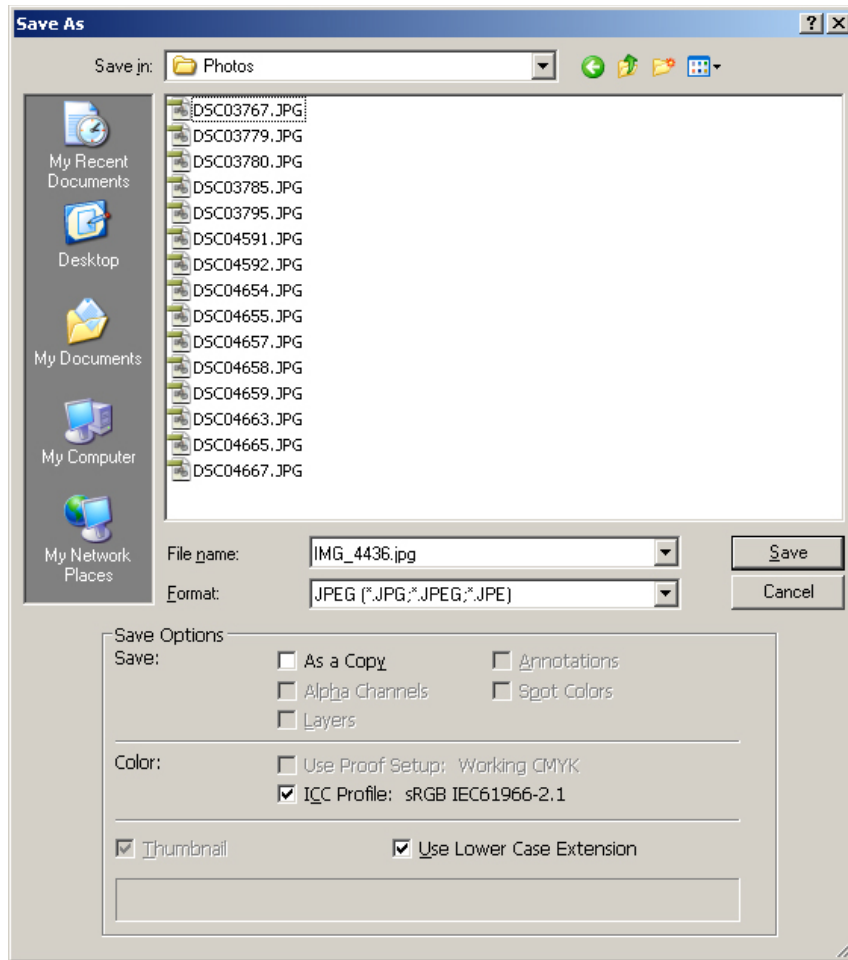
- *File name* text box displays the current filename and is where you can type a new one. (The drop-down arrow displays recently used names.) If you enter a name that's already assigned to another file in the same folder, you will be asked if you want to replace it when you save the file.

- *Format* drop-down arrow displays a list of formats in which to save the image. The image's current format is selected and selecting any other converts the saved file to that format. The list of formats is significantly shorter when saving 16-bit images such as those captured in the RAW format (page 80).



The *Save As* command lets you specify a format for the file.

The *Save As* dialog box lets you save an image in a variety of formats.



If you choose a format that does not support all of the data in an image, this warning icon is displayed. To save all of your data, be sure to save one copy in Photoshop's PSD format.

■ **Save Options** section has a number of check boxes. The most important, *As a Copy* saves a copy of the image with the settings you changed while keeping the original file unchanged. *Layers* preserves all layers in the image (page 104). If this option is dimmed, the image has no layers or the format you have chosen doesn't save them. If you choose a format that won't save all of the image's features, a warning is displayed at the bottom of the dialog box. If you see this warning, you may want to select another format such as PSD that saves all of the image data.

TIP

■ UNIX file servers, widely used on the Web, do not always recognize upper-case extensions. To ensure that your images are transferred properly, use lower case extensions.

■ **Color** has a check box for *ICC Profile* and, when on, the listed color profile is saved in the image. The other choice, *Use Proof Setup*, is used in conjunction with the *View>Proof Setup* and is outside the scope of this book.

■ **Thumbnail** check box indicates if a thumbnail image is saved in the image file. This check box is only available if you set *Image Previews* to *Ask When Saving* on the *Edit>Preferences>File Handling* menu.

■ **Use Lower Case Extensions** check box, when on, makes the file's extension lowercase.

■ **Save** button completes the save using the current settings. With some image formats, clicking this button displays a format specific dialog box. In the following pages we discuss the most common formats—JPEG, PSD, and TIFF. To learn more about other formats use help.

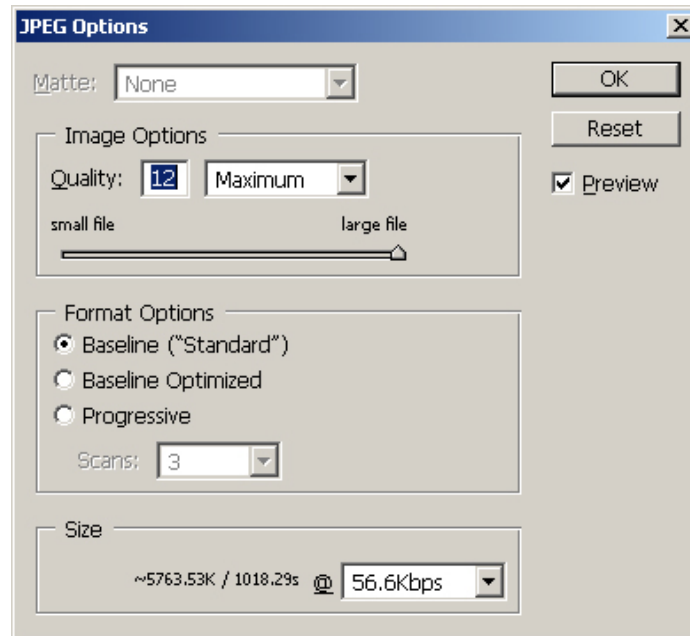
SAVING PSD IMAGES

When you save an image in Photoshop's native PSD format, the file is saved without displaying an additional dialog box.

SAVING JPEG IMAGES

The JPEG format is the most widely used file format in digital photography. One of its main features is your ability to control how much the image is compressed—trading off its file size against its quality. When you select the JPEG format in the Save As dialog box and click the *Save* button, the JPEG Options dialog box appears with the following options:

The JPEG Options dialog box lets you specify how much the image is compressed.



TIP

■ You occasionally encounter references to *transparent areas* in an image. Digital photos don't have such areas unless you add layers (page 104) and then cut holes through them or erase areas to show the layers below.

■ *Matte* selects a background color for an image with transparent areas (page 134). If there are no transparent areas, the option is dimmed.

■ *Quality* sets the amount of compression used between 1 (highest compression, lowest quality) and 12 (lowest compression, highest quality). To change the setting, click the drop-down arrow, drag the slider, or type a value between 1 and 12 into the text box.

■ *Format Options* section includes the following option buttons:

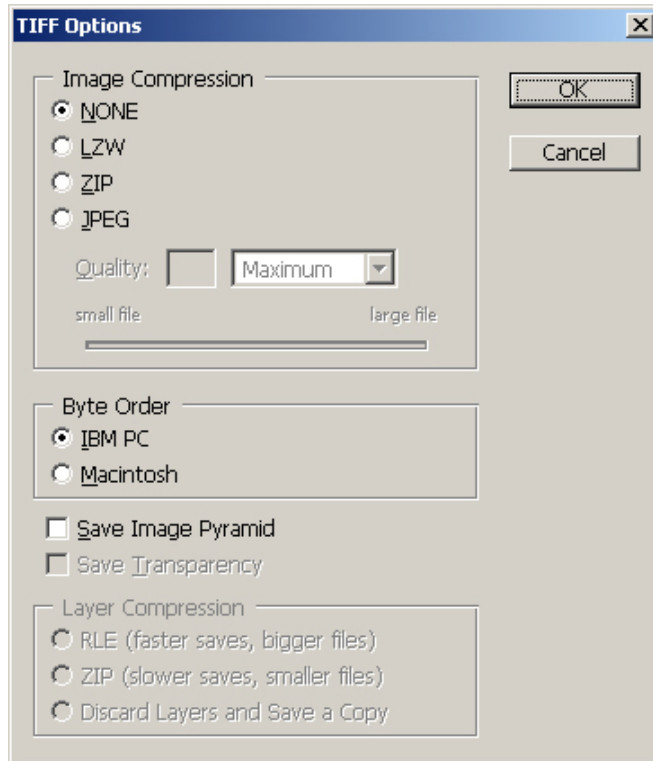
- *Baseline ("Standard")* creates images recognizable to most Web browsers.
- *Baseline Optimized* optimizes the image's color and creates a slightly smaller file that is not recognized by all Web browsers.
- *Progressive* creates an image that displays itself in a Web browser in steps, the number of which you specify in the *Scans* text box. When displayed in a browser the image appears first as a low-resolution image and then gradually gets sharper and more detailed as additional scans arrive. Files are slightly larger and are not recognized by all Web browsers and other applications.

■ *Size* lists the size of the file. When the *Preview* check box is on you can also click the drop-down arrow and select the speed of any Internet connection to see an estimated download time for the image.

SAVING TIFF IMAGES

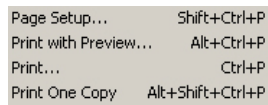
Tagged-Image File Format (TIFF) is a high-quality format often used for print applications and to exchange images among applications and computer platforms. When you select the TIFF format in the Save As dialog box and click the *Save* button, the TIFF Options dialog box appears with the following options:

The TIFF Options dialog box lets you specify which type of compression is used.



- *Image Compression* option buttons specify which method is used to compress the image. Since this format is usually used to retain the highest possible quality, you would normally leave this set to *None*.
- *Byte Order* option buttons force you to choose which byte order is use—IBM PC or Macintosh. Luckily most applications can now read files using either byte order.
- *Save Image Pyramid* check box, when on, retains multi-resolutions if the file contains them (few do). When opening images, Photoshop ignores all but the highest resolution within the file.
- *Save Transparency* check box, available only if the image has transparent areas, retains transparency when an image is opened using another application. (Transparency is always preserved when the file is reopened in Photoshop.)
- *Layer Compression* option buttons specify how layers are compressed. The choices include the following:
 - *RLE (faster saves, bigger files)*.
 - *ZIP (slower saves, smaller files)*.
 - *Discard Layers and Save a Copy* flattens the layers (page 104).

PRINTING IMAGES



The File menu lists the print commands.



To see how an image will fit on the page at its current settings, point to the file information box at the bottom of the screen and hold down the mouse button. The image area is indicated by an outline with an X through it.

One of the most exciting steps in digital photography is printing your images. When you're ready to do so you'll find four print commands listed on the *File* menu.

- *Page Setup* displays the Page Setup dialog box you use to select paper size and orientation, set margins, and select a local or network printer. (You can also access this dialog box by clicking the *Page Setup* button in the Print with Preview dialog box.)

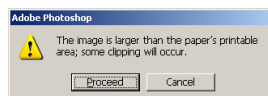
- *Print with Preview*, the place we recommend you start from, displays a very useful dialog box that lets you visually adjust the image's size by dragging its borders, select a profile for your paper, and use color management options.

- *Print* display options that are determined by your printer, print drivers, and operating system. (You can also access this dialog box by clicking the *Print* button in the Print with Preview dialog box.)

- *Print One Copy* prints an image using the current settings without displaying any dialog box. (You can also access this command in the Print with Preview dialog box by Alt-clicking the *Print* button.)

USING THE PRINT WITH PREVIEW COMMAND

When you want to print an image with total control over the settings, you choose *File>Print with Preview* from the main menu to display the Print Preview dialog box (confusingly labelled *Print*). If everything looks right, you can click the *Print* button to display the Print dialog box (page 42) or change some of the settings first. The most important ones to check are the image's size and layout in the preview pane and the color management settings discussed on page 41. Here are the settings you can adjust:



When you use the *Print* command, a warning is displayed if your image is too large for the paper.



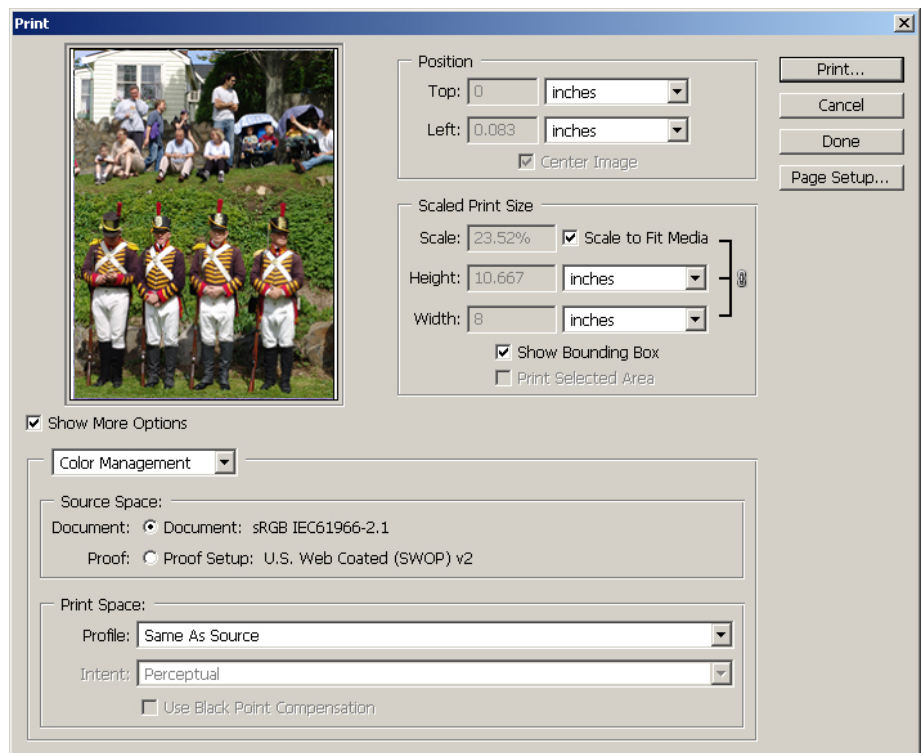
The *Print* button takes you to the next dialog box—also named *Print*.



Hold down *Alt* to change *Print* to *Print One* and click to print without another dialog box.



The *Page Setup* button displays the *Page Setup* dialog box.



TIP

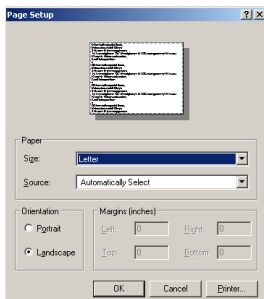
■ As you drag or size the image in the preview pane, the text boxes update to reflect the changes.



When you press Alt, the buttons on the left change to those on the right.



The orientation of your paper should match the orientation of your image—either landscape (top) or portrait (bottom). To change it click the Page Setup button.



The Page Setup dialog box.

■ **Preview pane** on the left shows how the image will look on the page when printed. The image is bordered by a bounding box with four corner handles you can drag to size the image. The frame represents the printable area of the selected paper size and the gray area represents the unprintable borders, the width of which vary from printer to printer.

■ **Position** section aligns the image on the page using the following techniques:

- To center the image, turn on *Center Image*. If the check box is dimmed, turn off *Scale to Fit Media*.
- To drag the image to a new position, turn off *Center Image* and turn on *Show Bounding Box*. If the *Center Image* check box is dimmed, turn off *Scale to Fit Media*. Point anywhere in the image and drag it to a new position.
- To specify offset distances, type in values for the distance from the *Top* and *Left* edges of the paper when *Center Image* and *Scale to Fit Media* are off. The drop-down arrows let you select your preferred unit of measurement.

■ **Scaled Print Size** section specifies the height and width of the printed image—not the file’s actual size in pixels. The initial settings are those set by the camera or the *Image>Image Size* command (page 51). Scale the print size of the image—being sure it fits in the printable area of the paper—using one of the following techniques:

- To have the image fill the printable area of the paper in at least one dimension, turn on *Scale to Fit Media*.
- To change the size of the image by dragging, turn on *Show Bounding Box* and drag a bounding box handle. If the preview image is too large to see the bounding box, turn off *Scale to Fit Media* and change the *Scale* to 10% or so. You can also turn off *Center Image* and drag the image to see a corner that you can then drag.
- To specify a specific size, enter a value for the *Scale* (as a percentage), *Height*, or *Width*. As you change one size, the others change automatically. Drop-down arrows let you select your preferred unit of measurement. If these boxes are dimmed, turn off *Scale to Fit Media*.
- To print an area of the image that you have selected (page 86), turn on the *Print Selected Area* check box.

■ **Cancel** closes the dialog box without applying your adjustments to the image. If you hold down Alt, the button changes to *Reset* so you can click it to restore the original settings and try again.

■ **Print**, the button you click to proceed when all of the other settings have been made, displays the Print dialog box. (*Print One*, displayed when you hold down Alt, prints one copy without displaying a dialog box.)

■ **Done** saves the settings and closes the dialog box. *Remember*, displayed when you hold down Alt, saves the print options without closing the dialog box.

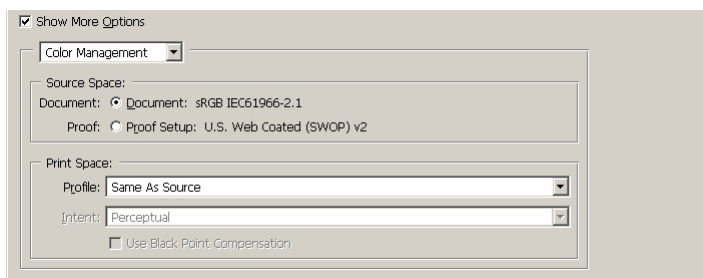
■ **Page Setup** displays the Page Setup dialog box where you can select the paper size, source, and orientation of portrait (vertical) or landscape (horizontal).

TIP

■ For the best possible results you need a custom profile for your printer and the paper on which you are printing. These take time to make and have to be redone periodically since equipment ages.

USING COLOR MANAGEMENT WHEN PRINTING

When the Print with Preview's *Show More Options* check box is on, the dialog box is expanded to show either *Output* or *Color Management* choices. You can click the drop-down arrow to select one or the other. *Color Management* displays settings used to better match the way the image looks on the screen and in the print. Images are displayed on the screen using red, green, and blue (RGB) colors but are printed using cyan, yellow, magenta, and black (CMYK) inks. Color management bridges this gap by using profiles that match screen and printer images.



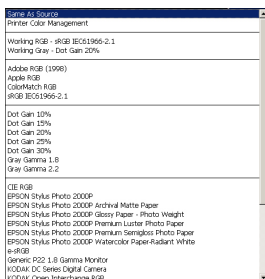
■ *Source Space* displays the color profile attached to the *Document*. (*Proof Setup* is outside the scope of this book.)

■ *Profile* drop-down arrow displays a list of profiles from which to choose.

- If available, your first choice should be a predefined color profile for your printer so colors are converted specifically for that printer and in some cases even paper type.
- Choose *Same As Source* to print using the image's color profile without using the printer's profile.
- Choose *Printer Color Management* or *PostScript Color Management* to manage color conversions using the printer's driver. *PostScript Color Management* is only available when printing to a PostScript device.

■ *Intent* drop-down arrow displays a list of rendering intents that adjusts how colors are converted. *Perceptual* is the best for photographic images because it preserves the visual relationships among colors so they look natural. For information on the other choices, use help.

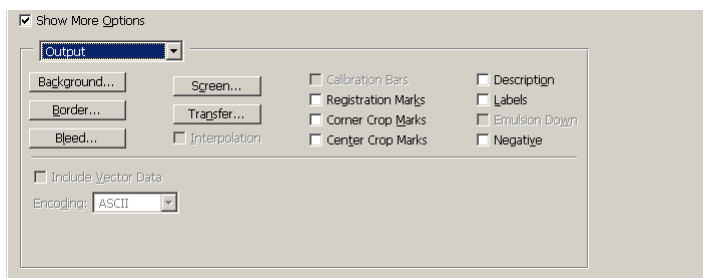
■ *Use Black Point Compensation* check box should always be on so adjustments are made for the differences in black points when colors are converted. If turned off, your image may have shadows printed without details.



The Profile menu.

SETTING OUTPUT OPTIONS

When you turn on the *Show More Options* check box, the Print Preview dialog box expands to show *Output* choices. Options not supported by the selected printer are dimmed. Most are for prepress and outside the scope of this book.



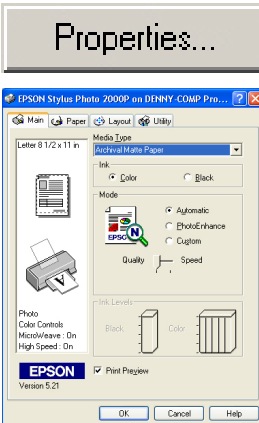
- **Background** button displays the color picker (page 126) so you can print a background color around the image. (The background does not appear in the image file.)
- **Border** button displays a dialog box where you can specify the width of a black border that prints around an image.
- **Description** check box, when on, prints any caption text entered in the File Info dialog box (page 30) displayed when you choose *File>File Info* using 9-point Helvetica plain type.
- **Labels** check box, when on, prints the filename above each image.

THE PRINT DIALOG BOX

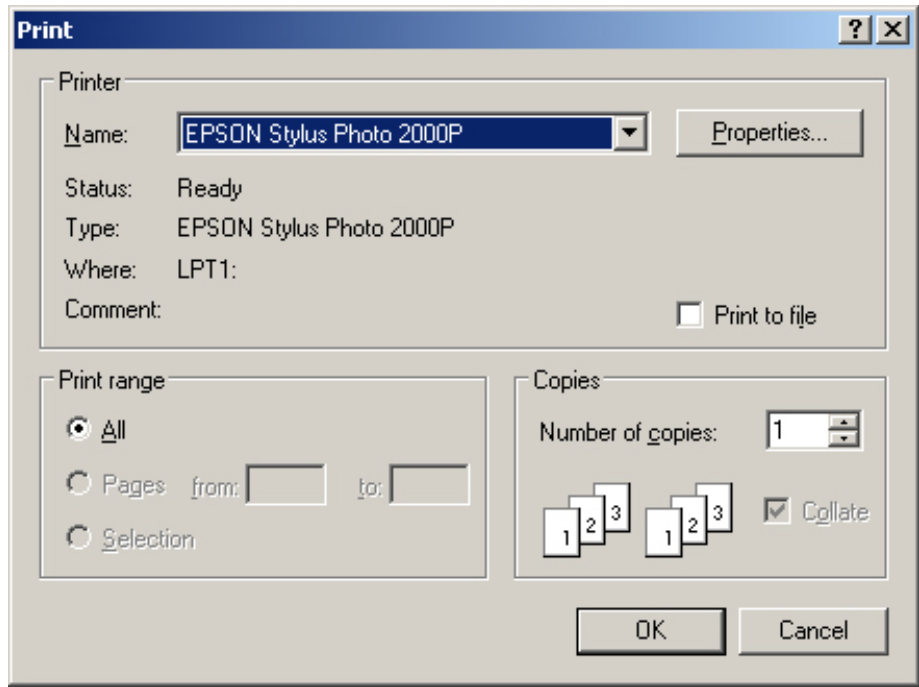
When you click the *Print* button in the Print with Preview dialog box (also confusingly labelled Print, the Print dialog box appears (You can access this dialog directly from the menu by choosing *File>Print*.) The dialog box has the following choices:

TIP

■ The *File>Online Services* feature allows you to send images from Photoshop to on-line photo printing companies.



The *Properties* button (top) displays the dialog box that's part of your printer's driver. The choices offered depend on which printer you are using.

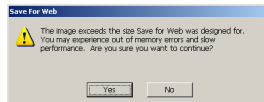


- **Name** drop-down arrow displays a list of installed printers from which you can choose. Details on the selected printer are listed below the *Name* heading.
- **Properties** button displays the dialog box for the selected printer. The choices offered in this dialog box depend on the printer you are using but usually include the paper type and size, the orientation of the image on the page, and even printer adjustments and head cleaning.
- **Print range** section specifies which pages are printed in multi-page documents.
- **Copies** specifies how many copies are printed.
- **OK** prints the image (finally!)

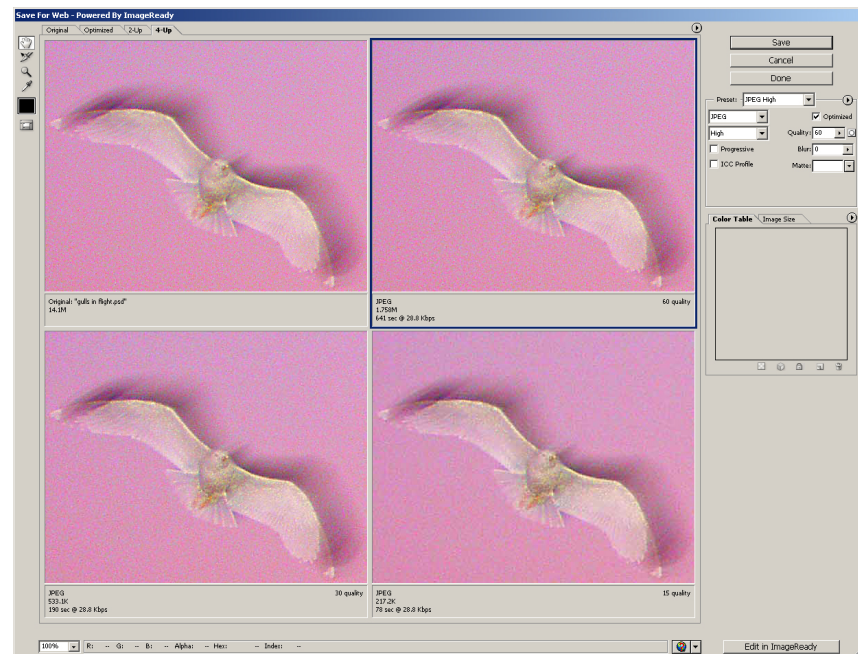
OPTIMIZING IMAGES FOR THE WEB

When posting an image on the Web or e-mail it, it's important that its file be as small as possible so it downloads or transfers quickly. To reduce a file's size, you can reduce the number of pixels in the image (its pixel dimensions), or increase its compression. When making these changes it's important to be able to see the impact you are having on image quality and that's what the Save For Web dialog box is designed to do. You can even preview download times for various Internet connections and if they seem too long you can try other settings until you get the results you want.

To save an image for the Web, select *File>Save for Web* to display the Save for Web dialog box with the following controls.



If you open an image that is too large, you may see a dialog box warning you of that fact.



TOOLBOX

Tools in the upper left corner of the screen include (from top to bottom):



Tools (from top down) include the Hand, Slice Select, Zoom, Eyedropper, and Toggle Slices Visibility.

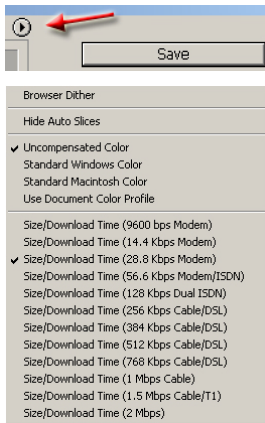
- *Hand tool* drags an image that's zoomed larger than the preview windows. You can also access this tool when another tool is selected by holding down the spacebar as you drag.

- *Slice Select tool* selects a slice or multiple slices. (Slices are outside the scope of this book.)

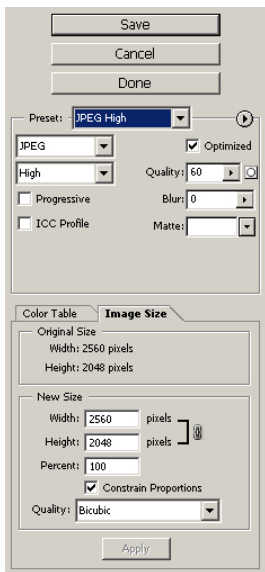
- *Zoom tool* zooms in when you click a preview image or zooms out if you Alt+click it. You can also specify a zoom level by typing a percentage into the Zoom text box at the bottom of dialog box or by clicking the drop-down arrow to select one of the preset zoom settings.

- *Eyedropper tool* selects a color from the image to use for the matte—a fill color for transparent pixels. The *Eyedropper Color swatch* displays the color selected with the eyedropper. You can click it to display the color picker (page 126) if you want to choose another color.

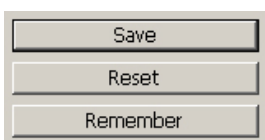
- *Toggle Slices Visibility tool* displays or hides all slices. (Slices are outside the scope of this book.)



Clicking the Preview menu triangle (top) displays a menu (bottom).



The optimize pane contains the settings you use to optimize an image. Point to each to display a tool tip if you are confused by what each does.



When you hold down Alt the Cancel and Done buttons change to Reset and Remember.

PREVIEW AREA

The preview area has four tabs offering display options. Below the original image is its filename and size, and below optimized images the estimated download time is given for the Internet connection selected on the *Preview* menu, and the quality—set by selecting a *Preset* or dragging the *Quality* slider.

- *Original tab* displays the image with no optimization.
- *Optimized tab* displays the image with the current optimization settings applied.
- *2-Up tab* displays two images—the original image on the left and the optimized image on the right. These before and after images visually guide you as you change settings. You can use the Zoom and Hand tools in the upper left corner of the dialog box to view all areas of the images in all levels of detail.
- *4-Up tab* (the default) displays four versions of the image—the original and three levels of optimization. One of the images is optimized using the specified settings and the other two are automatically generated at lower-quality for comparison purposes.

■ *Preview Menu triangle* in the upperright corner of the preview area, displays a list of connection speeds from which you can choose. When you select a connection, the estimated time that it will take to download the image is displayed below the optimized image preview. This same menu has choices that let you preview how the image will appear on different monitors (it doesn't change the image). Images often look darker on a Windows system than they do on a Mac.

STATUS BAR

The status bar at the bottom of the dialog box displays color information about the pixel under the pointer and has zoom and preview settings.

- *Zoom* drop-down arrow displays a list of preset zoom levels from which you can choose.
- *Preview in* shows the currently selected browser and clicking the icon displays the image in that browser. Clicking the drop-down arrow lets you select a different browser if your system has more than one installed.

OPTIMIZE PANE

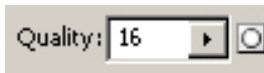
The *optimize pane* contains buttons, text boxes with drop-down arrows and check boxes you use to optimize your image. You can try different optimization settings as you compare the optimized and original images on the 2-up or 4-up tabs. When using the 2-up or 4-up tab, your settings are applied to the selected image—the one with a black frame.

The settings on the optimize pane change when you change image formats. Here we discuss those you use when working with JPEG images.

- *Save* button displays a dialog box where you enter a filename for the optimized image and click *Save*. Be sure you don't overwrite the original file.
- *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down Alt, the button changes to *Reset* so you can click it to restore the settings to the last saved version and try again.

TIP

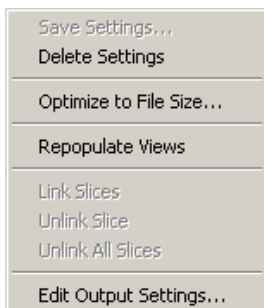
■ Using the *Save for Web* command automatically converts 16-bit images to 8 bits.



You can adjust quality with a slider, text box value, or drop-down arrow. The icon to the right lets you use a channel to modify a quality setting.



Reducing an image by 50% actually shortens the width and height by that amount, but the image is only 25% of its original size.



The Optimize menu is displayed when you click the triangle icon on the optimize pane.

■ *Done* remembers the current settings for use with the next image you open and closes the dialog box. If you hold down Alt, the button changes to *Remember* and clicking it remembers the current settings without closing the dialog box.

■ *Preset* text box displays the preset used to optimize the selected image. The drop-down arrow displays a list of predefined quality settings for different types of images. In digital photography you would usually select one of the *JPEG* presets as a starting point while checking the previews. If you then fine-tune optimization by adjusting other settings, the *Preset* text box usually changes to *[Unnamed]*. Selecting *Original* returns the image to its default settings.

■ *Optimized File Format* and *Compression Quality* (the two unnamed text boxes below *Preset*) initially reflect the selected preset but let you override it by selecting another file format or quality. Turning on the *Optimized* check box to the right creates a slightly smaller file size.

■ *Quality* text box shows the current quality. To fine-tune compression type in a value between 0 and 100, or click the drop-down arrow and drag the slider. Larger values give better looking images, but larger file sizes.

■ *Blur* text box drop-down arrow displays a slider you use to add blur to reduce the effect of artifacts.

■ *Progressive* check box, when on, creates an image that displays progressively in most Web browsers starting at a low resolution, and then at progressively higher resolutions as the image downloads. If you chose *Optimized* to create a smaller file, this option isn't available.

■ *ICC Profile* check box, when on, saves the ICC profile of the original image with the optimized file so some browsers can use it for color correction.

■ *Matte* selects a color that fills transparent areas of your image, perhaps to blend in with a background color on a Web page.

■ *Color table* tab displays colors when the GIF or PNG-8 format has been selected.

■ *Image Size* tab shows the current image size and lets you specify a *New Size* by entering a *Width* or *Height*, or a *Percent* such as 50% to reduce the width and height (not the area) by half. If the *Constrain Proportions* check box is on, the image's aspect ratio remains unchanged. The *Quality* drop-down arrow lets you select a compression algorithm. The choices on this menu are described in detail on page 52.

THE OPTIMIZE POP-UP MENU

Clicking the triangle icon to the right of *Preset* displays the Optimize menu with some important settings.

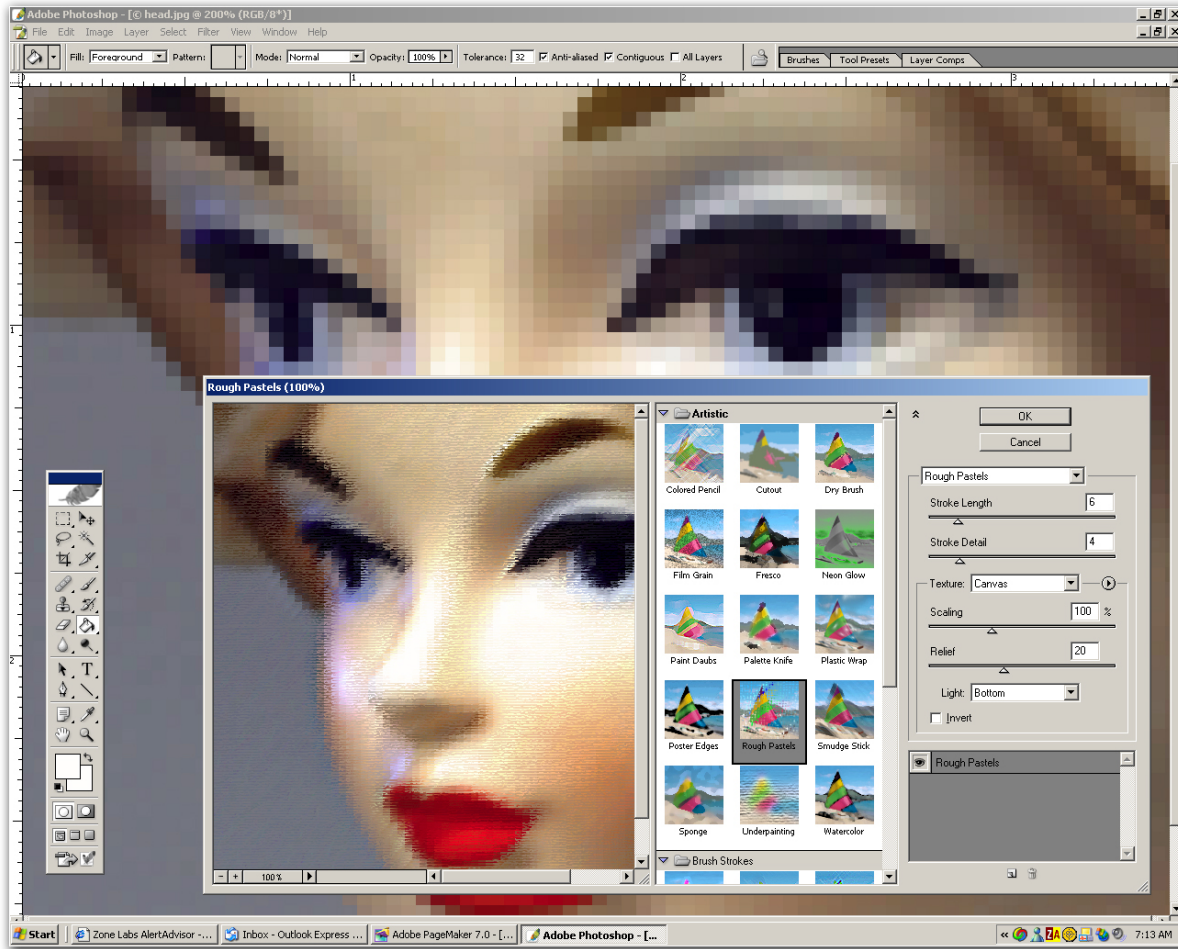
■ *Save Settings* and *Delete Settings* lets you name, reuse, and eventually delete your own preset optimization settings.

■ *Optimize to File Size* displays a dialog box where you specify a file size and Photoshop then optimizes the image to get as close as possible to your target using your settings or its own.

■ *Repopulate Views* automatically generates lower-quality versions of the image you optimize so you have them for comparison purposes when using the 4-up tab.

Chapter 3

Fixing Your Images



CONTENTS

- Evaluating Your Images
- Specifying Image Sizes
- Specifying Canvas Sizes
- Cropping Images
- Rotating Images
- Using the Histogram Palette
- Adjusting Brightness and Contrast
- Adjusting Levels
- Adjusting Curves
- Using Eyedroppers
- Adjusting Shadows and Highlights
- Adjusting Color
- Using Filters
- Sharpening Images
- The Camera Raw Plug-in—Introduction
- The Camera Raw Plug-in—Making Adjustments

It is the rare image that can't be improved by tweaking. You'll find that you are often adjusting the image's size, tonal range, colors, sharpness, and retouching small defects or blemishes. In this chapter we start by showing how you analyze an image to see how it can be improved. Until you can look at your images critically, it's hard to know what needs to be done to make them better. You'll see how to evaluate tones, colors, sharpness, and details. In this same section we also help you choose the tools and procedures you need to make needed adjustments—with the best highlighted. The rest of the chapter covers each tool in detail, showing you how to use it and choose among the many options you are presented with. As with most things in life, knowing what to do and how to do it well can make all of the difference in the outcome.

When evaluating images and making changes, it's important that your monitor has been properly calibrated (page 183). This is the only way to ensure images will print the same as they look on the screen.

EVALUATING YOUR IMAGES

TIPS

- To adjust the entire image, make sure nothing is selected (page 86).
- To adjust only a single layer, select that layer in the Layers palette (page 104).
- To adjust just a portion of your image, select that portion (page 86) or create a mask (page 146).



Stars next to tools indicate they are the first ones you should try, because they are the most powerful. Other tools may be easier to use, but probably won't give the same results.

TIP

- When evaluating tones, colors, and sharpness, display the image at 100% or *Actual Size* (page 32) because that's where it is displayed most accurately.

When you open an image on the computer, you really get to see it for the first time. The display on the camera's monitor is so small captured images are hard to evaluate. So what do you look for when deciding if the image you are looking at can be improved? In this section we'll look at those things you evaluate first, and then help you choose the tools to make the changes you decide on. As you'll see, there is almost always more than one way to adjust an image characteristic such as tones or colors. Many people start with the automatic adjustments because they are so easy. However, it won't be long before you find yourself migrating to the much more powerful tools that take more practice, but which give results that make the extra effort worthwhile.

One thing to consider is the format you use to take photographs. All cameras save images in the popular JPEG format. However, some let you use a RAW format (page 80) that provides much higher quality. The reason for this is that JPEG images use 8 bits per channel to record tones so an image can have no more than 256 tones or colors in each R, G, and B channel. RAW images on the other hand use 16 bits per channel so the number of colors or tones you have to work with jumps to 65,536. This huge increase makes gradations smoother and details sharper. When taking important photos, consider using the RAW format and then editing them in 16-bit mode. (To see if an image is in 8- or 16-bit mode, select *Image>Mode*.)

EVALUATING IMAGE SIZE AND ORIENTATION

The initial size and orientation of an image is determined by what the camera captured. There are situations in which you may want to change these characteristics.

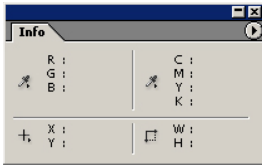
- *Resizing* can be done in two ways, by changing the number of pixels in the image, called its *pixel dimensions*, through a procedure called *resampling*. This process adds or removes pixels to make the image larger or smaller. You might want to do this to reduce the size of images you will be sending by e-mail or posting on the Web. You might also want to increase the size of the image when making large prints. You can also change the size of the image without changing the number of pixels it contains, called its *document size*. You normally do this when making a print or exporting an image to another application.

- *Cropping* removes distracting or unimportant parts of an image. You might also want to crop if the image has to fit into a specific design such as a newsletter or greeting card.

- *Rotating* an image may be necessary if you turned the camera vertically to capture a picture, or if the horizon line is tilted.

To adjust the image size and orientation, here are some of the tools to consider:

- ★ The *Image>Image Size* command (page 51) can add or remove pixels or specify the document size at which the image prints.
- ★ The *File>Print with Preview* command (page 39) can change the size at which the image prints, but not the number of pixels that it contains.
- ★ The Crop tool in the toolbox (page 54) crops and can also rotate an image at the same time.



The Info palette provides important information about an image as you edit it.

A histogram shows how many pixels in the image are at each level of brightness.

TIPS

■ You'll frequently encounter the term *grayscale*. It's the same as a black & white photograph. The term is used instead of *black & white* because images are actually created from shades of gray ranging from pure white to pure black.

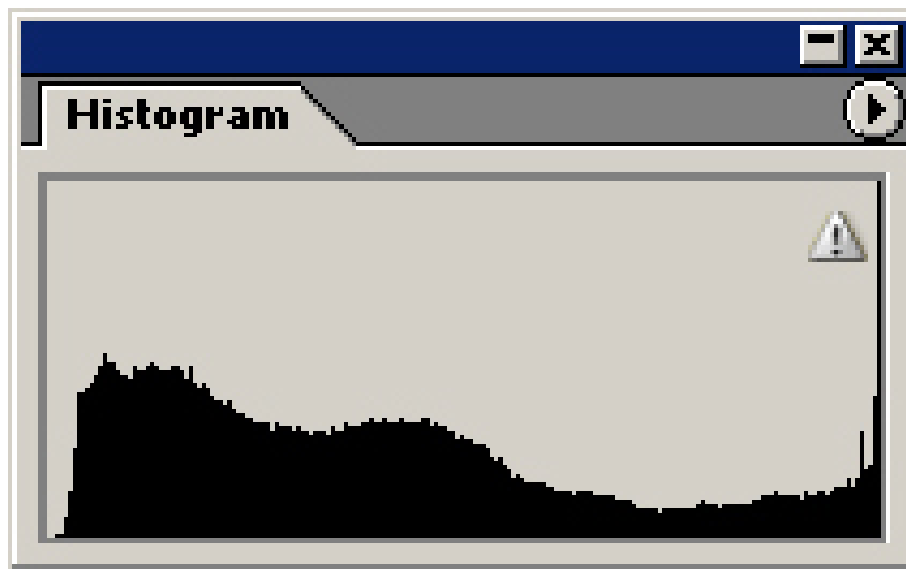
■ When talking about colors, the term *neutral* is often used. A neutral color is always gray and all three components (R, G, and B) have the same numeric value. If any values are higher or lower, the color is no longer neutral and has a *color tint*.

★ The File Browser's *Edit>Rotate* commands and rotate buttons (page 56) rotate images in 90° or 180° increments.

■ The *Image>Rotate Canvas* commands (page 56) rotate and flip images and let you rotate them in fine increments.

EVALUATING THE TONAL RANGE

Dynamic range in music is the range between the faintest and loudest sounds that can be reproduced without distortion. In photography the dynamic range, called the *tonal range* or *contrast*, indicates the range of brightness in an image between pure white and pure black. There are two ways to evaluate the tonal range of an image—visually and using a histogram (page 57). You should use both approaches because they are not mutually exclusive.



Visually, images that use the full tonal range look rich, with smooth transitions in tones. Those that don't use the full range lack contrast, often looking flat and dull. Details may be missing in highlight and shadow areas or the image may be too dark or light. In these cases you may want to adjust or expand the image's tonal range.

To adjust the tonal range of an image, here are some of the tools to consider:

★ The *Window>Histogram* command (page 57) displays the image's histogram so you can use it as a guide when making adjustments.

★ The *Image>Adjustments>Curves* command (page 64) is the best tool for adjusting the tonal range because you can independently adjust up to 14 points along a curve that represents all 256 tones in a 8-bit image and all 65,536 tones in a 16-bit image.

★ The *Image>Adjustments>Levels* command (page 61) is one of the easiest and best tools for adjusting the tonal range because you can adjust shadow, midtone, and highlight areas independently.

★ The Dodge and Burn tools in the toolbox (page 137) lighten or darken areas in the image that you drag over.

TIP

■ Auto commands have unpredictable results. They can have great effects on one image, and strange effects on another. Be sure to try them, but when you do so, remember you can select *Edit>Undo* or use any of the other undo techniques (page 21).

★ The *Image>Adjustments>Shadow/Highlight* command (page 69) can fix photos where the main subject is silhouetted against a bright background, where the subject was burned out from being too close to the camera flash, or where details are hidden in dark shadow areas.

■ The *Image>Adjustments>Auto Levels* command (page 61) adjusts tones automatically.

■ The *Image>Adjustments>Auto Contrast* command (page 60) automatically adjusts the contrast in the image without affecting colors.

■ The *Image>Adjustments>Brightness/Contrast* command (page 60) adjusts brightness and contrast by dragging sliders.

EVALUATING COLORS

In film photography, most photographers adjust color by visually analyzing test prints and then making adjustments with color filters. In digital photography, we can use the same visual approach, but back it up with an analysis of an image's histogram. So what do we look for? The human eye perceives color in terms of three characteristics—hue, saturation, and brightness and there is even a color model, called HSB. The color monitor uses a different color model called RGB because images are displayed using varying amounts of red, green, and blue light. When evaluating images, you can think in terms of these two models—one to evaluate colors and the other to look for color casts.

To evaluate colors in an image, think of them in terms of hue, saturation, and brightness because these three aspects can be adjusted.

■ *Hue* is the color—what we refer to by names such as red, orange, or green. If colors are off, color balance should be adjusted by adjusting the mix of red, green, and blue colors in the image.

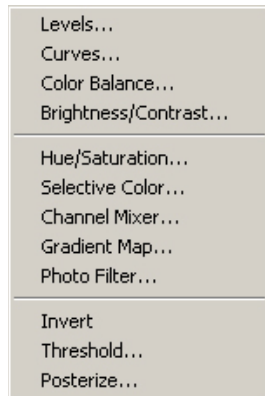
■ *Saturation*, sometimes called *chroma*, is the strength or purity of the color. Saturation decreases as the amount of gray mixed into the pure color increases. If colors look dull, saturation can be increased.

■ *Brightness* is the relative lightness or darkness of the color. Brightness is reduced by adding black to the color mix and increased by adding white. If colors look too dark or light, brightness can be adjusted.

A color cast is usually caused when one or more of the three color components (red, green, and blue) are too high or low over the entire image. This can be caused by not setting white balance correctly, by photographing a scene illuminated by more than one type of light source, or by photographing a subject picking up reflections from a colored surface. Color casts are very noticeable when shooting during sunrises and sunsets—but there we usually like the effects. It's easiest to identify a color cast by looking at areas that should be neutral white or gray. If these areas have any colors mixed in, the image has a color cast that you should remove. If you use the eyedropper and Info palette (page 68) to examine colors in an image, pure white areas should have R, G, and B settings of 255. Gray areas should have R, G, and B settings that are equal, for example, 128, 128, and 128 for middle gray. Pure black areas should have R, G, and B settings of 0. If one or more of the RGB values is higher or lower than the others, these tones won't be neutral and will have a color cast.

Levels...	Ctrl+L
Auto Levels	Shift+Ctrl+L
Auto Contrast	Alt+Shift+Ctrl+L
Auto Color	Shift+Ctrl+B
Curves...	Ctrl+M
Color Balance...	Ctrl+B
Brightness/Contrast...	
Hue/Saturation...	Ctrl+U
Desaturate	Shift+Ctrl+U
Match Color...	
Replace Color...	
Selective Color...	
Channel Mixer...	
Gradient Map...	
Photo Filter...	
Shadow/Highlight...	
Invert	Ctrl+I
Equalize	
Threshold...	
Posterize...	
Variations...	

The *Image>Adjustments* submenu contains most of the commands you use to adjust images.



You can make many adjustments using adjustment layers instead of making them directly to the image (page 116).

To adjust colors in an image, here are some of the tools to consider:

- ★ The *Image>Adjustments>Levels* command (page 61) and *Image>Adjustments>Curves* command (page 69) both adjust individual colors channels (page 58).
- ★ The *Image>Adjustments>Variations* command (page 71) adjust colors visually as you select from a possible range of adjustments. You can adjust highlight, midtones, shadows, or saturation.
- The *Image>Adjustments>Auto Color* command (page 71) adjusts colors automatically.
- The *Image>Adjustments>Hue/Saturation* command (page 71) lets you adjust hue, saturation, and lightness with sliders.
- The *Image>Adjustments>Replace Color* command (page 71) lets you select areas and then adjust their hue, saturation, and lightness with sliders.
- The *Image>Adjustments>Color Balance* command (page 71) lets you adjust individual colors in highlight, midtone, and shadow areas with sliders.
- The *Image>Adjustments>Photo Filter* command (page 71) adjusts colors just as a filter on the camera lens would.

EVALUATING DETAILS

When examining an image, look for small imperfections that can be re-touched. A portrait subject might have a small blemish that will be the size of a baseball if you enlarge the image. There may be reflections, or even telephone wires you want to remove. Small areas may benefit by being made a little lighter or darker than their surroundings. Portrait subjects may have red-eye caused by flash in a dark room. Retouching images should be done before you make tonal and color adjustments to the image.

To retouch images, here are some of the tools to consider:

- ★ The Healing Brush tool makes imperfections disappear into the background (page 137).
- ★ The Color Replacement tool in the toolbox (page 137) removes red-eye caused by flash.
- ★ The Dodge and Burn tools lighten or darken areas you drag over (page 137).
- ★ The Clone Stamp tool copies an area of the image to another area and is ideal for covering blemishes or removing elements from a scene (page 137).

EVALUATING SHARPNESS

The apparent sharpness of an image depends a great deal on how much contrast there is along edges and lines. If an image looks soft, it can often be improved by sharpening (page 78). Many photographers sharpen almost every image, ignoring this aspect only for images such as fog scenes that are deliberately soft.

To adjust the sharpness of an image, here are some of the tools to consider:

- ★ There are a number of sharpening tools available when you select *Filter>Sharpen*. By far the best is the Unsharp Mask Filter (page 78).
- The Sharpen tool in the toolbox (page 137) sharpens areas that you drag over.

TIP

■ Without you even being aware of it, your camera is making changes to your images that cannot always be undone. These include such things as sharpness, white balance, and contrast. If you want to adjust these yourself, use the camera's RAW format if it has one (page 80).

SPECIFYING IMAGE SIZES

TIPS

- The document size that you specify for an image determines its size if you copy or place it into another application.
- To display an image's size in pixels, point to the file information box on the status bar and hold down Alt and then the mouse button.
- You can change the document size for a print by dragging its borders using the *Print with Preview* command (page 39).
- Some people swear that when you enlarge an image by resampling it, you get better results if you enlarge it by no more than 10% at a time, and repeat as necessary until it reaches the size you want.

There are two ways you can change an image's size—by changing the number of pixels in the image; or by changing the size of the area in which the available pixels are printed or displayed—the *document size*. These two procedures are separate but related.

■ *Pixel Dimensions* specifies the number of pixels an image contains. Initially determined by the number of pixels captured by the camera there are times you may want to change this size by removing or adding pixels. For example, you may want to e-mail or post an image on a Web site. For this purpose it's best if an image is no larger than the lowest common denominator screen, usually 640 x 480, or 800 x 600. Reducing the number of pixels in an image also makes the file size smaller so the image can be sent or displayed more quickly. The main reason you would increase the number of pixels in an image is to make large prints. Since most images print best when they are printed at 200–300 pixels per inch (ppi) you may get better results by adding enough pixels to keep the pixels per inch from falling below 200.

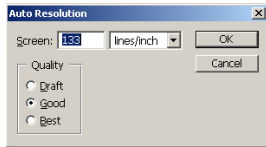
To change the number of pixels in an image, you *resample* it to make it smaller by removing pixels (*downsampling*), or larger by adding them (*upsampling*). Reducing an image usually has less affect on its appearance than does enlarging one. This is because enlarging requires the program to add pixels using a sophisticated form of guessing called *interpolation* that analyzes adjoining pixels to determine the color of the new ones it inserts. Normally, you can double the size of an image without effects being too noticeable. However, trial and error is the only way to be sure because images vary so much. Look for the image becoming soft, as if it's not sharply focused. If you are making other changes to the image, resampling should be done after all other changes other than sharpening (page 78). This is because most adjustments work best when there are the maximum number of original pixels to work with.

■ *Document Size* specifies how large an image is when printed or displayed, especially in other applications. Normally you change the document size with resampling turned off. As a result, as the size increases, the pixels per inch decrease because the same number of pixels are spread over a wider area—like an image expanding on a balloon as you inflate it. When printing, if the resolution falls below 200 or so pixels per inch, you may want to consider resampling the image. There are problems printing with less than 200 pixels per inch just as there are with resampling to increase the number of pixels. You'll have to experiment to see which approach works best for a particular image. Just be sure your image is not too large to fit on the page. Many printers can't print to the edge of the sheet so there is always a border. To print the full image, it must fit inside this border area.

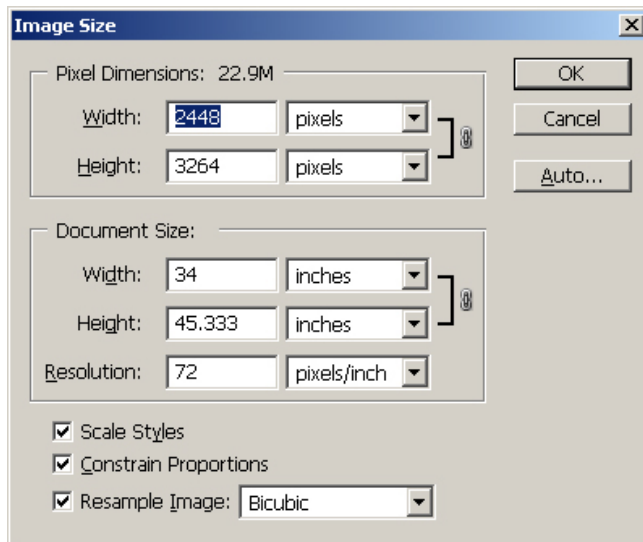
To change an image's pixel dimensions or document size, select *Image > Image Size* to display the Image Size dialog box having the following settings:

■ *Pixel Dimensions*, used to change the number of pixels in the image, shows the image's *Width* and *Height* in pixels and next to the heading is the size of the image file. As long as the *Constrain Proportions* check box is on, and a chain link icon connects the *Width* and *Height* settings, you can type either dimension and the other changes automatically. You can also click the drop-down arrow to specify changes in size as a percentage.

The size you specify for a print is independent of the number of pixels in the image although it determines the resolution or pixels per inch used to make the print.



Clicking the *Auto...* button displays the *Auto Resolution* dialog box used when printing using a halftone screen. This is beyond the scope of this book.



■ *Document Size* indicates the current *Width* and *Height* of the image in inches, centimeters, or any other unit of measurement you select with the drop-down arrow and *Resolution* displays the image's pixels per inch. When changed with *Resample Image* off, these settings affect only the document size. With *Resample Image* on both the document size and pixel dimensions change.

■ *Scale Styles* check box, when on, adjusts the scale of effects added using layer styles (page 122). This keeps the effects in proportion to the image.

■ *Constrain Proportions* check box determines if one of the photo's dimensions will adjust automatically when you change the other. If you turn this off, the image's aspect ratio (page 88) changes and the image is stretched in one direction. Unless you are after a special effect, you normally leave this check box on. Chain link icons connecting the *Width* and *Height* settings indicate when this setting is on.

■ *Resample Image* check box determines if the number of pixels in the image will change when you change the size. When specifying a size for printing you usually turn this off. When you resample an image to add or subtract pixels, you can turn it on and use the drop-down arrow to select a process that trades off quality versus speed.

- *Nearest Neighbor* is fast but doesn't give the best results. This method is recommended for use with illustrations to preserve hard edges and produce a smaller file.

- *Bilinear* is a medium-quality method.

- *Bicubic* is slow but produces the smoothest tonal gradations and is recommended as the best starting point.

- *Bicubic Smoother* is good when enlarging an image.

- *Bicubic Sharper* is good when reducing an image. It maintains detail, but may oversharpen some areas.

■ *OK* applies the specified dimensions to the image.

■ *Cancel* closes the dialog box without applying changes to the image. Hold down *Alt* to change the button to *Reset* and click it to restore default settings so you can try again.

TIPS

■ If you make any mistakes in the dialog box, hold down *Alt* to change the *Cancel* button to *Reset* and click it to start over.

■ You can resize an image with the *File>Automate>Fit Image* command.

TIP

There are a number of third-party programs available for resizing images.

■ pxl SmartScale from Extensis (<http://www.extensis.com>).

■ S-Spline from Shortcut Software (<http://www.s-spline.com>).

■ Genuine Fractals from LizardTech (<http://www.lizardtech.com>).

SPECIFYING CANVAS SIZES



Some images seem to have no edge. Adding a border to these images shows where the image area ends. You can do this by enlarging the canvas slightly or selecting all and then using the *Edit>Stroke* command.

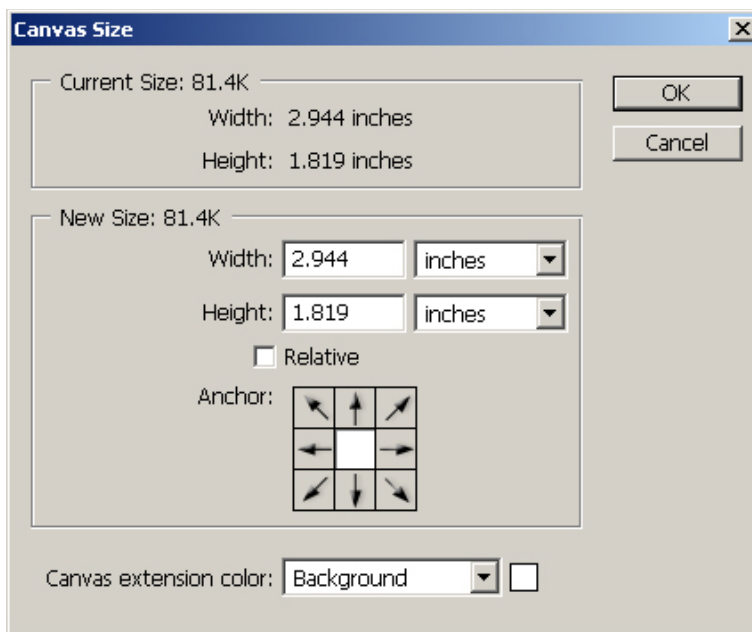
TIPS

- You can enlarge the canvas area with the Crop tool. Use it to select the entire image, then drag the corners or edges of the bounding box larger than the image. Hold down Alt as you drag to keep the image centered in the new canvas. When finished selecting, click the *Commit* button on the options bar.
- If you select the image and cut it, then enlarge the image and paste it back in, it's on its own layer.

When you first open a digital photo, the image and the canvas on which it is placed are both the same size. However, you can enlarge the canvas and it will be filled with the color you select. (If you decrease the size of the canvas so it's smaller than the image, the image is cropped to fit the new size.) There are a number of reasons why you might want to increase the size of the canvas.

- To make room for other images that you copy and paste to create a collage.
- To put a border about the image.
- To add an area outside of the image where you can enter your name, the image's title, or a copyright notice.

To change the canvas size, select *Image>Canvas Size* to display the Canvas Size dialog box having the following settings:



- *Width* and *Height* indicate the current canvas size in pixels, centimeters, or any other unit of measurement you select with the drop-down arrows. If you select *Columns*, width is measured in terms of the columns specified in the *Units & Rulers* section of the *Edit>Preferences* dialog box.
- *Relative* check box, when on, lets you enter a positive or negative number by which you want to increase or decrease the size of the canvas. For example, if you want to add a 30 pixel wide border around the image, turn on *Relative* and enter 30 in both the *Width* and *Height* text boxes with them set to pixels.
- *Anchor* specifies where on the new canvas you want to position the image. Click the square representing where you want the image to be positioned within the new canvas. For example, if you want the image in the upperright corner of the enlarged canvas, click the upperright square in the graphic.
- *Canvas extension color* drop-down arrow lets you choose a color for the added canvas. Selecting *Other* on the menu, or clicking the color swatch, displays the color picker (page 126).

CROPPING IMAGES



Many film photographers feel so strongly that you should compose images in the viewfinder that they file their negative carriers to show a black border, proving it's a full frame image.

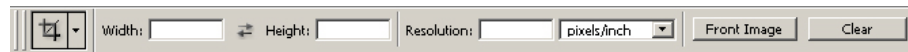
Many photographers strive to compose, capture, and print images full-frame. However, editors and others love to crop images to fit unusual shapes in layouts, or to make them more dramatic. It's like looking for a better photograph within a photograph. At other times, you crop for more practical reasons, perhaps to remove the tilted sides from a rotated image or to remove distracting elements. There is one drawback. Cropping reduces the number of pixels in the image and that reduces the largest possible size at which you can get a good print. However, reducing an image's size isn't always bad. If you plan on e-mailing an image or posting it on a Web site, a smaller size is an advantage. In these cases, it's almost always better to crop before reducing the image size because you may not need to reduce it as much. Although you can crop images in a number of ways (see the Tips box) the Crop tool is a good way to start. It not only crops an image visually, but can also rotate it as you do so.



The Crop tool icon

SETTING CROP OPTIONS

When you select the Crop tool from the toolbox, the options bar displays settings you can make:



■ *Width*, *Height*, and *Resolution* text boxes specify the aspect ratio—the shape or proportions of the image (page 88) and resolution of the cropped image.

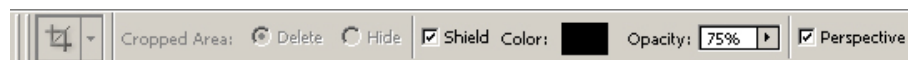
- If you enter a width and height, you will only be able to select areas with the same aspect ratio. For example, if you enter a width of 1.5 and a height of 1, your selections will always be 1.5x wider than they are high. If you leave the width and height blank you can select any aspect ratio. (To reverse the width and height numbers, click the *Swaps height and width* button between them.)

- To resample the image during cropping, enter the desired width, height and resolution of the cropped image. To crop without resampling, leave the *Resolution* blank.

■ *Front Image* button enters the values of the currently active image into the *Width*, *Height*, and *Resolution* text boxes. When you want to crop the image while retaining it's current aspect ratio and resolution, this is the perfect way to do so.

■ *Clear* button clears entries from the *Width*, *Height*, and *Resolution* text boxes.

After you drag to make a selection, the choices on the options bar change.



■ *Cropped Area* lets you choose to delete or hide the cropped out area. When hidden, you can see the cropped out area by dragging the image with the Move tool. This option is not available for images that contain only a background layer. To use it on such a layer, first convert the background to a regular layer (page 104) before cropping.

TIPS

■ You can use the rectangular or elliptical marquee tools to select the area of an image you want to retain (page 88) and then select *Image>Crop* to crop away the rest.

■ If your image is surrounded by a field of uniform color, you can remove the uniform color with the *Image>Trim* command.

■ The *Automate* menu's *Crop and Straighten* command fixes images that were scanned at an angle.

TIP

■ The *Opacity* setting is common to many tools. While cropping, you can get a good feeling for what it does by selecting an area and then clicking the *Opacity* drop-down arrow to display a slider. Drag it to see the effects of opacity on the shield covering the part of the image to be cropped away.



The *Cancel* and *Commit* icons.



The shield (right) covers the area of the image that will be cropped away (above). This helps you visualize what the cropped image will look like.

- *Shield* check box, when on, covers the part of the image that will be cropped out with the color shown in the *Color* swatch. Clicking the swatch displays the color picker (page 126) so you can change the color.
- *Opacity* text box displays the opacity or “see-through” of the shield. Clicking the drop-down arrow displays a slider so you can adjust the opacity.
- *Perspective* check box, when on, lets you drag the corners of the crop marquee to correct for perspective distortion (page 101).
- *Cancel* icon cancels the selection.
- *Commit* icon crops the image.

CROPPING AN IMAGE

To select the area to be retained, click the Crop tool in the toolbox:

- *To select from a corner*, start in one of the corners of the area you want to save and drag the tool.
- *To select from the center point and expand outward*, Alt+drag.
- *To constrain the selection to a square shape* (when there is no width or height entered), Shift+drag.
- *To reposition the selection border*, without releasing the mouse button press the spacebar and drag it.

The part of the image that will be removed is covered by the shield color. When you release the mouse button, the area that will be retained is indicated by a bounding box with handles at the corners and sides that you drag to adjust the selection.

- *To move the bounding box*, point inside it and drag.
- *To change the shape or size of the bounding box*, drag a handle.
 - To retain the current proportions when no width or height has been specified, Shift+drag a corner handle. If you specified a height and width on the options bar you can only drag corners. If you left those text boxes blank, you can also drag the sides.
 - To change the size of the selection without moving the center point, Alt+drag a handle.
- *To rotate the bounding box so the cropped image is rotated*, point outside of the box so the pointer turns into a curved arrow, and drag. You can also drag the center point to change the point around which the selection rotates.
- *To complete cropping*, double-click within the selection, click the *Commit* icon on the options bar, select a different tool in the toolbox, press Enter, or select *Image>Crop*.
- *To cancel cropping*, click the *Cancel* icon on the options bar or press Esc.



ROTATING IMAGES



The *Image>Rotate Canvas* command displays a submenu with rotation commands.

There are a number of reasons why you might want to rotate an image. Perhaps you rotated the camera into a vertical position when you took the photo, the horizon or other strong horizontal or vertical line is tilted, or the image was scanned at an angle.

■ *To rotate an image in 90° increments*, for example, to rotate an image taken with the camera rotated into portrait mode, do one of the following:

- *To rotate from the main menu*, select *Image>Rotate Canvas* and select one of the rotation commands.
- *To rotate from the File Browser*, select one or more photos, and use the *Rotate* buttons or rotate commands on the File Browser's *Edit* menu (page 22). You can also right-click the image and select a rotation command from the context menu.

■ *To rotate by a specific amount*, perhaps to straighten a horizon, select *Image>Rotate Canvas>Arbitrary* to display the Rotate Canvas dialog box.



Click the *CW* (clockwise) or *CCW* (counterclockwise) option button and enter the *Angle* of rotation in degrees. One technique is to guess at the degrees of rotation needed and use that as a starting point. After evaluating the results, select *Edit>Undo Rotation* to try again with a revised number. Through a process of trial and error, you'll find the exact angle of rotation needed. When you use this command, the canvas size increases to accommodate the angled image and the blank space takes on the background color (page 126). You'll always lose a part of the image when you crop the image back to a rectangular shape.

■ *To straighten an image that's been scanned at an angle*, select *File>Automate>Crop and Straighten Photos* command from the main menu. This command behaves badly with some photos, so remember the *Edit>Undo* command.

■ *To rotate an image while you are also cropping it*, select the *Crop* tool (page 54), select the area to be cropped, point outside the bounding box so the pointer turns into a curved arrow, and then drag. To move the center point, around which the selection marquee rotates, drag the circle at the center of the bounding box. When finished, click the *Commit* button on the options bar.

TIPS

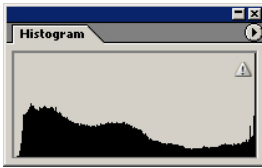
■ To guide you when rotating, select *View>Grid* to display a non-printing grid over the image. Use the same commands to hide it when finished.

■ If you under or over rotate you can select *Edit>Undo* to return to the starting point.

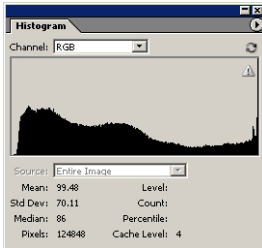
■ Selecting *Image>Rotate>Free Rotate Layer* lets you drag the image to rotate it.

■ You can rotate a selection by dragging (page 101).

USING THE HISTOGRAM PALETTE



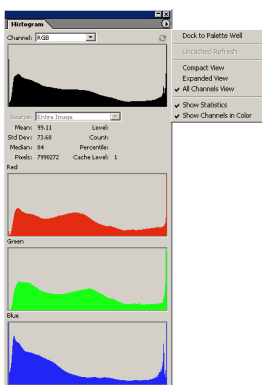
The Histogram palette in the default compact view.



If you expand the histogram palette and point to any bar on the histogram, its brightness (Level) and the number of pixels at that level (Count) are displayed below. Percentile is the cumulative number of pixels at or below that level expressed as a percentage of all the pixels in the image.



The Cached Data Warning icon (left) and the Uncached Refresh button (right).



The Histogram palette menu lets you display various levels of detail.

A histogram gives you a quantified look at an image's tonal range. The histogram is a bar graph with the horizontal x-axis representing the full tonal range with pure black on the left and pure white on the right. Along this axis are 256 levels of brightness ranging from 0 (black) on the left to 255 (white) on the right. The vertical bars show you how many pixels in the image have each of the 256 tones. Many photos, but not all, look best when there are some pixels at every position because these images are using the entire available tonal range. In many images, however, pixel values are grouped together and occupy only a part of the available tonal range. These images lack contrast because the difference between the brightest and darkest areas isn't as great as it could be. The histogram also indicates if the image is low-, average-, or high-key because the pixels will be clustered in the left, center, or right part of the histogram. Unless you like the effect, you may want to spread or redistribute the pixels so they cover the entire available tonal range. As you will soon see, there are many tools designed to do just this.

To display the Histogram palette, select *Window>Histogram* and it opens in *Compact View* displaying the tonal range of the entire image. To display histogram data for a section of the image, select that section—page 86. If the *Preview* check box is on in a dialog box you are using to adjust an image, the Histogram changes to reflect any adjustments you make to the image's tonal scale.

■ **Triangle icon** displays the palette menu where you specify the level of detail displayed. Choices include *Expanded View*, *Compact View* (the default), *All Channels View*. The settings that follow are available only when you have selected *Expanded View* or *All Channels View*.

■ **Channel text box** (page 58) indicates what the topmost histogram represents and clicking the drop-down arrow lets you select one of the following:

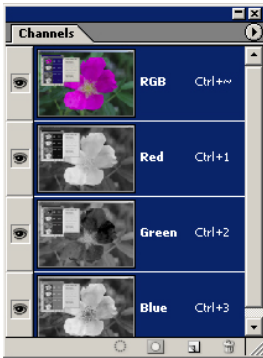
- **RGB** displays a histogram of the composite image.
- **Red, Green, or Blue** displays a histogram of a single channel. All three channels plus the composite channel are shown when you select *Expanded View* from the palette menu.
- **Luminosity** displays a histogram of the luminance of the composite channel.
- **Colors** displays a color histogram of the individual color channels and luminosity.

■ The **Uncached Refresh** button is clicked to update the histogram when the **Cached Data Warning** icon is displayed to warn you that the histogram doesn't accurately represent the image—perhaps because you have made changes to it. You can also update the histogram by clicking the **Cached Data Warning** icon or double-clicking the histogram.

■ **Statistics** are displayed for any pixel value you point to on the histogram. To view statistics for a range of values, drag in the histogram to highlight the range.

■ **Source** menu, available only when the image has more than one layer (page 104) lets you display a histogram of the *Entire Image* or the *Selected Layer*. The last choice, *Adjustment Composite*, displays a histogram of a selected adjustment layer and all layers below it.

USING THE CHANNELS PALETTE



The Channels palette displays the composite channel and channels for red, green, and blue colors.

Digital photos that you capture are almost always full-color. It may surprise you then, that we adjust colors by adjusting gray tones ranging from pure white to pure black. The reason for this is that images have a grayscale *channel* for each of its 3 colors. Each channel, which is actually a grayscale image, controls the brightness of one of the three colors—red, green, or blue. It's only when these three separate channels are combined into a single composite RGB channel, that we see a full-color image. Channels are created automatically when you open an image and you add others if you save selections (page 99).

TYPE OF CHANNELS

Channels are 8-bit grayscale images that store one of three kinds of information:

- **Color information channels** are created automatically when you open a new image. Digital photos initially have three color channels:
 - A *composite channel*, usually called RGB in digital photography, shows the full-color image with all other channels combined.
 - *Red, Green and Blue channels* display the brightness of the red, green, and blue colors making up the composite image.
- **Alpha channels** are created when you store selections (page 99) or masks (page 146).
- **Spot color channels** can be created to specify additional plates when printing spot color inks on a commercial press. (This is beyond the scope of this book)

An image can have up to 56 channels and each adds to the file's size. You can check the uncompressed size of a file, including alpha channels and layers, on the status bar at the bottom of the window when *Document Sizes* has been selected from the pop-up menu.

When you open a digital photograph, most editing commands affect the composite RGB channel because it's the default channel. This means that changes you make affect all of the colors in the image. For more precise control, or to correct color casts, you can select individual color channels so your commands affect only one color. For example, as you will soon see, you can adjust the tonal range, hue, saturation, and brightness of the overall composite image or just the red, green, or blue channels.

USING THE CHANNELS PALETTE

The Channels palette lists all channels in the image—the composite channel first, followed by individual color channels, spot color channels, and finally alpha channels. A thumbnail to the left of each channel's name displays the channel's current contents.

You can use the palette to view any combination of individual channels. For example, you can view an alpha channel and the composite channel together to see how changes made in the alpha channel relate to the entire image. By default, individual channels are displayed in grayscale.

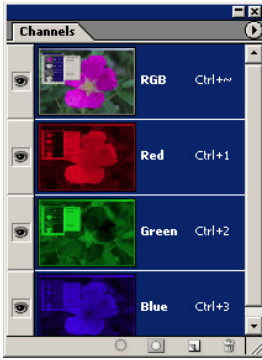
- *To display the Channels palette*, select *Windows>Channels*, or click the



The Channel palette buttons include (from left to right) Load channel as selection, Save selection as channel, Create new channel, and Delete current channel.

TIPS

- Turning off the display of thumbnails can improve performance.
- Smaller thumbnails make the palette smaller and reduce the space required by the palette—helpful when you're working on smaller monitors.



The Channels displayed in color with large thumbnails.

Channels palette tab. If necessary, use the scroll bars or resize the palette to see additional channels.

■ To select a channel, click it. To select multiple channels Shift+click them.

■ To show or hide a channel click in the eye column next to the channel to show or hide that channel. When a channel's effects are shown in the image, an eye icon is displayed to the left of its thumbnail.

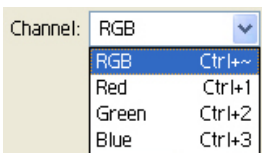
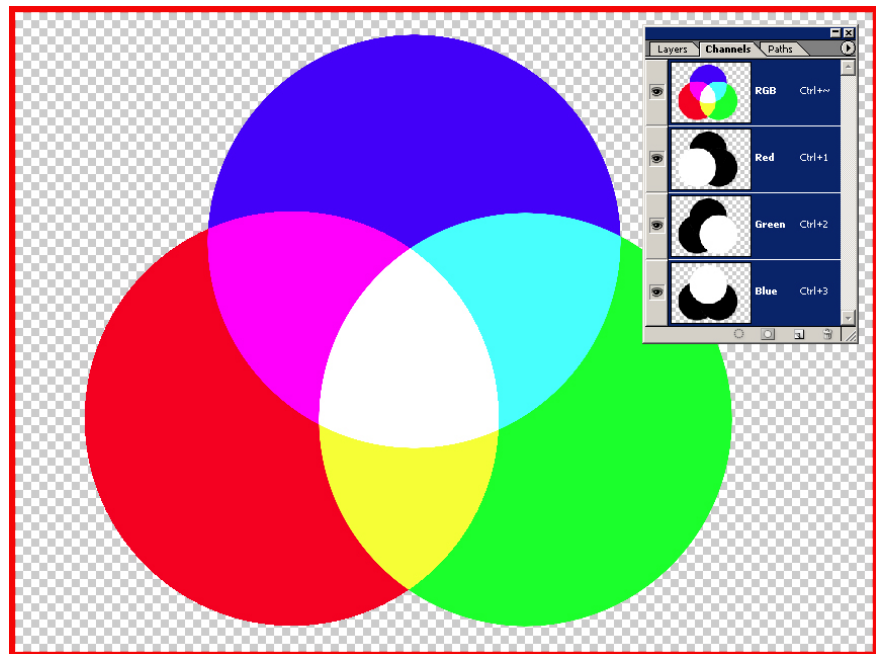
● To quickly display all default color channels, click the eye space next to the RGB channel. This shows all hidden channels because the composite channel is only displayed whenever all the color channels are visible.

● To show or hide multiple channels, drag through the eye column.

■ To display individual color channels in color rather than grayscale select *Edit>Preferences>Display & Cursors*, select *Color Channels in Color*, and click *OK*.

■ To resize or hide channel thumbnails choose *Palette Options* from the Channels palette menu, select a display option and then click a thumbnail size. Click *None* to turn off the display of thumbnails.

The Channels palette shows channels as thumbnails. When you select one of the channels, the image changes to that channel's gray scale image. Here is an image with red, green and blue sections. These colors, and the colors they form when they mix, are shown in grayscale on the corresponding channel and in full color on the composite RGB channel.



The Channel drop-down arrow in many dialog boxes lets you select which channels are adjusted.

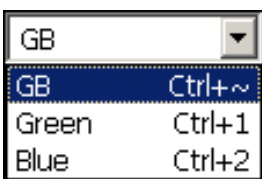
■ To delete an alpha or spot color channel (you can't delete the color channels), select it and click the palette's *Delete current channel* button or drag and drop it on that button.

USING CHANNELS IN DIALOG BOXES

Many dialog boxes let you edit the composite color channel (RGB) or you can click a drop-down arrow to select just one of the individual color channels for adjustment.

■ If you previously selected one channel in the Channels palette, some dialog boxes then don't list channels assuming you have already selected the one you want to adjust.

■ If you Shift+click to select two color channels, only those channels are listed on the menus with the combined one abbreviated.



If you select two color channels, they are all that's listed on the Channel menu in a dialog box.

ADJUSTING BRIGHTNESS AND CONTRAST



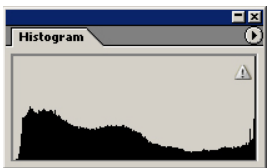
Decreasing brightness darkens an image (left) while increasing it lightens it (right).



Decreasing contrast makes colors in the image look more muted and “flatter” (left) while increasing it makes it look sharper and crisper (right).

TIP

■ When using these commands it’s much better if you do so using a Brightness/Contrast adjustment layer (page 116).



When exploring these commands, display the Histogram palette (page 57) so you can see how your changes affect the distribution of pixels.

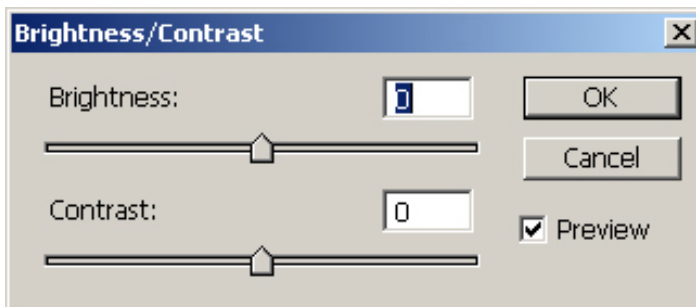
As you’ll soon see, it’s hard to beat the Levels (page 61) and Curves (page 64) commands for adjusting tones. However, the Auto Contrast and Brightness/Contrast commands are so simple, they make it easy to see how adjusting brightness and contrast affects an image. As you explore these commands, you’ll find they work better on some images than they do on others. One major drawback is that they only adjust the composite image. You can’t use them to adjust the red, green, or blue channels individually as you can with the Levels and Curves commands. Since the commands don’t adjust individual channels, they won’t create or remove color casts.

ADJUSTING CONTRAST AUTOMATICALLY

The *Image>Adjustments>Auto Contrast* command automatically adjusts the overall contrast and mixture of colors in an image. It does so by increasing the tonal range—shifting the lightest and darkest pixels in the image to pure white and pure black so highlights are lighter and shadows darker.

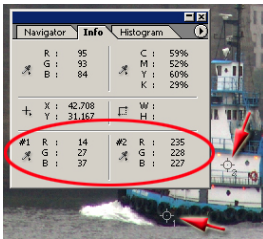
ADJUSTING BRIGHTNESS AND CONTRAST MANUALLY

If your image is too dark, too light, or too flat-looking, you can adjust it using slider bars in the Brightness/Contrast dialog box. The only drawback of these adjustments is that they adjust all pixels in the image by the same amount. A better tool is the Levels command that lets you adjust shadows, midtones, and highlights independently of each other or the Curves command that let’s you adjust up to 14 points. To adjust brightness and contrast, choose *Image>Adjustments>Brightness/Contrast* to display the Brightness/Contrast dialog box with the following settings:



- *Brightness* slider decreases brightness when dragged to the left and increases it when dragged to the right. You can adjust the setting from -100 to +100 and the current value is displayed above the right end of the slider bar.
- *Contrast* slider decreases contrast when dragged to the left and increases it when dragged to the right. You can adjust the setting from -100 to +100 and the current value is displayed above the right end of the slider bar.
- *Preview* check box, when on, displays the effects of your adjustments on the underlying image.
- *OK* button applies the changes to the image. (*Edit>Undo* will undo them.)
- *Cancel* closes the dialog box without applying your changes to the image. Hold down *Alt* to change the button to *Reset* so you can click it to return all settings to their defaults so you can try again.

ADJUSTING LEVELS



The Color Sampler tool can be used to place color samplers in neutral shadow and highlight areas so you can watch their values as you make adjustments to levels.

One of the best tools Photoshop provides to adjust image tones is the Levels command. Unlike the brightness and contrast commands (page 61) that affect every pixel by the same amount, this command lets you adjust highlights, midtones, and shadows independently of one another. Remember when using these tools that you can try various settings and at any point undo them if you don't like the results. Keep in mind that not every image benefits from adjusting its levels. This is especially true for images that already have pixels distributed at each level of brightness.

ADJUSTING LEVELS AUTOMATICALLY

When an image lacks contrast, but otherwise looks good, you can expand the tonal range to make highlights lighter and shadows darker while intermediate tones are shifted proportionately. To do so, select *Image>Adjustments>Auto Levels* to redistribute the existing tones so they cover the entire available tonal range. Because *Auto Levels* adjusts the red, green, and blue color channels individually, the command may add or remove color casts. If it introduces an undesirable color cast, undo the command, and adjust the levels of individual color channels using the Levels dialog box described below.

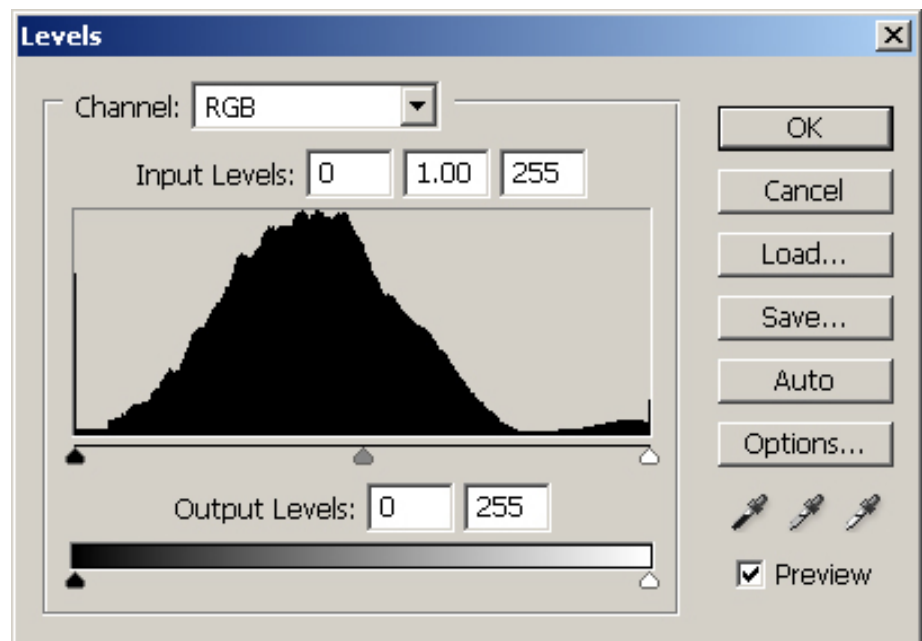
ADJUSTING LEVELS MANUALLY

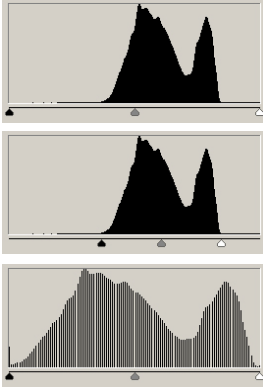
When manually adjusting levels, you drag sliders as you watch the effects you're having on the image. This gives you a "what you see is what you get" form of control that most photographers prefer.

The first step is to drag the outer two sliders so they are directly under the tones on the histogram that you want to be pure white and pure black without details—known as *setting the white and black points*. You can then adjust the middle tones to make them lighter or darker. To begin, select *Image>Adjustments>Levels* to display the Levels dialog box with the following settings:

TIPS

- With the Levels dialog box open, you can access the scroll bars in the image window, select commands on the *View* and *Window* menus, and zoom using the keyboard shortcuts Ctrl+ and Ctrl-.
- When adjusting levels it's much better to use an adjustment layer (page 116) so you don't change the actual image.
- *Clipping* refers to pixels that are shifted to the lowest and highest levels—0 and 255 where they become pure black or pure white without details.





The original histogram (top), the sliders moved (middle), and the tonal range expanded (bottom).



Some histograms have tail-like pixels at the black and white ends of the histogram. These indicate that few pixels have those brightnesses. Many people like to drag the sliders past these tails to force them to pure white or black.

TIP

■ The output sliders are not usually used on a fully color managed system because the printer's driver makes the same adjustment.



The eyedroppers in the Levels dialog box are used to set black, gray, and white points.

■ **Channel** drop-down arrow lets you adjust the composite RGB image or select individual red, green, and blue channels (page 58). Adjusting each channel separately helps you remove color casts from images (page 68).

■ **Input Levels** text boxes on the left and right show the starting positions of the black and white point sliders below the histogram. Initially the black point slider is pointing to level 0 on the histogram and the white point is pointing to level 255. The middle text box shows adjustments to the midtones with the unadjusted value starting at 1.00. You can adjust levels by changing the values in these boxes in one of three ways:

- Drag the input sliders located below the histogram.
- Type in values or click in the text box and press the up and down arrows to change the value. (Hold down Shift while doing so to adjust by 10s.)
- Use the eyedropper tools (page 67).

■ **Histogram** shows the distribution of brightness in the image.

■ **Input levels sliders** adjust the image's shadows, midtones, and highlights so you can expand the tonal range of the image and make midtones lighter or darker.

● **Black point slider** can be dragged directly under a tone that you want to become pure black with no detail (0). As you drag it, visualize a line dropping down from the pointer to the output levels gradient below. Any tone from the imaginary line to the left will turn pure black without details.

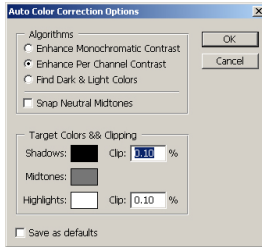
● **Midtones slider** (sometimes called *gamma*) adjusts itself automatically as you drag the other two sliders but you can drag it to the left to lighten the image or to the right to darken it. The shade on the gradient below the pointer will become 50% gray. Using this control you can lighten or darken the overall image without affecting the black and white tones and the details they contain.

● **White point slider** can be dragged directly under a tone that you want to become pure white with no detail (255). As you drag it, visualize a line dropping down from the pointer to the output levels gradient below. Any tone from the imaginary line to the right will turn pure white without details.

■ **Output levels** text boxes and sliders set where the black and white points fall on the grayscale. For example, when the input level for black is set to 0, the black pixels will print as pure blacks. However, if you then change the output level to 5, they will print as a very dark gray. This compresses the 256 tones into a smaller range so they will print on printing presses that aren't able to hold shadow or highlight detail at the extreme ends of the gamut.

■ **Eyedroppers** directly set the black, gray, and white points in an image. Select the *Set black point*, *Set gray point*, or *Set white point* eyedropper and click the area of the image you want to set with the chosen eyedropper and all values in the image are immediately adjusted. For example, click the black point eyedropper to select it and then click the area of the image you want pure black. The black point eyedropper turns the clicked tone, and all darker tones, into a brightness value of 0 and the white point eye dropper turns its clicked tone, and all lighter tones to 255.

■ **Preview** check box, when on, lets you watch the image change as you adjust levels.



Clicking *Auto* displays the *Auto Color Correction Options* dialog box.

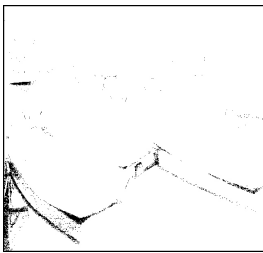
■ *OK* applies your changes to the image and closes the dialog box.

■ *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down *Alt*, the button changes to *Reset* and you can click it to restore levels to their original settings so you can try again.

■ *Load/Save* buttons display the *Load* and *Save* dialog boxes so you can save settings for use with other images.

■ *Auto* applies either an *Auto Color*, *Auto Contrast*, or *Auto Levels* correction, depending on the settings in the *Auto Color Correction Options* dialog box displayed when you click the *Options* button.

■ *Options* displays the *Auto Color Correction Options* dialog box that sets options for the *Auto* button above and other *Auto* commands.



The *black threshold* (top) and *white threshold* (bottom).

USING THRESHOLD MODE

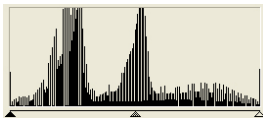
While positioning the input sliders to adjust the tonal range, you can see the levels where black or white details begin to emerge in the image if you *Alt*+drag the sliders.

■ As you hold the key down, drag the black point slider all the way to the left so the image becomes totally white (or as close to it as possible). As you drag it back to the right, colored specs emerge in the black field indicating the locations of the darkest areas of the image.

■ While holding the key down, drag the white point slider all the way to the right so the image becomes totally black (or as close to it as possible). As you drag it back to the left, colored specs emerge in the white field indicating the locations of the lightest areas of the image.

As you do this, you'll find that there are often a number of places where you can position the pointer. How do you choose among them? The best place for the pointer is often at a point just after some black or white specs emerge but before significant detail does because all of the areas that have emerged will become pure white or black. You usually don't want to force too many grays to pure white or black because those areas will have no detail.

If you select a single color with the *Channel* drop-down arrow, the first black areas to emerge against the color field indicate where none of the selected color exists.



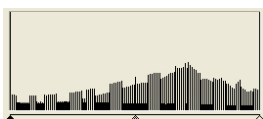
Gaps in the histogram indicate missing tones that will affect the smooth gradations in the image.

EVALUATING THE RESULT

After adjusting levels, you should reopen the *Levels* dialog box (*Ctrl*+*L*) to see how the histogram changed. You'll see that the pixels have been redistributed over the entire tonal range.

■ In some cases there may be gaps between bars but these only indicate a problem if they are large, perhaps 2 or more tones wide. These gaps are there because adjusting levels can't produce new tones, just redistribute the 256 that it already has. When gaps are too wide, the image loses smooth transitions between some tones, an effect called *posterization*. If you look at the gradient below the gap you can see which tones are missing. The gaps are not nearly as bad when editing 16-bit images because they have so many more tones to distribute.

■ Spikes at either end of the histogram (0 or 255) usually indicate that you have forced too many pixels to pure black or white. This may indicate that you have lost detail in the image because tones have been clipped.



The spikes at both ends of the histogram indicate detail has probably been lost because too many pixels were forced to pure white or black (clipped).

ADJUSTING CURVES

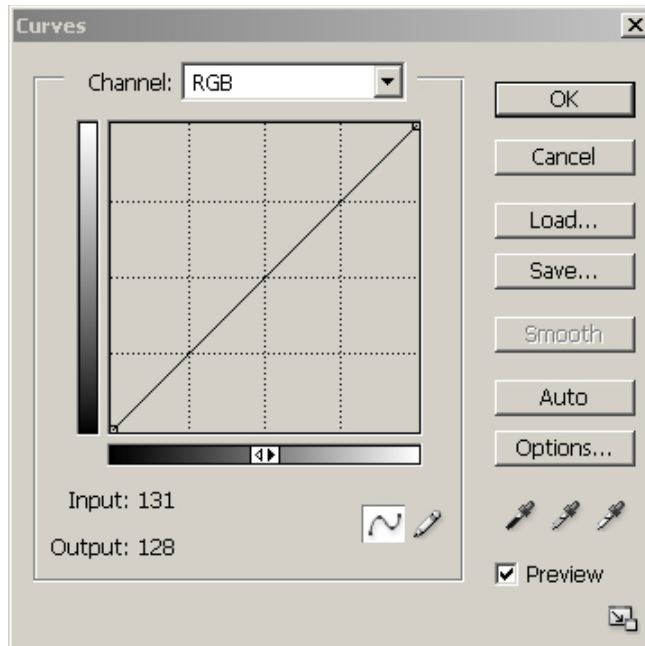
TIP

■ When adjusting curves it's much better to use an adjustment layer (page 116) so you don't change the actual image.

TIP

■ To edit a combination of color channels at the same time, Shift+click the channels in the Channels palette (page 58) before opening the Curves dialog box. The selected channels will be listed on the Curves dialog box *Channel* menu by abbreviations—for example, CM for cyan and magenta.

The Curves command gives you the most control over tones, because you can adjust up to 14 different points instead of the three that you can adjust with Levels. To begin choose *Image>Adjustments>Curves* to display the Curves dialog box with the following settings:



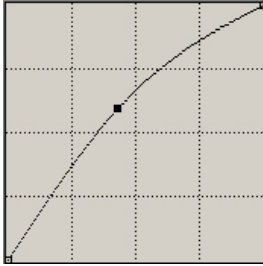
- The *Channel* drop-down arrow lets you adjust the color balance of the composite (RGB) or individual color channels.
- *The Curve* is initially a straight diagonal line with the top representing highlights, the middle midtones, and the bottom shadows. The two tone bars graphically display the intensity values from 0 to 255 for RGB images with black (o) at the bottom left corner. (You can flip the intensity values by clicking the double arrow on the bar below the curve.)

- The horizontal axis of the graph represents the original intensity values of the pixels (Input levels)
- The vertical axis represents the new color values (Output levels).

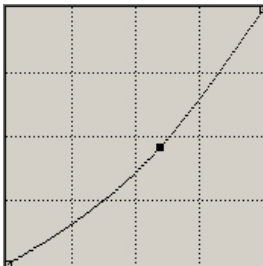
- *Input/Output* readouts indicate the position of the pointer in the curve window or of the selected control point on the curve.
- *Adjust curve by adding points* button is on by default, but you can click the *Draw a curve with the pencil* button to draw a curve. If you do draw one, you can click the *Smooth* button to smooth it out.
- *OK* applies your changes to the image and closes the dialog box.
- *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down Alt, the button changes to *Reset* so you can click it to restore levels to their original settings and try again.
- *Load/Save* buttons display the Load and Save dialog boxes so you can save settings for use with other images.
- *Smooth* smooths a curve drawn with the *Draw a curve with the pencil* button selected.



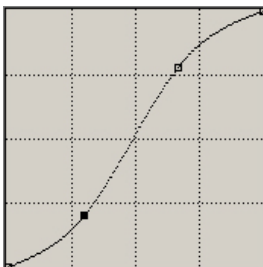
The Adjust curve by adding points and the Draw a curve with the pencil buttons.



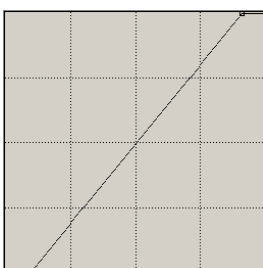
Dragging the curve upward lightens the image.



Dragging the curve downward darkens the image.



An S-curve lightens the highlights and darkens the shadows increasing the image's contrast. The steeper section of the curve represents portions of an image with more contrast and flatter sections represent areas of lower contrast.



To adjust the white or black points, drag the top end point to the left or the bottom end point to the right.

- *Auto* applies either an Auto Color, Auto Contrast, or Auto Levels correction, depending on the settings in the Auto Color Correction Options dialog box displayed when you click the *Options* button.

- *Options* displays the Auto Color Correction Options dialog box that sets options for the *Auto* button above and other Auto commands.

- *Eyedroppers* (from left to right include *Set black point*, *Set gray point*, and *Set white point*. Eyedroppers are discussed on page 67.

- *Preview* check box, when on, applies adjustments to the image as you make them.

- *Size* button enlarges and shrinks the Curves dialog box.

ADDING CONTROL POINTS TO THE CURVE

To adjust an image, you add up to 14 control points to the curve and then drag them to adjust the tones they represent.

- To add a control point along the curve, click directly on the curve.

- To select a control point, click it so it is black. Shift+click to select multiple points, and click in the grid or press Ctrl+D to deselect all points. Press Ctrl+Tab to move forward through control points and Shift-Ctrl+Tab to move backwards.

- To move a selected control point (selected points are black), drag it, press the arrow keys on the keyboard or type values into the *Input* or *Output* text boxes.

- To adjust or preserve a specific tonal area of the image, Ctrl+click a pixel in that area of the image to add a control point to the curve and then don't move that point.

- To see where a pixel in the image falls on the curve, Alt-click it.

- To locate the lightest and darkest areas in an RGB image, hold down the mouse button as you drag over the image. The intensity values of the area under the pointer, along with the corresponding location on the curve, are displayed in the dialog box.

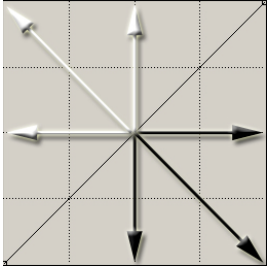
- To change the fineness of the grid, Alt+click it.

- To remove a control point, drag it off the graph, select it and press Delete, or Ctrl+click it. You cannot delete the endpoints of the curve.

- To draw a curve, select the pencil at the bottom of the dialog box, and drag to draw a new curve. You can Shift+click to add straight segments. When you're finished, click *Smooth* to smooth the curve.

ADJUSTING THE CURVE

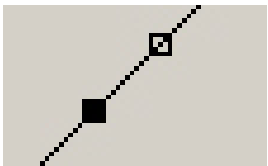
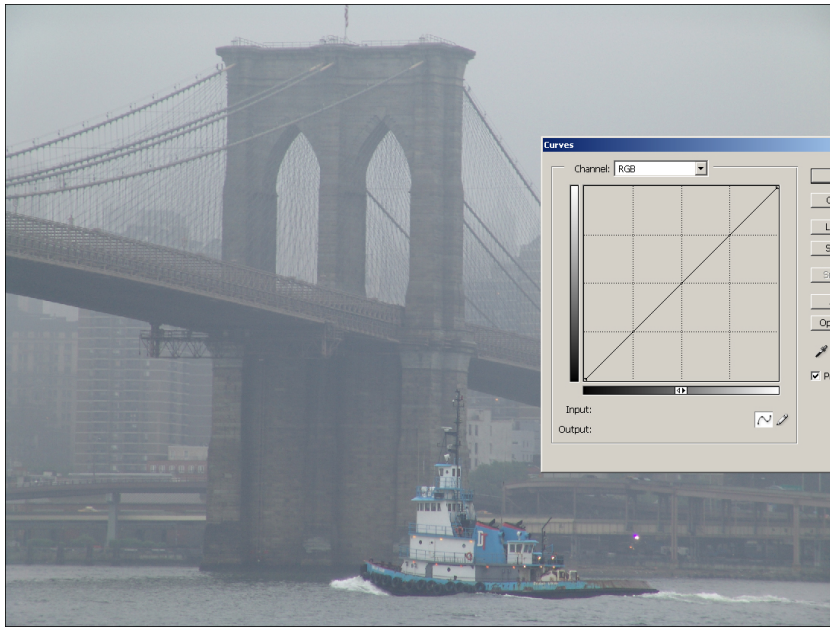
Changing the shape of the curve adjusts the tones and colors in the image. In most cases only small adjustments are needed—larger ones occasionally cause bizarre effects. As you make changes, watch the effect on the image. If you want to start over, hold down Alt and click *Reset*. As you add points to the curve, you can drag those representing areas you want to change and leave alone those you want to remain as-is. Since points on the curve remain anchored until you move them, you can make an adjustment in one tonal area while other areas remain unaffected. Below are listed ways to adjust the curve, assuming it is in its default state with highlights at the top and shadows at the bottom.



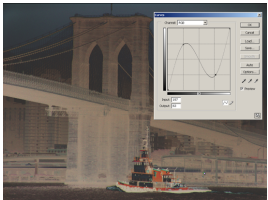
Dragging points on the curve up or to the left lightens an area. Dragging down or to the right darkens it.

- To lighten the image, click a point and drag the curve to bow it upward as you watch the effect on the image.
- To darken the image, click a point and drag the curve to bow it downward as you watch the effect on the image.
- To adjust highlights, click a point toward the top of the curve and drag it down or to the right to darken them, or up and to the left to lighten them.
- To adjust midtones, click a point in the middle of the curve and drag it down or to the right to darken them, or up and to the left to lighten them.
- To adjust shadows, click a point toward the bottom of the curve and drag it down or to the right to darken them, or up and to the left to lighten them.
- To move the white or black points, drag the top end point to the left or the bottom end point to the right.

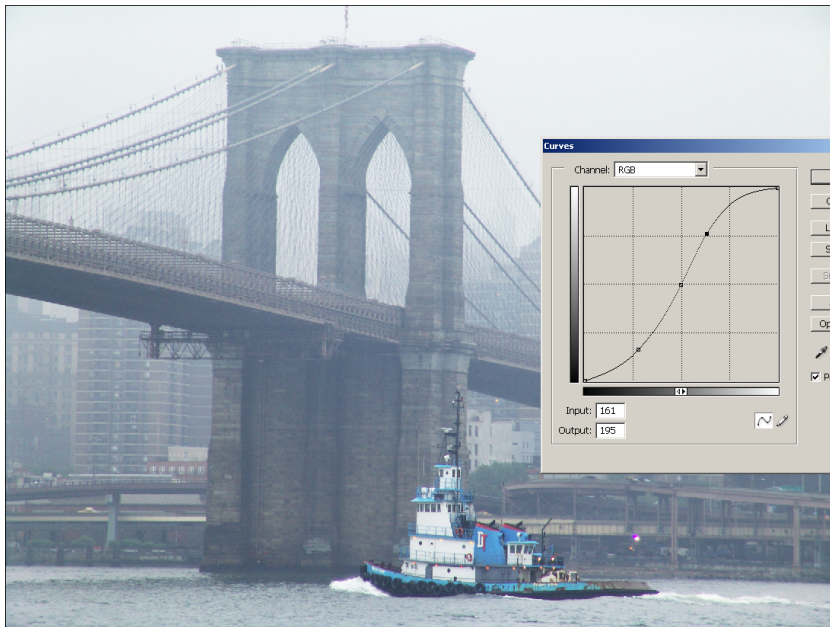
Here a photo of the Brooklyn Bridge in New York City was too gray (top). By adjusting the curve (bottom), the image was made to look more like the foggy day on which it was taken.



Selected control points are black and unselected ones are white.



Dramatic changes in the curve cause dramatic changes in the image.



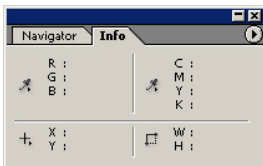
USING EYEDROPPERS

TIPS

- The first few levels of white should be restricted to specular highlights such as reflections and bright lights.
- Once you find settings that work best with your printer, you can save them as defaults.



The eyedroppers in the Levels and Curves dialog boxes are used to set black, gray, and white points.



The info palette with the left side showing the RGB values under the mouse pointer.

The eyedropper tools in the Levels and Curves dialog boxes can set the black and white points, adjust tones, and even remove color casts. When using these tools, here are some things to think about:

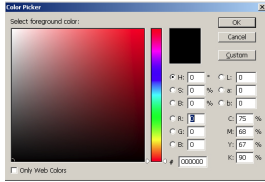
- The eyedropper tools undo any previous adjustment you've made in Levels or Curves so use them first, and then tweak your adjustments with the Levels sliders or Curves control points.
- The *Set Gray Point Eyedropper* tool is used primarily for color correction and is unavailable when working with grayscale images.
- These tools work best on images that require only small changes. One problem with them is that when you click a pixel in the image the tonal values of all pixels shift higher or lower by the same amount so some pixels may get clipped. This is unlike the Input Levels sliders and the Curves end points that set the black point in an image while preserving most of the tonality in the highlights and set the white point while preserving most of the tonality in the shadows. Further, both Levels and Curves allow you to make midtone adjustments without affecting either the black or white points.

SETTING THE BLACK AND WHITE POINTS

Two of the eyedropper tools are used to set the black or white points in an image. The left eyedropper shifts the tonal value of a clicked pixel to the black point (0) and the right one shifts it to the white point (255). The values of all other pixels in the image are shifted the same amount.

1. *To begin*, do the following before opening the Levels or Curves dialog box:
 - Select *View>Actual Pixels* to make sure you are viewing the image's true colors and tones as you adjust them.
 - Select the eyedropper tool in the toolbox, click the *Sample Size* drop-down arrow on the options bar, and select *3 by 3 Average* to ensure a representative sample of a 9-pixel square instead of a single pixel.
 - Select *Window>Info* to display the Info palette so it floats in the image area so you can measure the average brightness of the 9-pixel square you point to. Even if your monitor isn't adjusted correctly, these measurements are accurate.
2. *To display the Levels or Curves dialog box*, select *Image>Adjustments* and then select *Levels* or *Curves*.
3. *To set the black and white point*, do the following:
 - *To set the black point*, select the *Set black point* eyedropper in the dialog box and click any pixel in the image that you want to shift to pure black without any detail.
 - *To set the white point* click the *Set white point* eyedropper in the dialog box and click any pixel in the image that you want to shift to pure white without any detail.

As you click areas, the tone under the pointer and all identical tones throughout the image become pure black or pure white and all other tones adjust proportionately. If you don't like the results, hold down Alt, click *Reset* in the



The color picker.

Levels or Curves dialog box, and try again. As you point to areas in the image, the Info palette shows two values—for example, 220/240. The first number is the color’s value before the adjustment and the second number shows the color value afterwards.

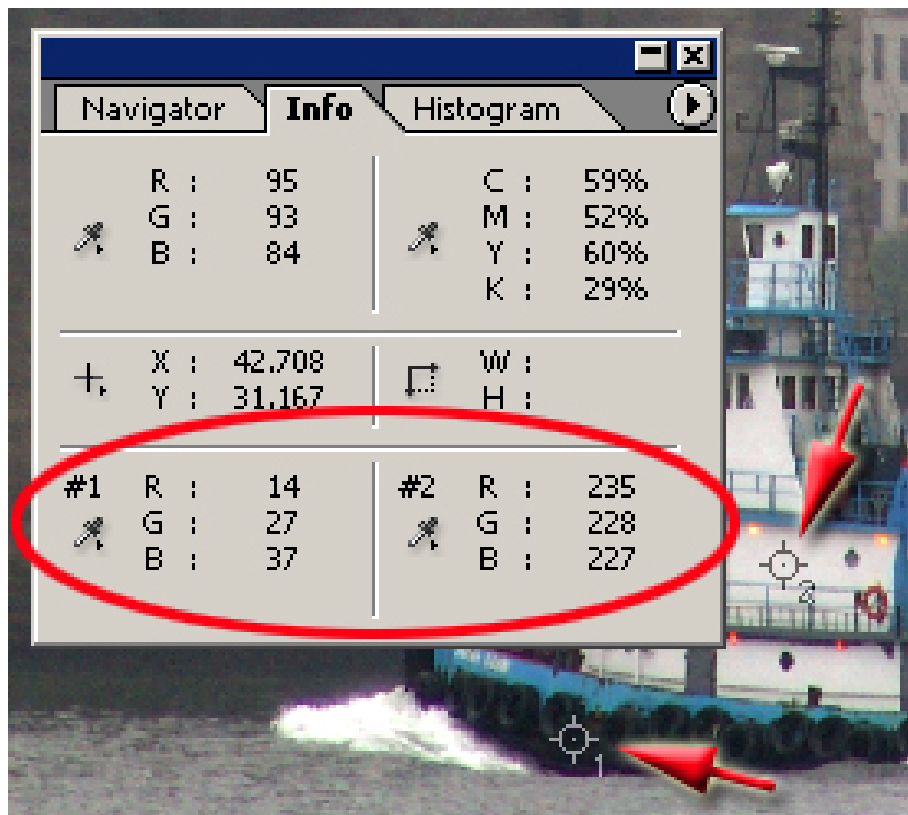
If you want to change the tone associated with any of the eyedroppers, you can double-click them to display the color picker (page 126).

REMOVING A COLOR CAST

You can use the middle eyedropper tool in the Levels or Curves dialog boxes to correct a color cast. To begin, select *Window>Info* to display the Info palette and locate an area in the midtones that should be neutral. If you can remove a color cast from that area, all other colors in the image should also be color balanced.

To locate neutral tones in the image, point to areas that should be white, gray, or black as you read their R, G, and B values in the Info palette. What you are looking for is a color that has equal R, G, and B values. If you can find where all three values are identical, the neutral tone has no color casts. However, you may find tones that are not perfectly neutral but perhaps something like 128,135, 126. When you find a tone such as this, select the middle *Set Gray Point* eyedropper and click on that spot in the image. It averages the three values so brightness doesn’t change but uses that average to set all three values to the same tone. If the image shifts too much, you clicked the wrong spot. *Alt+click Cancel* to restore the default values and try again. (If you locate the tone before opening the Curves or Levels dialog box you can use the Color Sampler tool to mark up to four spots of interest and monitor changes to them on the Info palette.

The Color Sampler tool was used to place two color samplers in neutral shadow and highlight areas. The color values for the two samplers are listed in the Info palette.

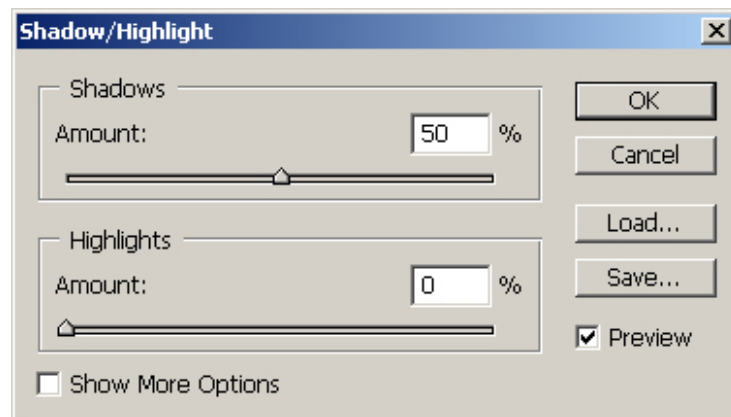


ADJUSTING SHADOWS AND HIGHLIGHTS

The Shadow/Highlight command adjusts images where the foreground subject is underexposed and too dark because of a bright backlight or overexposed and too light because it was too close to the flash. It is also good at bringing details out of dark backgrounds. Unlike the Brightness and Contrast commands that adjust all tones equally, this command lightens or darkens shadows or highlights independently and adjusts them based on the brightness of surrounding pixels.

THE BASIC SETTINGS

To begin adjusting shadows and highlights, select *Image>Adjustments>Shadow/Highlight* to display the Shadow/Highlight dialog box with the following controls:

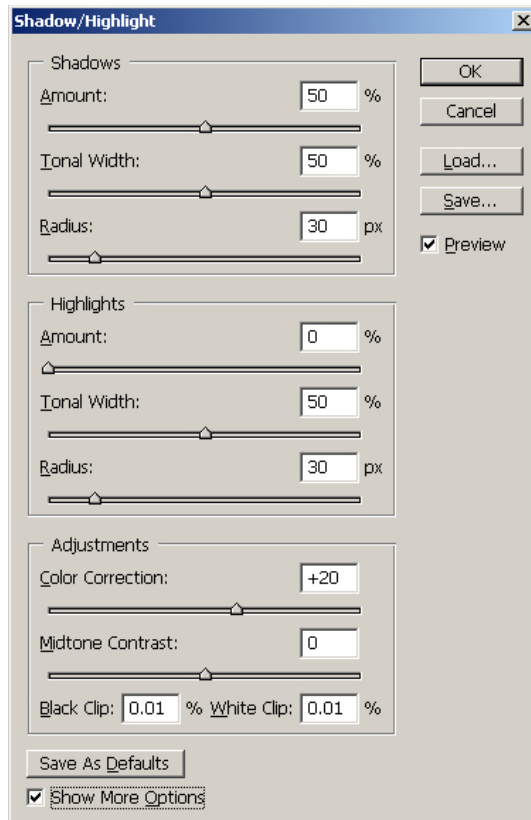


- *Amount* sliders and text boxes adjust the brightness of shadows and highlights. The defaults are set to adjust backlighting problems.
- *OK* applies your changes to the image and closes the dialog box.
- *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down *Alt*, the button changes to *Reset* so you can click it to restore the original settings and try again.
- *Load/Save* buttons let you save your settings for use with other images.
- *Preview* check box, when on, updates the image as you make adjustments.
- *Show More Options* check box, when on, displays additional sliders and other settings that give you finer control over shadow or highlight adjustments.

MORE OPTIONS

When you turn on the *Show More Options* check box, you gain access to the following controls in addition to the ones discussed above.

- *Tonal Width*, available for both shadows and highlights and initially set to 50%, determines the range of tones that are adjusted.
 - Small values limit adjustments to the extreme light and dark areas. As you increase the setting, you expand the range, even into the midtones. If your adjustments introduce halos around high contrast edges, reduce the values.



- 100% gives a linear effect where deep shadows are modified the most, there is no correction to bright highlights, and half the shadow correction is applied to midtones.

- *Radius*, available for both shadows and highlights and initially set to 30 pixels specifies the size of the surrounding area used to determine if a pixel is in the shadows or highlights. Since the ideal *Radius* setting varies from image to image, you have to experiment. You'll find that if you set the *Radius* too large, the adjustment affects the entire image instead of the intended area. To achieve this, try setting the radius to the same size as the area of interest in the image.

- *Color Correction* slider fine tunes color saturation in areas of the image that you have adjusted with an *Amount* slider. Its effects depend on how much the *Amount* was changed. (To adjust color saturation over the entire image, use the Hue/Saturation command (page 71) after applying the Shadow/Highlight command.)

- *Brightness*, available only when adjusting a grayscale image, lightens or darkens the image.

- *Midtone Contrast* slider increases or decreases the image's contrast in the midtones and often darkens shadows and lightens highlights.

- *Black Clip* and *White Clip* text boxes specify how wide a range of shadow and highlight pixels will be shifted to pure white or pure black without details (clipped). Larger values increase contrast but reduce detail in the shadows or highlights.

- *Save As Defaults* button makes your current settings the defaults when you next use the command. To restore the original defaults, Shift+click the *Save As Defaults* button.

ADJUSTING COLOR

TIPS

- To adjust the entire image, make sure nothing is selected (page 86).
- To adjust only a single layer, select that layer in the Layers palette (page 104).
- To adjust just a portion of your image, select that portion (page 86) or create a mask (page 146).

TIPS

- One color cannot be adjusted without affecting overall color balance.
- You can't use the *Variations* command with images in Indexed Color mode.
- The Levels (page 61) and Curves (page 64) dialog boxes have *Channel* drop-down arrows so you can select the composite RGB channel or select the Red, Green, or Blue channel to adjust only a single color.
- After making color corrections, select *Edit>Fade ...* to adjust them.

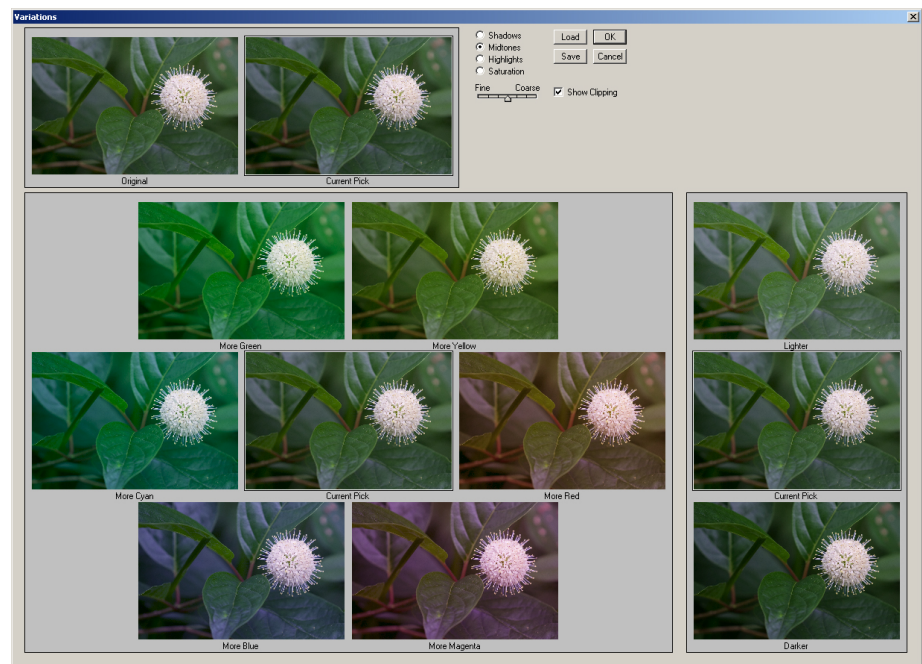
Since color is so important in digital images, you are provided with a variety of tools to enhance it or make it more accurate.

ADJUSTING COLOR AUTOMATICALLY

The *Image>Adjustments>Auto Color* command adjusts the contrast and color by identifying shadows, midtones, and highlights in the composite image and not the individual red, green, and blue channels.

USING THE VARIATIONS COMMAND

The *Variations* command lets you visually adjust colors and works best on images that don't require major or precise color adjustments. To begin choose *Image>Adjustments>Variations* to display the Variations dialog box with the following settings:



■ *Original* and *Current Pick* images at the top of the dialog box make it easy to see the effects of your changes. To apply changes to the *Current Pick* image, click the thumbnails in the lower part of the screen. The seven to the left change colors and the three to the right change brightness.

■ *Shadows*, *Midtones*, or *Highlights* option buttons let you confine your adjustments to the dark, middle, or light areas of the image. When removing a color cast, first try adjusting *Midtones*.

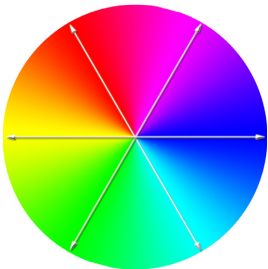
■ *Saturation* option button lets you adjust the richness of colors in the image.

■ *Fine/Coarse slider* specifies the amount or intensity of each adjustment. Dragging the slider to the left decreases the amount, and dragging to the right increases it. Set it low because you can strengthen the effect just by clicking a thumbnail multiple times. Moving the slider one tick mark doubles the adjustment amount.

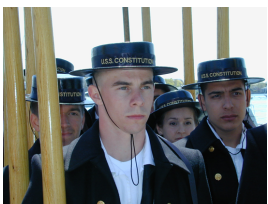
TIP

■ You can also use adjustment layers (page 116) to make the following adjustments discussed in this section:

- Hue/Saturation
- Color Balance
- Photo Filter



Complementary colors are opposite each other on a color wheel. The pairs you can adjust include Cyan-Red, Magenta-Green, and Yellow-Blue. As you increase one color in the pair, you decrease the other.



The Colorize check box was turned on to make a full color image (top) look like an old albumen photo (bottom).

■ *Show Clipping* check box, when on, highlights (in neon) tones that will be clipped by the adjustment. Clipping should be avoided because it can cause undesirable color shifts as distinct colors get merged into the same color. Clipping does not occur when you adjust midtones.

■ *Load/Save* buttons lets you reuse your Variation settings with other images.

■ *OK* applies your changes to the image and closes the dialog box.

■ *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down Alt, the button changes to *Reset* so you can click it to restore the original settings and try again. (You can also click the *Original* thumbnail to remove adjustments.)

Once you have adjusted settings, you click thumbnails to adjust color and brightness in the image:

■ *To add a color to the image*, click the appropriate color thumbnail.

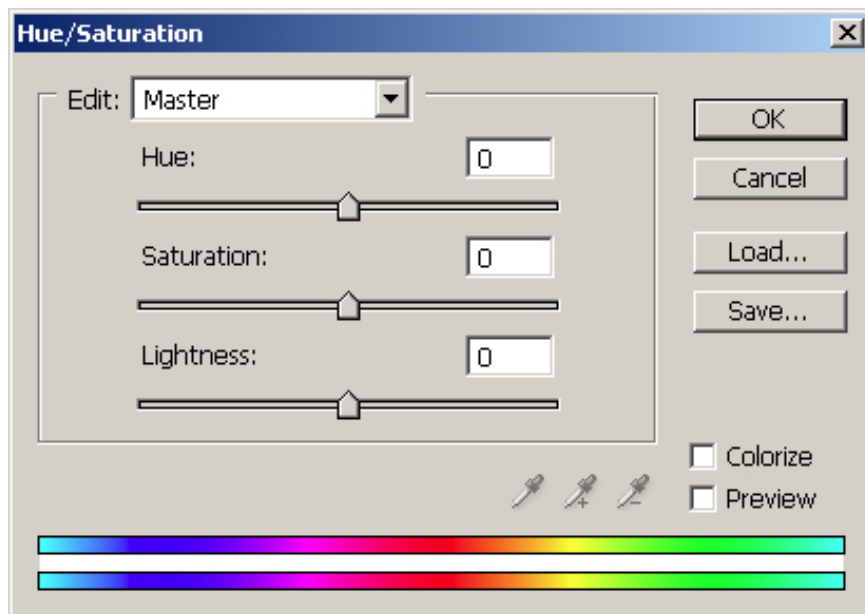
■ *To subtract a color*, click the thumbnail for its opposite color. For example, to remove red, click the *More Cyan* thumbnail. The six color thumbnails are arranged in a circle around the central *Current Pick* with complementary colors opposite each other. If you click one thumbnail to add color and then click the one diagonally opposite it to add its complementary color, the two changes cancel each other out.

■ *To adjust brightness*, click one of the thumbnails on the right side of the dialog box.

The effects of clicking the thumbnails are cumulative so clicking a color thumbnail twice applies the color twice. Also, each time you click a thumbnail, the other thumbnails change and the three *Current Pick* thumbnails always reflect the current status.

USING THE HUE/SATURATION COMMAND

The Hue/Saturation command adjusts the hue, saturation, and lightness of an image. To begin, select *Image>Adjustment>Hue/Saturation* to display the Hue/Saturation dialog box with the following settings:



TIPS

■ The two color bars in the Hue/Saturation dialog box represent the colors in their order on the color wheel. The upper bar shows the color before the adjustment; the lower bar shows how the adjustment affects all hues at full saturation. When you click the *Edit* drop-down arrow and select any color other than *Master*, an adjustment slider appears between the color bars so you can adjust the range of color and its fall-off that are beyond the scope of this book.

■ The Sponge tool adjusts the saturation of colors you drag over.

■ It's better to use the Photo Filter adjustment layer (page 116).

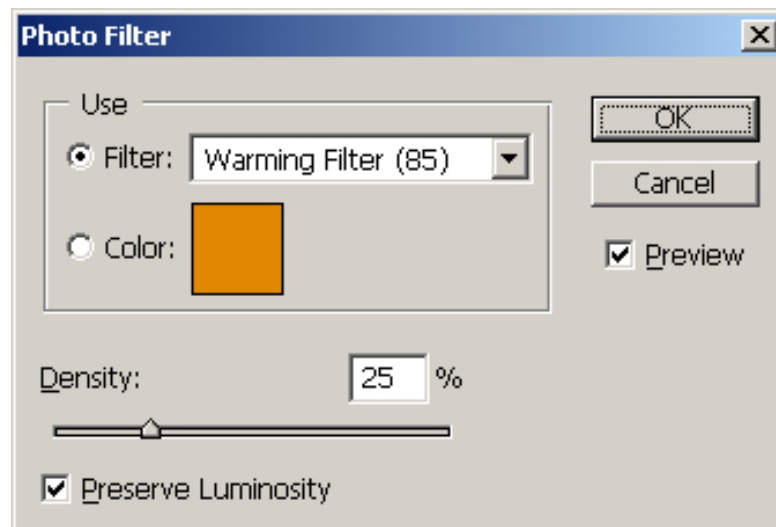


The Photo Filter command does what glass filters do when placed on the camera lens when the picture is taken. Courtesy of Rodenstock.

- *Edit* drop-down arrow lets you choose which colors to adjust. *Master* (the default) adjusts all colors at once.
- *Hue* slider adjusts the color—what we normally refer to by names such as red or blue.
- *Saturation* slider adjusts the purity of a color by changing the amount of gray mixed in with the hue.
- *Lightness* slider adjusts how light or dark a color is and can be set between -100 and $+100$.
- *OK* applies your changes to the image and closes the dialog box.
- *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down *Alt*, the button changes to *Reset* so you can click it to restore the original settings and try again.
- *Load/Save* buttons let you reuse your settings with other images.
- *Colorize* check box, when on, replaces all colors in the image with a single hue, perhaps to make the image look like an old albumen print.
- *Preview* check box, when on, updates the image as you make adjustments.

USING PHOTO FILTERS

There is no longer a need to buy and use lens filters because Photoshop's Photo Filter command applies the same effects after a picture has been taken and you can keep the original image unaltered for other uses. To begin, select *Image>Adjustments>Photo Filter* to display the Photo Filter dialog box with the following settings:



- *Filter* text box displays the named filter being applied to the image. You can click the drop-down arrow to select a Warming Filter (85) that adds yellow, a Cooling Filter (80) that adds blue, and other color filters that adjust hues.
- *Color* option button applies a filter having the color shown in the swatch to its right. To change the color you click the swatch to display the color picker (page 126).
- *Density* slider or text box adjusts the amount of color applied to the image. A higher value applies a stronger filter adjustment.

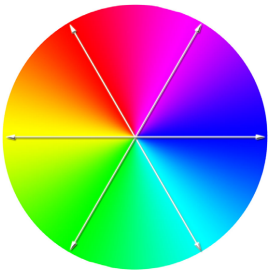
- *Preserve Luminosity* check box, when on, keeps the image from being darkened by the filter you apply.
- *OK* applies your changes to the image and closes the dialog box.
- *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down *Alt*, the button changes to *Reset* so can click it to restore the original settings and try again.
- *Preview* check box, when on, updates the image as you make adjustments.

REMOVING COLOR

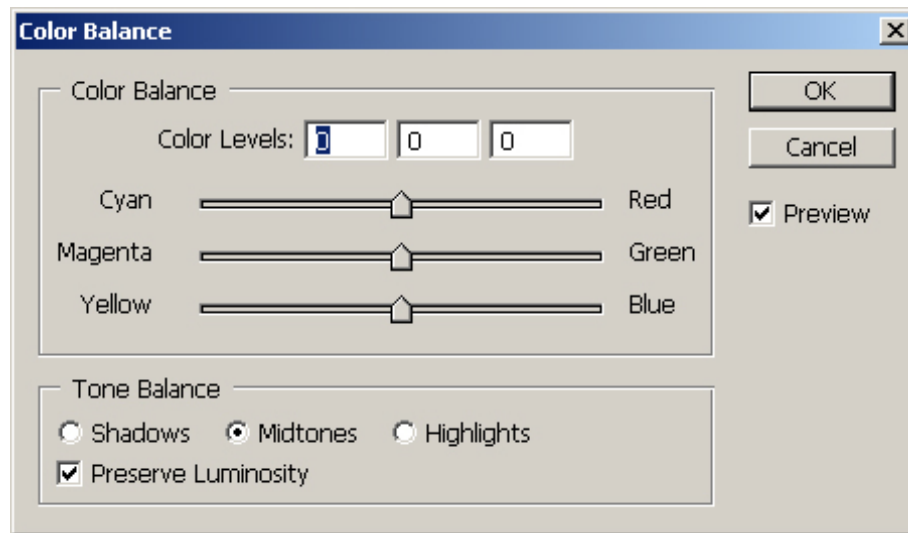
You can remove all color from an image, perhaps to make it look like a black and white photo. The *Image>Adjustments>Desaturate* command converts colors to their grayscale equivalents without affecting their brightness. This command has the same effect as setting *Saturation* to -100 in the *Hue/Saturation* dialog box (page 72).

ADJUSTING COLOR BALANCE

The *Color Balance* command lets you adjust the mixture of colors in an image. To begin, select *Image>Adjustments>Color Balance* to display the *Color Balance* dialog box with the following settings:



Complementary colors are opposite each other on a color wheel. The pairs you can adjust include Cyan-Red, Magenta-Green, and Yellow-Blue. As you increase one color in the pair, you decrease the other.



- *Cyan, Magenta, and Yellow* sliders increase one color while decreasing its complementary color. For example, increasing red decreases cyan. The values above the color bars show the amount of change from -100 to $+100$.
- *Shadows, Midtones, or Highlights* option buttons specify which tonal range will be adjusted.
- *Preserve Luminosity* check box, when on, prevents luminosity from changing when you adjust color.
- *OK* applies your changes to the image and closes the dialog box.
- *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down *Alt*, the button changes to *Reset* so you can click it to restore the original settings and try again.
- *Preview* check box, when on, updates the image as you make adjustments.

TIP

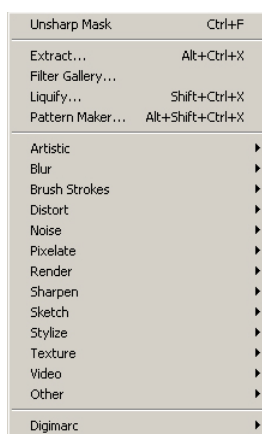
■ You can only use the *Color Balance* command when the composite RGB channel is selected in the *Channels* palette (page 58).

USING FILTERS



When people first get their hands on Photoshop, they quickly discover filters. Since one of the most interesting things to do with digital images is to manipulate or modify them in some way, filters are a great place to start. Many, such as the unsharp mask filter (page 78) are used to make your images look more like the original scene. However, many others can make photos look like paintings, stained glass windows, or other objects. They can emboss images, twist and twirl them, add textures, and create all kinds of creative havoc. Filters are easy to use, you just select one and sit back and watch your computer go to work. If you don't like the result, just select *Edit>Undo* and change some of the filter's default settings or try another filter. And don't stop with just one filter, use two or more in succession on the same image and watch as it moves further and further from reality. You can always use the History palette to undo the changes or just abandon the file without saving it.

You can apply filters using commands on the *Filter* menu or using the Filter Gallery. Since the gallery shows thumbnails of the filter effects, it provides a more visual way to work with filters and gives you more control. However, not all filters can be applied using the Filter Gallery.



The Filter menu.

USING THE FILTER MENU

When you pull down the *Filter* menu, it displays names for filter groupings. As you highlight each group name the menu cascades to display the actual filters you can select. If a filter's name is followed by ellipses (...), selecting it displays a Filter Options dialog box. The topmost menu listing is the most recently used filter in the current session. If any plug-in filters developed by third parties are installed, they are generally listed at the bottom of the Filter menu unless the developer has specified another location. When you select a filter, there are three possible outcomes. The effect is applied immediately, the Filter Gallery is displayed, or a dialog box specific to the filter appears. If a dialog box specific to the filter appears, you can use many of the same controls described for the Filter Gallery below.

USING THE FILTER GALLERY

Using the Filter Gallery, you can apply more than one filter to create a stacked filter effect. You can also rearrange filters and change the settings of each filter you've applied to achieve the effect you want.

The Filter Gallery dialog box has three main panels. A preview window on the left, thumbnails of filters in the middle, and adjustments for the selected filter on the right, below which is a list of applied effects. To begin choose *Filter>Filter Gallery* to display the Filter Gallery with the following settings:

■ *The Preview window in the left panel* displays the image and the effects that filters have on it.

- *To zoom the preview*, click the + or - button under the image. You can also click the nearby triangle and select a preset zoom.
- *To scroll an enlarged image*, point to it and drag with the Hand tool.
- *To center an area of an enlarged image in the preview window*, click the area of the image (although this doesn't always work).



A Filter options dialog box.

TIPS

■ To see what filters are available on your system, pull down the *Help* menu and click *About Plug-in*. Click any plug-in to learn more about it.

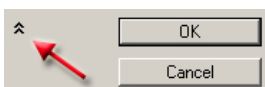
■ To save time when trying various filters, experiment by selecting a small, representative part of your image before displaying the Filter Gallery.



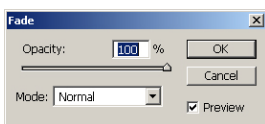
Filter categories can be collapsed (top) or expanded (bottom).



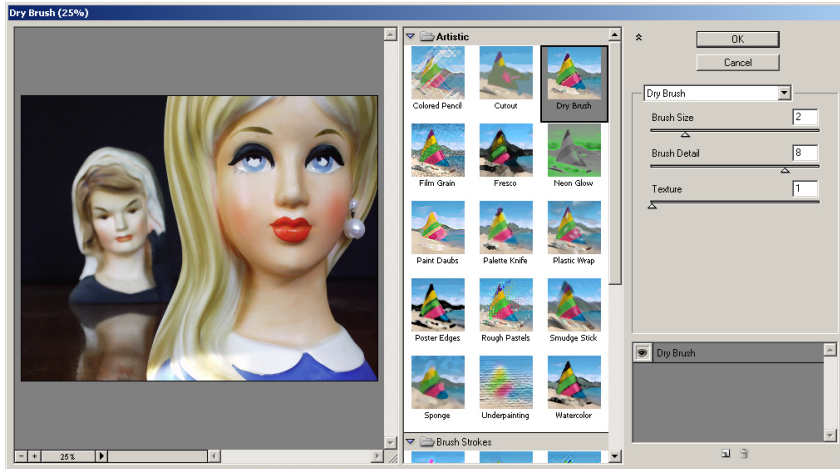
The *New effect layer* and *Delete effect layer* button icons.



The *Show/Hide* button shows and hides the filter thumbnails.



After applying filters, you can select *Edit>Fade...* to vary the effect.



■ The filter thumbnails in the middle panel give you some idea of each filter's effects.

● To expand and collapse a category of filters, click the triangle icon in its heading.

● To apply a filter, select its thumbnail and make adjustments in the right panel. (You can also select filters by clicking the *Filters* drop-down arrow in the right panel where the currently selected filter is listed.) A progress bar below the preview indicates how long it takes to apply the filter to the preview. To apply the filter to the image and add it to the list of applied filters below the settings, click the *New effect layer* button at the bottom of the panel.

● *Show/Hide* button to the left of *OK* shows and hides the filters thumbnails and expands the preview area. When thumbnails hidden you can select filters by clicking the *Filters* drop-down arrow.

■ *OK* applies your selected filters to the image and closes the dialog box.

■ *Cancel* closes the dialog box without applying filters to the image. *Alt+click* the button to reset the settings without closing the dialog box so you can start over.

■ *List of applied filters at the bottom of the right panel* is used to manage filters. The name of any filter you select is listed against a dark background. Once you click the *New Effect Layer* button to apply it, its name is listed against a white background.

● To hide a filter's effect on the preview, click the eye icon next to it.

● To rearrange filters drag and drop them into new positions. Their effects are applied to the image in the order you arrange them—bottom one first.

● To delete an applied filter, drag and drop it onto the *Delete effect layer* button below the list or select the filter and click the button.

TYPES OF FILTERS

There are so many filters most people don't start by reading about them, but by jumping in and trying them, and watching as amazing things happen. When you see an effect you like, look up the filter's name in help for more information. Many digital photographers spend their entire careers without having used or cared about most of these filters. In fact, the only groups that

TIPS

- Before using any Blur filter, turn off the *Lock transparent pixels* check box in the image's Layers palette (page 105).
- Many of the Sketch filters use the foreground and background colors as they redraw the image.
- Most filters cannot be applied to 16-bit images. Select *Image > Mode* to convert an image to 8-bits.



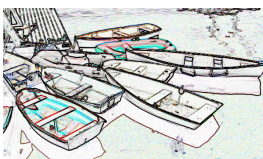
Original image.



Plastic Wrap filter.



Watercolor filter.



Find edges filter.

all digital photographers should understand are those in the sharpen and noise groups.

- *Artistic filters* appeal to photographers who like the accolade “Ohhh, your photo looks just like a painting!” (Not all photographers consider this a compliment.) They make photos look like they were done in some other medium. The filters in this group include *Colored Pencil, Cutout, Dry Brush, Film Grain, Fresco, Neon Glow, Paint Daubs, Palette Knife, Plastic Wrap, Poster Edges, Rough Pastels, Smudge Stick, Sponge, Underpainting, and Watercolor*.

- *Blur filters* soften the image or selected areas. The filters in this group include *Average, Blur, Blur More, Gaussian Blur, Lens Blur, Motion Blur, Radial Blur, and Smart Blur*.

- *Brush Strokes filters*, like Artistic filters, make a photo look as if it was done in another medium. The filters in this grouping include *Accented Edges, Angled Strokes, Crosshatch, Dark Strokes, Ink Outlines, Spatter, Sprayed Strokes, and Sumi-e*.

- *Distort filters* apply wild and weird affects. The filters in this group include *Diffuse Glow, Displace, Glass, Ocean Ripple, Pinch, Polar Coordinates, Ripple, Shear, Spherize, Twirl, Wave, and ZigZag*.

- *Noise filters* are often used to blend selections or hide dust, scratches, or other defects. The filters in this group include *Add Noise, Despeckle, Dust & Scratches, and Median*.

- *Pixelate filters* work by clumping pixels of similar color. The filters in this group include *Color Halftone, Crystallize, Facet, Fragment, Mezzotint, Mosaic, and Pointillize*.

- *Render filters* work with 3D shapes, cloud and refraction patterns, and light reflections. The filters in this group include *Clouds, Difference Clouds, Fibers, Lens Flare, and Lighting Effects*.

- *Sharpen filters* increase the contrast of adjacent pixels to make edges look sharper. The filters in this group include *Sharpen, Sharpen Edges, Sharpen More, and Unsharp Mask*.

- *Sketch filters* add texture, and like artistic and brush stroke filters, make photos look as if they were done in another medium. The filters in this group include *Bas Relief, Chalk & Charcoal, Charcoal, Chrome, Conté Crayon, Graphic Pen, Halftone Pattern, Note Paper, Photocopy, Plaster, Reticulation, Stamp, Torn Edges, and Water Paper*.

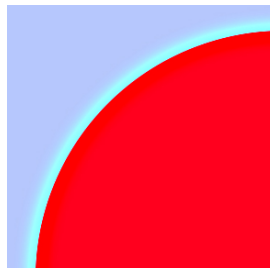
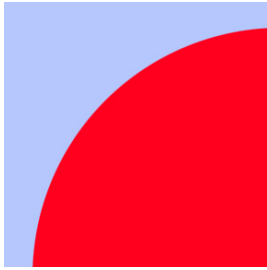
- *Stylize filters* make photos look like they were done in another medium. The filters in this group include *Diffuse, Emboss, Extrude, Find Edges, Glowing Edges, Solarize, Tiles, Trace Contour, and Wind*.

- *Texture filters* create effects that make photos look like they were done in another medium. The filters in this group include *Craquelure, Grain, Mosaic Tiles, Patchwork, Stained Glass, and Texturizer*.

- *Video filters* improve images captured on video or reduce the color palette of an image to those used for television reproduction. The filters in this group include *De-Interlace* and *NTSC Colors*.

- *Other filters* perform a number of tasks most people don't understand. The filters in this group include *Custom, High Pass, Maximum, Minimum, and Offset*.

SHARPENING IMAGES



The top image hasn't been sharpened, the bottom one has been—exaggerated here for effect.

Most photos captured with a digital camera or a scanner can be improved by sharpening. There are a number of ways to do this, the best being the unsharp mask filter.

USING UNSHARP MASKING

Unsharp masking sharpens edges in an image and is so common many high-end cameras and scanners have embedded software that does it automatically. You'll find that this procedure can make a tremendous difference in photos, especially those that you print. However, as nice as it would be, this filter can't fix a badly blurred image.

So how does the Unsharp Mask filter work? First it locates pairs of adjacent pixels that have a difference in brightness that you specify—the *threshold*. It identifies these as edges, and increases their contrast by the *amount* you specify. The change affects not only the pair of pixels, but also any that fall within a specified *radius*. The result is higher contrast at the edges that makes them look sharper. The effects of the Unsharp Mask filter are far more pronounced on-screen than in high-resolution prints, so experiment to determine what settings work best for your image.

One of the limitations of unsharp masking is its ability to accurately identify edges. In some cases it finds and sharpens edges where there are none. In this case it degrades the image rather than improves it. To reduce these unwanted effects, you can adjust the threshold or radius. Also, be sure not to oversharpen or you will create halos around edges. As with most other things in life, moderation is good.

An unsharpened image (left) has low contrast along the edges of objects. The unsharp mask filter finds these edges and increases the contrast making the dark areas darker and the light areas lighter (right).



TIPS

■ Unsharp masking dates back to the darkroom era when images could be sharpened by aligning the original negative in the enlarger with a slightly blurred and underexposed copy of the same negative.

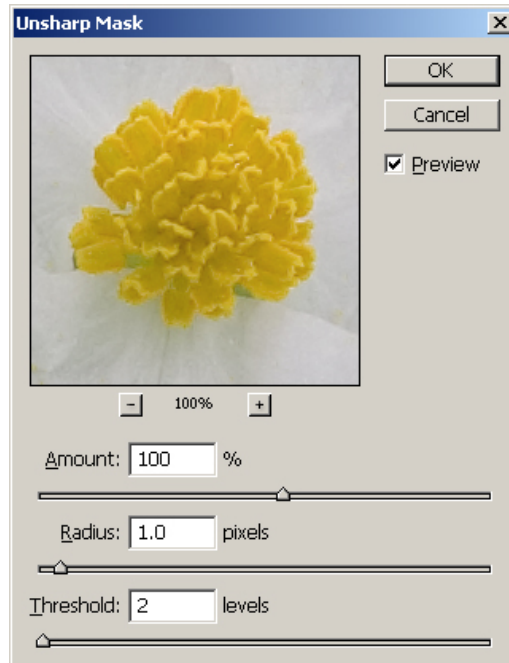
■ When sharpening, display the image at 100%.

To sharpen an image select *Filter>Sharpen>Unsharp Mask* to display the Unsharp Mask dialog box with the following settings:

■ The *preview window* shows you a section of the image you are sharpening so you can see the effects.

- Drag in the preview window to scroll around the image.
- Click + or – to zoom in or out.
- Click the preview repeatedly and rapidly to toggle the effect of sharpening on and off so changes jump out at you.

The unsharp mask filter lets you specify the amount, radius, and threshold of sharpening.



TIPS

- If your camera has a control to sharpen images, turn it off if you plan on editing them in Photoshop.

- When sharpening, it helps if you start with some standard settings and then experiment from there. It seems every photographer recommends a different starting point, so here's ours:

- Amount=100
- Radius=1
- Threshold=2

- Unsharp masking only affects the selected layer. To sharpen a multi-layer image you may need to flatten the layers (page 111).

- You can sharpen just part of your image using a mask (page 146).

- **Amount** is the percentage by which contrast of the edge pixels is increased. When printing high-resolution digital photos, an amount between 100% and 200% usually works well, but you can go as high as 500% and as low as 1%.

- **Radius** is the number of pixels around the edge that are sharpened. Lower values sharpen only edge pixels and as you increase the value, a wider range of pixels gets sharpened. Higher values are better for larger images than they are for smaller ones. To begin, you might try a radius between 1 and 2 pixels.

- **Threshold** is the difference in brightness between two pixels before they are considered edge pixels to be sharpened by the filter. When set to 0, all pixels in the image are sharpened. In some cases, such as images with flesh tones, this can introduce noise because every pore is sharpened. In these cases, you might want to experiment with higher thresholds, perhaps between 2 and 20.

- **OK** applies your changes to the image and closes the dialog box.

- **Cancel** closes the dialog box without applying your adjustments to the image. If you hold down Alt, the button changes to *Reset* so you can click it to restore the original settings and try again.

- **Preview** check box, when on, updates the image as you make adjustments. This lets you see the effects of sharpening on the actual image, not just the dialog box's preview.

OTHER SHARPENING FILTERS

In addition to the unsharp mask filter, there are other filters that affect sharpness in an image. Unlike the unsharp mask filter, these filters are automatic and don't let you control their effects. To apply one of these filters select *Filter>Sharpen* to display a submenu, then select one of the following.

- **Sharpen** and **Sharpen More** sharpen the image with *Sharpen More* having a stronger sharpening effect.

- **Sharpen Edges** sharpens edges without affecting smooth areas in the image.

THE CAMERA RAW PLUG-IN—INTRODUCTION

TIPS

■ Raw images are discussed in detail in *The Textbook of Digital Photography* and that lengthy discussion is not repeated here.

■ Cameras that offer the RAW image format also supply software to edit and convert them. Raw processing software is also available from PhaseOne and other third-parties.

■ Photoshop's Raw format is not the same as a camera raw format and is used primarily to transfer images between systems.

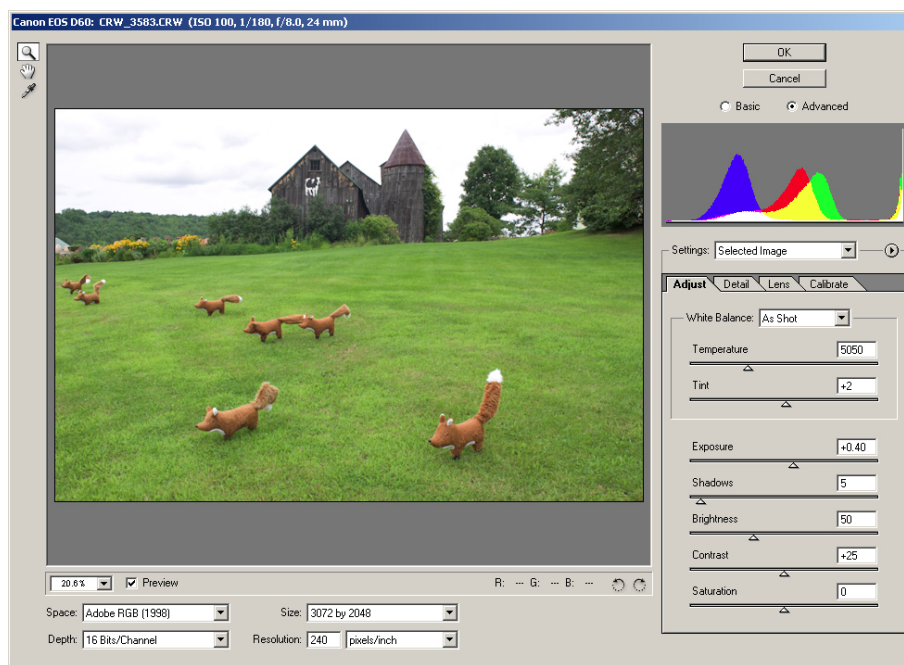
■ When making adjustments, zoom the image to 100% so you can best see the effects of your changes.

■ You can select more than one RAW file in the File Browser and then double-click one of them to open them one after another in the plug-in.

■ To open a RAW image directly into Photoshop, hold down Shift when you double-click it.

Many digital cameras let you capture images in a RAW format instead of the more widely used JPEG format. The RAW format gives you the highest possible image quality because it stores all of the original image data, but doesn't process, convert, and compress it in the camera—actions that permanently reduce the amount of information available. Instead, the RAW format lets you interpret the image data in any number of ways on your computer without in any way affecting the original file.

When you use the *File>Open* command or File Browser to open a RAW file, the Photoshop Camera Raw plug-in opens if the file's RAW format is supported. (Every camera company has their own version.) A large preview of the image is displayed, as is its histogram. The plug-in contains a variety of tools and controls that adjust the image before clicking *OK* to open a copy of the RAW file in Photoshop with your settings attached. The original image remains on the disk, unaffected in any way.



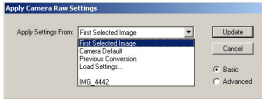
Here is what each tool or control in the plug-in is used for:

LEFT OF THE PREVIEW WINDOW

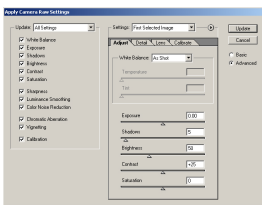
■ *Zoom tool* lets you click the preview to zoom in, Alt-click to zoom out, or drag to select the area to be zoomed. You can also adjust zoom with the zoom text box and drop-down arrow below the preview.

■ *Hand tool* moves the preview image when it is larger than the viewing window. Hold down the spacebar to access this tool temporarily when another tool is selected.

■ *White Balance tool* (the eyedropper) can quickly set white balance when you use it to click an area of the image that should be white with detail (not a specular highlight with no detail) or neutral gray. In most cases this is the best tool to start with when removing a color cast or tint from an image. You can then fine tune the results with the *Temperature* and *Tint* sliders.

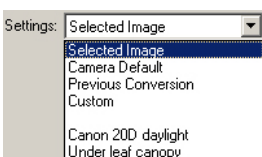


You can apply saved settings to one or more RAW files that you select in the File Browser. Just pull down the Automate menu, or right-click one of the selected files and select Apply Camera RAW Settings. If you click the Advanced button in the dialog box that appears, all settings are displayed (below) so you can adjust them.



TIP

■ The only camera settings that affect the actual RAW image are the aperture, shutter speed, and ISO. All other settings can be applied on the computer using Photoshop.



The plug-in's Settings menu.

BELOW THE PREVIEW WINDOW

■ **Zoom menu drop-down arrow** displays a menu from which you can choose a zoom setting. When making adjustments, 100% is the best setting to use.

■ **Preview** check box enables or disables the preview. When off, the original image is displayed, without the applied image setting adjustments. Clicking it on and off makes it easy to compare before and after previews.

■ **R, G, and B values** are displayed when you point to any area of the image with the Zoom, Hand, or White Balance tool and pause.

■ **Rotate buttons** rotate the preview image.

■ **Space** specifies which color space is attached to the image when you open it in Photoshop. The space is initially assigned to the image by the camera but you can change it here, or later in Photoshop (page 187).

■ **Size** specifies the size of the image in pixels when you open it in Photoshop. You can click the drop-down menu to resample the image larger or smaller than its captured size.

■ **Depth** specifies the color depth of the image when you open it in Photoshop. One of the advantages of RAW images is that they are 16-bit and not 8-bit images. If you plan further editing in Photoshop, you should keep them as 16 bit images. These files are large but give you many more tones to work with. Once in Photoshop, should you need to reduce an image to 8 bits, select *Edit>Mode>8 bits/Channel*.

■ **Resolution** specifies how many dots per inch (dpi) are used to print the photo. This setting has no effect on the total number of pixels in the image.

RIGHT OF THE PREVIEW WINDOW

■ **OK** button serves multiple uses:

● Click it to open a copy of the camera raw image file in Photoshop with your adjustments applied. You can then edit the image farther and save it in a Photoshop-supported format.

● Hold down Alt and the button changes to *Update*. Click it to update the image in the plug-in without opening it in Photoshop. Both the image and thumbnail reflect the update. To restore the original settings, click the *Settings* drop-down arrow and select *Camera Default*.

● Hold down Shift and the button changes to *Skip*. Click it to skip the current image when you are opening more than one.

■ **Cancel** closes the dialog box without applying your adjustments to the image. If you hold down Alt, the button changes to *Reset* so you can click it to restore the original settings and try again.

■ **Basic/Advanced** option buttons hide or display the Lens and Calibrate tabs and a few commands on the plug-in menu.

■ **Settings** drop-down arrow lets you select which settings to apply. Your choices always include *Selected Image*, *Camera Default*, *Previous Conversion* (using the settings from the previous conversion of an image captured by the same camera), and *Custom* below which are listed any settings you have saved. The *Selected Image* setting changes to *First Selected Image* when opening more than one image, and when selected the settings from the image selected first are applied to other images in the batch.

■ *Histogram* shows all three channels (Red, Green, and Blue) of the image simultaneously and is automatically updated as you adjust settings.

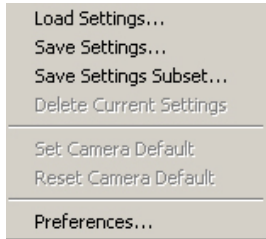
■ *Tabs* section contains drop-down arrows, text boxes, and slider bars that you use to adjust an image (page 83). The *Adjust* and *Detail* tabs are always displayed but the *Lens* and *Calibrate* tabs are only displayed when the *Advanced* option button is selected.



The Camera RAW plug-in's tabs.

THE PLUG-IN'S MENU

When you use the plug-in to make changes to a RAW image, the original image data is not affected. (In fact there is no way to overwrite the original RAW image with an altered version.) Instead, any changes you make to the image are stored and then applied to a copy of the image that opens in Photoshop. The settings used with one image can also be saved and used with other images. This is very useful if you have a number of images from the same camera or taken in the same light, that need the same or similar corrections. The settings that affect the way changes are saved, set preferences, or save settings for use with other images, are on the plug-in's menu displayed when you click the triangle icon to the right of *Settings*. The menu has the following choices:

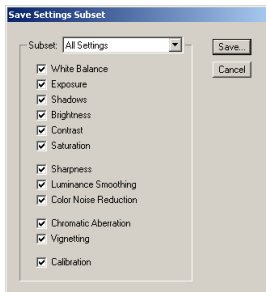


The Camera RAW plug-in's menu.

■ *Load Settings* loads previously saved settings.

■ *Save Settings* saves the current settings and adds them to the plug-in's *Settings* menu so you can use them with other images.

■ *Save Settings Subset*, available only when the *Advanced* option button is selected, is like above but displays a dialog box so you can select which settings to save. For example, you can save just a specific white balance or sharpness setting.



The Save Settings Subset dialog box.

■ *Delete Current Settings* deletes any custom setting that you have saved previously and then selected for use with the current image. You can't delete any of the named settings supplied with Photoshop.

■ *Set Camera Default* replaces the default settings supplied by Adobe for your camera model with your own settings. If you use more than one camera model, you can have a default setting for each.

■ *Reset Camera Default* restores the *Set Camera Default* setting to the original default settings supplied by Adobe.

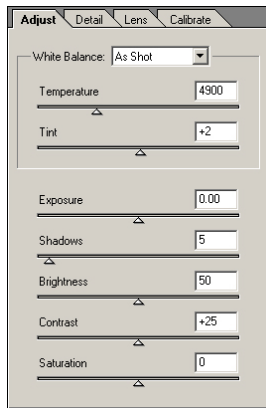
■ *Preferences*, available only when the *Advanced* option button is selected, offers the following choices:

● *Save settings in* specifies if the settings are saved in a *Camera Raw database* or in a *Sidecar ~.xmp~ files*. Those stored in a database (the default) will remain attached to a file even if you rename or move it elsewhere on the system. However, if you are moving images to CD/DVD or sharing them with others, sidecar files, automatically generated when you edit the image and having the same name but .xmp extension, can be sent along with them so the settings are also applied on other systems.

● *Apply sharpening to All images or Preview images only*. The first applies sharpening to the RAW images themselves and the later applies it just to the preview. The later option lets you use sharpening to see its affect but not actually sharpen the image until you do so in Photoshop.

THE CAMERA RAW PLUG-IN—MAKING ADJUSTMENTS

The Camera Raw plug-in has a number of settings you can change by dragging sliders. Watch the preview as you make the changes and you'll soon find the tools you like best.



The Adjust tab.

THE ADJUST TAB

The *Adjust* tab adjusts the white balance of the image.

■ **White Balance** section. When you capture a Raw image, most cameras record the white balance setting you used and saves it as a metadata entry. When you open the image in the plug-in, this becomes the initial setting displayed in the White Balance text box. If it's not the way you want it, there are three ways to remove a color cast in your image. (There is also a control on the *Calibrate* tab that corrects any color cast left in the shadows after you adjust the white balance as described here).

To begin, click the *White Balance* drop-down arrow and select a setting. The *As Shot* choice uses the camera's settings. If necessary you can then make fine adjustments with the *Temperature* and *Tint* sliders.

- Moving the *Temperature* slider to the left makes the image colors bluer and moving it to the right makes the image colors warmer (yellowish).
- Moving the *Tint* slider to the left adds green to the photo, while moving the slider to the right adds magenta.

One of the easiest ways to adjust the white balance is to first use the White Balance tool (the eyedropper) to click an area in the preview image that should be a neutral gray or white with detail (not a specular highlight). Then use the *Temperature* and *Tint* sliders to fine-tune the adjustment so the color is as neutral as possible.

TIP

■ When adjusting Exposure and Shadows, Alt+drag the sliders to locate where the high-lights become completely white (Exposure) or black (Shadows) with no detail (clipped) and then back off slightly. The black (Exposure) or white (Shadows) indicates areas that are not clipped, and color indicates areas that are clipped in only one or two channels.

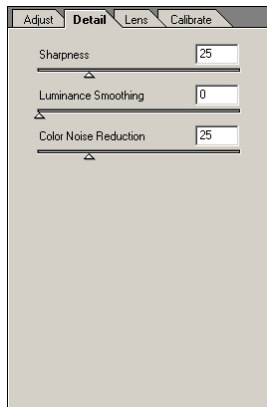
■ *Exposure* slider adjusts the brightness of the image in increments equivalent to f-stops. For example +1.0 is similar to opening the camera's aperture or slowing its shutter speed 1 stop. This adjustment can also shift a range of pixel values to pure white so they are clipped and is much like the white point slider in the Levels dialog box (page 61). It also allows you to sometimes recover highlight detail lost through overexposure.

■ *Shadows* slider shifts a range of pixel values to pure black so they are clipped and is much like the black point slider in the Levels dialog box (page 61).

■ *Brightness* slider adjust the overall brightness after you set the white and black clipping points with the *Exposure* and *Shadow* sliders. It compresses the shadows and expands the highlights when moved to the left and the opposite when moved to the right.

■ *Contrast* slider adjusts the midtones in an image. Higher values increase the midtone contrast, while lower values decrease it. Normally, you make this adjustment after setting the Exposure, Shadow, and Brightness values.

■ *Saturation* slider, acting much like the slider in the Hue/Saturation dialog box, adjusts the color saturation of the image from pure monochrome (−100) to twice the normal saturation (+100).



The Detail tab.

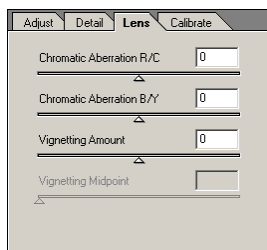
THE DETAIL TAB

The *Detail* tab sharpens images and reduces the effects of noise that degrade image quality. Sharpness is almost always needed but noise is most obvious in images captured with a high ISO setting or a less-sophisticated digital camera.

- *Sharpness* works much like the unsharp filter (page 78) but calculates the threshold to use based on camera model, ISO, and exposure compensation recorded in the image's metadata. You can use the plug-in menu's *Preferences* command (page 82) to specify if sharpening is applied to images or just previews. When planning further editing in Photoshop, sharpen only previews or leave this set to zero and then sharpen in Photoshop as the last step.

- *Luminance Smoothing* reduces grayscale noise that makes an image look grainy.

- *Color Noise Reduction* reduces chroma noise which usually appears as colored artifacts in the image.



The Lens tab.

THE LENS TAB

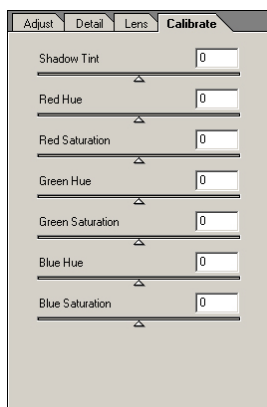
The *Lens* tab corrects chromatic aberration and vignetting introduced by lenses in the camera.

- *Chromatic Aberration R/C* adjusts for red/cyan color fringing.

- *Chromatic Aberration B/Y* adjusts for blue/yellow color fringing.

- *Vignetting Amount* lightens or darkens the corners of images. Some lenses have light falloff in the corners that leaves them darker than the rest of the image.

- *Vignetting Midpoint* adjusts the size of the area affected by the Vignetting Amount slider.



The Calibrate tab.

THE CALIBRATE TAB

The *Calibrate* tab corrects a color cast in the shadows and specifies how the built-in profile alters non-neutral colors.

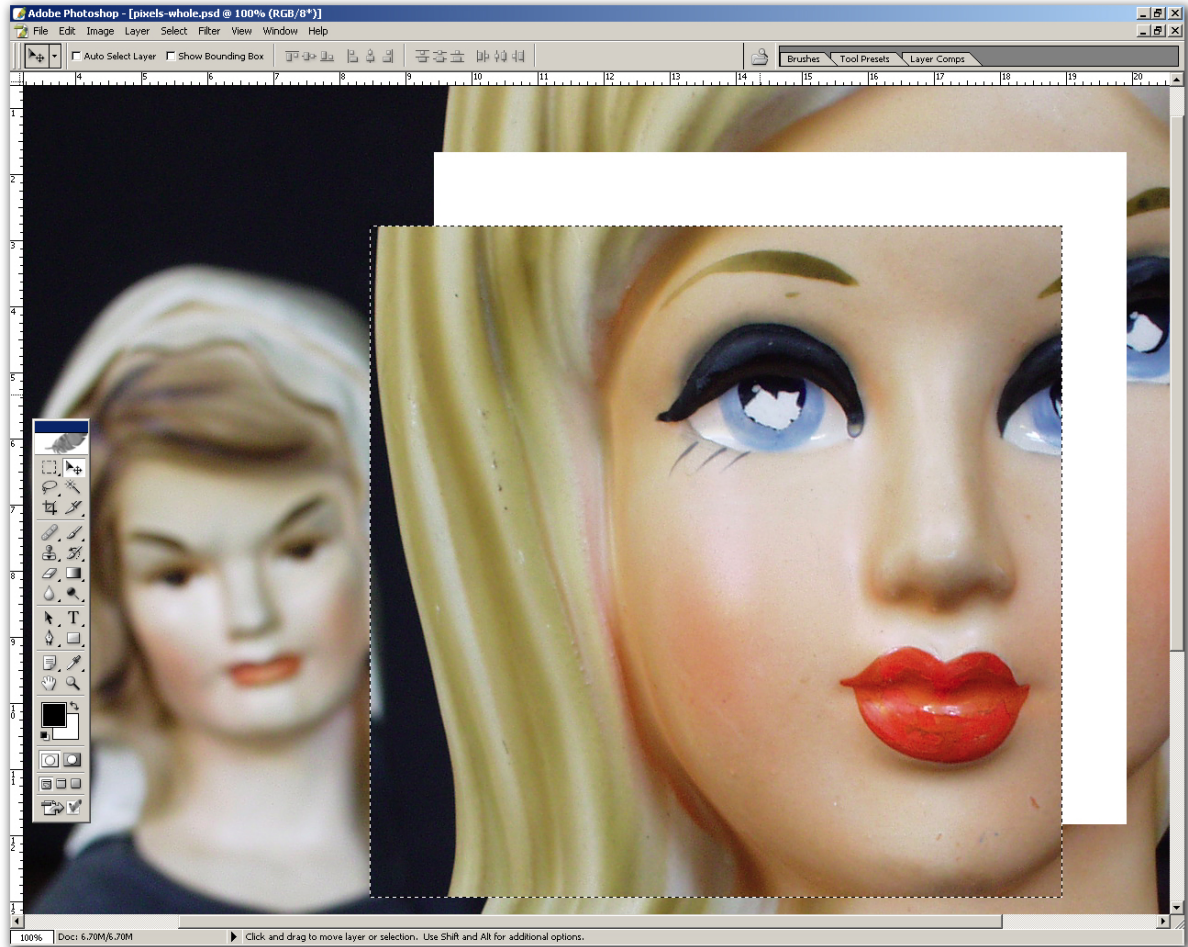
- *Shadow Tint* removes color casts in shadows. Normally you use this adjustment after adjusting white balance (page 83)

- *Red/Green/Blue Hue* adjusts the hues of the R, G, and B colors.

- *Red/Green/Blue Saturation* adjusts color saturation.

Chapter 4

Working with Selections



CONTENTS

- Introduction to Selecting
- Using Marquee Tools
- Using Lasso Tools
- Using the Magic Wand Tool
- Selecting a Range of Colors
- Adjusting an Existing Selection
- Moving, Copying, and Pasting Selections
- Saving and Reusing Selections
- Transforming Images

When editing a digital photo, commands usually affect the entire image. However, if you first select an area of the image, you can confine adjustments to just that area. You can also select areas and then copy, move, or delete them, perhaps to create a collage or to paste part of one image into another to create a composite image. There are a number of ways to select the areas of the image to be affected. The approach you choose depends on the nature of your image, the changes you want to make, and the area you want to select. For example, the Magic Wand tool is useful for quickly selecting areas of similar color, such as a clear blue sky. To select a more complex area, such as a person standing in a crowd of people, you can use the Lasso tools.

INTRODUCTION TO SELECTING

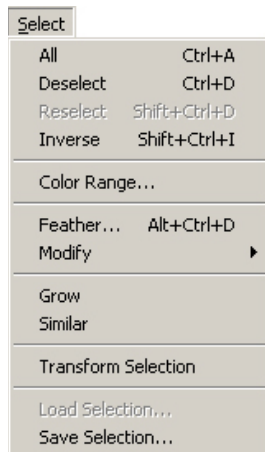


The selection border.

When you select areas in an image, the selected area is indicated by a border of moving dashes, called a *selection border*, *selection marquee* or more informally, as *marching ants*. The area inside the border can be moved, copied, painted, or otherwise edited without affecting the area outside of the border.

USING THE SELECT MENU

The *Select* menu lists commands you use to make and modify selections:



The *Select* menu.

- *All* selects all pixels in the image.
- *Deselect* cancels any previously made selections.
- *Reselect* reselects the most recent selection.
- *Inverse* reverses a selection so the unselected area becomes selected and the selected area becomes unselected (page 94).
- *Color Range* selects a specific color or a range of colors (page 93).
- *Feather* feathers an existing selection (page 94).
- *Modify* modifies an existing selection (page 94).
- *Grow* and *Similar* expand an existing selection (page 94).
- *Transform Selection* scales, rotates, and distorts a selection (page 101).
- *Load/Save Selection* lets you reuse your selections (page 99).

USING SELECTION TOOLS

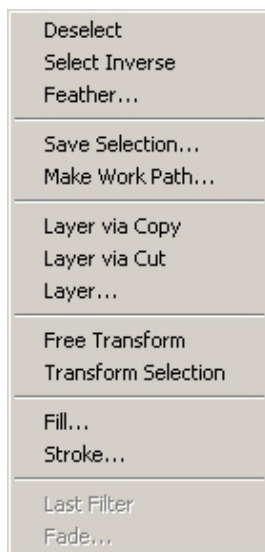
The toolbox contains a number of selection tools—some of them hidden—including the following:

- *Marquee tools*, including the Rectangular Marquee and Elliptical Marquee, select regularly shaped areas of your image by dragging with the mouse (page 88). The Single Row and Single Column Marquee tools select 1-pixel wide rows and columns the width or height of the image
- *Lasso tools*, including the Lasso, Polygonal Lasso, and Magnetic Lasso, draw around an irregularly shaped area to select it (page 90).
- *Magic Wand tool* selects pixels having similar colors (page 92).

SELECTION TOOL OPTIONS

When you choose one of these tools in the toolbox, the options bar displays settings that affect the way the tool works. Many of these settings vary from tool to tool, but all selection tools include settings that determine how a new selection interacts with the current selection and how sharp a selection's edges are. (Options specific to only one tool are covered in the discussions of those tools.)

- *Multiple selection buttons* create complex selections by specifying how multiple selections interact. If you select any button other than *New selection*, you can make multiple selections as long as they don't overlap. These other buttons specify how a new selection interacts with the current selection when they do overlap.



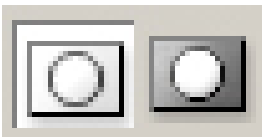
You can choose a selection command from a context menu while using the Marquee, Lasso, or Magic Wand tools. To access this menu, right-click in the image window.



The multiple selection buttons on the options bar determine how multiple selections interact.

TIPS

- To select a hidden tool in the toolbox Alt+click the tool, or point to the tool and hold down the mouse button.
- For consistent results when adding to or subtracting from a selection, use the same feather and anti-aliased settings used for the original selection.
- You can use the Horizontal and Vertical Type Mask tools to create selections in the shape of type (page 120).
- To set tool preferences select *Edit>Preferences>General*.



The Edit in Quick Mask Mode button (right) in the toolbox. The Edit in Standard Mode button is on the left.

- *New selection*, the default, cancels the current selection as soon as you start making a new one.
- *Add to selection* adds a new selection to the current selection when they overlap. You can also add to an existing selection by Shift+dragging.
- *Subtract from selection* subtracts a new selection from the current selection where they overlap. For example, to create a semicircle you can first select a full circle and then subtract a square from it. You can also subtract from an existing selection by Alt+dragging.
- *Intersect with selection* selects only the area where the new selection overlaps an existing one. You can also select an intersection by Alt+Shift+dragging.

■ *Feather* value in the text box specifies how soft the edge of a selection will be. When set to 0 (the default), the edge of a selection is crisp and sharp. However, as you increase the value, the edge softens over a wider transition zone, up to 250 pixels wide, so it blends into the area outside of the selection. This blending becomes more apparent when you move, cut, copy, or fill the selection. You can define feathering for most selection tools as you use them, or you can add feathering to an existing selection (page 94).



When feathering a selection, the selection border doesn't show the edge of the selection, but the place where feathering is 50%. To preview the boundaries of a feathered selection, click the *Edit in Quick Mask Mode* button in the toolbox (page 149). Selected areas of the image look normal and unselected areas are covered by a color overlay. Feathering appears as a gradation between these two extremes. To return to your normal view click the *Edit in Standard Mode* button in the toolbox.

If you make a small selection with a large feather radius, you may get the message "No pixels are more than 50% selected." If this happens, decrease the feather radius, or increase the selection's size.

■ *Anti-aliased* check box, when on, smooths the edges of a selection by blending just the edge pixels into the background (page 133). Since only the edge pixels change, no detail is lost. Anti-aliasing is useful when cutting, copying, and pasting selections to create composite images. This option is available when you select the Elliptical Marquee tool, any Lasso tool, or the Magic Wand tool. You must specify this option before using these tools. Once a selection is made, you cannot add anti-aliasing.

USING MARQUEE TOOLS



The Marquee tools.

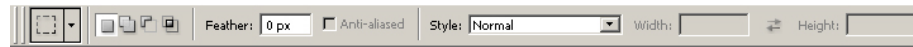
The simplest way to select regular shapes is to drag or click with one of the Marquee tools. The Single Row and Single Column Marquee tools select 1-pixel wide rows or columns. The Rectangular or Elliptical Marquee tools select larger areas. The point where you hold down the mouse button to begin the selection defines one corner of a rectangular selection area and the point where you release the button defines the diagonally opposite corner. The Elliptical Marquee tool selects an ellipse that fits within this rectangular area.



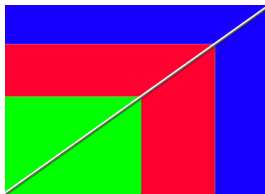
The multiple selection buttons on the options bar include New selection, Add to selection, Subtract from selection, and Intersect with selection (page 86).

THE MARQUEE TOOLS OPTIONS BAR

When you select the Rectangular or Elliptical Marquee tool, clicking the *Style* drop-down arrow on the options bar lets you select how the tool works:



- **Normal** selects any size and shape area without any restrictions.
- **Fixed Aspect Ratio** displays *Width* and *Height* text boxes into which you type any combination of numbers that represent the image's aspect ratio, or proportions. For example, if the image is 3000 x 2000 pixels in size, you can enter those numbers, 3 and 2, or 1.5 and 1 for the same effect. When you now select an area it will have the same aspect ratio as the original image. If you enter 1 and 1, you will select a square (or circle with the Elliptical Marquee tool.)
- **Fixed Size** displays *Width* and *Height* text boxes into which you type the dimensions of the area you want to select in inches, centimeters, or pixels. For example, if you enter a width of 800 and a height of 600, and then click in the image, a section 800 x 600 pixels in size is selected. To specify the unit of measurement, follow the numbers with *px* (the default), *in*, or *cm*.



Images with the same aspect ratio can be different sizes but they always share the same diagonal.

ASPECT RATIOS

An image's *aspect ratio* is the ratio between its width and height. For example, a 35 mm slide or negative is 1.5 inches wide by 1 inch tall. Therefore, its aspect ratio is 1.5 to 1. A square image has an aspect ratio of 1:1. This ratio is often expressed in one of three ways:

- When expressed as 1.5 to 1 or 1.5:1, the actual numbers calculated in the division process are used, even though one has a decimal place.
- To remove the decimal, the numbers are raised to a new ratio so both numbers are whole. In our example, 1.5 to 1 would be raised to 3 to 2. That's what's done with TV screen aspect ratios. The aspect ratio for normal TV is referred to as 4:3 and HDTV as 16:9.
- In a few cases, where one part of the ratio is assumed to be 1, just the other part is given. For example, a 1.5:1 ratio is expressed just as 1.5.

Aspect ratios present a problem when printing images because the aspect ratios of images usually differ from the aspect ratios of the paper we print on.

TIP

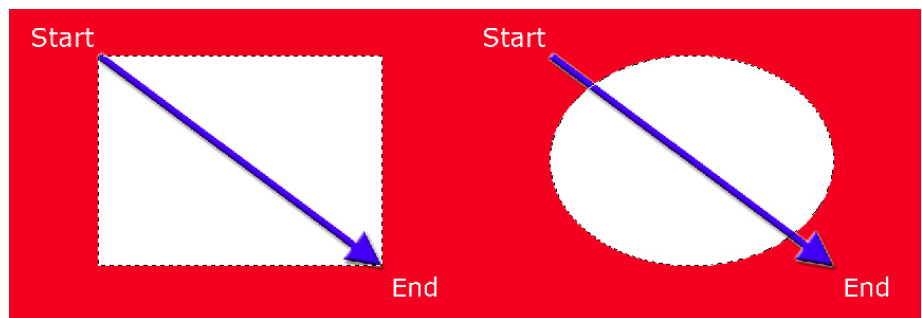
■ If you use feathering with the Elliptical Marquee tool you should turn off the *Anti-aliased* check box (page 87) .

SELECTING WITH MARQUEE TOOLS

Once you have selected a Marquee tool and made any changes to the options bar, you can make a selection.

- *To make a selection with the Rectangle or Elliptical Marquee tool*, drag over the area you want to select.
 - *To constrain the selection to a square or circle*, Shift+drag the border.
 - *To drag a marquee from its center*, instead of the usual corner, hold down Alt after you begin dragging.
 - *To make a fixed size selection* when *Style* on the options bar is set to *Fixed Size*, click in the upperleft corner of what you want selected, then without releasing the mouse button, drag the selection to reposition it if necessary.

The Rectangular and Elliptical Marquee tools both select an area within a rectangle defined by dragging from a start to an end point.



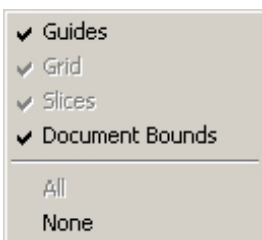
TIP

■ To remove the section border, choose *Select>Deselect*. If the *New Selection* button is selected on the options bar, you can also click anywhere outside of the selection to cancel it.

■ *To make a selection with the single row or single column marquee*, click near the area you want to select, and then reposition the selection border if necessary as described below. If you can't see the selection border, zoom the image larger.

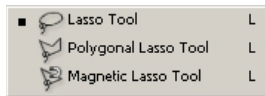
As you make selections, there are ways to make adjustments:

- *To reposition the selection border while still dragging* to define the selected area, don't release the mouse button while you hold down the spacebar and drag. To resume selecting, release the spacebar, but keep the mouse button depressed as you drag.
- *To align your selection with guides, a grid, slices, or document bounds*, select *View>Snap*, or *View>Snap To* and choose a command from the submenu.
- *To reposition the selection border after making a selection*, press the arrow keys to move a pixel at a time (hold down Shift when you press them to move in 10 pixel jumps). You can also drag it with the mouse as long as one of the selection tools remains selected (page 94).



The View>Snap To submenu.

USING LASSO TOOLS



The Lasso tools.

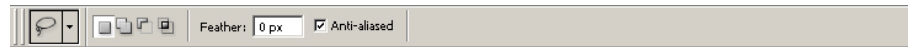
The Lasso tools let you drag a freehand line around any part of the image. Each of the three versions—Lasso, Polygonal Lasso, and Magnetic Lasso—has unique features.

THE LASSO TOOL

The Lasso tool is used primarily to draw freehand selections although you can also use it to draw straight-edged segments. To use the Lasso tool, select it in the toolbox and set its options on the options bar (page 86):



If there was ever a time when you'd like to have a tablet to draw on instead of drawing with the mouse, this is it. Courtesy of Wacom.



- **To make a selection**, hold down the mouse button and drag to draw a freehand selection border.
- **To close the selection**, drag back over the starting point and release the mouse button. If you don't cross over the starting point, or close the loop, the point where you release the mouse button is connected to the starting point by a straight segment.
- **To draw a straight-edged segment**, press and hold down Alt, release the mouse button, point to where you want the straight segment to end and click. Continue pointing and click to add additional straight segments. To switch back to freehand, hold down the mouse button and then release Alt. If you release Alt key first, the selection is closed with a straight line. (It takes some practice.)

TIP

■ When selecting, you may want to zoom to see details or scroll to parts of the image that you can see. You can do both without releasing the mouse button and closing the selection:

- To zoom, hold down Ctrl and press the + and - keys on the numeric keypad.
- To access the Hand tool, hold down the spacebar.

THE POLYGONAL LASSO TOOL

The Polygonal Lasso tool is primarily used to draw straight-edged segments of selections, although you can insert freehand segments. To use the Polygonal Lasso tool, select it in the toolbox and set its options on the options bar (page 86):

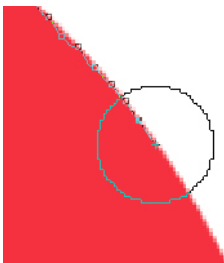


- **To begin**, click in the image to set the starting fastening point.
- **To draw a straight segment**, position the pointer where you want the first straight segment to end, and click. Continue clicking to set fastening points for subsequent segments by clicking.
- **To draw a freehand segment**, hold down Alt after clicking to end a straight segment, and drag. When finished, release Alt and the mouse button and you resume entering straight segments by clicking.
- **To erase recently placed endpoints for straight segments**, press the Delete key to “back up.”
- **To close the selection border**, do one of the following:
 - Position the pointer over the starting point (a small circle is displayed next to the mouse pointer when it's positioned correctly), and click.
 - If the pointer is not over the starting point, double-click or Ctrl+click the final point to close the selection with a straight segment.

TIPS

■ If an image has well-defined edges, use higher *Width* and *Edge Contrast* settings. If the edges are softer, use lower settings, and trace the border more carefully.

■ You can drag the Magnetic Lasso with or without the mouse button down.

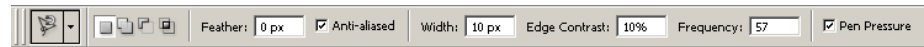


Engaging Caps Lock when using the Magnetic Lasso displays a circle showing the zone in which edges are detected.

THE MAGNETIC LASSO TOOL

With the Magnetic Lasso tool, the selection border snaps to edges and places fastening points as you drag along them in the image. This is especially useful for selecting objects in the image having complex edges against a uniform background.

To use the Magnetic Lasso tool, select it in the toolbox and set its options on the options bar:



■ *Width* specifies the area, between 1 and 256 pixels wide, in which edges are detected. To display a circle around the mouse pointer showing the detection width, engage Caps Lock after selecting the tool. To decrease or increase the circle's size, press [or]. Each time you press it you adjust the size by 1 pixel. (This also adjusts the width when the circle isn't displayed.)

■ *Edge Contrast* specifies the lasso's sensitivity to edges as a percentage between 1% and 100%. Higher values detect well-defined edges that contrast sharply with their surroundings; lower values detect poorly defined lower-contrast edges.

■ *Frequency* specifies the rate at which the lasso sets fastening points that anchor the selection border in place. The range is between 0 and 100 and higher values anchor the selection border in place more often. Higher settings are best for curves or intricate edges.

■ *Pen pressure* is for those using a stylus tablet. When on, an increase in stylus pressure causes the width of the edge detection to decrease.

Once you have set options, click in the image to set the first fastening point. As you then drag the pointer along the edge you want to trace, the selection border snaps to the highest-contrast edge that falls within the specified *Width* and has the specified *Edge Contrast*. Fastening points are added to the selection border at the rate specified in the *Frequency* option.

■ *To erase recently drawn segments and fastening points*, press the Delete key one or more times to "back up."

■ *If the border doesn't snap to the desired edge*, click once to add a fastening point manually. Continue to trace the edge, and click to add *fastening points* as needed.

■ *To switch temporarily to another Lasso tool*, do one of the following:

● *To activate the Lasso tool*, hold down Alt, as you drag while holding down the mouse button.

● *To activate the Polygonal Lasso tool*, press and hold down Alt, release the mouse button and click endpoints for straight segments. To return to the Magnetic Lasso, release the mouse button, click to end the final straight segment, then resume dragging.

■ *To close the selection border*, do one of the following:

● *To close the border manually*, drag back over the starting point (a closed circle appears next to the pointer), and click.

● *To close the border with a magnetic segment that follows edges*, double-click at the point you want to close from or press Enter. To close the border with a straight segment, hold down Alt, and double-click.

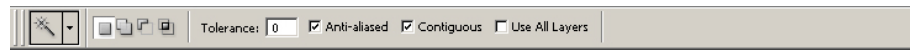
USING THE MAGIC WAND TOOL

TIPS

■ Once you have made a selection with the Magic Wand tool you can choose *Select>Grow* or *Select>Similar* to expand it (page 95).

■ You can't use the Magic Wand tool on images in the Bitmap format. To check the format select *Image>Mode*.

The Magic Wand tool selects an evenly colored area such as the sky when you click it. By adjusting the tolerance you control the range of colors that are selected. For example, if you set the tolerance value to 10, 10 similar but lighter tones and 10 similar but darker tones will be selected. To use the Magic Wand tool, select it from the toolbox and then choose settings on the options bar:



■ *Tolerance* controls the range of colors selected and the range is 0 to 255. Low values select colors similar to the pixel you click, and higher values select a wider range of colors.

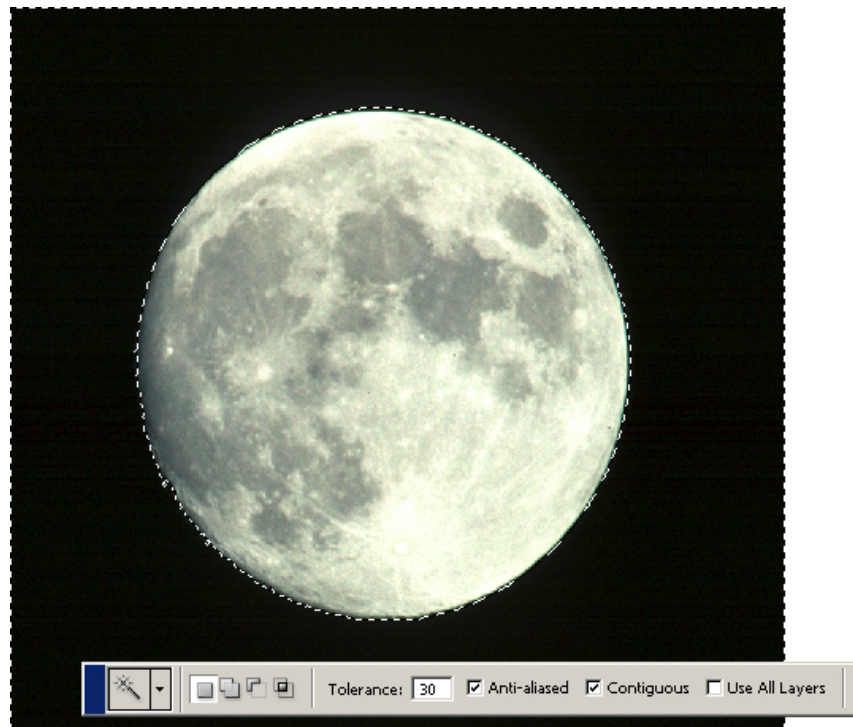
■ *Anti-aliased* check box, when on, creates a smooth selection edge (page 132).

■ *Contiguous* check box, when on, selects only pixels adjacent to the pixel you click. Pixels in other areas of the image aren't selected even if they are identical to the pixel you click. When off, the selection includes pixels anywhere in the image as long as they match the one you click or are close enough to it to fall within the tolerance range.

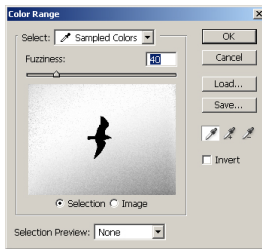
■ *Use All Layers* check box, when on, selects colors on all visible layers (page 104). When off, only colors from the active layer are selected.

To select an area in the image, click the color you want to select. Since the area selected depends both on the color of the pixel you click and the tolerance setting, experiment with both until you get the selection you want. Sometimes, just clicking a few pixels away changes the selection dramatically. To add to the selected area, you can Shift+click unselected areas, or choose *Select>Grow* (page 95). To unselect and try again, right-click in the image and choose *Deselect* from the context menu.

The Magic Wand tool works best when selecting uniformly colored areas such as skies. Here it has been used to select the black night sky. Using the Select>Inverse command the selection can be inverted to select the moon so it can be copied into another image.



SELECTING A RANGE OF COLORS



The Color Range dialog box.



The Select drop-down menu.

TIP

■ If a message reads “No pixels are more than 50% selected,” the selection border will not be visible. Try selecting a different color.

The Color Range command selects a range of colors that you specify by clicking with eyedroppers, selecting from a menu, or by specifying a tonal range. In fact, you can use all three ways to refine an existing selection. Just use the Color Range command repeatedly to select colors in different ways.

To begin selecting a range of colors, choose *Select>Color Range* to display the Color Range dialog box with the following settings:

■ *Select* text box displays what’s being selected but you can click the drop-down arrow to display a menu from which to select other choices.

● *Sampled Colors*, the default, selects colors when you click in the image with one of the three the Eyedropper tools.

● *Color patches* represent the colors that make up images, much like channels—RGB and CMY. When you select these you can’t use the Fuzziness slider.

● *Tonal range* lets you select highlights, midtones, or shadows.

● *Out-of-Gamut* works only on RGB and Lab images and selects colors that cannot be printed using process color printing.

■ *Fuzziness* slider adjusts the range of colors with higher values including more colors in the selection.

■ *Selection* and *Image* option buttons specify if you see a preview of the selection (white areas are selected) or the entire image in the preview window. To toggle between the two views, press Ctrl.

■ *Selection Preview*, normally set to *None*, has a drop-down arrow you click to preview the selection as a *Grayscale*, *Black Matte*, *White Matte*, and *Quick Mask* (page 149).

■ *OK* applies your changes to the image and closes the dialog box.

■ *Cancel* closes the dialog box without applying your adjustments to the image. If you hold down Alt, the button changes to *Reset* so you can click it to restore the original settings and try again.

■ *Load/Save* buttons let you reuse your settings with other images.

■ *The eyedroppers* are used when you have set *Select* to *Sampled Colors*. Position the pointer over the image or preview area, and click to sample the colors you want included in the selection. (Using a low Fuzziness setting and multiple clicks often works best because you can incrementally build the selection.) To adjust the selection:

● To add colors to the selection, select the plus eyedropper, and click in the preview area or image. To temporarily activate the plus eyedropper, hold down Shift.

● To remove colors from the selection, select the minus eyedropper, and click in the preview area or image. To temporarily activate the minus eyedropper, hold down Alt.

■ *Invert* check box, when on, inverts the colors in the Preview box when the *Selection* option button is on.

ADJUSTING AN EXISTING SELECTION

TIPS

■ When selecting with the Marquee tools, you can hold down the spacebar in the middle of the operation and drag the selection to a new position. You can then release the spacebar and continue dragging to adjust the selected area.

■ To remove the selection border, choose *Select > Deselect* or if the *New selection* button is selected on the options bar click anywhere outside the selection border.

Once you have made a selection, and as long as the selection border remains in place, you can fine-tune it in a number of ways. For example, you can move, invert, hide, feather, modify, or grow it.

MOVING AN EXISTING SELECTION BORDER

After making a selection you can move the selection border without moving the selected area of the image. To do so with any selection tool, click the *New Selection* icon on the options bar, point inside the selection border so the pointer changes to indicate that you can move the selection, then drag the border to adjust its position. If any multiple selection button other than *New Selection* is selected on the options bar, when you try to drag the current selection border, you just start a new selection. If you select the *Move* tool, moving the selection border also moves the selected part of the image. This leaves a blank area that is filled with the current background color (page 126).

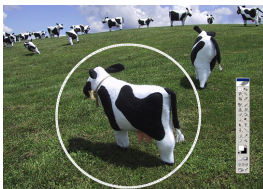
■ To constrain the direction to multiples of 45°, begin dragging, and then hold down Shift as you continue to drag.

■ You can drag a selection border beyond the image boundaries and even to another image window.

Instead of using the mouse to move the selection border, you can use the arrow keys on your keyboard to position the border very precisely, in 1-pixel increments. To control the movement of a selection do one of the following:

■ *To move the selection in 1-pixel increments*, press one of the arrow keys.

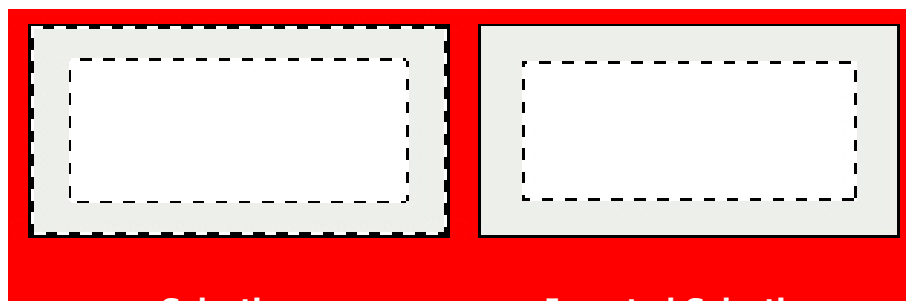
■ *To move the selection in 10-pixel increments*, hold down Shift as you press the arrow keys.



To add a border in the current foreground color around a selection, choose Edit > Stroke.

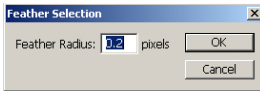
INVERTING A SELECTION

Inverting a selection unselects the selected area and selects everything else. When deciding how best to select an area, ask yourself if it's easier to select it, or the areas around it. If it's easier to select the areas around it, do so and then invert the selection. For example, to select a detailed moon against a dark black sky, you might use the Magic Wand tool to select the sky and then invert the selection to select the moon. To invert a selection, choose *Select > Inverse*. When using a selection tool, you can also right-click an image to display a context sensitive menu and click *Select Inverse*.



HIDING THE SELECTION BORDER

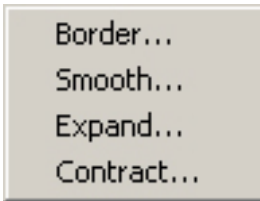
Should you ever want to hide the selection border while leaving it active you can do so by selecting *View>Show>Selection Edges*. If the border is on, the command turns it off. If it's off, it turns it back on. You can also hide it along with other elements by selecting *View>Extras*.



The Feather Selection dialog box.

FEATHERING A SELECTION

Although some tools let you feather a selection at the time you make it (page 87), you can also feather it later as long as it remains selected. To do so, choose *Select>Feather* to display the Feather Selection dialog box. In the *Feather Radius* text box specify a transition zone between 0.2 and 250 pixels wide over which edges fade out, and click *OK*. The selection border doesn't show the edge of the selection, but the place where feathering is 50% (page 87). If you apply a large feather radius setting to a small selection, you may get the message "No pixels are more than 50% selected." If this happens, decrease the feather radius, or increase the selection's size.



The *Select>Modify* submenu.

MODIFYING A SELECTION

Once you make a selection, you can modify it by choosing *Select>Modify* to display a submenu with the following choices:

- *Border* creates a soft-edged, anti-aliased selection border of the width you specify in the dialog box that appears.

- *Smooth* cleans up isolated pixels that were selected or left unselected against your wishes. In the Smooth Selection dialog box, set the *Sample Radius* to a value between 1 and 100, and click *OK*. The program searches around each pixel for within the specified sample radius.

- If most pixels in that radius are selected, any unselected pixels are added to the selection.

- If most pixels in that radius are unselected, any selected pixels are removed from the selection.

- *Expand/Contract* commands display dialog boxes you use to increase or decrease the size of an existing selection by a specified number of pixels. Enter a value between 1 and 100, and click *OK*.

TIP

■ You cannot use the *Select>Grow* or *Select>Similar* commands on images in bitmap mode.

GROWING A SELECTION

You can expand a selection to include adjacent pixels or pixels scattered anywhere in the image that fall within the tolerance range specified on the Magic Wand's options bar. A higher tolerance value adds a broader range of colors. To increase the selection incrementally, choose the command multiple times.

- To expand a selection to include all contiguous pixels falling within the tolerance range, choose *Select>Grow*. The selection will not jump across areas that are outside of the tolerance range.

- To expand a selection to include pixels throughout the image that fall within the tolerance range, not just contiguous ones, choose *Select>Similar*.

MOVING, COPYING, AND PASTING SELECTIONS

TIPS

- When copying one image into another, you may want to increase the size of the target image's canvas so there is room for the new photo.
- When any tool other than Move is selected, you can temporarily switch to the Move tool by holding down Ctrl before you start to drag the selection.
- You can't Ctrl+drag when using the Pen, Freeform Pen, Path Selection, Direct Selection, Hand, Slice Select, or anchor point tools.

You can move or copy selected areas within or between images—perhaps to create a collage or composite image.

ABOUT MULTIPLE IMAGES

It's not uncommon to copy or move selections between images. When doing so, open both images and you may want to select *Window>Arrange>Tile* to arrange them side-by-side. You can drag selections or cut and paste them as described below, but there are some things specific to doing so between images.

- When you drag a selection into another image, a border highlights the destination image window when you can drop the selection into it.
- When you copy, move, or paste a selection into another image, the selection is on a new layer (page 104) and retains its pixel dimensions.

DRAGGING A SELECTION—THE MOVE TOOL

Once you have selected an area you can select the Move tool and then copy or move it in a number of ways.

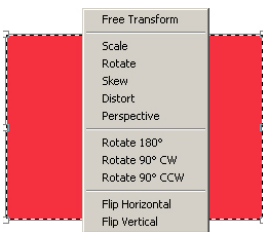
- *To move the selection*, select the Move tool, point inside the selection border, and drag with the mouse. When many other tools are selected, Ctrl+drag moves the selection.
- *To copy the selection*, point inside the selection border, and Alt+drag. When many other tools are selected, Alt+Ctrl+drag moves the selection.
- *To move the selection in small increments* of 1 pixel press the arrow keys. Hold down Shift as you do so to move it 10 pixels at a time.

When using the Move tool you have the following choices on the options bar:

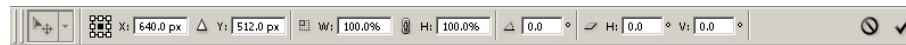


■ *Auto Select Layer* selects the topmost layer that has pixels under the Move tool, rather than the selected layer (page 104).

■ *Show Bounding Box* check box, when on, displays a bounding box around the selected item with handles you can drag to transform the selection. When you then click or drag the bounding box, or just outside of it with the pointer displayed as a curved arrow, the options bar changes so you can transform the selection by dragging bounding box handles or dragging on the options bar.



After clicking the bounding box with the Move tool to change the options bar, you can right-click in the image to display a menu listing transform commands (page 101).



- *To change the reference point location*, around which all transformations are performed, click one of the nine points on the *Reference point location* button. You can also use the Move tool to point to the “X” or “Y” on the options bar and drag the mouse. By default, this point is at the center of the selection.
- *To change the selection's size and retain its proportions*, Shift+drag a corner handle. To change the size without moving the center point, Alt+drag, or Alt+Shift+drag to also retain the selection's aspect ratio. You



The Reference point location, Use relative positioning for reference point, scale, Maintain aspect ratio, Rotate, and Set horizontal skew button on Move Tool's option bar.



The Cancel and Commit icons.

can also click the *Maintain Aspect Ratio* icon (the chain links) on the options bar to turn it on, then use the Move tool to point to the “W” or “H” on the options bar and drag the mouse.

- To rotate the selection, point just outside of the selection border so the pointer turns into a curved arrow, and drag. You can also use the Move tool to point to the Rotate button on the options bar and drag the mouse.
- To skew the selection, Ctrl+drag a corner handle to skew that corner or Ctrl+drag a middle side handle to skew the entire selection. You can also use the Move tool to point to the “H” or “V” on the options bar and drag the mouse.
- To transform the selection side to side or top to bottom, without changing the center point, Alt+drag a side handle.
- To complete transforming the selection, double-click within the selection, click the *Commit* icon on the options bar, select a different tool in the toolbox, or press Enter.
- To cancel transforming the selection, click the *Cancel* icon on the options bar or press Esc.

■ *Align and Distribute* buttons are used to align the content of one or more layers to a selection or distribute edges and centers.

COPYING AND MOVING SELECTIONS—THE CLIPBOARD

You can copy and move selections by choosing commands on the *Edit* menu to copy or cut a selection to an area of memory called the *clipboard*. The selection remains on the clipboard and can be pasted into any image until you copy or cut another selection to the clipboard or quit the program.

When you cut, delete, or move a selection on the background layer (page 104), the void is filled with the current background color (page 126).

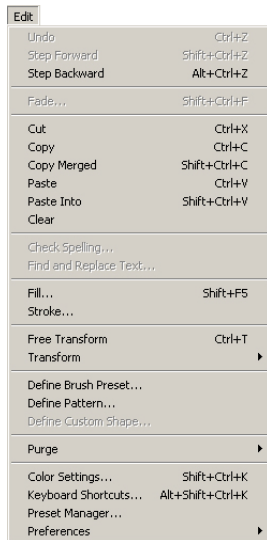


■ To cut or copy a selection to the clipboard, pull down the *Edit* menu and select one of the following commands:

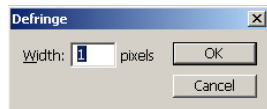
- *Cut* moves the selection to the clipboard.
- *Copy* copies the selection to the clipboard.
- *Copy Merged* copies all layers in the selected area to the clipboard. The *Cut* and *Copy* commands just cut or copy the selected layer (page 104).

TIP

■ You can drag and drop and cut/copy and paste selections into other applications. On Windows systems the target application must support OLE (most do).



The Edit menu lists commands you can use to cut, copy, and paste a selection.



The Defringe dialog box.

Here a portrait was copied to the clipboard. A new document was opened and an oval was selected with a large feathering value. The selection was then deleted and the portrait on the clipboard was pasted into the opening using the Edit>Paste Into command. The Move tool was then selected to adjust the portrait's position within the opening.

■ To paste a selection from the clipboard, select the image you want to paste it into, pull down the *Edit* menu and select one of the following commands:

- *Paste* copies the selection onto a new layer in the current image.
- *Paste Into* copies the selection on the clipboard into a selected area of the current image. After it's been pasted, you can select the Move tool and use it or the arrow keys to position the copied selection within the selection border. (What you have done is create a layer mask—page 150.) When you're happy with the arrangement, you can leave it as is in case you want to change it later or choose *Layers>Merge Down* to make the change permanent.

■ To copy a selection from the clipboard into a new image, select *File>New* to create a new blank image the same size as the image on the clipboard. You then select *Edit>Paste* to paste the selection into the new image on its own layer with a blank background layer.

REMOVING FRINGE PIXELS

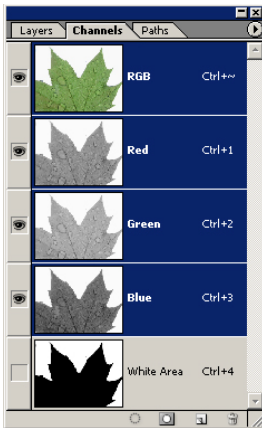
When you copy or move an anti-aliased selection, the pixels used to anti-alias can create a halo-like fringe around the selection. Selecting *Layer>Matting>Defringe* and entering 1 or 2 pixels in the *Width* text box, removes this fringe by replacing the color of any fringe pixels with the colors of nearby pixels containing pure colors without background color. If you are pasting an anti-aliased selection cut or copied from a white or black background onto a different background, you can choose *Layer>Matting>Remove Black Matte* or *Layer>Matting>Remove White Matte*.

DELETING A SELECTION

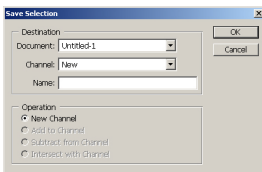
To delete a selected area from your image, select *Edit>Clear*, *Edit>Cut*, or press Backspace or Delete. If you delete a selection from the background layer, the void left by the deletion is filled with the current background color (page 126). On other layers you open transparent areas so layers below show through.



SAVING AND REUSING SELECTIONS



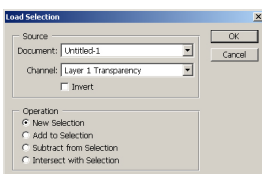
When you save a selection, its thumbnail is listed at the bottom of the Channels dialog box. Selected pixels are white, unselected pixels are black, and partially transparent or selected pixels are gray.



The Save Selection dialog box.



The Channel palette buttons include (from left to right) Load channel as selection, Save selection as channel, Create new channel, and Delete current channel.



The Load Selection dialog box.

Selecting detailed or complicated areas in an image can take a great deal of time. If you close the image file and then reopen it, or even click in the wrong place with the wrong tool, you lose all of that effort. One way to preserve a selection, is to save it and then reload it whenever you need it. Selections are saved as channels, called *alpha channels* to distinguish them from color channels, and listed at the bottom of the Channels palette (page 153). The selection at this point has become more than a selection, it has become a grayscale image called a *mask* or *alpha mask*. Masks, the focus of Chapter 7, are more powerful forms of selections because you can edit them with all of the tools Photoshop puts at your command to edit images.

SAVING A SELECTION

To save a selection, click the Channel palette's *Save selection as channel* button to list the new channel, named according to the sequence in which it was created. To save it with options, Alt+click the same button or select *Select>Save Selection* to display the Save Selection dialog box with the following settings:

- **Document** drop-down arrow lets you specify a destination image for the selection. By default, the selection is saved in the active image. You can change this to save the selection to a channel in another open image as long as it has the same pixel dimensions, or to a new image.
- **Channel** drop-down arrow lets you specify a destination channel for the selection. By default, the selection is saved in a new channel. If you have previously saved a selection, you can choose to save the selection to it.
- **Name**, used if you're saving the selection as a new channel, lets you enter a descriptive name for the selection.
- **Operation section**, used when you're saving the selection to a previously save selection, specifies how to combine the selections. *Replace Channel* replaces the current selection, *Add to Channel* adds the selection to the current channel contents, *Subtract from Channel* deletes the overlapping sections, or *Intersect with Channel* keeps only the overlapping sections.
- **OK** saves the selection (but remember to save the image file).
- **Cancel** closes the dialog box without saving the selection.

LOADING A SELECTION

Loading a selection that you have previously saved displays it in the image as a selection border. After loading it be sure to select the RGB channel in the Channels palette, and the layer you want to use it with in the Layers palette.

To load a previously saved selection listed in the Channel palette, drag and drop the selection's channel onto the palette's *Load channel as selection* button or select the channel and click the same button. To load a channel using options, choose *Select>Load Selection* to display the Load Selection dialog box with the following settings:

- **Document** drop-down arrow lets you select any open image containing a saved selection. (The images must have the same pixel dimensions.)
- **Channel** drop-down arrow lets you select a previously saved selection stored in the image you selected as the *Document*.

TIPS

- When you save a selection, it is only saved permanently when you save the image file containing it. The file has to be saved in the PSD or TIFF format.
- To delete a selection that you have previously saved, you have to delete the channel it was saved in (page 58).
- An alpha channel has these properties:
 - Each image can contain up to 56 channels, including color and alpha channels.
 - You can specify a name, color, mask option, and opacity for each channel. (The opacity affects the preview of the channel, not the image.)
 - All new channels have the same dimensions and number of pixels as the original image.
 - You can edit the mask in an alpha channel using painting tools, editing tools, and filters.

- *Operation section*, used when you're loading a selection into an image with an existing selection, specifies how to combine the selections. Your choices include *New Selection* to replace the current selection in the image, *Add to Selection*, *Subtract from Selection*, or *Intersect with Selection*. The effects of these choices are discussed on page 86.

- *OK* loads the selection and it appears in the image as a selection border. Select the composite color channel in the Channels palette to use the selection to edit the image. If the image has more than one layer, the selection affects only the one you have selected in the Layers palette (page 104).

- *Cancel* closes the dialog box without loading the selection.

MANAGING CHANNELS

- *To select a channel*, click its name in the Channels palette. To select multiple color or alpha channels, Shift+click them. If you select any channel other than RGB only those you select are listed in dialog box *Channel* drop-down menus, multiple color channels being listed by abbreviations such as RG for Red and Green channels.

- *To display just the mask*, click the eye icon in the Channels palette to hide the color channels.

- *To display the mask's color overlay in the image*, display the eye icon for any or all color channels.

- *To delete an alpha mask*, select it in the Channels palette and click the palette's *Delete current channel* button, drag and drop the channel on the same button. You can also right-click the channel or display the Channel palette's menu and choose *Delete Channel*.

- *To change the order of alpha channels* (you can't move color channels), drag the channel up or down. When a line appears in the position you want, release the mouse button.

- *To rename an alpha channel*, double-click the channel's name in the Channels palette, type a new name and press Enter.

DUPLICATING CHANNELS

There are situation in which you may want to duplicate a channel. For example, you might want to backup a channel you are about to edit, or copy a selection to another image with the same pixel dimensions. To begin, select the channel to be duplicated then select *Duplicate Channel* from the Channels palette menu to display the Duplicate Channel dialog box with the following settings:

- As text box lists the current name of the channel but you can enter a new one.

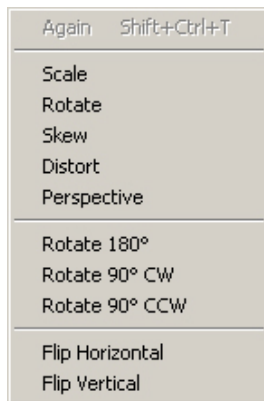
- *Document* lists the name of the document you want to duplicate the layer to. The default is the current document but you can click the drop-down arrow to select any other open document with the same pixel dimensions, or *New* to copy it into a new image.

- *Name*, available only when the *Document* is set to *New* is where you enter a descriptive name for the duplicated channel.

- *Invert* check box, when on, reverses the selected and masked areas in the duplicate channel.

TRANSFORMING SELECTIONS

You can scale, rotate, skew, distort, and apply perspective to selected parts of an image. (You can also use the same techniques to transform layers and shapes discussed later.) In digital photography, one use of these tools is to correct the keystone you get when you point the camera up to photograph buildings.



The *Edit > Transform* submenu.

THE TRANSFORM COMMAND

To transform a selection first select it, then choose *Edit > Transform* to display a submenu listing the transform commands described below. (Hold down *Alt* as you choose a command to transform a copy of the selection while leaving the original selection unchanged.) When you select one of the submenu's commands, the selection is enclosed in a bounding box with corner and side handles you drag to transform the image.

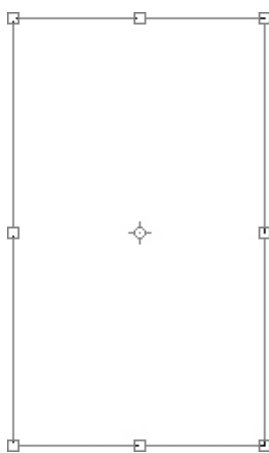
All transformations are performed around a fixed point called the *reference point*. The point is initially in the center of the selection, however, you can change it by clicking a square on the *Reference point location* button on the options bar. Each square represents a point on the bounding box. For example, clicking the top left square sets the reference point to the top left corner of the bounding box. You can also change the reference point by dragging the center point of the bounding box anywhere inside or outside of the bounding box.



The Reference Point location button on the options bar.

The transform commands you can select from the *Edit > Transform* submenu include the following (you can apply more than one before committing the combined transformations to the selection):

- *Scale* changes the image's size. *Shift*+drag a corner handle to retain the selection's aspect ratio. *Alt*+drag to scale around the center point.
- *Rotate* rotates the selection around the reference point when you drag outside of the bounding box.
- *Skew* slants the selection horizontally or vertically when you drag a side handle.
- *Distort* stretches the selection in any direction when you drag a corner handle.
- *Perspective* applies single-point perspective when you drag a corner handle. (You can also do this while cropping with the Crop tool—page 54.)



The transfer bounding box with a center point and handles you drag.

When finished, you have to apply a transformation by clicking the *Commit* button on the options bar, double-clicking inside the bounding box, or pressing *Enter*. To cancel the transformation, click the *Cancel* button on the options bar, or press *Esc*. You can now choose *Edit > Transform > Again* (*Shift*+*Ctrl*+*T*) to repeat the same transformation. This is a good way to build up a transformation in small steps.

THE FREE TRANSFORM COMMAND

The Free Transform command lets you apply transformations without having to choose commands from the menu. After making a selection in the image, choose *Edit > Free Transform*, then select the Move tool and turn on the *Show Bounding Box* check box on the options bar.



The *Cancel* and *Commit* buttons on the options bar.

- *To scale*, drag a handle. Shift+drag to retain the selection's aspect ratio.
- *To rotate*, point outside of the bounding border so the pointer becomes a curved, two-sided arrow, and then drag. Shift+drag to rotate in 15° increments.
- *To distort* relative to the center point of the bounding border, Alt+drag a handle. To distort freely, Ctrl+drag a handle.
- To skew, Ctrl+Shift+drag a side handle. When positioned over a side handle, the pointer becomes a white arrowhead with a small double arrow.
- To apply perspective, Ctrl+Alt+Shift+drag a corner handle. When positioned over a corner handle, the pointer becomes a gray arrowhead.

An image with converging verticals (top) can be corrected by selecting the Perspective command and dragging one of the top corner handles until the verticals in the image are parallel (bottom).



TIPS

- To transform a selection border, choose *Select > Transform Selection*.
- To transform an entire layer, make the layer active, and make sure nothing is selected. (You cannot transform the background layer without first converting it into a regular layer (page 104).
- To transform multiple layers, link them (page 111)

Chapter 5

Working with Layers

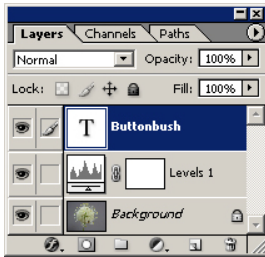


CONTENTS

- Using Layers ■ The Layers Palette ■ Creating and Preserving Layers ■ Creating and Using Layer Sets ■ Managing Layers and Layer Sets ■ Using Adjustment Layers ■ Using Fill Layers ■ Entering Text ■ Creating Clipping Paths

When you first open a digital photograph it contains a single layer. However, you can add additional layers either directly or indirectly. Why would you want to do so? In some cases you have no choice. For example, if you use the Type tool to add text to an image or a shape tool to add a shape, the text or shape is automatically entered on a new layer. In other situations you want to add layers yourself. For example, you can add an adjustment layer to change such image characteristics as levels, brightness and contrast, or hue and saturation. If you later hide or delete this layer, the image reverts to its original form. Before layers were introduced, changes were always made to the original image and were difficult or impossible to undo later. Every change had to be well planned, as if you were carving in stone. Now you can use layers to make changes and modify and delete them at will without affecting the original image. The more you learn about layers, and the tools you use to manage them, the more uses you will find for them.

USING LAYERS



The Layers palette displays all of the layers in an image. Here they include (from bottom to top), the background layer, an adjustment layer, and a text layer.



Adjustment layers affect the layers below them. Here a Photo Filter adjustment layer has been added to make the colors warmer.

TIPS

■ Type, shape, and fill layers are different from other layers. Their content is not in the form of pixels, but in the form of vector graphics.

■ Whenever you plan on painting or drawing on an image, you should create a layer to do it on so you won't change the original image.

When you first open a digital photo, it has only one layer—the background layer containing the image. Any changes you make to this layer become part of the image and permanently change its pixels. To avoid permanent changes, you add additional layers and make your changes on those layers. It's as if you were covering an original photo with sheets of glass on which you drew, painted, made adjustments to the image below, entered text, or added fills.

Although layers can dramatically increase the size of a file, there are advantages that outweigh this one disadvantage.

■ **Changing a layer** affects only that layer and doesn't affect other layers except in intended ways. For example, one layer may contain adjustments to the image's levels, while another layer has adjustments to its saturation. These layers only effect the appearance of the image layer below them.

■ **Hiding a layer**, by clicking its eye icon in the Layers palette, temporarily hides the layer and removes its effects from the image. For example, if you add text on a layer, you can hide that layer and make a print without the text. You can then unhide the layer and make a print with the text. (One trick is to quickly toggle an adjustment layer on and off a number of times to see exactly what effects it's having on the image.)

■ **Deleting a layer** removes its effects from the underlying image. You can delete a layer at any time, unlike the *Edit>Undo* command or History palette that only undo changes made during the current session.

■ **Adjusting or revising a layer** is possible at any time, unlike changes made to the image itself that are permanent. For example, if you use a layer to adjust an image or add type, you can always go back later and change the adjustment or change the size or color of the text.

■ **Repositioning layers** makes it easy to revise a layout. For example, if you've added text or combined multiple images, you can drag their layers into new positions at any time.

■ **Adding or deleting layer styles** such as drop shadows under text can be done at any time.

Although you can create regular layers on which to place other images, paint, or draw, there are some types of layers that are dedicated to specific functions.

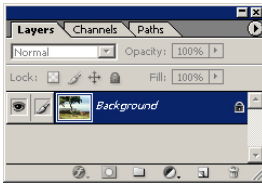
■ **Adjustment layers** can change an image's levels, color balance, brightness, contrast, hue, and saturation without changing the original image. Any adjustments made to the adjustment layer are "projected" onto the underlying image where you see their affects.

■ **Fill layers** (page 118) add a solid color, gradient, or pattern to an image. You can then make the fill layer transparent or cut holes in it so the image below shows through much like a photo shows through an opening cut in a mat.

■ **Type layers** (page 120) are created automatically when you select the Type tool from the tool box and click in the image to enter text. Having text on its own layer makes it easy to edit, manipulate, move, and delete.

■ **Shape layers** (page 143) are created automatically when you select a Shape tool in the toolbox and use it to draw a shape on the image.

THE LAYERS PALETTE



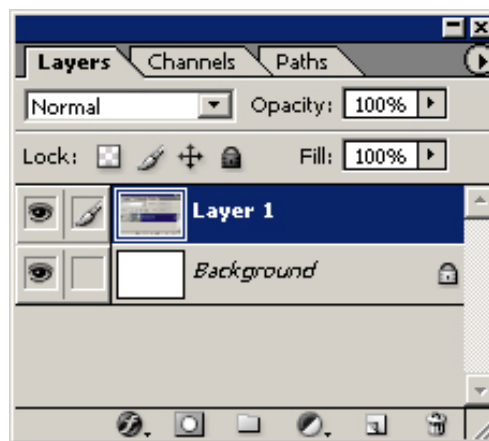
When you open a digital photo, it is the background layer.

The Layers palette is your control panel as you create, manage, and select an image's layers. To display the Layers palette, choose *Window>Layers*, or if the palette is already open click its tab, or drag it out of the palette well so it floats in the work area. If you have just opened a digital photograph, the layers palette displays only a single layer—labeled *Background* and displaying a lock icon. As you edit an image, you may add additional layers that are then listed in the palette above the background layer. You can click any one of the layers to make it the *active layer* and many procedures then affect only that layer. To manage layers you click icons in the Layers palette, select commands on the *Layers* menu, and click the triangle icon to display the palette menu. Here are some of the options you have:

The Layers palette displays the layers in an image and lets you set the selected layer's mode and opacity. Clicking the triangle icon displays the palette menu, and icons along the bottom edge let you create or delete layers.

TIPS

- **Palette Options** on the Layers palette menu changes the size of the thumbnail displayed in the palette or even hides it.
- Buttons are not displayed at the bottom of the palette when it is minimized. Click the palette's *Restore* button to display them.



■ *Triangle icon* displays the palette menu with commands you use to manage layers.

■ *Blending Mode*, set to *Normal* by default, has a drop-down arrow you can click to select from a list of blending modes you can assign to the selected layer (page 132).

■ *Opacity*, set to 100% by default, has a drop-down arrow that displays a slider you drag to change the selected layer's opacity (page 132).

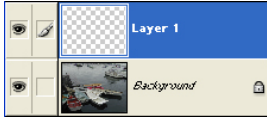
■ *Lock icons* lock and unlock various properties of layers (page 114).

■ *Fill*, set to 100% by default, has a drop-down arrow that displays a slider you drag to change the opacity of pixels painted on the layer or shapes drawn it. This control does not affect layer styles and blending modes applied to the layer as the *Opacity* slider does.

■ *Layers* are shown on the palette in the order in which they are stacked in the image—the topmost layer in the Layers palette is the topmost layer in the



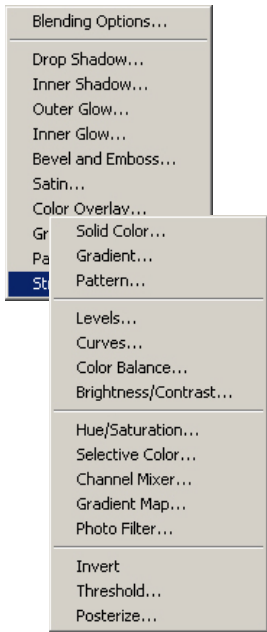
The Layer palette's Lock transparent pixels (left), Lock image pixels, Lock position, and Lock all (right) buttons.



In the Layers palette, each layer has three sections that present information about the layer.



Buttons at the bottom of the Layers palette are (from left to right) Add a layer style, Add layer mask, Create a new set, Create a new fill or adjustment layer, Create a new layer, and Delete layer.



Clicking the Add a layer style or Create a new adjustment or fill layer icons displays a menu.

The Layers palette lists all of the layers in an image in the same order in which they are stacked. This image has three layers (from top to bottom) a type layer, a photo filter layer, and the background layer containing the photo.

image. The order of layers is important because it can determine what you see and what layers are affected by changes in layers above them. For example, if a type layer is below a fill layer or any other layer with 100% opacity, it is hidden. You can drag any layer except the background layer up or down in the Layers palette to change its position in the stacking order.

- *The left column* displays an eye icon when the layer is visible (page 111) and no icon when a layer is hidden. Click to show or hide the layer and its effects.
- *The middle column* displays a paintbrush (or a mask icon if the layer has a mask—page 146) when you click it to select it as the active layer. This is the layer to which editing changes will be made. If other layers are linked to the selected layer, this column on those layers displays a link icon (page 115).
- *The right column* displays a thumbnail indicating the layer’s contents or function, a second thumbnail if the layer has a mask (page 150), and the layer’s name. If a layer is locked, a lock icon is displayed in this column.

- *Add a layer style* button displays a menu of styles you can apply to the selected layer (page 122). This button is not available when the background layer is selected.
- *Add layer mask* button creates a mask that you can edit to prevent sections of the selected layer from being affected by adjustments and to make areas of a layer transparent so layers below show through (page 150). This button is not available when the background layer is selected.
- *Create a new set* button lets you organize layers in folder-like sets (page 109).
- *Create a new adjustment or fill layer* button displays a menu of adjustment and fill layers you can insert above the currently selected layer (page 116, 118).
- *Create a new layer* button creates a regular layer above or below the currently selected layer (page 107).
- *Delete layer* button deletes the selected layer. You can also drag a layer and drop it onto the icon to delete it.



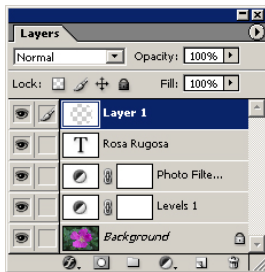
CREATING AND PRESERVING LAYERS



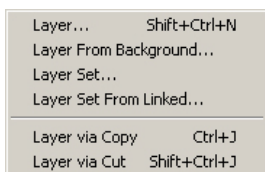
Buttons at the bottom of the Layers palette are (from left to right) Add a layer style, Add layer mask, Create a new set, Create a new fill or adjustment layer, Create a new layer, and Delete layer.

TIP

■ If you use the Background or Magic Eraser tool (page 132) on the background layer, it turns it into a regular layer and erased areas become transparent.



Here the Layers palette shows a variety of layer types including (from top to bottom) a regular layer, a text layer, a photo filter layer, a levels adjustment layer, and a background layer.



Selecting **Layer > New** displays a submenu of choices.

Although a new digital photo has only a background layer you can convert that layer into a regular layer and add as many additional layers as your system has memory for.

THE BACKGROUND LAYER

The background layer, such as the one containing a digital photo that you open for the first time, is unique in that there is only one and you can't move it in the stacking order or change its blending mode or opacity. However, you can do all of these things and more if you first convert it into a regular layer.

■ To convert the background layer into a regular layer, do one of the following:

- Double-click the background layer's thumbnail in the Layers palette to display the New Layer dialog box (page 108).
- Select **Layer > New > Layer from Background** to display the New Layer dialog box (page 108).
- Double-click the background layer's name and rename it.

■ To make a duplicate copy of the background layer while leaving the background intact, select the background layer and drag it onto the **New Layer** button, or choose **Duplicate Layer** from **Layer** menu or the **Layer** palette's menu.

■ To convert a regular layer into a background layer, when the image doesn't already have a background layer, select the layer and choose **Layer > New > Background from Layer**. Any transparent areas in the original layer are filled with the background color.

CREATING NEW LAYERS

When you add a new layer or perform an action such as adding type, a shape, or a fill that creates a layer automatically, the new layer appears on the palette above the currently selected layer. Since layers are usually created to affect the layer below them—referred to as the *stacking order*—the first step in creating a new layer is to select the layer above which you want it to appear. In the case of an adjustment layer (page 116), this would be the layer with the photo on it—usually the background layer. To add a new layer above the selected layer, do one of the following:

■ To create a new layer above the selected layer, click the **Create a new layer** button on the Layers palette. When the background layer isn't selected, **Ctrl+click** the button to add the new layer below the selected layer.

■ To create a new layer using the **New Layer dialog box** (page 108) do one of the following:

- Select **Layer > New > Layer** to create a new regular layer or **Layer from Background** to make a copy of the background layer that is a regular layer that can be edited.
- Click the **Layer** palette's triangle icon to display the palette menu and select **New Layer**.
- **Alt+click** the **Create a new layer** button at the bottom of the **Layers** palette.

TIPS

■ One technique with a high contrast scene is to use a tripod and take two pictures—one exposed to capture the shadows correctly and one to capture the highlights. You then copy one of these images into the other so its on its own layer. You can erase through various parts of the top image so the entire image looks properly exposed. You can also generate the two files from a single RAW image.

■ Layers add to a file's size. You can check the uncompressed size of a file, including alpha channels and layers, on the status bar at the bottom of the window when *Document Sizes* has been selected from the pop-up menu.



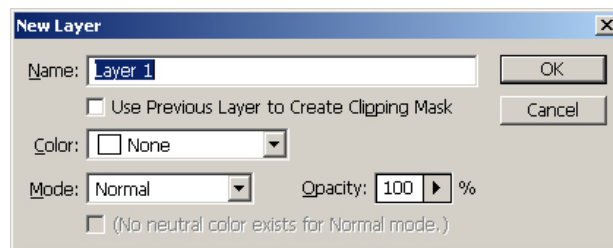
When saving an image with layers, if you choose a format that does not support layers, this warning icon is displayed next to the Layers check box in the dialog box. To save all of your data, be sure to save one copy in Photoshop's PSD format.

■ To create a new layer from a selection by cutting and pasting, first copy or cut the selection to the clipboard and then paste it back into the same or a different image. Alternatively, you can choose *Layer>New* and then select *Layer via Copy* or *Layer via Cut*.

■ To duplicate a layer, select the layer and drag it onto the *New Layer* button, or choose *Duplicate Layer* from the *Layer* menu or the *Layer palette's* menu.

THE NEW LAYER DIALOG BOX

When adding a new layer to an image, a number of commands display the *New Layer* dialog box where you can enter a name or change the following settings:



■ *Name* text box displays a name that has been assigned automatically based on the type of layer and the order in which it was created. You can type in a new name or change it later (page 112).

■ *Use Previous Layer to Create Clipping Mask* check box, when on, uses the content of the layer below to mask the layers above it (page 124).

■ *Color* text box lists the color of the layer in the *Layers palette* (not in the image). Colors can help you identify certain layers and you can assign one by clicking the drop-down arrow. You can also do this later by selecting a layer and then selecting *Layers>Layer Properties*, or selecting *Layer Properties* from the *Layer palette's* menu.

■ *Mode* specifies how pixels in the new layer blend with the layers below (page 132). When you set this to modes other than *Normal*, *Dissolve*, *Hue*, *Saturation*, *Color*, or *Luminosity* the check box below becomes active. Since some filters cannot be applied to layers with no pixels, turning on this check box fills the layer with a preset, neutral color. The neutral color uses the layer's blending mode and is invisible if no effect is applied.

■ *Opacity* specifies how transparent the layer is and how much the layer below shows through it (page 132).

■ *OK* button closes the dialog box and adds the layer to the image and *Layers palette*.

■ *Cancel* button closes the dialog box without creating the layer set.

PRESERVING LAYERS

Because you usually want to preserve layers in your working copy, you should always save the image in a format such as PSD, TIFF, or PDF. (When you use the *Save As* command, the *Layers* check box is available for formats that preserve layers. If the check box is dimmed, the selected format won't preserve them.) If you want a JPEG image, where all layers are flattened, you can always use the *Save As* command to create it from the working copy.

CREATING AND USING LAYER SETS

TIP

■ Selections that you make on one layer, work on any layer that you select. In that way they are independent of the layers.

Layer sets, acting much like folders, organize your layers and reduce clutter in the Layers palette. You can also use layer sets to apply effects and adjustments to multiple layers simultaneously.

CREATING LAYER SETS

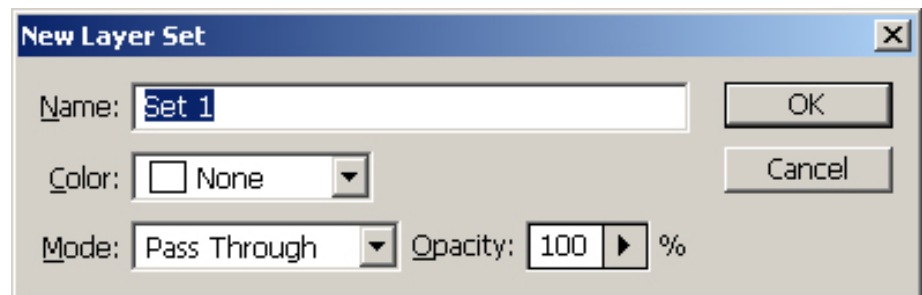
To organize layers into layer sets, you first create a set and then move existing layers into it. There are a number of ways to create a new layer set:

■ *To create a new layer set using default options*, click the *Create a new set* button at the bottom of the Layers palette. To add a layer set below the currently selected set Ctrl+click the *Create a new set* button.

■ *To create a new layer set from linked layers* (page 115), select a layer to which others are linked then choose *Layer>New>Layer Set from Linked* to display the New Set from Linked dialog box.

■ *To create a new layer set and specify options*, do one of the following to display the New Layer Set dialog box:

- Select *Layer>New>New Layer Set* from the main menu.
- Select *New Layer Set* from the Layers palette menu.
- Alt+click the *Create a new set* button in the Layers palette.



THE NEW LAYER SET DIALOG BOX

When you create a new layer set, you may see the New Layer Set or New Set from Linked dialog box with the following settings.

■ *Name* text box displays a name that has been assigned automatically based on the order in which the layer set was created. You can type in a new name or change it later (page 112).

■ *Color* text box lists the color used to highlight the layer set in the Layers palette and all layers or layer sets within it. You can assign a color by clicking the drop-down arrow. You can also do this later by selecting a layer and then selecting *Layers>Layer Set Properties*, or selecting *Layer Set Properties* from the Layer palette's menu.

■ *Mode* (page 132) is normally set to *Pass Through* which means the set has no blending properties of its own.

■ *Opacity* (page 132) specifies the opacity of all layers in the set.

■ *OK* button closes the dialog box and adds the layer set to the Layers palette.

■ *Cancel* button closes the dialog box without creating the layer set.

ADDING AND REMOVING LAYERS

To add or remove layers or layer sets to or from a layer set do one of the following:

- *To add a new layer to a set, select the layer set in the Layers palette and click the palette's **Create a new layer** button.*
- *To move an existing layer or layer set into a layer set, drag it to the name of the layer set so the name is highlighted and drop it.*
- *To nest a layer set inside a new layer set, drag it to the **Create a new set** button, or select it and **Ctrl+click** the **Create a new set** button. The layer set and all of its layers move into the new set.*
- *To remove a layer or layer set from a layer set, drag and drop it between any other layers or above the topmost layer.*

OPENING AND CLOSING LAYER SETS

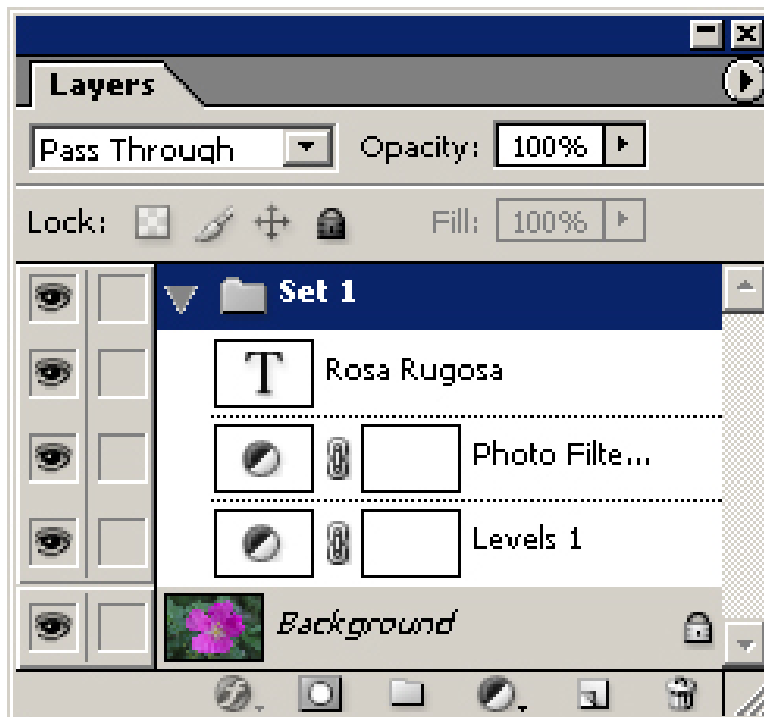
You can open or close sets to show or hide their contents by clicking the triangle to the left of the set's folder icon in the Layers palette. The triangle points to the right when the set is closed and points down when the set is open. *To open and close layer sets, do one of the following:*

- *To open or close a set, click the triangle. You can also right-click the triangle and choose **Open This Layer Set** or **Close This Layer Set**.*
- *To open or close the set and any sets nested within it, **Alt+click** the triangle.*
- *To open or close all sets, **Ctrl+click** the triangle. You can also right-click the triangle to the left of the folder icon and choose **Open All Other Layer Sets** or **Close Other Layer Sets**.*
- *To open or close all sets and all effects applied to layers contained within the set(s) **Ctrl+Alt+click** the triangle. This is like a "reveal all" command.*



An arrow icon in the Layers palette can be clicked to open (top) or close (bottom) a layer set.

A layer set containing three layers.



MANAGING LAYERS AND LAYER SETS

TIPS

- If editing changes don't seem to be having the expected effect, it may be because you haven't selected the correct layer, or an area within the layer is selected.
- To move the selected layer drag it with the Move tool. You can't move the background layer without first converting it into a regular layer (page 107).

Once an image has more than one layer or layer set, you may want to select, move, and otherwise manage them to get the best results. Almost all commands discussed in this section work the same with both layers and layer sets (when you select the set and not a layer within it). To simplify the discussion, when you read “layer” assume it implies “layer set” unless we mention otherwise.

SELECTING LAYERS

When an image has multiple layers, most editing commands affect only the selected, or *active layer* or *layer set*. For example, if you make a selection and can't delete the selected area, it's probably because you haven't selected the layer that contains the area you want to delete. For this reason it's important to know how to select layers and know which layer is active. Only one layer can be active at a time and you can tell which it is by opening the Layers palette where its name and thumbnail is highlighted and a paintbrush icon is displayed in the second column to indicate the layer is being edited. To select a layer, do one of the following:

- *To select a layer in the Layers palette*, click its thumbnail or name.
- *To select a layer by clicking in the image*, select the Move tool and right-click. A context menu lists all layers containing pixels at the point you clicked along with all fill and adjustment layers. Layers that are transparent at the place you clicked and layers for text and shapes aren't listed. Click the name of the layer you want to select.
- *To select the topmost layer that contains opaque pixels* at the place where you click, select the Move tool and turn on the *Auto Select Layer* check box on the options bar.

TIPS

- The background layer is locked, but it can still be edited and even deleted.
- If you use the Background or Magic Eraser tool (page 134) on the background layer, it turns it into a regular layer and erased areas become transparent.

HIDING AND SHOWING LAYERS

You can hide and show layers at any point. You might do this to prevent a layer from printing since only visible layers print. You might also do it to hide an adjustment layer so it no longer affects the image. In fact, you can click an adjustment layer on and off to compare “before” and “after” versions of the image. When the eye icon is displayed, the layer and its contents or effects on the image are shown. When the icon isn't displayed, the layer's contents and its effects are hidden. To show or hide layer do one of the following in the first column of the Layers palette:

- *To hide a single layer*, click its eye icon. To hide or show multiple layers drag through the eye column.
- *To hide or show all layers in a set*, click the set's eye icon. When a set is hidden, all of the eye icons for layers in the set are dimmed.
- *To hide or show all layers but one*, Alt+click the eye icon for the one layer you want to see.

CHANGING THE STACKING ORDER

The stacking order determines whether a layer appears above or below other layers in the Layers palette. This can sometimes affect whether a layer's contents are displayed or not, or determine if it's adjustments affect the



When you hide all layers, a checkerboard pattern appears. This pattern is often used to indicate transparent areas of an image. You can change the look of this display using the Transparency section on the Edit>Preferences submenu.

desired layer. To rearrange the stacking order, do one of the following in the Layers palette:

- *To change the order of layers by dragging*, select the layer or layer set that you want to move then drag it by its name up or down. Drop it when the highlighted line appears in the desired position between other layers or above the topmost layer. (If you drag and drop a layer from within a set, you can drop it outside of the set—page 110)
- *To change the order of a layer using menu commands*, select the layer that you want to move, then select *Layer>Arrange*, and choose a command from the submenu to arrange the layer (when used on layers within a set, the movements are confined to the set):
 - *Bring to Front* makes the layer the topmost layer.
 - *Bring Forward* moves the layer one level up in the stacking order.
 - *Send Backward* moves the layer one level down in the stacking order.
 - *Send to Back* makes the layer the bottommost layer in the image (except for the background).

RENAMING LAYERS

As you add more layers to an image, they are automatically named to indicate their type and the order in which they were created. If you didn't name them at the time you created them you'll find that it's helpful to give them descriptive names reflecting their content or purpose. (You can't rename the background layer without changing it into a regular layer.) To rename a layer do one of the following:

- Double-click the layer's name in the Layers palette, and enter a new name.
- Double-click the layer's thumbnail in the Layers palette to display the Layer Properties dialog box, type in a name, and click *OK*.
- Select the layer in the Layers palette, pull down the *Layer* menu or display the palette's menu and select *Rename Layer* to display the Layer Properties dialog box, type in a name, and click *OK*

DELETING LAYERS

When you no longer need a layer, you can delete it to free up memory and simplify the Layer palette. To do so, select the layer in the Layers palette and do one of the following. If prompted to confirm the deletion, click *Yes*:

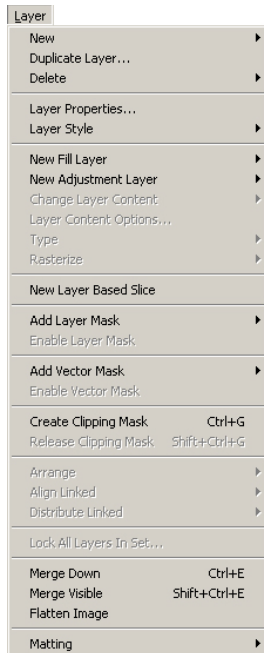
- *To delete a layer by dragging*, drag and drop it on the trash can icon at the bottom of the Layers palette.
- *To delete the selected layer by clicking*, click the trash can icon at the bottom of the Layers palette. To bypass the dialog box requesting confirmation of the deletion, Alt+click the trash can icon.
- *To delete the selected layer using a menu*, pull down the *Layer* menu or display the Layer palette's menu, and choose *Delete Layer*.
- *To delete hidden or linked layers*, display the Layer palette's menu and choose *Delete Hidden Layers* or *Delete Linked Layers*.
- *To delete a layer set select it, then choose Layer>Delete Layer Set*. A dialog box asks if you want to delete the set and its contents or just the set. If you delete the set and contents, the set and the layers within it are deleted. If

TIPS

■ If you move part of one or more layers outside of the image area and know you won't need those areas choose *Select>All* and then *Image>Crop* to delete them and reduce the file's size.

■ You can't move the background layer from the bottom of the layer stack without first converting it into a regular layer (page 107).

■ A composite of all visible layers is printed. To print an individual layer, make it the only visible layer in the Layers palette before choosing the *Print* command.



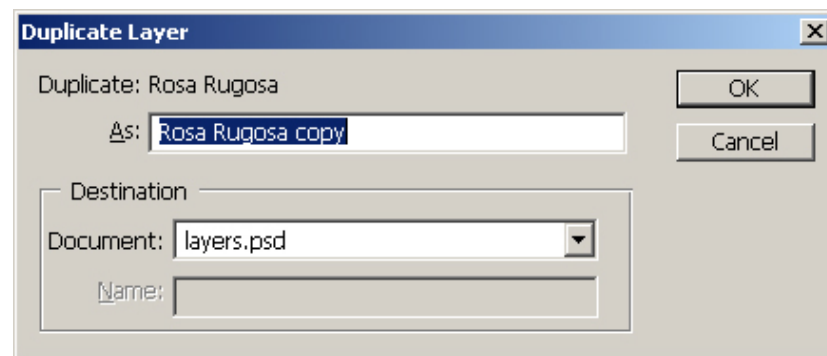
The Layer menu.

you delete just the set, it's the same as moving the layers out of the set, then deleting the empty set.

DUPLICATING LAYERS AND LAYER SETS

You can duplicate a layer or layer set into the same image, another image, or a new image. If duplicating it to another image, be sure that image is open and select *Window>Images>Tile* to arrange them side by side. To duplicate any layer including the background layer or any layer set, select it in the Layers palette, and do one of the following:

■ *To duplicate the selected layer or layer set and specify options*, pull down the *Layer* menu, display the Layer palette's menu, or right-click the layer's name (not the thumbnail) and choose *Duplicate Layer* or *Duplicate Layer Set* to display the Duplicate Layer or Duplicate Layer Set dialog box. These dialog boxes are identical and have the following options:



- As text box lists the default name assigned to the duplicate, but you can type over it with your own descriptive layer name.
- *Document* lists the name of the active image as the destination but the drop-down arrow lets you select any other open file, or a new file. If you select a *New* file, the *Name* text box becomes available to enter a name for the new file. Enter a name and click *OK*.
- *OK* duplicates the layer. If you duplicate the layer into a new image, that image has no background layer.

■ *To duplicate the selected layer or layer set without specifying options*, select it and drag and drop it on the *Create a new layer* button at the bottom of the Layers palette. The duplicate is given the same name as the original, followed by *copy*. (If you drop a layer or layer set on the *Create a New Layer Set* button, it will be nested within the newly created layer set.)

COPYING AND MOVING LAYERS TO ANOTHER IMAGE

To copy or move layers between images, you can drag and drop them. To move multiple layers at the same time, put them together in a layer set (page 109) or link them (page 115).

■ *To drag a layer or layer set to another image from the Layers palette*, select the layer in the palette and drag and drop it into the other image. To center it in the new image, Shift+drag it into the target image and drop it.

■ *To use the clipboard to copy or move a selection from one image to another*, select the area to be moved (*Select>All* to select all of the pixels on the layer), and then select *Edit>Copy* or *Edit>Cut* to copy or move the

TIP

■ When you duplicate a layer to another image, the duplicate layer appears in the destination image above the active layer. You can either first select the layer in the destination window above which you want it to appear, or drag it in the stacking order after copying it. To copy more than one layer, first link them together (page 115).

TIPS

- Copying or moving layers between images is almost identical to doing the same with selections. For details not covered here, see the section on *Moving, Copying, and Pasting Selections* (page 96).
- Dragging and dropping layers between images takes up less memory than copying and pasting them because they aren't first copied to the clipboard.
- When you copy or move a layer between images with different resolutions, the pasted data retains its original pixel dimensions. This can make the pasted portion appear out of proportion to the new image. You can choose *Image>Resize>Image Size* to make the source and destination images the same resolution before copying and pasting.



The Layer palette's Lock transparent pixels (left), Lock image pixels, Lock position, and Lock all (right) icons.

selection to the clipboard. Make the destination image active, select the layer you want the copied layer above and select *Edit>Paste* to copy the selection from the clipboard to a new layer.

MOVING LAYERS WITHIN AN IMAGE

When working with multiple layers, there are situations in which you want to move individual layers vertically or horizontally. Perhaps you want to align one image with another or align text on an image. Even if you move a layer partially out of the image area, its contents are preserved so you can drag it back into view. To move multiple layers at the same time, link them and select the layer the others are linked to (page 115), or move the layers into a set and then select and move the set. To move a selected layer do one of the following:

- *To drag the selected layer*, drag it with the Move tool. Hold down Shift as you drag to constraint the movement to up or down, left or right, or to a 45° diagonal.
- *To move the layer in small increments*, press the arrow keys on the keyboard to move it in 1-pixel increments, or hold down Shift while pressing the arrow keys to move the layer in 10-pixel increments.
- *To select the topmost layer that contains opaque pixels* at the place where you click, select the Move tool and turn on the *Auto Select Layer* check box on the options bar.
- *To align layers*, you can reduce the opacity of the top layer so the layer below shows through. After aligning the two layers, return the top layer's opacity to the setting you want to use.

LOCKING LAYERS

Fully or partially locking layers protects their contents. This is a way to protect a finished layer, or some aspects of a layer in progress. For example, if you protect the layer from painting tools, you can still change its position. When a layer is locked, a lock icon is displayed to the right of the layer's name. When the layer isn't selected, the lock icon is black when the layer is fully locked and white when the layer is partially locked. It's the reverse when the layer is selected. (For type and shape layers, *Lock Transparency* and *Lock Image* are selected by default and cannot be unselected.)

■ *To lock a layer's properties*, select the layer and then click one of the lock buttons at the top of the Layers palette:

- *Lock All* locks all layer properties. (This is the only button that works when you have selected a layer set.) If you turn this on, you have to turn it off before you can click any of the other three buttons to lock specific properties.
- *Lock Transparency* confines editing to the opaque or semitransparent portions of the layer.
- *Lock Image* prevents modification of the layer's pixels using the painting tools.
- *Lock Position* prevents the layer's pixels from being moved.

■ *To apply lock options to all linked layers or all layers in a layer set*, select a linked layer or a layer set, select *Lock All Linked Layers* or *Lock All*

TIP

■ Two layer options that are commonly used with multiple layers are blending modes and opacity. The blending mode determines how the pixels in one layer blend into the pixels on the layer below. Opacity determines how transparent a layer is and how much the layer below it shows through. These settings are discussed in detail on page 132.

TIPS

- To keep track of file sizes, click the triangle on the status bar at the bottom of the screen and select *Document Sizes* from the menu. The value on the left shows what the file size would be if you were to flatten all the layers into one. The value on the right shows the file size with all the layers intact.
- When merging layers, overlapping transparent areas in the merged layers remain transparent.
- If you can't print an image because its file is too large, flatten the image to make it smaller.

Layers in Set from the *Layers* menu or the Layer palette's menu to display a dialog box, select the lock option you want to use and click *OK*.

LINKING LAYERS

Linking layers, or even layer sets, lets you save time because you can move their contents together. You can also copy, paste, align, merge, apply transformations to, and create clipping masks from the linked layers. To link layers, first select one of the layers you want to link, then in the other layers you want linked together, click the column to the immediate left of the thumbnail to display a link icon. When you select a layer, if link icons are displayed for other layers, it means those layers are linked to the selected layer. To unlink layers, click the link icon.

MERGING AND FLATTENING LAYERS

Adding layers to an image increases its file size and the amount of memory it needs and the complexity of the Layers palette. To reduce file sizes and simplify the palette, you can merge layers when you have finished editing them. Once merged you can no longer edit them the same way you did before merging. For example, if you merge a type layer into an image, you can no longer change the font styles.

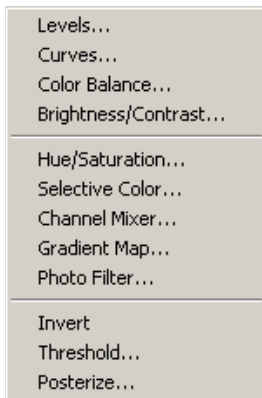
To merge or flatten layers, select the appropriate layer and pull down the *Layer* menu from the main menu or display the palette's menu and choose one of the following commands (the choices listed on the menu depend on the type of layer you have selected):

- *Merge Down* merges the selected layer with the layer below it. Make sure both layers display an eye icon and select the top layer of the pair.
 - If the bottom layer in the pair is a shape, type, or fill layer, you can't choose *Merge Down* until you've rasterized the layer (page 123).
 - If the bottom layer in the pair is linked to another layer or is an adjustment layer (page 116), you also can't choose *Merge Down*.
- *Merge Linked* (available only when you select a layer with other layers linked to it) merges all visible layers linked to the layer you select—those displaying both the eye and link icons.
- *Merge Layer Set* (available only when you have selected a set) merges all layers in the set and deletes the set.
- *Merge Visible* merges all layers with an eye icon, so hide any layers you don't want to merge. If all layers are visible, this command is the same as flattening the image.
- *Flatten Image* merges all layers in the image and the effects on the image created by those that are visible are made permanent. Hidden layers are discarded and transparent areas are filled with white.

SAMPLING FROM LAYERS

Normally the Magic Wand, Smudge, Blur, Sharpen, Paint Bucket, Clone Stamp, and Healing brush tools only sample pixels from the active layer. This allows you to work on a single layer without affecting others, even when they are visible. However, if you want to sample and affect all visible layers you can sometimes do so. Just select one of the tools and turn on the *Use All Layers* check box on the options bar.

USING ADJUSTMENT LAYERS



The *Layer > New Adjustment Layer* command displays a submenu listing the kinds of adjustment layers you can create.

Adjustment layers let you experiment with color and tonal adjustments without permanently modifying an image. Adjustments are stored in the adjustment layer, and only their effects are “projected” onto the underlying image. There are a number of reasons why you always want to use adjustment layers when you can.

- You can undo changes to an image at any time just by deleting the adjustment layer that created them.
- You can hide and show the adjustment layer to compare, save, or print before and after views of the same image. (One trick is to quickly toggle an adjustment layer on and off a number of times to see exactly what effects it’s having on the image.)
- You can fine-tune adjustments at any time.
- You can copy the adjustment layer to other photos needing the same adjustments. For example, if you have photographed a series of portraits under the same lighting, you can adjust one image and then copy the adjustment layers to each of the other images in the series.
- Most commands affect only a single layer but adjustment layers affect all layers below them or in their layer set.

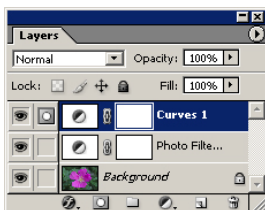


The Create new fill or adjustment layer button on the Layers palette is the one with the circle icon that’s half black and half white.

CREATING AN ADJUSTMENT LAYER

To create an adjustment layer, open the Layers palette and select the topmost layer you want to adjust. Adjustment layers normally affect all layers below them. However, you can confine the adjustment to selected layers or selected parts of an image.

- To confine adjustments to a single layer or group of layers, create the adjustment layer and then use it as one layer in a clipping mask consisting only of it and the layers to be adjusted (page 124). You can also put the adjustment layer in a layer set along with the layers to be affected and change the set’s blending mode to any mode other than *Pass Through*. (Try *Normal* to start.)
- To limit the effects of an adjustment layer to only a part of the image, select that area first although you can also do this later by editing the layer’s mask (page 150). When you create an adjustment layer, it has a layer mask—indicated by the mask thumbnail to the right of the layer thumbnail in the Layers palette. If you create the adjustment layer when a part of the image is selected, the selection is reflected in the mask. The purpose of the mask is to confine the adjustments to a specific part of the image and you can edit at any point to change its size, shape, feathering, opacity and so on (page 150).



Adjustment layers have two thumbnails in the palette. The layer thumbnail on the left indicates the type of adjustment. The mask thumbnail is on the right (page 150).

Once you have selected what is to be affected, choose *Layer > New Adjustment Layer* from the main menu or click the *Create new fill or adjustment layer* button at the bottom of the Layers palette to display a menu. (Note that if you clicked the palette button, the first three commands listed on the menu are fill layers (page 118), not adjustment layers.) The choices on the menu include the following and selecting one displays a dialog box discussed elsewhere in this book on the indicate page:

- *Levels* displays the levels dialog box so you can adjust the tonal range of the image (page 61).

TIP

■ If an adjustment layer's mask (the layer's rightmost thumbnail in the Layers palette) contains only white values, the layer isn't adding much to the file's size, so you won't save much by merging the layers.

- *Curves* displays the Curves dialog box so you can adjust the tonal range of the image (page 64).
- *Color Balance* displays the Color Balance dialog box (page 71).
- *Brightness/Contrast* displays the Brightness/Contrast dialog box (page 61).
- *Hue/Saturation* displays the Hue/Saturation dialog box so you can adjust hue, saturation, and lightness (page 71).
- *Selective Color* displays the Selective Color Options dialog box.
- *Channel Mixer* displays the Channel Mixer dialog box.
- *Gradient Map* displays the Gradient Fill dialog box so you can select a gradient to fill the layer (page 118).
- *Photo Filter* displays the Photo Filter dialog box (page 71).
- *Invert* inverts the colors in an image making a positive image look like a film negative and vice versa.
- *Threshold*, used to convert an image to a high-contrast black-and-white image, displays the Threshold dialog box and histogram. You drag a slider to specify a threshold between 0 and 255. All pixels lighter than the threshold become white; and all pixels darker become black.

■ *Posterize*, used for special effects, displays the Posterize dialog box where you specify the number of levels for each color channel. To see how it works, click in the Posterize dialog box's *Levels* text box and press the up and down arrows to change the levels as you watch the effect on the image. (Hold down Shift to change the levels by 10.) Alt+click the *Cancel* button to reset effects to their defaults.

TIPS

- Adjustment layers are assigned a name that reflects their type of adjustment.
- To reduce an adjustment layer's effects, reduce its opacity.

EDITING ADJUSTMENT LAYER OPTIONS OR TYPE

In many ways, adjustment layers are just like other layers. They have the same opacity and blending mode options, and can be moved within the layer stacking order, deleted, hidden, and duplicated.

Once you create an adjustment layer, you can easily edit the settings, or even change the layer to a different type of adjustment.

■ *To edit an adjustment layer using the original dialog box*, double-click its layer thumbnail (the left one) in the Layers palette, or select the layer, then choose *Layer>Layer Content Options*. Make the desired changes in the dialog box and click *OK*.

■ *To change the adjustment layer to a different type*, select the layer then choose *Layer>Change Layer Content* and select a different type of adjustment from the list.

MERGING ADJUSTMENT LAYERS

You can merge an adjustment layer just like any other layer (page 115) however, you can't use it as the base or target layer for a merge. When you merge an adjustment layer with the layer or layers below it, the adjustments are rasterized and permanently applied to the merged layer. If the adjustment layer is in a set, its affects are only applied to other layers in the same set. The layer's adjustments no longer affect other layers below the merged adjustment layer.

USING FILL LAYERS



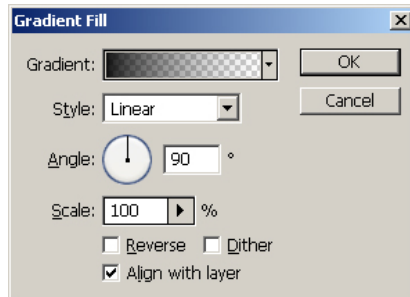
The Layer > New Fill Layer submenu.

Fill layers are filled with a solid color, a gradient, or a pattern. Unlike adjustment layers, fill layers do not affect the layers below them. Normally you would place a fill layer below another layer that has transparent areas—perhaps a text or shape layer so the fill shows through. Alternatively, you might place it above another layer and cut holes in it or change its opacity so the layer below shows through. You can also change the fill layer's blending mode to control how it interacts with pixels on the layers below.

TYPES OF FILL LAYERS

The types of fill layers you can create include the following:

- *Solid Color* displays the color picker (page 126) so you can select a solid fill color for the layer.
- *Gradient* displays the Gradient Fill dialog box so you can select a gradient, and make other optional settings discussed below, and click *OK*.



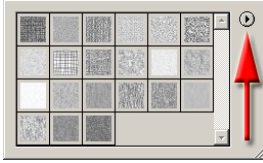
- *Gradient* shows a thumbnail of the selected gradient and you can click the drop-down arrow to display a palette of preset gradients from which to choose. Gradients with a checker board pattern fade to transparency. You can also click the triangle icon to display a menu listing other libraries of gradients from which to choose.
- *Style* specifies the shape of the gradient. Your choices include *Linear*, *Radial*, *Angle*, *Reflected*, and *Diamond*.
- *Angle* compass specifies the angle at which the gradient is applied. To change the angle, drag the compass needle or type an angle into the text box.
- *Scale* slider changes the size of the gradient.
- *Reverse* check box, when on, reverses the order of the colors in the gradient fill.
- *Dither* check box, when on, creates a smoother blend with less banding.
- *Align With Layer* check box, when on, aligns the gradient with the edges of the image.

- *Pattern* displays the Pattern Fill dialog box so you can select a pattern, make other optional settings discussed below, and click *OK*.

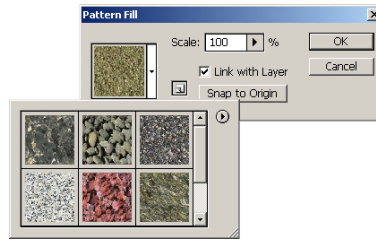
- *The pattern swatch* shows a thumbnail of the selected pattern. You can click the drop-down arrow to display a palette of preset patterns from which to choose. You can also then click the triangle icon to display a menu listing other libraries of patterns from which to choose.



Gradient types (top down) linear, radial, angle, reflectance, and diamond.



Clicking the triangle icon in the gradient or fill palette displays a menu listing other libraries of gradients and fills.



- *Scale* slider makes the elements in the pattern larger or smaller.
- *Link With Layer* check box, when on, moves the pattern and layer together when you drag them. When off, you can't drag the pattern which is always aligned with the image window.
- *Snap to Origin* button aligns the upperleft corner of the pattern with the ruler origin in the upperleft corner of the image.
- *Create a new preset from this pattern* button saves a pattern you have created or revised for future use.

CREATING A FILL LAYER

There are two ways to create a fill layer; using the main menu or the palette button. To begin, select the layer above which you want to fill layer to appear. To confine the effects of the fill to a selected area of the image, make a selection. Then do one of the following to display a fill's dialog box so you can make the desired settings in the dialog box and click *OK*:

- Select *Layer > New Fill Layer* to display a submenu listing the kinds of fill layers you can create and click the one you want to use.
- Click the *Create a new fill or adjustment layer* button at the bottom of the Layers palette, and click the one you want to use.

When you create a fill layer, it has a layer mask—indicated by the mask thumbnail to the right of the layer thumbnail in the Layers palette. If you create the fill layer when a part of the image is selected, that selection is reflected in the mask. The purpose of the mask is to confine the fill to a specific part of the image and you can edit at any point to change its size, shape, feathering, opacity and so on (page 150).

EDITING FILL LAYERS OPTIONS OR TYPES

Just as with adjustment layers, you can edit a fill layer's settings using the same dialog box you used to create it, or even change the layer to a different type of fill.

- *To edit a fill layer using the original dialog box*, double-click its layer thumbnail (the left one) in the Layers palette, or select the layer and then choose *Layer > Layer Content Options*. Make the desired changes in the dialog box and click *OK*.
- *To change the fill layer to a different type*, select the layer then choose *Layer > Change Layer Content* and select a different type of fill from the list.

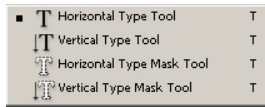
MERGING FILL LAYERS

You can merge or rasterize a fill layer just like any other layer (page 115, 123). When you merge a fill layer with the layer below it, the fill is permanently applied to the merged layer.

TIPS

- When creating or editing a gradient or pattern fill, when the dialog box is displayed, you can click in the image area and drag the gradient or pattern to align it the way you want.
- To resize a pattern, choose *Select > All* to surround it with a bounding box with corner and side handles you can drag. You can also drag within the bounding box to shift the pattern to a new position.
- Fill layers are assigned a name that reflects their type of fill.
- To see through a fill layer to the layers below, adjust its opacity.

ENTERING TYPE



Type tools in the toolbox.

Adding type to images is usually the realm of graphic designers, not photographers, especially those doing straight photography. However, it's so easy to do, you should know how so you can create title slides for your slide shows, add copyright notices to your images, or just invent ways to combine type and images in creative ways. The type tools enter horizontal or vertical type or horizontal or vertical masks (selections in the shape of type). As you type, a new layer is automatically created and type appears on-screen so you can always see how it looks in your layout.

You can enter type in two ways, as *point type* or *paragraph type*. When entering point type you end lines by pressing Enter. When entering paragraph type, lines wrap automatically (inside a bounding box) just as they do in a word processor, and you press Enter to end paragraphs.

TIP

■ To reposition text as you are entering it, hold down Ctrl and drag the text to where you want it.

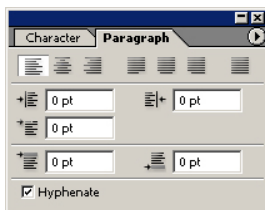
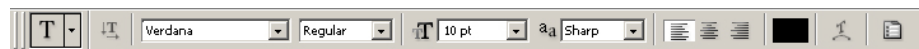
SELECTING A TYPE TOOL

The toolbox contains four different type tools. To select one, point to the Type tool, hold down the mouse button, and select one of the following:

- *Horizontal Type tool* enters or selects horizontal type.
- *Vertical Type tool* enters or selects vertical type.
- *Horizontal and Vertical Type Mask tools* create selections in the shape of type. These selections can be used just like any other selections (see Chapter 4) and edited and formatted like any other type.

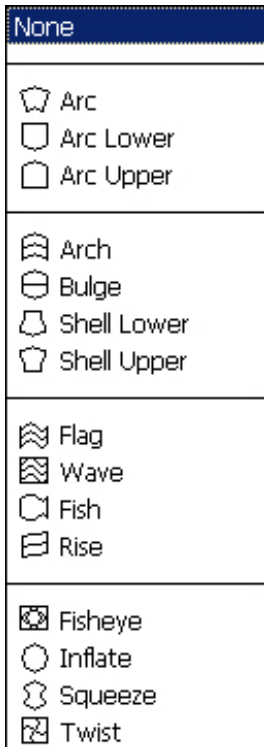
SETTING TYPE TOOL OPTIONS

After selecting a type tool you then select formats on the options bar, Character palette, or Paragraph palette. Some settings are available on both the options bar and one of the palettes but they are all synchronized so changing one changes the other. Your choices on the options bar include the following:



The Character (top) and Paragraph (bottom) palettes are used to format selected text.

- *Change the type orientation* button changes the type from horizontal to vertical or vice versa much as if you were switching between the Horizontal and Vertical Type tools.
- *Set the font family* drop-down arrow specifies a font—a set of characters that share a common style. Well-known fonts include Times Roman and Helvetica.
- *Set the font style* drop-down arrow specifies if the selected font will be Regular, Bold, or Italic. The available type styles varies among fonts.
- *Set the font size* drop-down arrow specifies how large the type is. The universal unit of measurement for type is points (there are 72 points to the inch), however, you can use an alternate unit of measurement by entering the following abbreviations following the number—*in*, *cm*, *pt*, *px*, or *pica*. The value you enter is converted to points. To enter a size larger than 72 points click in the font size type box and type in a number between 0.01 and 1296 in points or the equivalent in any other unit of measurement.
- *Set the anti-aliasing method* smooth edges by partially filling edge pixels, so type blends into the background. However, it increases file sizes and may



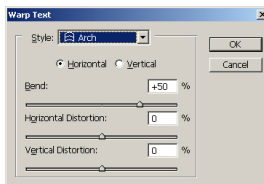
create unwanted colors along the edges of type. When not used, type may have jaggies—stair-step like curves and diagonals. When you click the drop-down arrow, your choices include *None* (the default), *Sharp* (the most sharp), *Crisp* (somewhat sharp), *Strong* (makes type appear heavier) and *Smooth* (makes type appear smoother).

■ *Left align, Center, and Right align text* buttons, align point type relative to where you first click to begin typing and paragraph type relative to the sides of its bounding box.

■ *Set the text color* swatch displays the current color of the type. To change it for new or selected type, click the swatch to display the color picker and select a new color (page 126).

■ *Create warped text* button distorts type in a variety of shapes; for example, in the shape of an arc or a wave. Warping applies to all type on the selected type layer. To warp type while entering it or after selecting it later, click the *Warp* button to display the Warp text dialog box. Select a *Style* to specify the basic shape of the warped layer, use the option buttons and sliders to set the bend and distortion of the warp effect, and then click *OK*. To unwarped type, select the type layer and Type tool and repeat the process, but select *None* on the *Style* drop-down menu, and click *OK*.

■ *Toggle the Character and Paragraph palettes* button displays and hides a group window containing the two type formatting palettes.



When you click the *Warp text* button it displays the menu (top) and selecting a choice displays the dialog box (bottom).

ENTERING AND FORMATTING NEW TYPE

When you select a horizontal or vertical type tool, the mouse pointer changes into a vertical or horizontal I-beam. When entering horizontal type, the small line through the I-beam indicates the base line on which the type you enter will rest. When entering vertical type, it indicates the center line of the type. Clicking in an image with a Type tool puts the tool in *edit mode* so you can enter and edit type. When in edit mode, a blinking cursor, the height of the selected type size and in the same orientation as the Type tool, appears at the point you click (called the *insertion point*). The options bar displays *Cancel* and *Commit* buttons that you use to exit edit mode. As you enter type, it has the format and alignment specified on the options bar, Character palette, or Paragraph palette. If you change any character formats such as style or size after you start typing, the changes only affect new type. To change previously entered type you have to first select it (page 122).

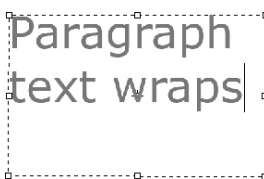
■ *To enter type* with the tool and formats you have selected, do one of the following to enter edit mode:

- *To enter point type*, click in the image to set an insertion point for the type, then type in your text. To begin a new line, press Enter on the main keyboard. To delete characters, press backspace.

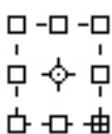
- *To enter paragraph type*, drag diagonally to define a bounding box for the type. (You can also specify a size for the bounding box if you Alt+drag to display the Paragraph Text Size dialog box.) Enter your text and as you reach the edge of the bounding box, text automatically wraps to the next line. To begin a new paragraph, press Enter on the main keyboard. If you enter so much text that it can't all be displayed in the bounding box at the same time, the overflow icon appears in the lower right corner of the bounding box to indicate text is hidden.

■ *To transform text*, perhaps to rotate, scale or distort it, drag handles on the bounding box. These handles are always displayed when entering paragraph

Point



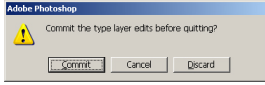
Point (top) and paragraph (bottom) text being entered.



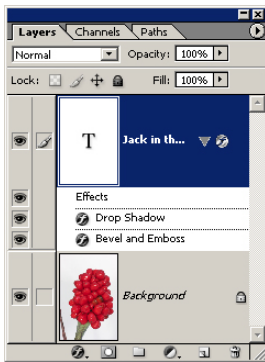
When there is too much text for the box, the overflow icon appears in the lower right handle



The Cancel and Commit icons.



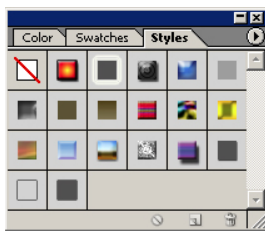
If you exit Photoshop without committing text, a dialog box asks if you want to commit it, cancel exiting, or discard the text.



When you apply layer styles they are listed in the Layers palette under the layer you applied them to.

Format to your heart's content

Text can be easily formatted using the Layer>Layer Styles command or the Styles palette.



The Styles palette will format all of the text on the selected layer.

text and can be displayed for point text by holding down Ctrl. You can use the same commands as those discussed for the Free Transform command (page 101) except for perspective.

■ *To commit the type* and leave edit mode so you can perform other operations, such as selecting menu commands or moving the type to a new position, do one of the following:

- Click the *Commit* button in the options bar.
- Press the Enter key on the numeric keypad, or Ctrl+Enter on the main keyboard.
- Select any tool in the toolbox, click in the Layers, Channels, Paths, Actions, History, or Styles palette, or select any available menu command.

When you commit text it basically closes the layer although you can still edit and format it. When you enter new text, a new layer is created for it. Committing type in sections lets you keep separated those text elements you want to format differently.

SELECTING TEXT

To edit or format existing text, you have to first select it in edit mode. When you are not already in edit mode, select the text layer in the Layers palette, then enter edit mode as follows:

- *To select all text on a type layer*, select the layer in the Layers palette, and double-click its layer thumbnail (the one on the left). You can press the left or right arrow key to unselect the text and move the insertion point.
- *To select an entire line or paragraph*, click anywhere in it with a Type tool so it contains the insertion point.
- *To select individual characters, lines, or paragraphs*, select a Type tool, select the type layer in the Layers palette, or click in the text to automatically select its layer. Click in the text where you want the insertion point to be, and do one of the following:

- *To move the insertion point through the text*, press the left or right arrow keys.
- *To select text a character at a time*, drag through it or hold down Shift and press the right or left arrow key.
- *To select larger elements*, multi-click as follows—to select a single word (double-click), a line (triple-click), paragraph (quadruple-click), or all text (quintuple-click).
- *To select a sequence between two points*, position the insertion point to the left of the first character in a sequence, then Shift+click to the right of the last character.
- *To select all text*, right-click the text and choose *Select All*.

FORMATTING TEXT

There are three kinds of formats you can apply to text and each has its own requirements about what you select to apply the format. For example, commands on the Paragraph palette will effect entire lines and paragraphs but not individually selected characters or words within those larger elements.

TIPS

■ In edit mode you can pull down the *Edit* menu and use the *Undo*, *Check Spelling*, and *Find and Replace Text* commands.

■ To explore the type mask tools, use them to cut some text from one image to paste into another or cut text out of one layer to show the image on the layer below.

■ You can change the unit of measurement in the *Units & Rulers* section of the *Preferences* dialog box.

■ *Character formats* such as type size, style, and color affect only selected or new characters.

■ *Paragraph formats*, such as alignment, affect entire lines or paragraphs that either contain the insertion point or have been selected in whole or part.

■ *Layer formats*, such as warping and formats assigned with the *Styles* palette affect all text on the selected layer even when smaller elements such as words or paragraphs are selected.

Once you have selected the text you want to format, you format it as follows and then click the *Commit* button:

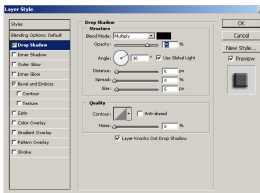
■ *To apply character or paragraph formats*, change settings on the options bar, in the *Character* palette, or in the *Paragraph* palette.

■ *To apply a layer style*, choose *Layer>Layer Style* to display a dialog box you use to apply such effects as a drop shadow or beveled edges. You can also choose *Window>Styles* to display the *Styles* palette. Be sure to display the palette's menu and try new styles listed in sets at the bottom of the menu.

■ *To move selected text*, select the *Move* tool, point to the text and drag it. You can also move it later by dragging its layer.

■ *To transform the text*, drag handles on the bounding box. These handles are always displayed when entering paragraph text and can be displayed for point text by holding down *Ctrl*.

■ *To convert point text to paragraph text*, select it then select *Layer>Type>Convert to Paragraph Text*.



Choose *Layer>Styles* to display the *Layer Styles* dialog box that lets you apply interesting styles to type and other layers.

RASTERIZING TYPE AND SHAPE LAYERS

Type and shape layers are different from other layers. Their content is not in the form of pixels, but in the form of points, lines, and curves defined by mathematical formulas. This format, called *vector graphics*, lets you size these elements without their losing any sharpness. Fill layers are also different in that they are generated. At some point you may want to convert one of these layers to pixels—called *rasterizing* or simplifying them—so you can apply filters or use selection and painting tools. However, once you do this you can no longer make changes to the layer using the same tools you used to create it. Because it's converted to pixels you edit it just like you edit images. To rasterize a layer, select it, choose *Layer>Rasterize* to display a submenu from which to choose the type of layer.



Here text was typed over an image of pine needles and then cut and pasted into another image.

CREATING A TYPE SELECTION

Using the *Horizontal Type Mask* and *Vertical Type Mask* tools, you can select areas of an image in the shape of the characters you type. After typing and clicking the *Commit* button on the options bar, the selection border is displayed on the image. It's just like any other selection border that you use to select, cut, copy, move, or adjust selections.

To create a type selection border, select a regular layer on which you want the selection to appear. (Type, shape, fill, and adjustment layers should be rasterized first). Select the *Horizontal Type Mask* tool or the *Vertical Type Mask* tool, set additional type options, and then enter point or paragraph type. A red mask appears over the active layer as you enter the type. Once the type is committed, the type selection border appears in the image on the active layer.

CREATING CLIPPING MASKS

TIP

■ Since an image is usually on the background layer, you have to convert it to a regular layer to place a type or shape layer below it for a clipping path. An adjustment layer doesn't need to be at the bottom of the group.



In the Layers palette overlying layers are indented and have a bent-arrow icon. The base layer's name is underlined.

With a text layer below a photo, creating a clipping path shows the photo in the shape of the text.

You can enter type or a shape and have it filled with parts of an image. To do so, you put the type or shape on one layer and the image on the layer above. When you define the two layers as a clipping mask, the transparent pixels of the bottom or *base layer* mask out the content of layer above it. The image is displayed in the shape of the type or contents on the base layer, and take on that layer's opacity.

Another use of clipping masks is to confine the effects of an adjustment layer to a group of layers. To do this, first create the adjustment layer (page 116), then include it in or at the base of the clipping mask. The adjustment will then be confined to the layers inside the group.

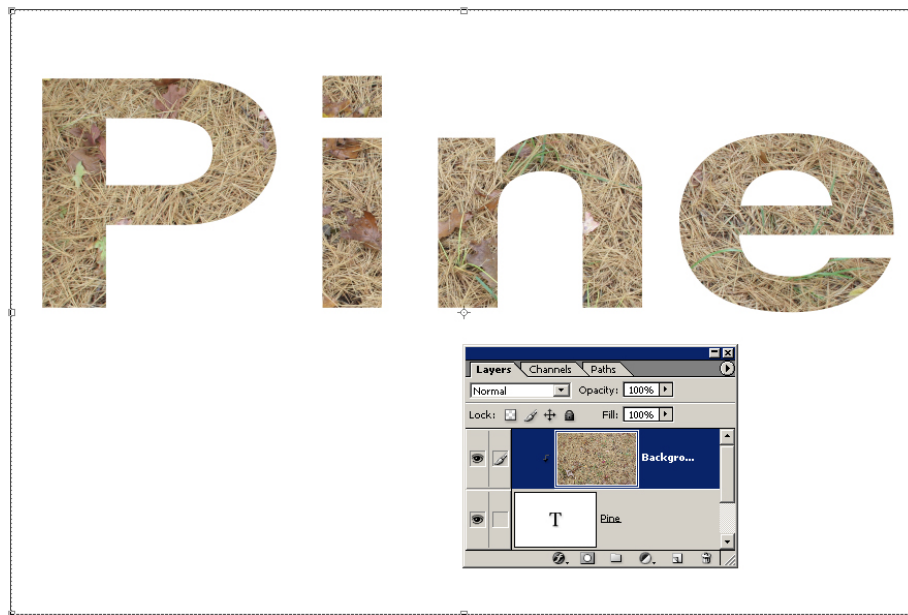
■ To create a clipping mask, do one of the following in the Layers palette:

- Alt+click the line dividing two layers with the pointer changed to two overlapping circles).
- Select the top layer and choose *Layer>Create Clipping Mask* from the main menu.
- Link the desired layers, then choose *Layer>Create Clipping Mask from Linked*.

■ To remove a layer from a clipping mask, do one of the following in the Layers palette:

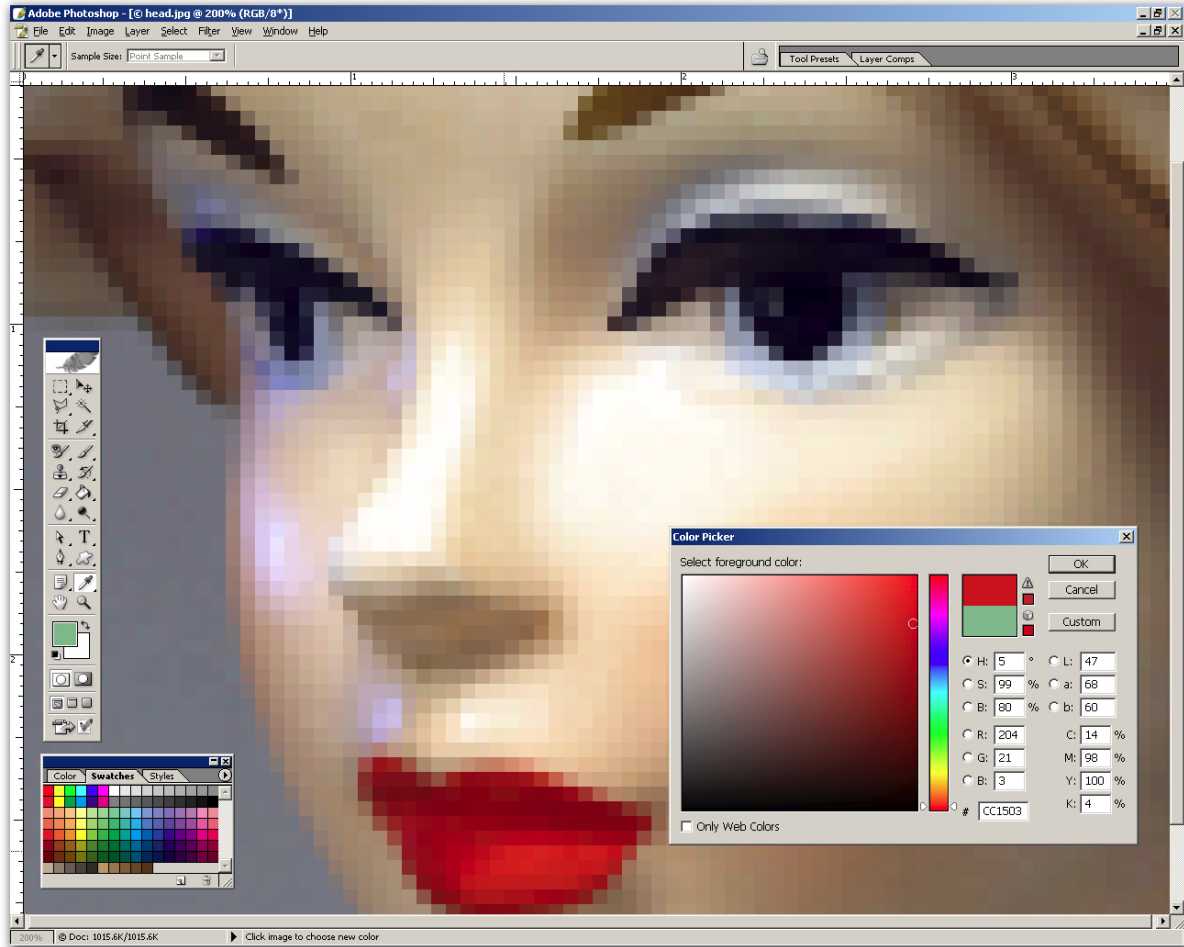
- Alt+click the line separating two grouped layers with the pointer changed to two overlapping circles.
- To remove the selected layer and any layers above it from the clipping mask choose *Layer>Release Clipping Mask*.

■ To ungroup all layers in a clipping mask, select the base layer in the clipping mask and choose *Layer>Release Clipping Mask*.



Chapter 6

Painting & Drawing



CONTENTS

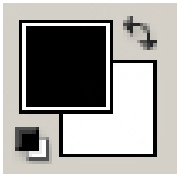
- Selecting Foreground and Background Colors
- Using Brushes and Pencils
- Specifying Tool Options
- Erasing
- Retouching Images
- Using the Paint Bucket and Gradient Tools
- Drawing Shapes

The author of a book on making black and white prints from negatives called his chapter on spotting prints to remove dust spots “So You Have To Know How to Paint After All.” That would also be a good title for this chapter because painting and drawing are useful tools in digital photography. Although often used by graphic artists to add elements to photographs and layouts, these tools are also used to fix or touch up areas of your images or to select areas that you want to change. You can paint, erase, and draw shapes with several different tools, all of which are introduced in this chapter. In the next chapter you’ll learn how to use these tools to create masks that precisely select the areas of your image you want to adjust.

SELECTING FOREGROUND AND BACKGROUND COLORS

Toward the bottom of the toolbox are two overlapping color swatches that display the current *foreground* and *background* color. The foreground color in the upperleft swatch is used to paint, fill, and stroke selections. The background color in the lowerright swatch is used to create gradient fills, fill in areas erased on the background layer, and fill the canvas when you enlarge it. Both colors are also used by some special effects filters.

The default foreground and background colors are black and white but you can change them to any other colors using the color picker, Eyedropper tool, Swatches palette, or Color palette.

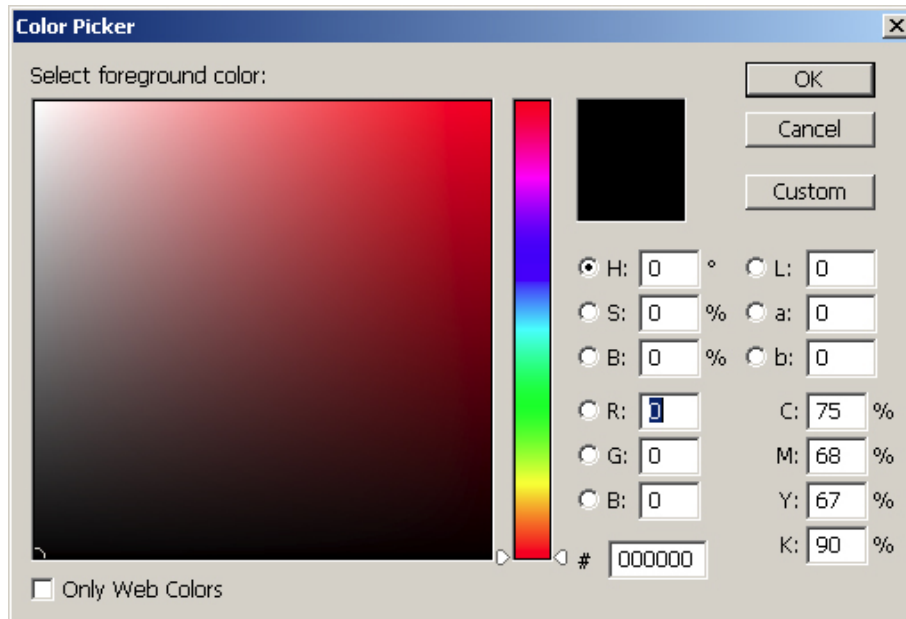


The foreground and background color swatches and icons in the toolbox. Click the Default Colors icon (lowerleft) to set the foreground and background colors to black and white. Click the Switch Colors icon (upperright) to reverse them.

USING THE COLOR PICKER

The color picker lets you select the foreground or background color from a color spectrum or by entering color values. The color picker is widely available from dialog boxes through Photoshop, but to display it from the always available toolbox do one of the following:

- To change the foreground color, click the upperleft color swatch.
- To change the background color, click the lowerright color swatch.



TIPS

■ When the color picker is open:

- Click in the image outside of the Adobe Color Picker to select a color.
- Click in the image and hold down the mouse button as you point anywhere on your desktop. Releasing the mouse button selects the color you're pointing to.

■ *HSB*, *RGB*, *Lab*, and *CMYK* are color models among which you can choose. Their text boxes display the current value of the selected color and change as you make adjustments. You can type values into these boxes to change the color, but normally you drag sliders or click to select a color and these values change automatically. The option buttons next to each text box (except *CMYK*) specify which component of which color model is displayed on the narrow, vertical *color slider* to the left. The default, and most frequently used color model is *HSB* that displays saturation (*S*) and brightness (*B*) as percentages from 0% to 100% and hue (*H*) as an angle from 0° to 360° that corresponds to a location on a color wheel. *HSB* is the only model we discuss in detail but the others work much the same and you can learn about them in help.



Watch the area next to the adjusted/original color rectangle for alerts:

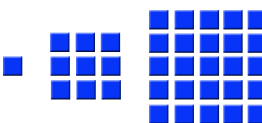
■ When a color is "out of gamut" and can't be printed with CMYK inks, an exclamation point inside a triangle is displayed.

■ When a color isn't "Web safe" a cube is displayed.

To select the nearest in-gamut or Web safe color, click the appropriate alert.

TIP

■ If you click in the corner of the color field and drag the circular marker into and past the corner you will select a pure color.



Eyedropper sample size can be Point Sample, 3 x 3, or 5 x 5.

TIP

■ To use the Eyedropper tool temporarily while using most painting tools, hold down Alt. This allows you to quickly change the foreground color.

■ The square *color field* displays the range for the two unselected color components—one on the horizontal axis, one on the vertical. For example, with the *H* option button in the *HSB* section selected, this field displays the saturation (S) and brightness (B) range of the hue selected on the color slider. The selected hue's saturation increases from left to right and brightness increases from bottom to top. A circular marker indicates the currently selected color's position in the field.

■ *Only Web Colors* check box, when on, limits color choices to the 216 Web-safe colors that are displayed accurately on a system set to display only 256 colors.

■ *The color slider* displays the range of the selected color component. With the default *H* option button selected in the *HSB* section, the color slider displays all available hues. To select a new hue on the slider click in it, drag the white sliders up or down, or press the up and down arrow keys (hold down Shift as you press them to move in larger jumps). Your goal is to select the hue you want to use so you can then select its brightness and contrast by clicking in the square color field to the left. When you click the color, things happen:

● The circular marker in the color field indicates the new color's position in the field.

● The adjusted/original colors rectangle to the right of the color slider displays the new color in the top half and the original color in the bottom half.

● Alerts are displayed if the color is not Web-safe or is *out of gamut* (can't be printed). If an alert appears, click it to change the selected color to the nearest safe alternative.

● # text box displays the hexadecimal number of the currently selected color.

When you click the color picker's *OK* button, the selected color is shown in the foreground or background color swatch on the toolbox.

USING THE EYEDROPPER TOOL

The Eyedropper tool can quickly set a foreground or background color to any color displayed on the screen. To begin, select the Eyedropper tool and click the *Sample Size* drop-down arrow on the options bar to set the size of the area that the tool samples. The choices include *Point Sample* to get the precise value of the pixel you click, and *3 by 3 Average* or *5 by 5 Average* to get the average value of the specified number of pixels around the pixel you click.

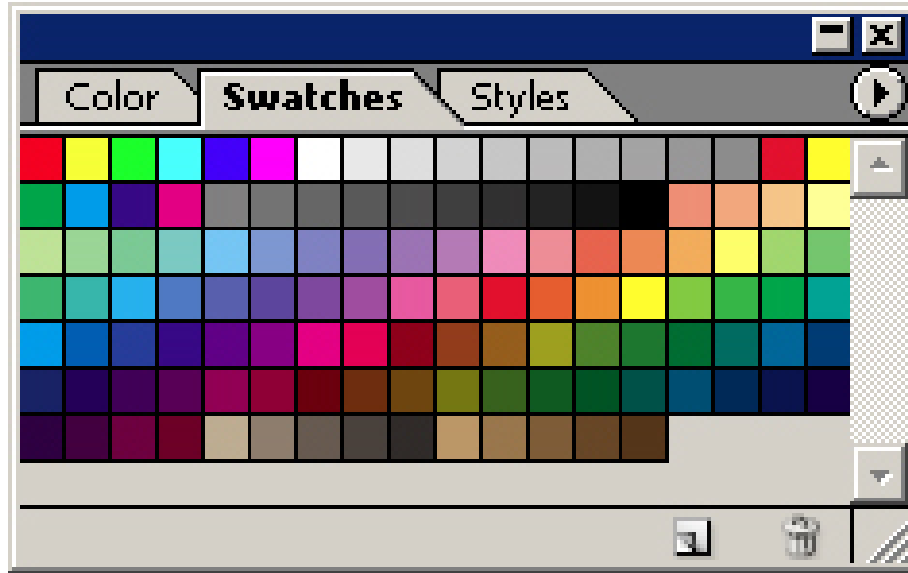
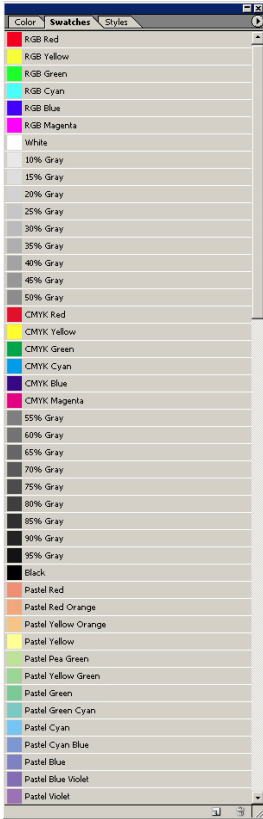
With the Eyedropper tool set, change foreground and background colors as follows:

■ *To select a new foreground color* from an image, click the desired color in any open image. To select a color that appears outside of images, point inside an image, hold down the mouse button, and point to the desired color. Release the mouse button to select the new color.

■ *To select a new background color* from an image, Alt+click the color you want in any open image. To select a color that appears outside of images, point inside the image, hold down Alt and the mouse button, and point to the desired color. Release the mouse button to pick the new color.

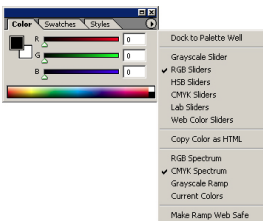
USING THE SWATCHES PALETTE

You can select foreground or background colors just by clicking sample colors stored in libraries in the Swatches palette. If the color picker is a “pick any possible color” system, the swatches palette is more like selecting a color from a paint chart. You can even add colors to a swatch library when you want to reuse a specific color that’s not already in the palette. To display the Swatches palette, select *Window>Swatches*.



Swatches displayed as a small list (above) and as small thumbnails (right).

- To choose a foreground color, click a color in the palette.
- To choose a background color, Ctrl+click a color in the palette.
- To change the swatch library, click the triangle icon to display the palette menu and click one of the libraries listed at the bottom of the menu. You can also choose *Load Swatches* and select a swatch file. To return to the default swatch library, select *Reset Swatches* from the same menu.
- To change how swatches are displayed, display the palette menu and select *Small Thumbnail* (the default) to display a thumbnail of each swatch or *Small List* to display the name and thumbnail of each swatch.
- To store the current foreground color for later use, click the *Create new swatch of foreground color* button at the bottom of the palette. (To store the current background color, first click the *Switch Color* icon to make it the foreground color.) You can also click any empty square at the end of the list or select *New Swatch* from the palette menu to display the *Color Swatch Name* dialog box. When you enter a descriptive name in the dialog box and click *OK* the swatch is added to the end of the palette and its name is displayed when you point to it or display the colors as a small list.
- To delete a color, drag its swatch to the trash icon, or Alt+click it.



The Color palette and its menu.

THE COLOR PALETTE

The Color palette is a simplified color picker where you use the palette’s menu and sliders to select the foreground and background colors using different color models. You can also choose a color from the spectrum of colors displayed on the *color ramp* at the bottom of the palette. To display the Color palette, choose *Window>Color*. The Color palette is outside the scope of this book but you can learn more about it in help.

USING BRUSHES AND PENCILS

Painting with a brush or pencil tool changes the colors of pixels and the effect you have depends on the brush or pencil that you select. For example, you can paint wide, feathered, semitransparent strokes or narrow, hard-edged opaque strokes. There are two basic painting tools—the Brush and the Pencil, both of which paint with the current foreground color:

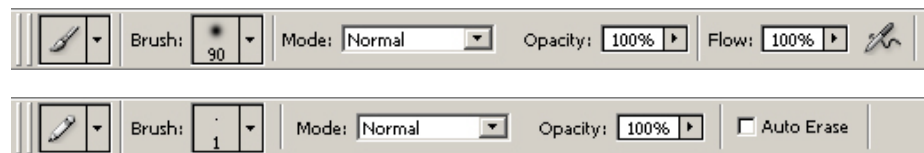
- *The Brush tool*, by default, paints with strokes that are soft but you can change this. You can also use the Brush tool as an airbrush to simulate the effect of spraying a fine mist of color.

- *The Pencil tool*, by default, creates hard-edged, freehand lines.

When using these tools, be sure to paint on a separate layer so you can hide, or delete your changes by hiding or deleting the layer. If you paint on a separate layer you can also apply layer styles and change blending modes at any time—things you can't do if you paint directly on the image layer.

SETTING BRUSH AND PENCIL TOOL OPTIONS

When you select the Brush or Pencil tool, the Brush (top) or Pencil (bottom) option bar offers the following settings:



- *Tool Preset Picker* drop-down arrow lets you select preset tools.

- *Brush* displays a thumbnail of the currently selected brush or pencil and gives its diameter in pixels. You can click the thumbnail or the drop-down arrow to display the Brush palette so you can change the size and hardness of the selected brush or select a new one (page 130).

- *Mode* specifies how pixels in the image are affected by a painting or editing tool (page 132).

- *Opacity* specifies the amount of paint coverage applied by the tool for each stroke (page 132).

- *Flow* slider (Brush only) controls how quickly paint is applied by the Brush tool. A low setting produces a lighter stroke (page 132).

- *Airbrush* button (Brush only) is normally off but you can click it to turn it on when you want to use the Brush tool as an airbrush that applies gradual tones to an image, simulating traditional airbrush techniques.

- *Auto Erase* check box (Pencil only) is normally off, but you can turn it on so you can erase with the pencil (page 134).

USING THE BRUSH AND PENCIL TOOLS

Once you have selected a tool, set its options, and selected a foreground color, you are ready to paint in the image.

- *To paint, drag in the image.* When opacity is set low, each additional stroke over the same area lays down more color but only if you first release and then repress the mouse button between strokes.

TIPS

- When the options bar displays text boxes for percentages or sizes:

- Click in the box and press the up or down arrow keys to change the number, and hold down Shift as you do so to change it by 10s.

- If the options bar has more than one such text box, you can click in one, then Tab to the others.

- To highlight the entry in the first text box, just + press Enter.

TIPS

- When painting, it helps to use shortcuts to zoom in on details and quickly adjust brush sizes.
- To zoom in and out, hold down Ctrl while pressing the + and - keys on the numeric keypad.
- To change the size of the brush, press the square brackets [and].

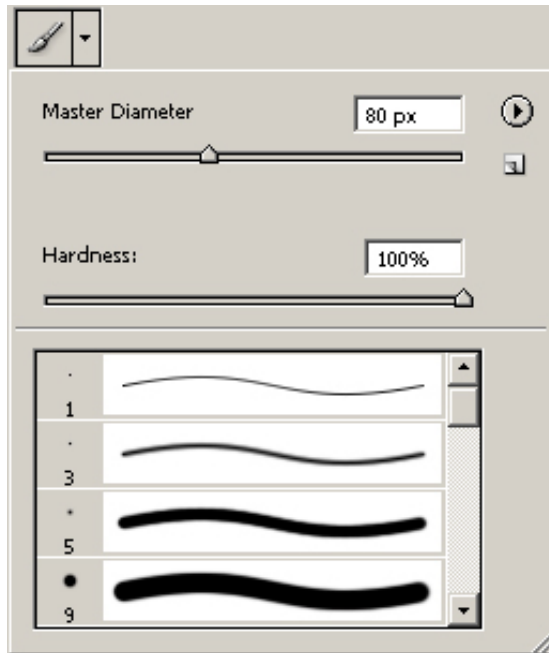
■ *To draw a straight line*, click a starting point in the image, then Shift+click an ending point.

■ *When using the Brush tool as an airbrush*, paint as usual but pause where you want to build up the color and move the pointer more quickly to apply less color. For more control, reduce opacity and flow.

You can select preset brushes, and make minor changes to them, from either the Brush pop-up palette on the options bar or the Brushes palette. Both also allow you to view, select, and load libraries of preset brushes. Although outside the scope of this book, the Brushes palette also lets you design custom brushes.

USING THE OPTION BAR'S BRUSH PALETTE

To display the option bar's Brush palette, click the Brush thumbnail or drop-down arrow, or right-click in the image after selecting the Brush or Pencil tool.



■ *To select a brush*, click it on the list showing its diameter and a typical stroke. After clicking one brush you can press the up or down arrow keys to quickly scroll through others. To display a brush's name, point to it and pause until the tool tip appears.

■ *Master Diameter* slider changes a brush's diameter. If the brush has a dual tip, both the primary and dual brush tips are scaled. You can also change a brush's diameter on the fly while painting by pressing the [and] keys.

■ *Hardness* slider changes the brush's hardness or how much a brush stroke fades out to form a feathered edge. In the palette, soft brushes look out of focus and hard brushes look very sharp.

■ *Triangle icon* displays the palette's menu so you can change the way brushes are displayed and select other libraries of brushes listed at the bottom of the menu.

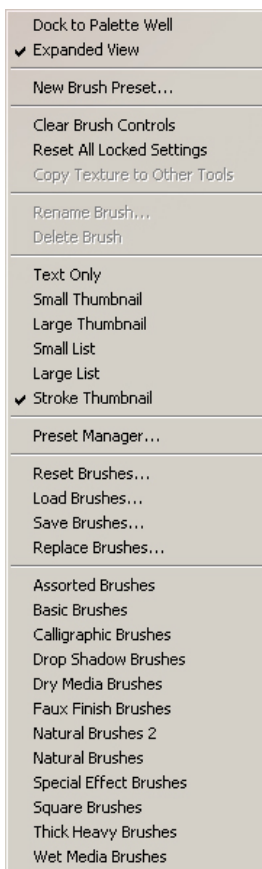


The Toggle Brushes palette button (left) on the options bar next to the Toggle File Browser button displays and hides the Brushes palette.

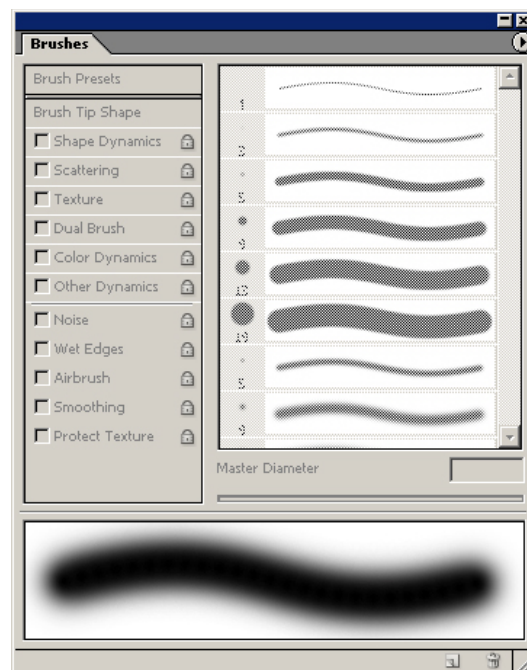
■ *Create a new preset from this brush* button saves the current brush for reuse. To name and save the current brush, click this button or select *New Brush* from the palette menu to display the Brush Name dialog box. Enter a descriptive name for the brush and click *OK*. The new brush is selected on the options bar, and is listed at the bottom of the palette where its name is displayed when you point to it. To rename or delete the brush, right-click it in the palette and select *Rename Brush* or *Delete Brush* or select it and choose the same commands from the palette menu.

USING THE BRUSHES PALETTE

To display the Brushes palette, select *Window>Brushes*. If you have already selected a brush or pencil (or an erasing tool, toning tool, or focus tool), you can also display the palette by clicking the *Toggle Brushes palette* button on the options bar to the left of the *Toggle File Browser* button.



The *Brush* and *Brushes* palettes have identical palette menus except for the top two commands on the *Brushes* palette menu (shown above). At the bottom of both menus are libraries of other brushes that you can select. Use the *Reset Brushes* command to restore a palette's default brushes.



The *Brushes* palette and its menu work much like the almost identically named *Brush* palette on the options bar discussed above. However, you can choose *Brush Presets* to see sample strokes or *Brush Tip Shape* to see what the brush tips look like. The biggest difference is that this palette lists brush characteristics that you can adjust. Click the name of any characteristic to display its settings on the right. For example, some brushes have two tips and you access options for the primary tip by clicking *Brush Tip Shape* and options for the secondary tip by clicking *Dual Brush*.

CREATING A SAMPLED BRUSH

One interesting thing you can do is select an area of the image and then create a *sampled brush* that has the same size and shape as the selection. To begin, make a selection in the image, then select *Edit>Define Brush Preset*. The brush can be up to 2500 pixels by 2500 pixels in size. You can control the hardness of the brush by feathering the selection before defining the brush. For example, set feathering to 0 pixels to create a brush with a hard edge. You select and use sampled brushes just like other brushes, and even change their size.

SPECIFYING TOOL OPTIONS



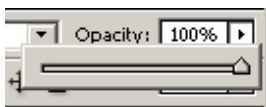
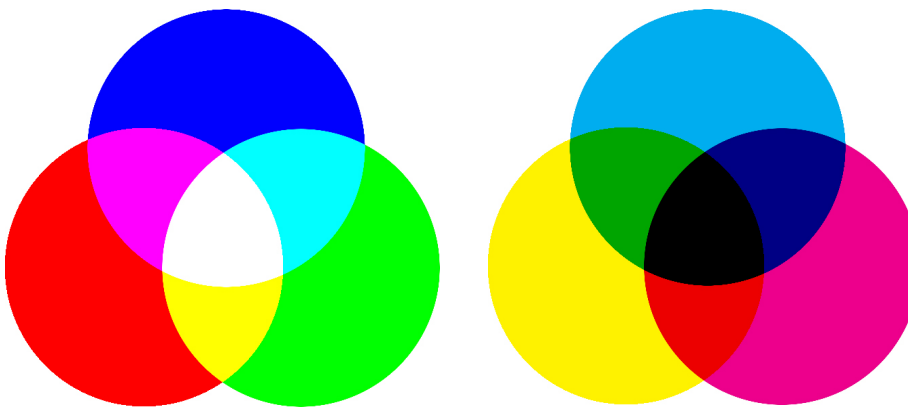
The list of available blending modes.

Many tools and all layers let you specify blending modes and opacity. Here we discuss those settings and others you find on the options bar when you select the tools discussed in this chapter used to paint, erase and retouch images.

BLENDING MODE

Blending modes (aka *Mode*) are available on the options bar for many tools and in the Layers palette for all layers except the background. These modes determine how a color you apply with a tool interacts with the colors you paint over or how the colors on one layer interact with colors on the layers below. Modes are powerful creative tools, especially when using photos in the graphic arts or manipulating them extensively. However, blending modes are outside the scope of this book although we encourage you to search on-line help for “selecting a blending mode” and also refer to other books on the creative use of Photoshop. You can also experiment with them as you work on images of your own.

Three layers were created with a colored circle on each layer. With the layer blending modes all set to Screen the Red, Green, and Blue circles show other RGB colors where they overlap (left). Just by changing the circles’ colors to cyan, magenta, and yellow and the mode to Multiply, the three circles simulate CMYK printing (right).



The Opacity Slider bar.

OPACITY

The opacity of a tool or layer determines how much the layer below shows through. The default setting is always 100% so the tool or layer is totally opaque with no show-through. However, clicking the drop-down arrow displays the *Opacity* slider you drag to change the setting. If you reduce opacity, you increase transparency, until you reach the limit of 1% opacity, or 99% transparency. The one exception to this general rule is Eraser tool opacity where opacity determines what amount is erased, not what’s left. For example, if the opacity of an area is 100% and you set an eraser’s opacity to 10%, areas you drag over have a remaining opacity of 90%.



A checkerboard pattern often indicates transparent areas of an image.

For subtle effects with some tools, you can set opacity low and then make multiple passes over an area, with each pass increasing the effect. The secret is to release and then repress the mouse button between passes. You may also want to temporarily reduce a layer’s opacity so you can see through it to align it or your edits with the layer below. When finished, return it’s opacity to 100%.

Opacity cannot be set to 0% so you can’t use most tools to create completely transparent areas. The exception to this are the Eraser tools. Since you can

TIP

To see the effects of blending modes, open an image and the Layers palette. Click the Layers palettes' *Create a new layer* button to add a layer above the image. Select the Paint Brush tool and paint some brush strokes on the layer. Now, select the Move tool and hold down Shift+Alt as you press the + and - keys on the numeric keypad to cycle the layer through all of the blending modes.

set their opacity to 100% and totally erase areas, so they become transparent. You can also create completely transparent areas by selecting and deleting sections in one layer so the layer below shows through. These transparent areas are not affected by the opacity setting.

FLOW

Flow specifies how quickly paint is applied by the tool and is normally set to 100% but clicking the drop-down arrow displays the Flow slider you can drag to change the setting. When set low, it lets you build up the color by pausing or making with repeated passes over the same area so the color deepens until it reaches the level specified in the *Opacity* setting. You don't have to release and repress the mouse button between passes to saturate an area. When used with eraser tools, the effect of the setting is the same but applies to erasing rather than painting.

USE ALL LAYERS

Use All Layers check box, when on, samples colors from all visible layers not just the active one.

ANTI-ALIASED

Anti-aliased check box, when on, smooths the edges of the areas you edit by partially filling edge pixels so they blend into the background color.

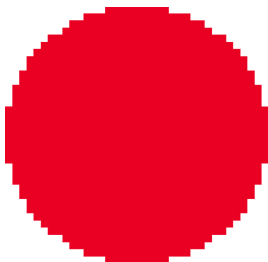
TOLERANCE

Tolerance specifies what range of colors is selected, erased, or replaced with a range between 0–255. A low tolerance limits affects to areas that are very similar to the sampled (clicked) color. A high tolerance affects a broader range of colors. If you find you are affecting colors you didn't intend to affect, specify a lower tolerance.

LIMITS

■ *Limits* specifies which areas of color are affected:

- *Discontiguous* affects the sampled color wherever it occurs under the brush.
- *Contiguous* erases affects areas that contain the sampled color and are connected to the area under the brush.
- *Find Edges* affects connected areas containing the sampled color while preserving the sharpness of shape edges.



Anti-aliasing (bottom) softens the transition between contrasting colors.

LAYER AND TOOL INTERACTIONS

Since you can set blending modes and opacity for both tools and layers, it stands to reason the settings interact. For example, painting with a 40% opacity on a layer with 100% opacity is the same as painting at 100% opacity on a layer with 40% opacity. The interactions can take a little getting used to but will become familiar should you decide this is an area you want to explore in more detail.

ERASING

TIPS

■ When erasing, it helps to use shortcuts to zoom in on details and quickly adjust brush sizes.

● To zoom in and out hold down Ctrl while pressing the + and - keys on the numeric keypad.

● To change the size of the paintbrush, eraser, or other tool, press the square brackets [and].

The Eraser, Background Eraser, and Magic Eraser tools erase areas of an image but work in slightly different ways. For example, the Eraser and Magic Eraser tools erase areas of an image to transparency or to the background color. The Background Eraser tool erases to transparency on a layer.

The toolbox displays only one of the tools at a time. To select one of the hidden tools, point to the tool in the toolbox and hold down the mouse button to display all three, or Alt+click the displayed tool to cycle through all of them.

USING THE ERASER TOOL

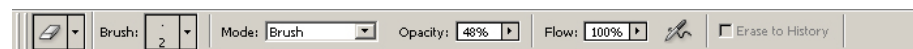
The eraser tool changes pixels in the image as you drag through them.

■ *When you erase on the background layer* the erased area is filled with the background color because the background can't have transparent areas. It's as if you are painting instead of erasing.

■ *When you erase on a regular layer without transparency locked*, the erased area can be made transparent by setting the tool's opacity to 100%. Lower settings make it semitransparent.

■ *When you erase on a regular layer with transparency locked*, the erased area is filled with the background color but transparent areas remain unaffected.

After selecting the tool, these choices become available on the options bar (unless you set the *Mode to Block*).



■ *Tool Preset Picker* drop-down arrow lets you select preset tools.

■ *Brush* lets you select and adjust a brush to erase with (page 130).

■ *Mode* for this tool works differently than for other tools. It lets you select a *Brush* (softer), *Pencil* (harder), or *Block* (smaller, great for square corners) to erase with and your choice affects which other options are available.

■ *Opacity* specifies the maximum amount of erasing applied by the tool (page 132).

■ *Flow* controls how quickly color is erased by the Eraser tool. A low setting produces a lighter stroke (page 132).

■ *Erase to History* check box lets you erase to a saved state or snapshot of the image. With this on, click the left column of the state or snapshot in the History palette that you want to erase back to and erase. To temporarily use the Eraser tool in Erase to History mode, Alt+drag through the area you want to erase.

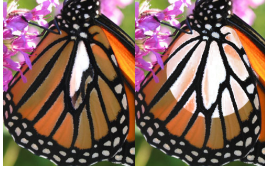
USING THE BACKGROUND ERASER TOOL

The Background Eraser tool erases the areas around an object without erasing the object's edges. It's a good way to remove the background behind a portrait. The tool overrides the *Lock Transparency* setting of a layer.

When you point to an area of an image and press the mouse button, the tool samples the color under the cross hairs in the center of the brush, called the

TIP

■ When you want to erase but not have completely transparent areas, set opacity to less than 100%. If you set it low enough, you can drag over areas more than once, each time increasing their transparency a little more. To erase in multiple strokes, release and repress the mouse button each time. As long as you hold the mouse button down, it will only erase an area one time.



Here the Background Eraser tool's Limits was set to Contiguous (left) and Discontiguous (right). In both cases, a section of the Monarch's wing was clicked. With the tool set to Discontiguous, the color was erased wherever it fell under the brush.

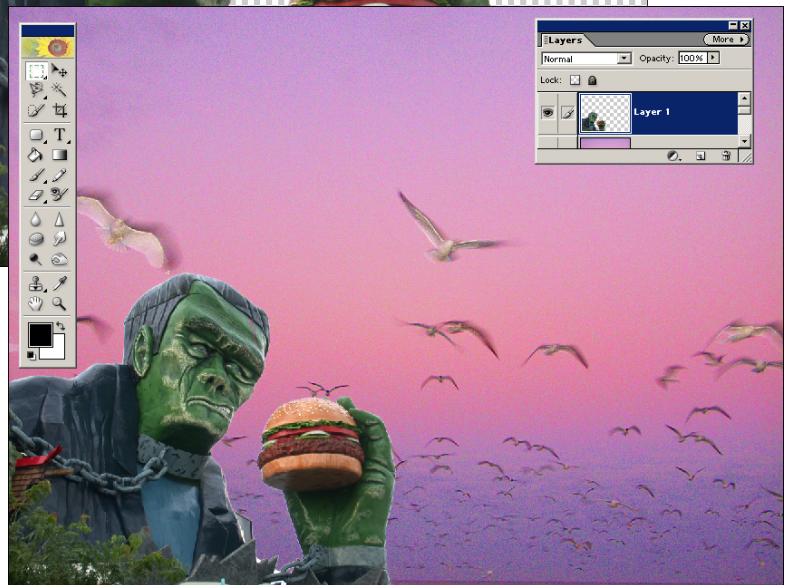
hot spot, and deletes that color wherever you click or drag the brush to make the area transparent. The brush also removes colors around the edges of foreground objects so color halos are not visible if you paste the foreground selection into another image.

If you use the tool on the background layer, when you release the mouse button the layer is converted into a regular layer with erased areas becoming transparent. After selecting the tool, the choices below become available on the options bar.



- **Tool Preset Picker** drop-down arrow lets you select preset tools.
- **Brush** lets you select and adjust a brush to erase with (page 130).
- **Limits** specifies which areas of colors are erased (page 132).
- **Tolerance** specifies the range of colors to be erased (page 132).
- **Protect Foreground Color** check box, when on, prevents the erasure of areas that match the foreground color in the toolbox. (To change the foreground color, Alt+click in the image.)
- **Sampling** specifies which colors are sampled as you edit. Your choices include *Continuous* to sample colors continuously as you drag, *Once* to erase only areas containing the color that you first click, and *Background Swatch* to erase only areas containing the current background color. (To select a background color, Alt+click it with the Eyedropper tool.)

The Background Eraser was used to erase the area around the monster and the checker board pattern indicates transparent areas of the image. The layer was then copied to another image that provides an interesting background.



TIP

■ When using a pressure-sensitive digitizing tablet, search help for *Stylus* to see how it works with various tools.

TIPS

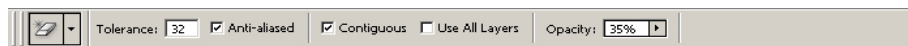
- Using the Magic Eraser or the Background Eraser tools on the background layer converts it into a regular layer.
- When using the Eraser or Background Eraser tools, you can draw straight lines by holding down Shift as you click.

USING THE MAGIC ERASER TOOL

The Magic Eraser is a tool you click, not drag. When you click in a layer with the tool, it samples the color under the pointer and erases all pixels with a similar color.

- *When used on a background layer*, when you release the mouse button the layer is converted into a regular layer with erased areas becoming transparent.
- *When used on a regular layer with unlocked transparency*, the pixels are erased to transparency.
- *When used on a regular layer with locked transparency*, the pixels change to the background color.

After selecting the tool, the choices below become available on the options bar. After setting them, click in the area of the layer you want to erase.



- *Tolerance* specifies the range of colors to be affected (page 132).
- *Anti-aliased* check box, when on, smooths the edges of the areas you edit (page 132).
- *Contiguous* check box, when on, erases only pixels that are adjacent to the one you click. When off, pixels are erased no matter where they are in the image.
- *Use All Layers* check box, when on, samples colors from all visible layers not just the active one (page 104).
- *Opacity* specifies the maximum amount of erasure applied by the tool (page 132).

USING THE PENCIL TOOL'S AUTO ERASE OPTION

The *Auto Erase* check box on the Pencil tool's option bar, when on, lets you paint the background color over areas containing the foreground color. After selecting a foreground and background color and turning this on, drag over the image to paint with the background or foreground color depending on where your stroke starts:

- *If you begin dragging over areas in your image that contain the foreground color*, the pencil tool paints with the background color.
- *If you begin dragging from an area that doesn't contain the foreground color*, the tool paints with the foreground color.

RETOUCHING IMAGES

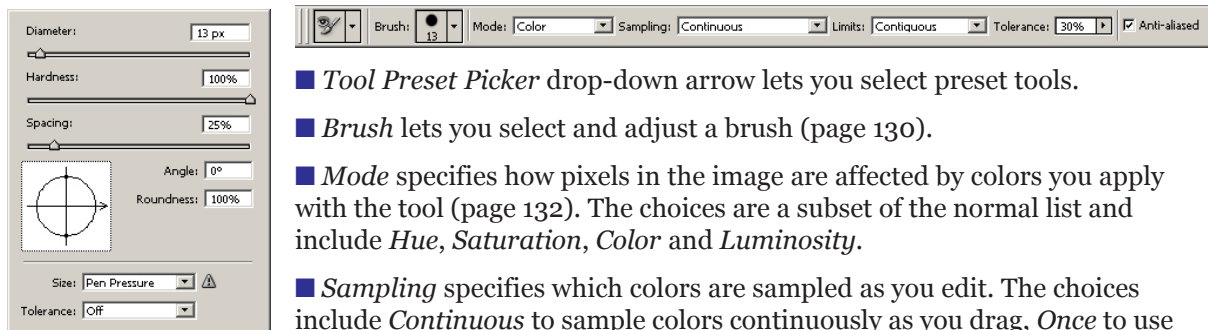
TIP

■ After using any tool discussed in this section you can select *Edit>Fade ...* to make final adjustments.

At times there will be small areas in an image that need retouching. For example, some portraits have red-eye caused by the camera's flash, or complexions have minor imperfections. These and other problems can be fixed by selecting one of the retouching tools in the toolbox.

THE COLOR REPLACEMENT TOOL—REMOVING RED-EYE

The Color Replacement tool changes the hue, saturation, color, or luminosity of the area you click or drag over without affecting detail. This tool easily removes red-eye, or glare from eyeglasses, dental braces, or other reflective surfaces. When you select the tool, the options bar displays the following settings:



When using the Color Replacement tool you click the Brush drop-down arrow on the options bar or right-click in the image to adjust the brush.

■ *Tool Preset Picker* drop-down arrow lets you select preset tools.

■ *Brush* lets you select and adjust a brush (page 130).

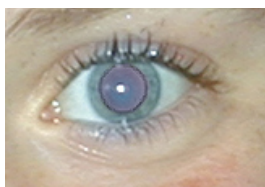
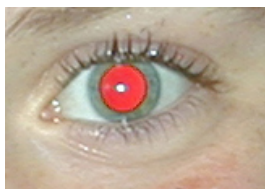
■ *Mode* specifies how pixels in the image are affected by colors you apply with the tool (page 132). The choices are a subset of the normal list and include *Hue*, *Saturation*, *Color* and *Luminosity*.

■ *Sampling* specifies which colors are sampled as you edit. The choices include *Continuous* to sample colors continuously as you drag, *Once* to use only the color that you first click, and *Background Swatch* to replace the foreground color with the background color. (To select a foreground color Alt+click with the Color Replacement tool. To select a background color, Alt+click it with the Eyedropper tool.)

■ *Limits* specifies which areas of color are replaced (page 132).

■ *Tolerance* specifies the range of colors to be replaced (page 132).

■ *Anti-aliased* check box, when on, smooths the edges of the areas you edit (page 132).



Red-eye before (above) and after (below) correction.

One use of this tool is to correct red-eye that appears in photos when the camera's flash reflects off the back of a person's eye. To replace the red with a color of your choice, you need to select an accurate replacement color, use a brush of just the right size, and have the *Tolerance* set to just the right point so the correct colors are replaced. Here is how to do it:

■ Zoom into the area you want to fix.

■ Select the Color Replacement tool in the toolbox and on the options bar set *Mode* to *Color*, *Sampling* to *Once*, *Limits* to *Discontiguous*, and *Tolerance* to 30 percent or so. Set the brush size so it's somewhat smaller than the red area of the eye. (Remember that pressing [and] adjusts the brush size.)

■ Choose a foreground color that will replace the red. To do so, click the foreground color swatch in the toolbox. In the color picker, select a color similar to the subject's actual eye color and click *OK*.

■ To repair your photo, click once on the color you want to replace or drag over it. If you can't remove all of the red, try increasing the *Tolerance* level on the options bar to correct more shades of red. When *Tolerance* is set too low, there may be a red ring or area in the eye that isn't changed.

TIP

■ When dodging and burning, set the exposure level low and make multiple passes over an area to adjust it. Release the mouse button between passes or the tool reaches its limit and has no more effect.

BURNING AND DODGING

Two of the most popular darkroom techniques since the first prints were made from negatives have been dodging and burning to darken or lighten selected areas to bring out details.

- *Dodging* was done using a piece of cardboard or other tool to block light from selected areas of the image to make them lighter.
- *Burning* was done with a piece of cardboard with a hole cut in it that let you selectively darken light areas of the image.

To dodge or burn in Photoshop, select the Dodge or Burn tool in the toolbox, and set the following options:

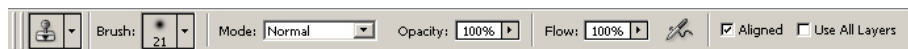


- *Tool Preset Picker* drop-down arrow lets you select preset tools.
- *Brush* lets you select and adjust a brush (page 130).
- *Range* drop-down arrow selects the tones affected by the tool and includes the choices *Midtones*, *Shadows*, and *Highlights*.
- *Exposure* drop-down arrow displays a slider that adjusts the intensity of the tool. The higher the setting, the more effect it has. The default is 50% but for precise control set this to a low value and drag over the area a number of times, releasing the mouse button periodically, making small changes on each pass.

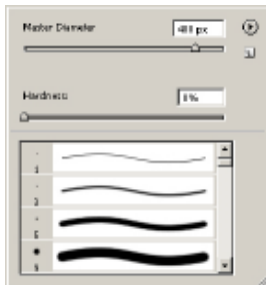
CLONING

The Clone Stamp tool copies a sample from the image, and applies it elsewhere on the same or different image. One use for the tool is to remove blemishes from portraits by selecting a smooth area of the skin to paint over an imperfect area. The tool can also be used to remove such things as telephone lines from an image.

To begin you select the Clone Stamp tool in the toolbox and set its options. You then select what to paint with by Alt+clicking an area that matches the tone, color, texture, and other characteristics of the area you want to repair. Finally, you paint the area you want to repair by clicking or dragging. When you hold down the mouse button, cross hairs indicate where the pixels that you are painting with are coming from. As you drag, the crosshairs trail along sampling new colors that they pass over. It's as if you are painting one part of the image by picking up colors, details, and patterns from another part. If your results aren't what you hope for, you can always select *Edit>Undo* and try again.



- *Tool Preset Picker* drop-down arrow lets you select preset tools.
- *Brush* lets you select and adjust a brush that determines how large an area you clone and how it's applied (page 130).
- *Mode* and *Opacity* determine how the copies blend with the image (page 132).
- *Flow* slider controls how quickly the cloned area is applied (page 132).
- *Aligned* check box, when on, samples pixels relative to where you first click



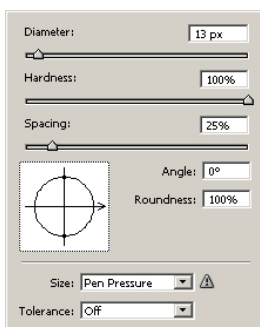
When using the Clone Stamp tool, right-clicking the image displays a set of brushes.

TIP

■ When cloning one of the most important settings is the *Aligned* check box. It determines where the crosshairs are displayed, and what colors are copied, when you hold down the mouse button for each stroke.

TIPS

- When retouching, it helps to use shortcuts to zoom in on details and quickly adjust brush sizes.
- To zoom in and out hold down Ctrl while pressing the + and - keys.
- To change the size of the paintbrush, eraser, or other tool, press the square brackets [and].
- If the area you want to heal has high contrast edges, begin by selecting an area slightly larger than the area you want to heal but precisely following the boundary of contrasting pixels. When you then select and paint with the Healing Brush tool, colors from outside won't bleed into the selected area.



When using the Healing Brush tool you click the Brush drop-down arrow on the options bar or right-click in the image to adjust the brush.

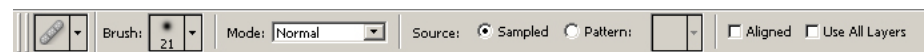
to paint. Each time you start a new stroke, the sampling point is at the same distance and angle from the mouse pointer as it was for the first stroke. When off, each time you begin a new stroke, sampling begins at the same place you originally sampled.

- *Use All Layers*, when on, samples from all layers, not just the active one (page 104).

HEALING BRUSH

The Healing Brush works much like the Clone Stamp tool, but instead of just copying a selection, it blends it seamlessly into the background so the texture, lighting, transparency, and shading aren't changed. You can either paint with pixels sampled from the image or select a pattern to paint with.

Normally, you select the tool and set the *Source* to *Sampled*. You then Alt+click in an area near the imperfection that has the color and tone you want to paint with to hide the imperfection. You then click or drag over the imperfection. Just keep in mind that the sampling point trails along sampling new areas as you move the mouse pointer. To minimize problems, paint in short strokes. When you release the mouse button, the blending takes effect. The status bar indicates progress and you can always use the *Edit>Undo* command to reverse the change if you don't like it.



- *Tool Preset Picker* drop-down arrow lets you select preset tools.
- *Brush* lets you select and adjust a brush (page 130).
- *Mode* specifies how pixels in the image are affected by painting with the tool (page 132). Choose *Replace* to preserve noise, film grain, and texture at the edges of the brush stroke.
- *Source* specifies what you paint with when retouching an image:
 - *Sampled* uses pixels you select by Alt+clicking them in any open image.
 - *Pattern* paints with a pattern you select by clicking the *Pattern* drop-down arrow to display a palette of choices. The palette's menu lists other libraries of patterns from which to choose.
- *Aligned* check box, when on, samples pixels relative to where you first click to paint. Each time you start a new stroke, the sampling point is at the same distance and angle from the mouse pointer as it was for the first stroke. When off, each time you begin a new stroke, sampling begins at the same place you originally sampled.
- *Use All Layers* check box, when on, samples colors from all visible layers not just the active one (page 104). When off you sample colors only from the active layer.

PATCH TOOL

The Patch tool repairs an area of the image. To begin, select the area to be repaired and then drag a copy of the selection border to an area that has the texture, lighting and shading that you want to repair with. As you do so, the area you choose is displayed in the original selection border so you can see how it blends with the surrounding area. When you then drop the selection border copy on the area of your choice, Photoshop seamlessly blends that area with pixels in the original selection. There are only two options on the

TIP

■ When using the Patch tool to repair with pixels from the image, select a small area to produce the best result. And you can also make a selection prior to selecting the Patch tool. You can also adjust the selection as follows:

- Shift+drag in the image to add to the existing selection.
- Alt+drag in the image to subtract from the existing selection.
- Alt+Shift+drag in the image to select an area intersected by the existing selection.

option bar. One (*Destination*) reverses the default process and lets you select the area you want to repair with and drag and drop it on the area to be repaired. The other lets you repair with a pattern if the image doesn't contain an area that meets your needs. You can select areas in the image using the Patch tool or you can select them with other tools before selecting the Patch tool. Generally, the tool works best with small areas.



- *Multiple selection buttons* specify how multiple selections interact when they overlap (page 86). When making multiple selections, you can't begin drawing one selection inside another or you will move the selection.
- *Source* option button lets you begin by selecting the area that needs repairing using the Patch tool which operates much like the Lasso tool (page 90). Once selected, you point inside the selection border, drag it to the area you want to use for the repair. As you do so, the area you are pointing to is displayed in the area you selected to be repaired so you can preview the results. When it's the way you want it, drop the selection.
- *Destination* option button lets you begin by selecting the area you want to repair with. Once selected, you point inside the selection border, drag it to the area you want to repair and drop it.
- *Use Pattern* button, active only after you have selected an area to be repaired, displays the currently selected pattern and has a drop-down arrow you can click to select another. After selecting a pattern, click the *Use Pattern* button to apply it. This setting is useful when the image has no areas matching the area you want to repair.

OTHER TOOLS

Photoshop has so many painting tools, entire books could be, and have been, written just about them. Since this is an introductory book, many of these tools cannot be discussed in detail. However, here are some tools you may want to explore after you have mastered the basics.

- *Blur* tool blurs and the *Sharpen* tool sharpens edges that you drag over.
- *Sponge tool* changes the saturation of areas you drag over.
- *Smudge tool* smudges colors in your image. The *Strength* drop-down arrow sets the intensity of the smudging. The *Finger Painting* check box, when on, smears the foreground color onto the image. When off, the tool smears the color under the pointer at the beginning of the stroke. To temporarily turn on *Finger Painting* as you drag with the smudge tool, hold down Alt as you paint.
- *Pattern Stamp tool* paints with the pattern you choose by clicking the *Pattern* drop-down arrow on the options bar to display thumbnails of available patterns. When the *Aligned* check box on the options bar is on, you can draw multiple strokes and the patterns will match up where they overlap. When off, they won't. When the *Impressionist* check box is on, the pattern looks impressionistic.
- *History* and *Art History Brushes* paint with stylized strokes, using the source data from a state or snapshot selected in the History palette. The History Brush tool paints by recreating the specified source data, while the Art History Brush tool uses that data along with the options you set to create different colors and artistic styles.

USING THE PAINT BUCKET AND GRADIENT TOOLS

TIPS

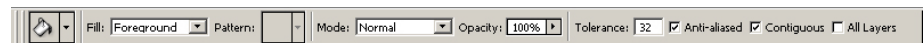
- If you don't want the Paint Bucket tool to fill transparent areas on a layer, lock the layer's transparency in the Layers palette (page 105).
- If you are filling a layer, you may be better off using a fill layer (page 118).

Filling layers and selections with solid colors or gradients is often useful in photography because you can use these tools to create backgrounds or borders or more importantly, to edit masks (page 146).

USING THE PAINT BUCKET TOOL

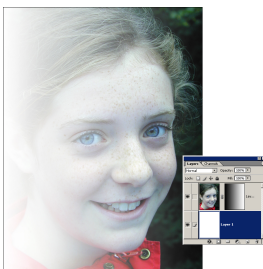
The Paint Bucket tool fills an area that is similar in color value to the pixels you click. The fill can be the foreground color or a pattern you choose from a wide selection.

To use the Paint Bucket tool, select it in the toolbox and click the part of the image you want to fill. All pixels identical to the one you click or within the specified tolerance are filled with the foreground color or pattern. To limit the fill to a specific area, select that area first. Here are the option bar settings that affect the tool:



- *Fill* drop-down arrow specifies if you fill with the foreground color or with a pattern.
- *Pattern*, available only if you set *Fill* to *Pattern*, displays a thumbnail of the currently selected pattern and has a drop-down arrow you click to display a palette of patterns from which to choose. You can also then click the triangle icon on the palette to display a menu listing other groups of patterns from which to choose.
- *Mode* specifies how pixels in the image are affected by the colors you fill with (page 132).
- *Opacity* specifies the amount of paint coverage applied by the tool for each stroke (page 132).
- *Tolerance* specifies the range of colors to be replaced (page 132).
- *Anti-alias* check box, when on, smooths the edges of the filled selection.
- *Contiguous* check box, when on, fills only pixels that are adjacent to the one you click. When off, all similar pixels are filled no matter where they are in the image.
- *All Layers* check box, when on, samples colors from all visible layers.

You can work on your images while they are displayed against a background color other than the default gray. To do so, click the image window's Maximize button or drag the image window corners away from your image so that the image window is larger than the image. Select the foreground color you want to use, and then select the Paint Bucket tool in the toolbox. Hold down Shift, and click in the area surrounding your image.



Here a gradient was added to a layer mask (page 150) and it makes the image fade in from left to right.

USING THE GRADIENT TOOL

The Gradient tool creates a gradual blend between multiple colors. To apply a gradient, you should create a new layer so you don't paint over the pixels on the image layer. The gradient will fill the entire layer, so if you just want it to be in one area, select that area first. You then drag the path along which or around which you want the gradient to form. You can choose from existing gradient fills or create your own.

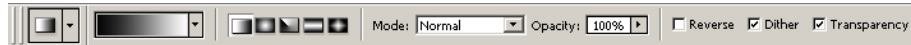


Gradient types (top down) linear, radial, angle, reflectance, and diamond. The arrow shows the path dragged.

■ *The direction you drag* determines the angle and sequence of the gradient. For example, dragging in opposite directions reverses the gradient. Dragging vertically creates a vertical gradient and dragging horizontally creates a horizontal gradient. To constrain the gradient angle to a multiple of 45°, Shift+drag.

■ *The distance you drag* determines the spacing of the gradient's colors or tones. For the linear gradient, you drag the entire path, but for the others you just drag half of the path, from the center to the edge around which you want it to form.

To use the Gradient tool, select it in the toolbox and make the following settings on the options bar:



■ *Gradient* displays a thumbnail of the currently selected gradient. You can click the thumbnail to display the Gradient Editor dialog box so you can edit the currently selected gradient. (If you are interested in this, search held for “editing gradients.”) To change the gradient, click the drop-down arrow to display a palette of gradient from which to choose. You can also click the triangle icon on the palette to display a menu listing other groups of gradients from which to choose. Gradients with a checker board pattern fade to transparency.

■ *Gradient fill types* are icons you click to select one of the following types of gradients:

- *Linear gradient* runs perpendicular to the path you drag.
- *Radial gradient* forms a circle around the radius you drag.
- *Angle gradient* forms a counterclockwise sweep around the radius you drag.
- *Reflected gradient* forms a gradient along the path you drag, and forms a mirror image of it on the side you didn't drag.
- *Diamond gradient* forms a diamond-shaped gradient around the radius you drag. The point where you stop dragging becomes one corner of the diamond.

■ *Mode* specifies how pixels in the image are affected by a painting or editing tool (page 132).

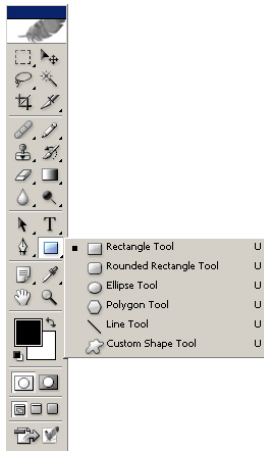
■ *Opacity* specifies the amount of paint coverage applied by the tool for each stroke (page 132).

■ *Reverse* check box, when on, reverses the order of the colors in the gradient fill. This has the same effect as dragging in the opposite direction when you create the fill.

■ *Dither* check box, when on, creates a smoother blend with less banding.

■ *Transparency* check box, when on, lets the gradient create transparent areas. To preview its effect, select a gradient that has transparent areas indicated by the checker board pattern, then click this check box on and off while watching the gradient thumbnail.

DRAWING SHAPES



Shape tools in the toolbox.



The Shape layers button (the leftmost button) must be selected to draw shapes on a layer. The other buttons are Paths that's outside the scope of this book and Fill pixels that creates rasterized shapes filled with the foreground color.



The multiple shape buttons on the options bar determine how multiple shapes interact.



Buttons on the Shape tool's options bar include Pen tool, Freeform pen tool, shape tools (5), Custom Shape Tool and Geometry options.

The Shape tools provide an easy way to create buttons, navigation bars, and other items used on Web pages. Shapes (and text) are *vector* graphics, made up of lines and curves defined by their geometric characteristics instead of by pixels. This allows them to be scaled to any size and printed at any resolution without losing detail or clarity. As you drag to draw shapes, they are normally created on a new layer although you can click one of the *Multiple shape* buttons on the options bar to draw multiple shapes on the same layer. The shape tools you have to choose from include the following:

- **Rectangle tool** draws a square-cornered rectangle and the **Rounded rectangle tool** draws a round-cornered rectangle with the corners having the specified **Radius**.

- **Ellipse tool** draws an ellipse and circle.

- **Polygon tool** draws a polygon having the specified number of **Sides**.

- **Line tool** draws a straight line with the thickness specified in the **Weight** text box. You can even add arrowheads to it

- **Custom Shape tool** displays the **Shape** drop-down arrow on the options bar which you can click to display a palette of shapes to choose from. Clicking the small triangle on the palette displays a menu of shape categories from which you can choose related shapes.

CREATING A SHAPE

To create a shape, select any of the shape tools, check that the Shape layers button on the option bar is selected, then drag. When you release the mouse button, a new layer appears with the shape on it and the shape is filled with the color specified on the options bar (by default the foreground color). As you are drawing a shape, do the following:

- **To draw a shape not filled with color**, hold down Alt before you press the mouse button and start to drag.

- **To expand the shape outward from its center**, instead of from a corner, hold down Alt after you start to drag.

- **To constrain the shapes to their original proportions** (rectangular and elliptical shapes are squares or circles), Shift+drag the shape.

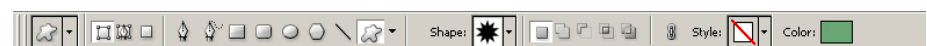
- **To expand the shape from the center and retain original proportions** hold down Alt+Shift after you start to drag.

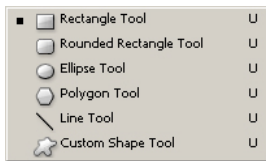
- **To move the shape as you draw it**, without releasing the mouse button, hold down the spacebar and drag the shape to reposition it.

- **To add a second or subsequent shape to the same layer**, click one of the multiple shape buttons on the options bar other than the New shape layer button.

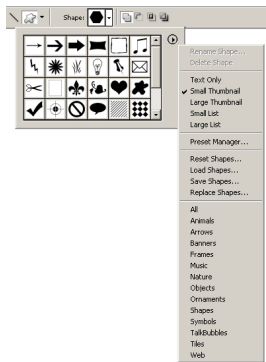
SHAPE OPTIONS

When you select a Shape tool, the options bar displays settings you can change. The options are the same for all tools with one exception. The choices common to all Shape tools are as follows:

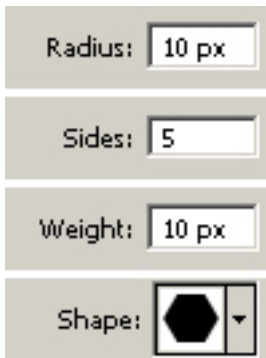




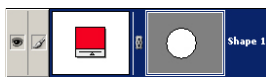
Shape tools available from the toolbox.



The Custom Shape tool gives you access to libraries of shapes.



Only one section of the option bar changes as you select Shape tools. Here, from top to bottom, are the settings for the Rounded Rectangle, Polygon, Line, and Custom tools.



A shape is a fill layer linked to a vector mask. In the Layers palette the layer thumbnail is on the left and the vector mask thumbnail is on the right.

■ *Shape layers button* lets you draw shapes on layers and the Fill pixels button rasterizes a shape layer. The *Path* button is beyond the scope of this book.

■ *Tool buttons* let you quickly switch among tools in the Shape tool set. (The Pen and Free Transform Pen tools are outside the scope of this book.) The *Geometry Options* drop-down arrow, to the right of the Custom Shape Tool button, displays settings specific to the selected tool. Using these options you can add arrowheads to lines, constrain ellipses to circles, define the sizes of custom shapes, and make other advanced settings. If interested in knowing more about these options look up the shape tool in help.

■ *Variable section* in the middle of the bar changes depending on what tool you select. It has no setting for the Rectangle and Ellipse tools, but it lets you select the *Radius* for the Rounded Rectangle tool, the number of *Sides* for the Polygon tool, the *Weight* for the line tool, and a *Shape* for the Custom Shape tool.

■ *Multiple shape buttons* lets you combine shapes. The *Create new shape layer*, creates a new layer for each shape you draw. The other buttons let you draw more than one shape on the same layer and determine how they interact when they overlap. They work much like the same buttons do when making selections (page 86).

■ *Link button* is outside of the scope of this book but it changes properties on the target layer when on and on a new layer when off.

■ *Style drop-down arrow* displays a palette of preset styles from which you can choose effects such as embossing or ridges. Click the triangle button on the palette to display categories of styles from which to choose. You can also apply styles such as drop shadows to the layer with the *Layer>Layer Style* command or the Styles palette. Keep in mind that styles are applied to all shapes on a layer.

■ *Color swatch* displays the current fill color—by default the foreground color. Click the drop-down arrow to display the color picker if you want to change it.

EDITING SHAPES

When you draw a shape you create a fill layer linked to a vector mask. You can easily change the fill to a different color, a gradient, or a pattern by editing the shape's fill layer. You can also edit the shape's vector mask to modify the shape outline, and apply a style to the layer.

■ *To change a shape's color*, double-click its layer thumbnail in the Layers palette to display the color picker.

■ *To fill a shape with a pattern or gradient*, select its layer in the Layers palette, and choose *Layer>Change Layer Content* to display a submenu and then select *Gradient* or *Pattern* and select options.

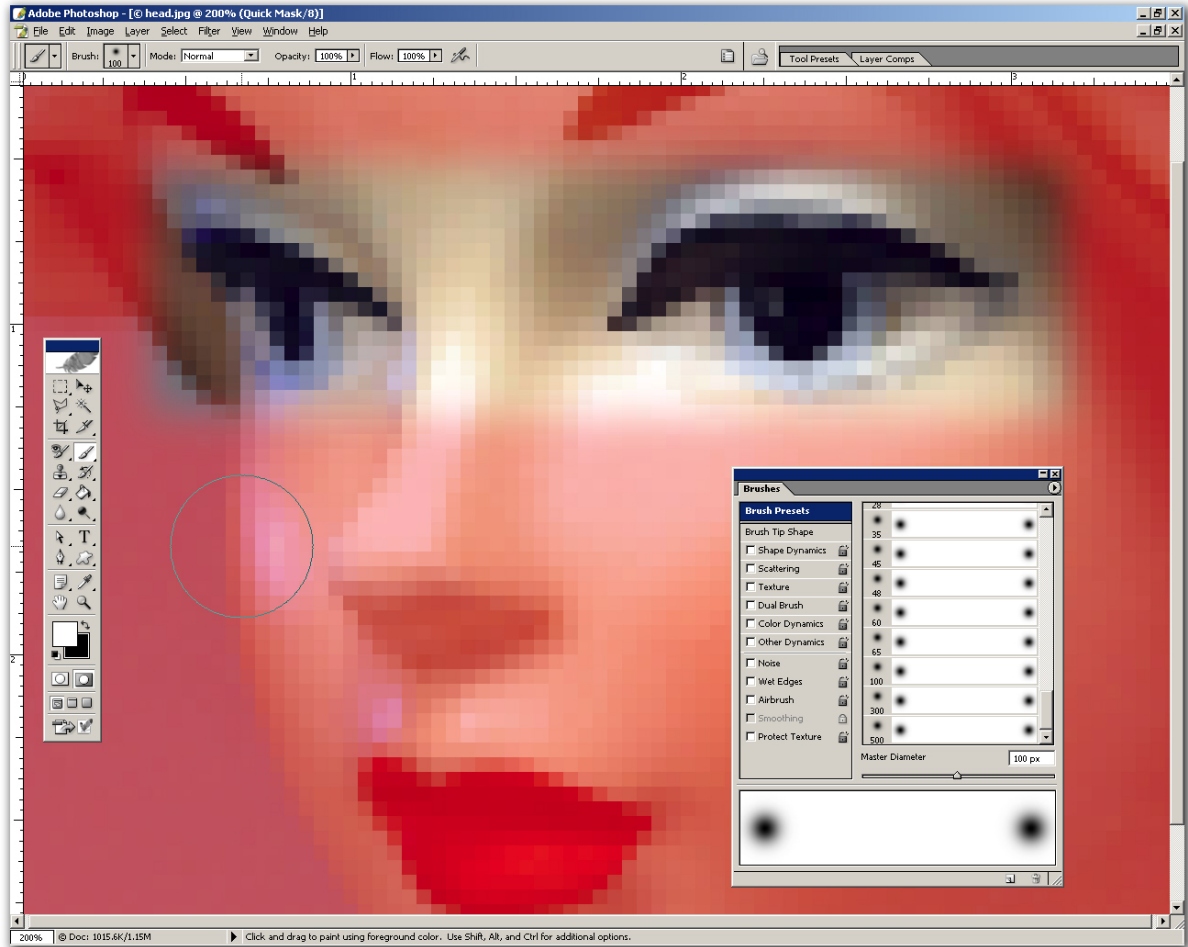
■ *To add layer styles such as a drop shadow to a shape*, double-click the shape layer's vector mask thumbnail in the Layers palette or Paths palette to display the Layer Styles dialog box. Select the styles you want to apply and click *OK*.

RASTERIZING SHAPE LAYERS

Just as with type layers (page 120), you have to rasterize a shape layer so you can paint on it or apply filters.

Chapter 7

Creating and Using Masks



CONTENTS

- Masks—An Introduction
- Editing Masks
- Using Quick Masks
- Using Layer Masks
- Using Alpha Channel Masks
- Using the Extract Command
- Replacing Color

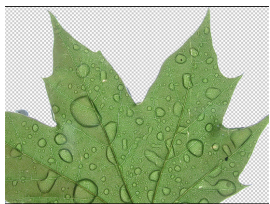
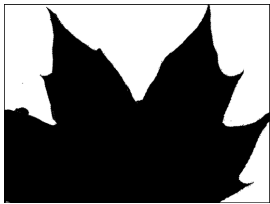
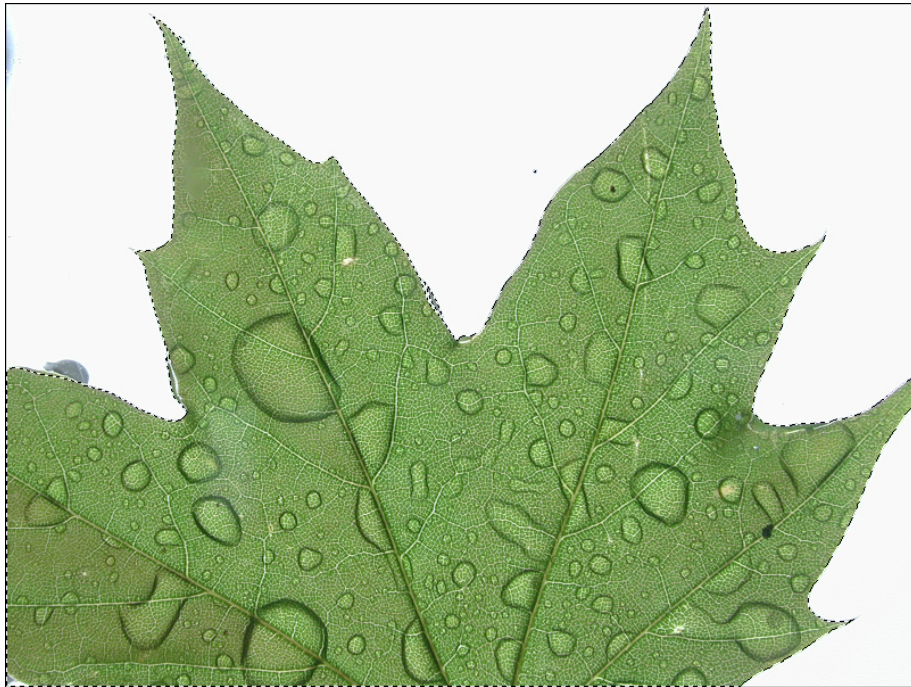
In previous chapters, you were introduced to making selections, using layers, and painting and drawing. In this chapter we bring these elements together to create masks. These powerful tools are used to confine adjustments to selected area of an image or to make one are of an image transparent so the layer below shows through. Unlike a selection, a mask is a grayscale image just as your images are. This means you can edit one just like you edit images; using brushes, erasers, fills, filters, and almost every other tool and technique you have learned. Having all of these tools at your disposal means you can create more complex selections than you can with the selection tools you learned earlier.

Because masks make precise selections possible, they lie at the heart of compositing—the creation of a new image by piecing together parts of other images. You can either cut and paste selected areas or make some areas transparent so layers below show through. Once you master a few basic tools, the possibilities are endless.

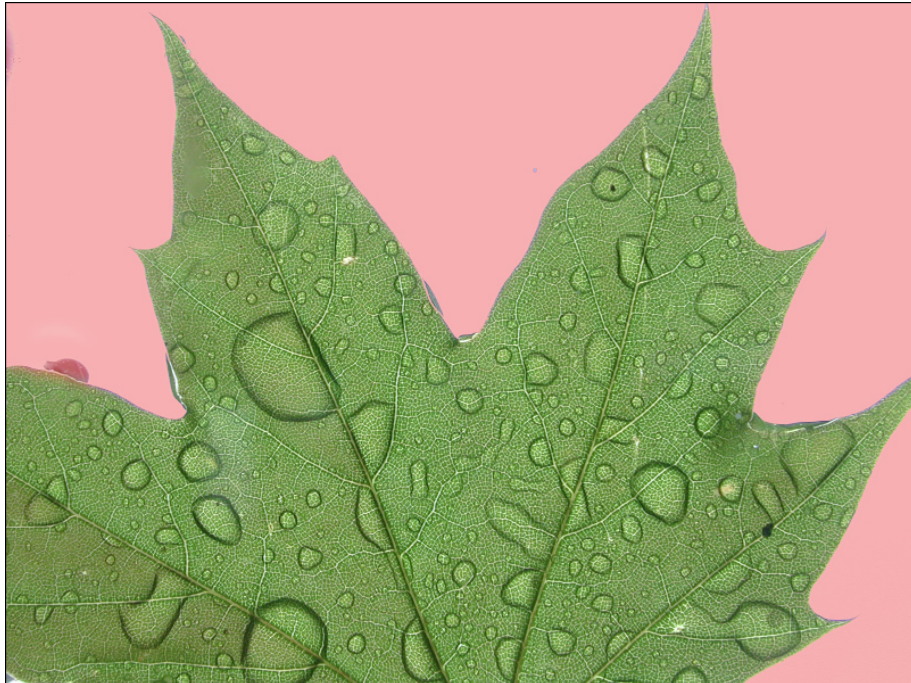
MASKS—AN INTRODUCTION

Masks are actually grayscale images that perform two different but related tasks. First, you can use them to select areas of an image so adjustments affect only the desired area. By making parts of the mask various shades of gray, you can even apply various levels of adjustment. Second, you can use masks to make parts of a layer fully or partially transparent so layers below show through to some specified degree. This control of transparency is especially useful because it lets you combine a number of images, each on its own layer, and then use masks to create a composite image without actually changing the images themselves.

Selections are indicated by a selection border that separates the selected areas from the unselected areas.



Masks can be displayed as grayscale images (top), transparent areas (bottom) or as color overlays (right).



SELECTIONS VS MASKS

Selections and masks are both similar and different in some respects:

■ *They are similar* in the following respects:

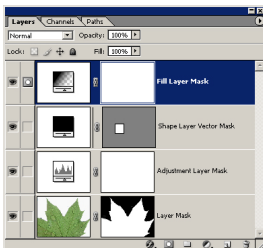
- Both let you select parts of an image.
- Both can be saved so you can reuse them with the same or even different images. When a selection is saved, it is converted into a grayscale image and becomes a mask.
- Both saved selections and masks are listed in the Channels palette.
- You can start with a selection and turn it into a mask for further editing, or load a mask so it appears in the image as a selection border. In fact, the *Edit in Quick Mask Mode* and *Edit in Standard Mode* buttons in the toolbox let you switch back and forth between the two modes so you see a selection both as a selection border and as a mask.



The *Edit in Quick Mask Mode* button (right) in the toolbox. The *Edit in Standard Mode* button is on the left.

■ *They are different* in the following respects:

- Masks make obvious which areas are protected or revealed in a number of ways, for example, by covering them with a color overlay. Selections separate selected from unselected areas with a thin selection border and you can't see feathered edges or semitransparent areas at all.
- Only masks are grayscale images.
- Selections are made using a limited number of selection tools while masks, being grayscale images, can be edited with any editing tools including selection tools, paint brushes, erasers, fills, gradients, and even filters. The ability to use all of these tools lets you create very complex selections.
- Only masks (other than Alpha layer masks—page 153) have thumbnails displayed in the Layers palette to the right of the layer's thumbnail. These mask thumbnails represent the grayscale channels.
- Only masks show feathering and other tonal transitions. Selections are always displayed with a hard-edged selection border that only indicates the line at which feathering or a gradient is 50% gray—halfway between pure white and pure black.
- Masks can make parts of a layer transparent (hidden) without actually deleting pixels from it.



A layer mask always has a mask thumbnail to the right of the layer thumbnail that indicates the layer's function. The mask thumbnail shows unmasked pixels in white and masked pixels in black (partially transparent or selected pixels appear as gray).

CREATING MASKS

Photoshop lets you create masks in the following ways:

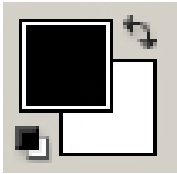
- *When you make a selection with any tool* including Type Mask tools, you can edit it in Quick Mask mode as if it were a mask and save it as an alpha channel just like a mask.
- *Adding a layer mask to the selected layer or layer set* lets you make some areas of the layer transparent or select areas for adjustment.
- *When you add adjustment layers and fill layers* they automatically have layer masks.
- *Clipping masks* (page 124) let you create a shape on one layer and use it to mask the layer above.
- *Drawing shapes with any Shape tool* automatically creates a vector mask.

EDITING MASKS

TIP

■ When editing a mask:

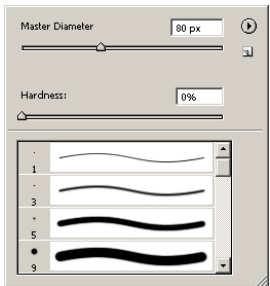
- Black unselects or hides.
- White selects or reveals.



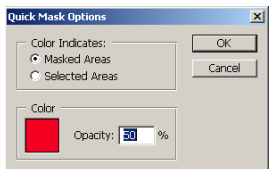
When painting a mask, click the Default Colors icon (lowerleft) to set the foreground and background colors to black and white. Click the Switch Colors icon (upperright) to reverse the colors.



The Swatches pallet has shades of gray.



Right-click a mask to display the Brush pop-up palette.



To change the Quick Mask's Color and Opacity settings, double-click the Edit in Quick Mask Mode button to display the Quick Mask Options dialog box.

Although there are a number of ways to create or select a mask (as you'll soon see), once you have done so, you can edit it with the same tools and techniques discussed in the chapters on selecting and painting. There are many ways to edit masks but here we emphasize the most common way—using brushes.

■ *When creating a new mask*, begin by selecting the part of the image you want to affect. This step is optional and the selection only needs to be rough because you can refine it when it's displayed as a mask.

■ *Select the tool* you want to use to edit the mask and set its options. When selecting a brush, choose one that's feathered or sharp depending on your goals.

■ *Select a foreground color* in the toolbox. When you create a new mask or display an existing mask, the foreground and background color swatches in the tool box become black and white so you can paint to create or fine-tune the selection. To switch between black and white foreground colors, click the Switch Colors icon to the right of the foreground color swatch. To select a shade of gray using the color picker double-click the foreground color swatch.

■ *To edit the mask*, do one of the following:

● *To mask areas* so an adjustment doesn't affect them, or to hide areas using a layer mask, paint with the foreground color set to black or erase with it set to white.

● *To unmask areas* so an adjustment does affect them, or to reveal areas using a layer mask, paint with the foreground color set to white or erase with it set to black.

● *To partially mask areas*, so the adjustment affects the image to some degree, or so areas on a layer mask are partially transparent, use a soft brush or airbrush, or paint with gray or adjust the opacity of black. Darker grays protect or hide areas more than light grays do. You might explore gradients because they give you a range of grays to work with.

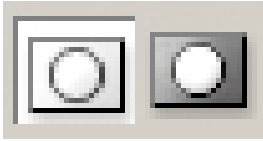
■ *To change the color and opacity of the mask's color overlay*, do one of the following (by default, mask color overlays are red with opacity set to 50%):

● *To change the color overlay for a quick mask*, double-click the *Edit in Quick Mask Mode* button in the toolbox to display the Quick Mask Options dialog box, change the color and opacity and click *OK*. (The *Masked Areas* and *Selected Areas* option buttons are described on page 149.)

● *To change the color overlay for a layer or alpha mask*, double-click the mask thumbnail in the Layers palette, or double-click the alpha mask's channel in the Channels palette to display the Layer Mask Display Options or Channel Options dialog box, change the color and opacity and click *OK*.

These settings affect only the appearance of the mask and have no effect on how underlying areas are protected. The only practical reason to change them is to make the mask stand out better against the colors in the image.

USING QUICK MASKS



The *Edit in Quick Mask Mode* button (right) in the toolbox. The *Edit in Standard Mode* button is on the left.

The purpose of Quick Mask mode is to let you easily switch back and forth between the two modes of making and viewing selections—selection borders and masks. You can either start with a selection in Standard mode and then switch to Quick Mask mode to refine it, or you can create the mask entirely in Quick Mask mode. At any point you can switch back and forth between the two modes just by clicking the buttons.

CREATING A QUICK MASK

To create a quick mask, just click the *Edit in Quick Mask Mode* button in the toolbox to display the mask for editing using the tools and techniques described on page 148. Here is what happens:

TIP

■ When using a brush you can paint with grays by changing the opacity of black. To do so, just press any number key. For example, type 0 for 100%, 1 for 10%, and other numbers such as 2 then 3 for 23%. When using the airbrush hold down Shift as you type the numbers.

■ *If you selected an area first*, that area appears normal to indicate that it is selected. The rest of the image is covered by a semitransparent red color overlay to indicate that it is unselected and protected. If the selection was feathered, the feathering is shown as variations in the overlay's transparency.

■ *If you didn't first select an area or you selected the entire image*, the entire image looks normal to indicate it is selected. You only see the red mask when you paint it with black or a shade of gray to unselect and protect areas.

■ *The Channel palette* lists a temporary Quick Mask channel, and its thumbnail displays selected pixels in white and unselected pixels in black.

USING AND SAVING THE MASK

When finished creating or editing a mask, click the *Edit in Standard Mode* button and make the desired changes to the image. They affect only the selected area indicated by the selection border. (In Quick Mask mode, the same commands affect the mask, not the image.)

■ *The selection border in Standard mode* indicates the line at which pixels in feathered edges or semitransparent areas are 50% gray.

■ *To deselect the selection* (you may want to save it first), choose *Select>Deselect*.

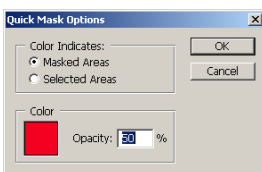
■ *To save the quick mask for reuse*, switch to Standard mode and choose *Select>Save Selection* to display the Save Selection dialog box described on page 99. The selection is saved as a grayscale image and is listed in the Channels dialog box as an alpha channel (page 153).

■ *To load a previously saved quick mask for reuse*, choose *Select>Load Selection* to display the Load Selection dialog box described on page 99.

■ *To reverse what the color overlay indicates and which colors you use to edit it*, double-click the *Edit in Quick Mask Mode* button in the toolbox and change the default *Masked Areas* to *Selected Areas*. You can also Alt+click the *Edit in Quick Mask Mode* button to toggle between the two modes. This has no effect on what is actually selected but when changed, the mask covers unprotected (selected) areas and you extend it by painting with white and reduce it by painting with black.



In Quick Mask mode, a quick mask channel is displayed in the Channels palette.



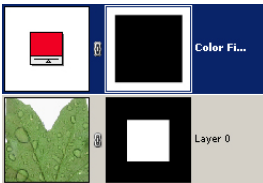
The Quick Mask Options dialog box lets you reverse what the color overlay covers and the colors used to edit it.

USING LAYER MASKS



Layer masks are displayed in the Channels palette but only when the layer they are attached to is selected in the Layers palette.

A layer mask always has a mask thumbnail to the right of the layer thumbnail that indicates the layer's function.



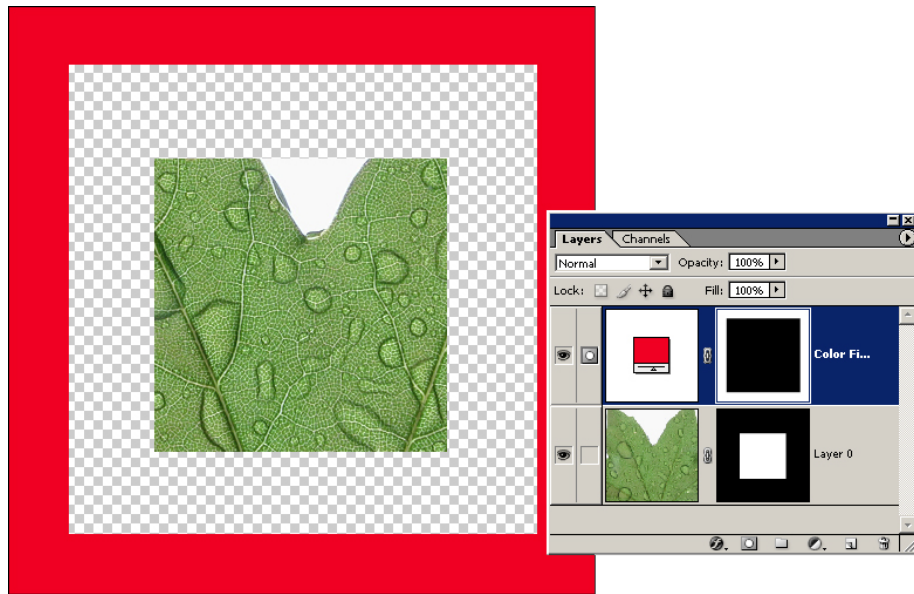
A regular layer's mask thumbnail (bottom) shows revealed pixels in white and hidden pixels in black (partially transparent or selected pixels appear as gray). An adjustment layer's mask thumbnail (top) shows the unprotected, selected pixels in black and the protected, unselected pixels in white.

Layer masks are linked to a layer and come in three basic types that share similarities and differences:

- **Regular layers** (page 146) can have masks added to hide and reveal parts of the image. These masks are widely used in making composite images because painting areas of the mask with black makes them hidden/transparent so layers below show through. Painting with white reveals areas on the mask's layer, obscuring the same area on the layers below. On the mask thumbnail, black indicates hidden/transparent areas and white indicates revealed areas.

- **Adjustment and fill layers** have masks added automatically so you can control which areas of the image are affected by the adjustment or fill and to what degree. Painting the mask with black unselects and protects areas from the adjustment or fill. Painting with white selects areas so they are affected. On the mask thumbnail, black indicates selected areas and white indicates unselected areas.

- **Shape layers** have vector masks added automatically. You edit these masks with pen and path tools that are outside the scope of this book.



ADDING MASKS TO REGULAR LAYERS

Layer masks serve two basic functions. They are used to make areas of a layer transparent and can also be loaded so they are displayed in the image just like any other selection border. (You can't add a layer mask to the background layer without first converting it into a regular layer—page 107).

When you add a mask to a regular layer, you can have it initially reveal all or hide all of the image or a previously made selection. Your choice determines the starting point for editing and should be based on the size of the area to be revealed or hidden. For example, when masking a small area, it's more efficient to choose *Hide All*, and paint to reveal rather than choosing *Reveal All*, and painting to hide. To add a mask that shows or hides the entire layer or the selected area, display the Layers palette, select the layer or layer set to which you want to add a mask, and do one of the following:



The palette's Add Layer Mask button is the second from the left.

■ To create a mask that reveals the entire layer or the area within a selection, click the palette's Add layer mask button. (You can also choose Layer>Add Layer Mask from the main menu to display a submenu and choose Reveal All or Reveal Selection.)



In the Layers palette, the layer thumbnail is on the left and the mask thumbnail on the right. When the link is displayed between them, they move together.

■ To create a mask that hides the entire layer or the area within a selection, Alt+click the palette's Add layer mask button. (You can also choose Layer>Add Layer Mask from the main menu to display a submenu and choose Hide All or Hide Selection.)

After creating the mask, you can add to or subtract from the masked area. Areas you paint in black will be made transparent, areas you paint in white will be revealed, and areas you paint in shades of gray will have various levels of transparency.

EDITING LAYER MASKS AND CONTENTS

When a layer has a mask, you switch between editing the layer's content and its mask by clicking thumbnails in the layers palette.



When editing a layer mask, a mask icon is displayed in the second column of the Layers palette. When editing the layer's contents, a paintbrush icon is displayed instead.

■ To edit the mask (page 148), click the mask thumbnail (the one on the right). The foreground and background colors change to grayscale values, a mask icon is displayed in the second column, and the thumbnail is surrounded by a border to indicate you are editing the mask.

■ To edit the layer's content, do one of the following in the Layers palette:

- To edit a regular layer's contents, click the layer thumbnail (the one on the left). The paintbrush icon is displayed in the second column and the thumbnail is surrounded by a border to indicate that you are editing the layer.
- To edit an adjustment or fill layer's content, double-click the layer thumbnail (the one on the left) to display the dialog box controlling the adjustment or fill.

TIP

■ When editing a layer mask:

- Black hides.
- White reveals.

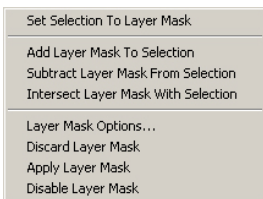
LOADING LAYER MASKS

Although a layer mask is a grayscale image you can load it to display it in an image as a selection border. You can then edit and use this selection border just like any other (page 85).

■ To load a mask so it appears in the image as a selection border, Ctrl+click the mask thumbnail or right-click the mask thumbnail to display a pop-up menu and choose Set Selection to Layer Mask.

■ To combine the layer mask with a selection in the image, right-click the mask thumbnail and make a choice from the pop-up menu.

■ To select the entire layer, Ctrl+click the layer thumbnail.



Right-click a layer mask to display a pop-up menu.

MANAGING LAYER MASKS

When using or editing layer masks, you can click the layer and mask thumbnails to manage the mask:

■ To display and hide the grayscale mask, Alt+click the layer mask thumbnail. On a regular layer's mask the black indicates transparent or hidden areas. On an adjustment or fill layer mask it indicates unselected areas. The eye icons are dimmed because all layers or layer sets are hidden.

■ To display and hide the color overlay, Alt+Shift+click the layer mask



A disabled mask has a red X through it.

thumbnail. On a regular layer's mask the overlay covers transparent or hidden areas. On an adjustment or fill layer mask it covers unselected areas.

■ *To disable or enable the mask*, Shift+click the mask thumbnail. When disabled, the thumbnail is displayed with a large red X through it and the layer appears without masking effects. If you toggle back and forth you can compare the before and after affects of masking. (You can also enable and disable the mask by choosing *Enable Layer Mask* or *Disable Layer Mask* from the main menu's *Layer* menu or the pop-up menu displayed when you right-click the mask thumbnail.)

■ *To unlink a layer or layer set from its mask* so they can be moved separately, click the link icon between the thumbnails in the Layers palette. To relink them, click the same place to display the link icon again.

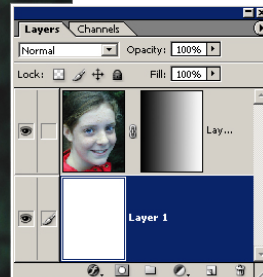
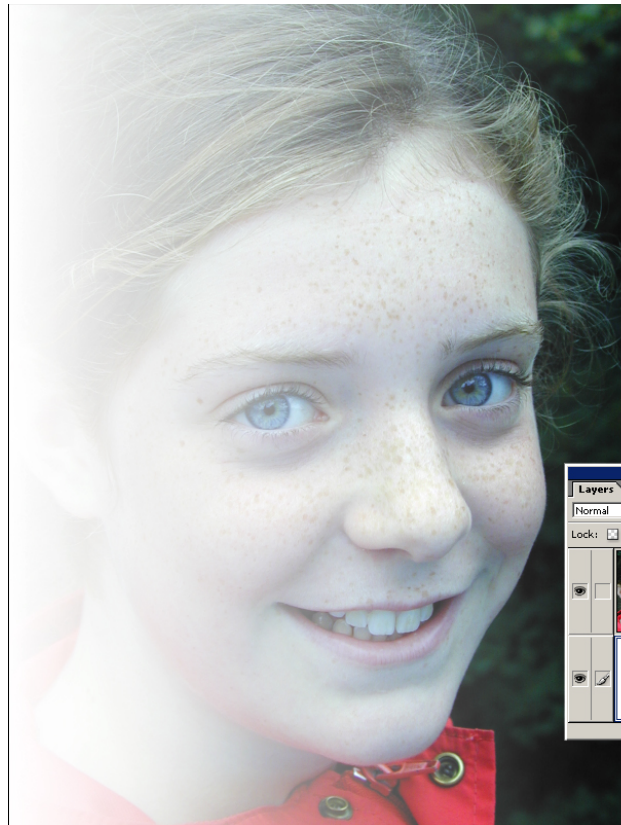
■ *To discard a layer mask* and reduce the file's size or simplify the Layers palette, do one of the following, and make one of the following choices when offered—*Apply* (to make the changes permanent), *Cancel* (to cancel the command), and *Discard* (to discard the mask and its effects).

- *Right-click a mask thumbnail* and select *Discard layer mask* to delete the mask and its effects without any choices being offered.
- *Select a regular layer's mask thumbnail* and click the palette's Trash button or drag and drop the thumbnail on that button and then select *Discard*, *Cancel* or *Apply*. You can also choose *Layer>Remove Layer Mask* and then choose *Discard* or *Apply*.
- *Select an adjustment or fill layer's mask thumbnail* and click the palette's Trash button or drag and drop the thumbnail on that button and select *Discard* or *Cancel*. You can also choose *Layer>Remove Layer Mask* and then choose *Discard* or *Apply*.

TIP

■ To transform a layer mask, unlink the mask, and select the mask thumbnail in the Layers palette (page 150).

Here a gradient was added to a layer mask and it makes the image fade in from left to right.



TIP

■ To use the same mask with other adjustments or fills, duplicate the layer (page 111) so you have two copies of the same adjustment. Then select the duplicate layer and choose *Layer>Change Layer Content* to display a submenu of layer types to choose from.

USING ALPHA CHANNEL MASKS

TIPS

■ If you display an alpha channel at the same time as one or more color channels, the alpha channel appears as a transparent color overlay that you can paint with black to enlarge or white to reduce.

■ Alpha channels are saved along with the image but are preserved only if you save a file in Adobe Photoshop, PDF, PICT, Pixar, TIFF, or Raw formats. Saving in other formats, including JPEG, may cause channel information to be discarded.

■ To see what channels really look like, select *Split Channels* on the Channels palette's menu.

As you've seen, the Channels palette lists the individual red, green, and blue grayscale channels and the combined full color composite image. Masks, being grayscale images, are also listed in the same palette in what are called *alpha channels*. You've met alpha channels before, although indirectly. For example;

■ *When you save and name a selection*, it is saved as an alpha channel.

■ *When you create a Quick Mask*, it is temporarily stored in an alpha channel. If you save the Quick Mask, it is saved there permanently.

■ *When you create a layer mask*, it is saved in an alpha channel.

All of these masks are created elsewhere and then saved as alpha channels. However, you can also create a new alpha channel and then use painting tools, editing tools, and filters to add a mask to it (page 148).

CREATING ALPHA CHANNEL MASKS

To create a new alpha channel with the default options click the *Create New Channel* button at the bottom of the Channels palette. The new channel is named according to the sequence in which it was created.

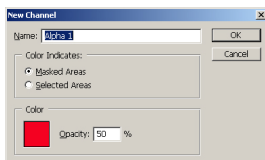
To create a new channel with options, Alt+click the *Create new channel* button at the bottom of the palette or select *New Channel* from the Channels palette menu to display the New Channel dialog box with the following options.

■ *Name* text box is where you enter a descriptive name.

■ *Masked Areas* (the default) and *Selected Areas* option buttons specify if the color overlay covers the unselected areas (the default) or the selected areas. It also determines which colors add to or subtract from the mask (page 148).

■ *Color* swatch and *Opacity* text boxes specify the look of the color overlay.

■ *OK* creates the new channel and lists it at the bottom of the Channels palette.



The New Channel dialog box.



The Channels palette buttons include (from left to right) Load channel as selection, Save selection as channel, Create new channel, and Delete current channel.

USING ALPHA CHANNEL MASKS

Alpha channel masks are edited just like other masks, but like saved selections, they have to be loaded before they can be used. When loaded, the mask appears as a selection border in the image.

■ *To display the mask in the image window for editing*, select its channel in the channel palette. Just the mask is displayed when no color channels are displayed. Click the eye icons to turn them all off. If one or all of them is on, the mask appears as a transparent red overlay over the image.

■ *To load an alpha mask* after editing or changing it so it appears in the image as a selection border, select its channel in the Channels palette and click the palette's *Load channel as selection* button. Select the RGB composite channel to see the selection border in the image.

■ *To remove the selection border in the image*, choose *Select>Deselect*.

USING THE EXTRACT COMMAND

TIPS

- To avoid losing the original image information, extract on a duplicate layer or make a snapshot of the original image state.
- If you extract on a background layer, it becomes a normal layer after the extraction.
- If the layer contains a selection, the extraction process applies only in the selected area.

The selection of subjects with complex edges can be very time consuming if you do it with brushes, or even the ever useful Background Eraser tool (page 134). Imagine painting around every hair in a windblown portrait, or every leaf in a landscape! To make it faster and easier, you can use the Extract command. Here is how it works:

1. Begin by selecting the layer with the object you want to extract and then choosing *Filter>Extract* to display the Extract dialog box. Using the Edge Highlighter tool you paint over edges of the subject where the details you want to extract overlap the background you want to remove. If the object has a center you want to preserve, the highlight must fully enclose the object or run into the edges of the image so it fully “seals off” an area.

2. Use the Fill tool (the paint bucket) to fill with blue the sealed off area you want to keep. You now have three areas in the image, the unhighlighted area that will be removed, the blue filled area that will be retained, and the green highlighted area that will be analyzed.

3. Click the Preview button to preview the extraction. the program retain all areas covered in blue, delete all of those not covered with any color, and do its best to separate foreground from background in areas highlighted in green. Pixels on the edge of the object are striped of any color components derived from the background so they will blend with a new background without producing a color halo. The end result is a foreground object against a transparent background.

4. Use the the Cleanup and Edge Touchup tools to erase background traces and sharpen edges. If there is no clear edge, the Edge Tool adds opacity to the object or subtracts opacity from the background. You can also clean up after an extraction using the Background Eraser and History Brush tools in the toolbox.

4. Click OK to complete the extraction. You can add back opacity to the background and create other effects using the *Edit>Fade* command after the extraction.

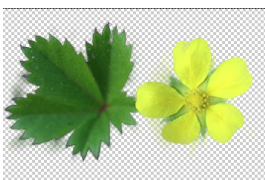
5. Refine the extraction, if necessary, by repeating the process after adjusting the highlight and fill or after changing settings such as *Smooth*, *Force Foreground*, or *Color*.

When using the extract dialog box, here are the tools and settings you have at your disposal to fine-tune the process:

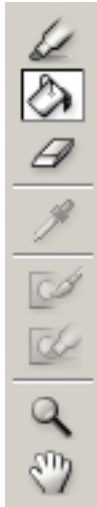
TOOLS

■ **Edge Highlighter** tool paints the area where the foreground subject extends into and overlaps the background. Use a large brush to cover intricate edges such as hair or trees.

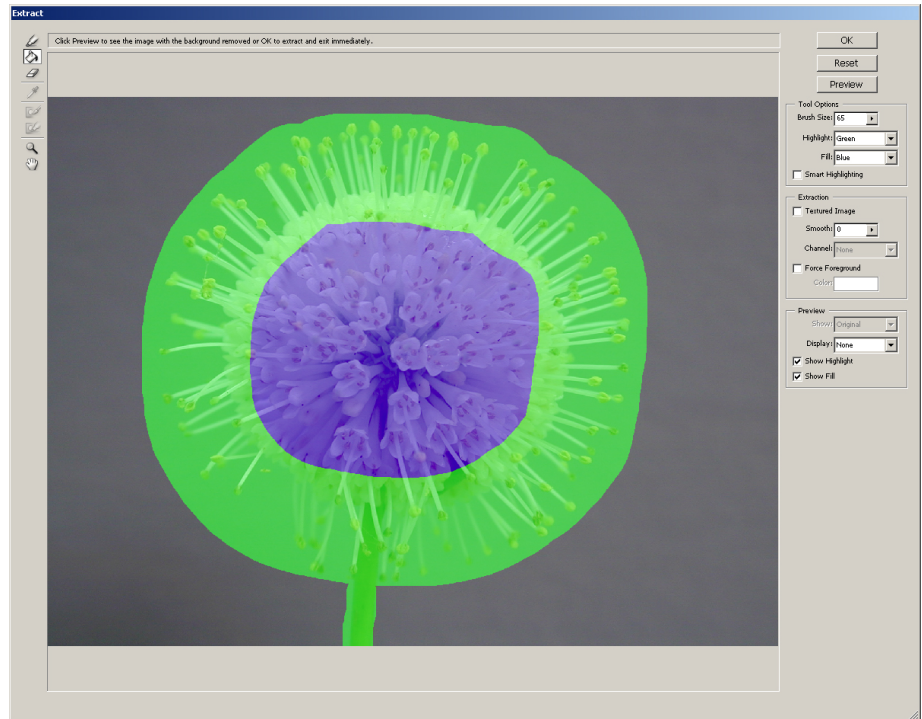
- If the object you want to extract has a well-defined interior, make sure that the highlight forms a complete enclosure or runs into one of the image boundaries. If the object doesn't have a definite interior that you want to retain, highlight the entire object.



Here is the original image (top), after edge highlighting and fill (center), and after extraction (bottom).



The tools include, from top to bottom, the Edge Highlighter, Fill, Eyedropper, Cleanup, Edge Touchup, Zoom, and Hand.



- To erase parts of the highlight, select the Eraser tool in the dialog box, and drag over the highlight. To erase the entire highlight, press Alt+Backspace.

- *Fill* tool fills the area surrounded by the Edge Highlighter with blue to indicate an area that will be fully retained. (Clicking a filled area with the tool removes the fill.)

- *Eyedropper* tool, used when you've selected *Force Foreground*, samples the foreground color inside the object, or you can click the color swatch to select the foreground color in the color picker. This technique works best with objects that contain tones of a single color.

- *Cleanup* tool erases background traces in the extracted area by subtracting opacity and has a cumulative effect. Alt+drag to add back opacity. You can also use the tool to fill gaps in the extracted object.

- *Edge Touchup* tool sharpens edges by adding opacity to the object or subtracting it from the background.

- *Zoom* tool magnifies an area. Alt+click with the tool to zoom out.

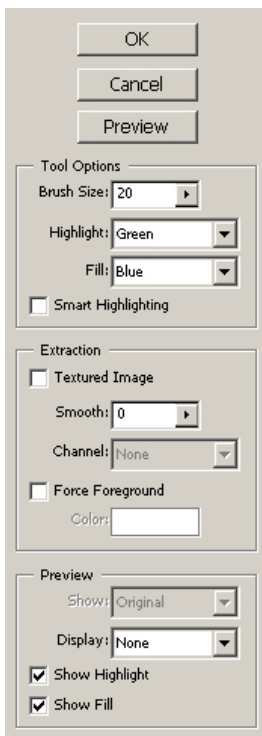
- *Hand* tool drags the image preview when it's zoomed larger than the window.

BUTTONS

- *OK* applies the final extraction.

- *Cancel* button cancels the procedure and closes the dialog box. *Reset*, displayed when you hold down Alt, restores default settings so you can try again.

- *Preview* button displays a preview of the extraction so you can examine the results and, if necessary, make changes to refine the extraction.



The Extract dialog box's controls and settings.

TIPS

- You can't highlight the entire object if you've selected *Texture Image* or *Force Foreground*.
- If you select an area of the image before using the *Extract* command, the unselected area is covered by a red mask.

TOOL OPTIONS

- *Brush Size* slider sets the width of the edge highlighter, eraser, cleanup, and edge touchup tools.
- *Highlight* drop-down arrow selects a color that appears around objects you paint with the Highlighter tool.
- *Fill* drop-down arrow selects a color for the area covered by the Fill tool.
- *Smart Highlighting* check box, when on, is useful when highlighting a well-defined edge because it helps you accurately trace the edge using a highlight that is just wide enough to cover it, regardless of the brush size. There are places where it can get confused. For example, if an edge you are tracing is near another edge and the highlight is attracted to the wrong edge, decrease the brush size. If the edge has a uniform color on one side and high-contrast edges on the other side, keep the object edge within the brush area but center the brush on the uniform color.

EXTRACTION OPTIONS

- *Texture Image* check box is used if the foreground or background of your image contains a lot of texture.
- *Smooth* slider increases or decreases the smoothness of the outline. Normally set to zero, you only increase this if you get unwanted blurring of details or sharp artifacts in the extraction.
- *Channel* drop-down arrow lets you choose an alpha channel if you have saved a selection or mask in the image that identifies the edge boundary. When you select the alpha channel, it's like loading a selection and the area outside of the selection is highlighted in the preview window.
- *Force Foreground* check box, when on, extracts areas within the highlighted area that match the color shown in the Force Foreground color swatch. This is useful if the object is intricate or lacks a clear interior. When selected, the eyedropper tool becomes available so you can click in the image to select a color.

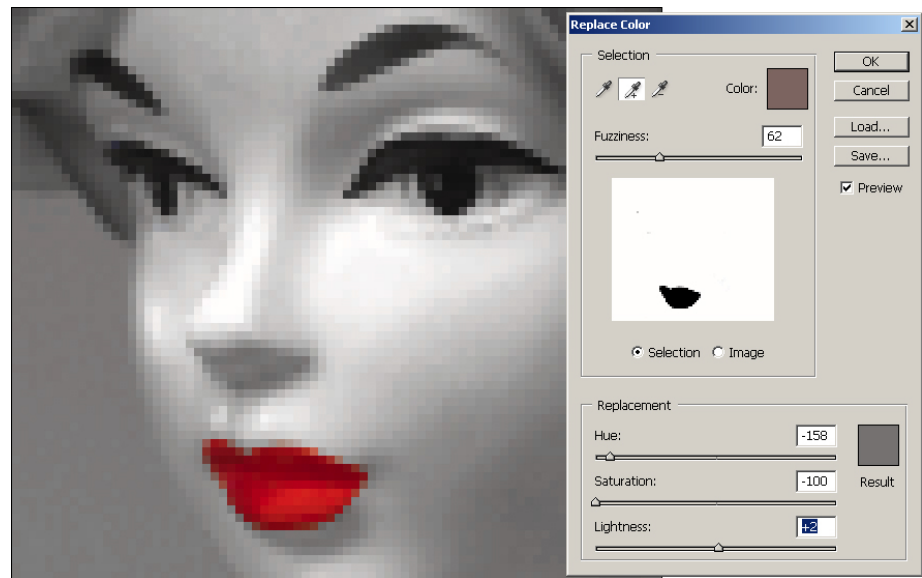
PREVIEW OPTIONS

- *Show* drop-down arrow lets you switch between previews of the original and extracted images.
- *Display* drop-down arrow lets you preview the extracted object against a colored matte background or as a grayscale mask. To display a transparent background, choose *None* (the default).
- *Show Highlight* check box, toggles the highlight color on and off in the image.
- *Show Fill* check box, toggles the fill color on and off in the image.

REPLACING COLOR

There are times when you want to adjust the hue, saturation, or lightness in one area of an image while leaving other areas unchanged. Although you can do this with selection tools and masks, you can also use the Replace Color command that creates a temporary mask around the specific colors you want to adjust. To begin, select *Image>Adjustments>Replace Color* to display the Replace Color dialog box. Click the eye dropper tools in the preview or actual image to select the areas that are masked, or protected from changes. When the mask is finished, you then use the sliders to change the hue, saturation and lightness of the unmasked (white) areas.

All colors in the image, except red, were clicked to add them to the mask. Now the colors of everything can be changed while the lips remain red.



■ *Selection section* adjusts the mask. Masked areas protected from adjustments are black, and unmasked areas affected by adjustments are white. Partially masked areas that will be partially affected by adjustments are covered by varying shades of gray depending on their opacity.

- *Eyedropper tools* select colors areas exposed by the mask, add colors to the masked areas (+), or subtract from them (-) by clicking in the preview or the actual image which can be zoomed.
- *Fuzziness* slider expands or contracts the range of related colors included in the selection.
- *Selection* option button displays the mask in the preview window.
- *Image* option button displays the image in the preview window.

■ *Replacement section* sliders adjust the *Hue*, *Saturation*, and *Lightness* of white areas not protected by the mask. The *Sample* color swatch shows the color being used in unmasked areas. If you want, you can click it to choose a color from the color picker instead of using the sliders.

■ *OK* button completes the procedure.

■ *Cancel* button cancels the procedure and closes the dialog box. *Reset*, displayed when you hold down Alt, restores default settings so you can try again.

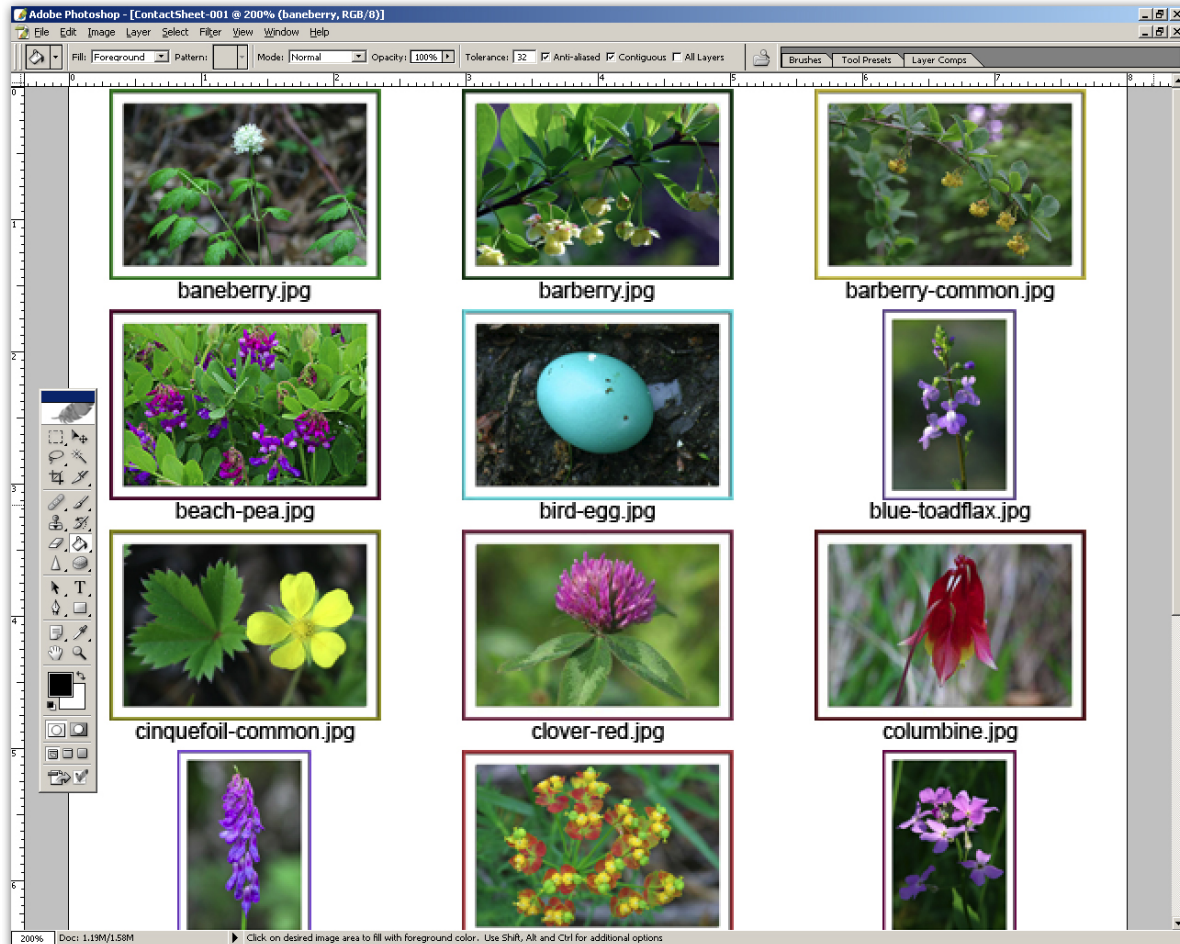
■ *Load/Save* buttons let you save a mask for reuse.

TIPS

- Click in the image or in the preview box to select the areas exposed by the mask.
- Shift+click or use the eyedropper + button to add areas.
- Alt+click, or use the eyedropper - button to remove areas.
- There is also a Color Replacement tool (page 137).

Chapter 8

Automating Tasks



CONTENTS

- Printing Contact Sheets
- Printing Picture Packages
- Creating a Web Photo Gallery
- Merging Images into a Panorama
- Creating a PDF Presentation
- Batch Renaming Files
- Creating and Using Actions
- Using the Batch Command
- Batch Processing Camera RAW Image Files—A Tutorial

In some ways, we've reserved the best for last because it's now time to discuss some of the many things you can do with your digital photographs. Digital photography opens up a vast new range of exciting ways to display and share the best of the images you capture. Projects are limited only by your imagination, and Photoshop has brought automation to the process to make things easier and faster. In this chapter you'll see how to print contact sheets and picture packages like those made by professional studios. You'll learn how to create a Web gallery to showcase or share your images, stitch together images into panoramas and create PDF's that can be displayed as slide shows on the computer or TV. All of these possibilities and many others are fun to explore and easy to accomplish.

You can use commands on the File Browser's *Automate* menu to perform these automatic processes. You can also run these commands by selecting *File>Automate* from the main menu, but running them from the File Browser saves you a lot of time, because you don't have to open each individual file.

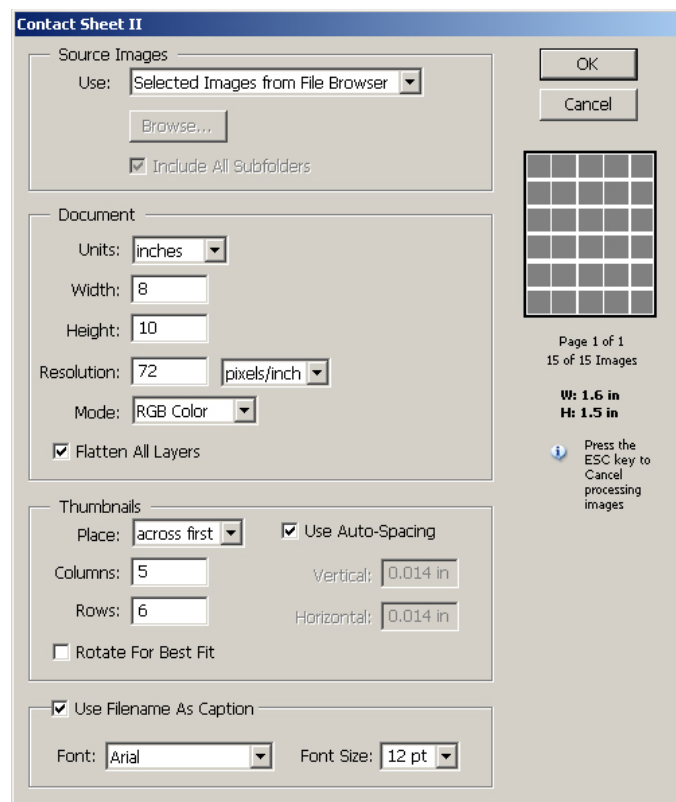
PRINTING CONTACT SHEETS



File Browser's Automate menu.

Contact sheets present small thumbnails of selected images. You can use these indexes to manage your images or include them along with CD/DVDs you send out so people can see what's on the disc without opening the files. As you begin, keep in mind that contact sheets include every image in a folder unless you use the File Browser to first select specific images. To create a contact sheet do one of the following to display the Contact Sheet II dialog box:

- From the main menu, select *File>Automate>Contact Sheet II*.
- From the File Browser, select a folder of images or select specific image files, and then, from the File Browser menu, select *Automate>Contact Sheet II*.



TIP

■ Photoshop takes a long time to create contact sheets because it has to extract thumbnails from the images. Image management programs generate these pages of thumbnails much more quickly because they store previously extracted thumbnails in a database.

With the dialog box displayed, you can set the following options and click *OK* to generate the contact sheet:

- *Source Images* section's *Use* drop-down arrow lets you specify which images to include:
 - *Current Open Documents* includes images that are currently open in Photoshop.
 - *Folder* activates the *Browse* button so you can select the folder of images you want to include. The *Include All Subfolders* check box, when on, includes images in any subfolders.
 - *Selected Images from File Browser* includes all images in the selected folder unless you select specific images before choosing the *Contact Sheet*

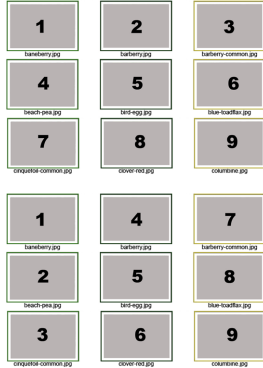
II command. To select images in the File Browser Shift+click to select a series of images or Ctrl+click to select noncontiguous images.

■ **Document** section specifies the size of the area in which the thumbnails will print—not the size of the paper you print them on. The *Mode* drop-down arrow lets you print the contact sheet in Grayscale, RGB color (the default), CMYK or Lab Color. The *Flatten All Layers* check box, when on, flattens all layers (page 115). When off, each image is on a separate layer and each caption is on a separate text layer.

■ **Thumbnails** section sets layout options for the thumbnail previews.

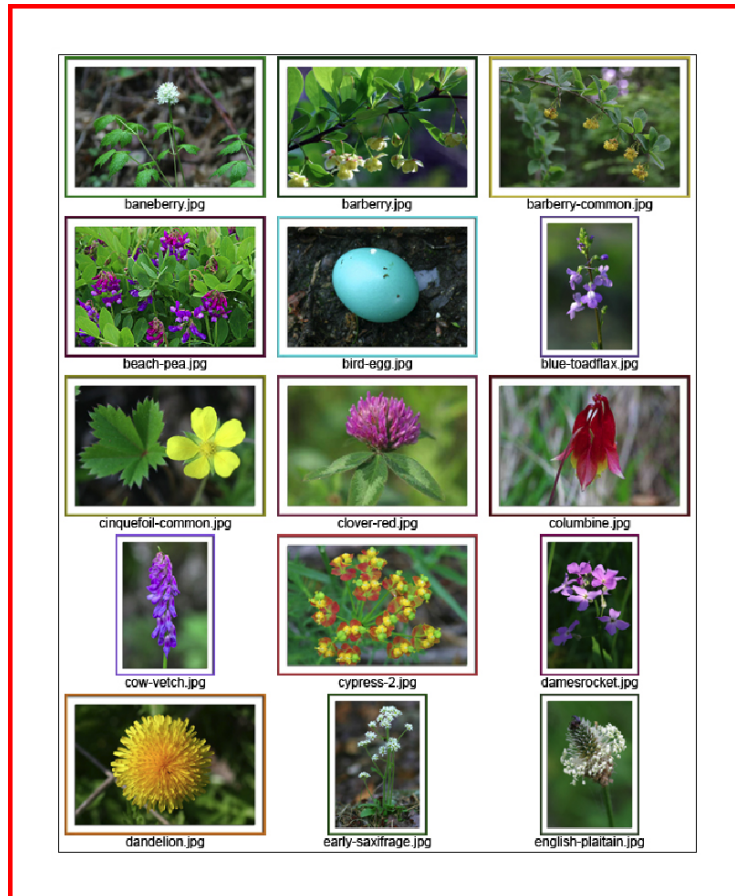
- *Place* drop-down arrow lets you specify if thumbnails are placed left to right, then top to bottom or from top to bottom, then left to right.
- *Columns* and *Rows* text boxes specify the layout of images on the page. As you change these settings, the maximum dimensions for each thumbnail are displayed to the right, along with a visual preview of the specified layout.
- *Use Auto-Spacing* check box, when on, places thumbnails automatically on the contact sheet. When off, you specify the vertical and horizontal space around the thumbnails. The contact sheet preview reflects changes in spacing.
- *Rotate For Best Fit* check box, when on, rotates images so they fit most efficiently.

■ **Use Filename as Caption** section specifies if the filename is printed below each thumbnail and if so, in what typeface.



Placement can be across first (top) or down first (bottom).

A contact sheet.



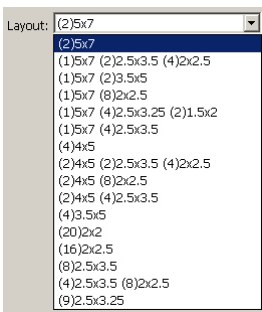
PRINTING PICTURE PACKAGES



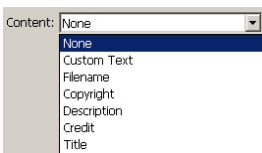
To change any image in the layout, click it in the preview and select a new image.

TIP

You can create your own layouts. If interested, search help or the user guide for “customizing picture package layouts.”



Clicking the Layout drop-down arrow lets you select from a number of layouts.

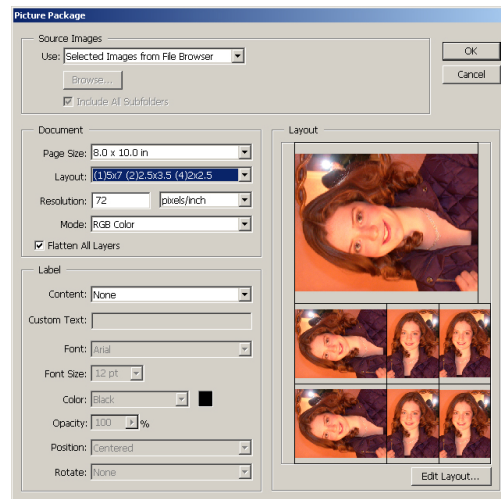


Clicking the Content drop-down arrow lets you select a source for labels.

The Picture Package command prints multiple copies of the same, or different, images on a single page, much like photos sold by portrait studios. To begin do one of the following to display the Picture Package dialog box:

- From the main menu, select *File>Automate>Picture Package*. If an image is open, it’s displayed in the dialog box. If more than one image is open, the frontmost one is displayed.

- From the File Browser menu, select *Automate>Picture Package*. Unless you first selected a specific image, the first image listed in the File Browser, or the first in a group of selected images is used.



With the dialog box displayed you can set the following options and then click *OK* to generate the picture package which you then print:

- The *Layout* section displays the picture package as it will print. To add or change pictures, do one of the following:

- Click the *Source Images* section’s *Use* drop-down arrow lets you select *File* or *Folder* and then click *Browse* to select a picture. If you select *Folder*, you can turn on the *Include All Subfolders* check box to include images inside any subfolders. ALL images in the folder and subfolders will be printed.
- Click an image in the *Layout* section to display the *Select an Image* dialog box and browse to select an image.
- Drag an image from the desktop or a folder onto one of the existing photos.

- The *Document* section lets you specify the page size, layout, resolution, and color mode. The *Layout* preview section shows the effects of your changes. The *Flatten All Layers* check box, when on, prints all images and label text on a single layer. When off, each image is on a separate layer and each label is on a separate text layer. Placing each image and label on a separate layer lets you update your picture package after it’s been saved. Keep in mind that not flattening layers increases the file size of your picture package.

- The *Label* section is where you use the *Content* menu drop-down arrow to specify the source for label text. If you choose *Custom Text*, enter the text for the label in the *Custom Text* field. Other settings let you select a font, font size, color, opacity, position, and rotation for the labels.

CREATING A WEB PHOTO GALLERY

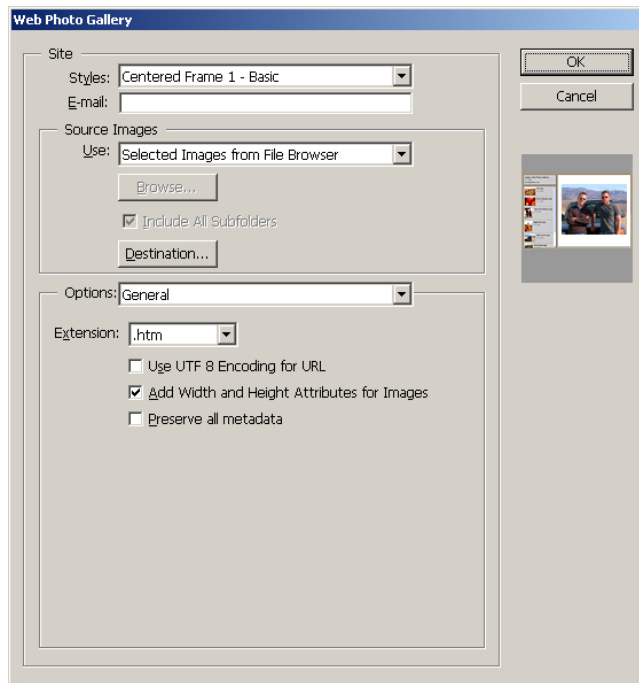
TIPS

■ After creating a photo gallery, you can modify or fine-tune the pages with any Web page authoring program.

■ When creating a gallery from images in the File Browser, images are presented in the order in which they're displayed in the file browser. You may want to change the order before selecting the Web Photo Gallery command.

If you have access to a Web site, possibly through the company that provides you with Internet access, you can quickly generate Web pages that display thumbnails of your images. When you upload the gallery files to your Web site (or even burn them to a CD), visitors can view these pages with a Web browser and click any thumbnail to display a page with a larger version of the image. The pages also contain links visitors use to navigate the pages.

To create a Web gallery, begin by choosing the *Web Photo Gallery* command listed on the main *File > Automate* menu or on the File Browser's *Automate* menu to display the Web Photo Gallery dialog box with the following settings:



■ *Styles* drop-down arrow displays a list of gallery styles. When you select a style, a thumbnail preview of its home page is displayed to the right.

■ *E-mail* text box is where you enter your e-mail address if you want a link to it on gallery pages. (Not all gallery styles display e-mail addresses.)

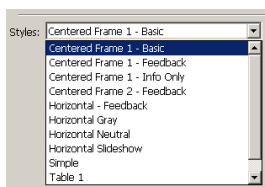
■ *Source Images* section:

● *Use* drop-down arrow lets you select *Folder* or *Selected Images From File Browser* to include all images in the selected folder or just individually selected images. If you select *Folder* the *Browse* button lets you select the folder containing the images you want in the gallery. Turn on the *Include All Subfolders* check box to include images in any subfolders.

● *Destination* drop-down arrow lets you specify the folder where you want the finished gallery files placed. Click the *Make New Folder* button to make a new one.

■ *Options* drop-down arrow lets you format the elements of your site as described in section “Designing Your Gallery” on the next page.

■ *Extension* drop-down arrow lets you specify .HTM (the default) or .HTML



Some of the styles available from the Styles drop-down menu

TIP

■ Once your gallery is finished, you upload all of the files to your Web site. To do this, you use an ftp program such as CuteFtp.

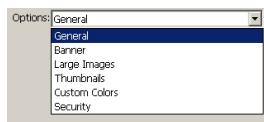
as the extension used for gallery pages. In most cases the choice doesn't matter but some Web hosts may prefer one over the other. There are also other check boxes in this section that you can turn on or off.

■ *OK* creates the gallery and displays the home page in your browser so you can try out your site locally before uploading it to a server. The following files are stored in your destination folder:

- A home page for your gallery named `index.htm` or `index.html`. Open this file in any Web browser to preview your gallery.
- JPEG images inside an *images* folder.
- HTML pages inside a *pages* folder.
- JPEG thumbnail images inside a *thumbnails* folder.
- Additional files for some gallery styles.

DESIGNING YOUR GALLERY

The *Options* section of the Web Photo Gallery dialog box has a drop-down arrow you click to select elements of the site that you want to design. (For some styles, some options may be dimmed, or unavailable.) As you select elements, the dialog box changes to display the settings that apply specifically to that element. Here are details about each choice:

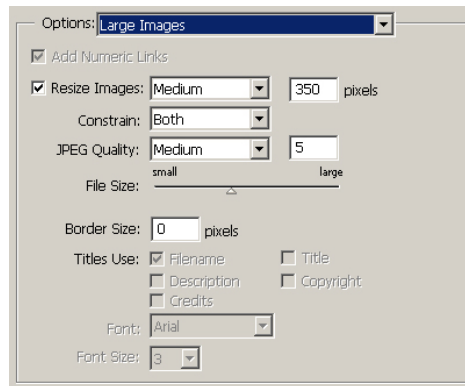


The *Options* drop-down arrow displays a list of the elements you can design.

■ *Banner* options format the banner displayed at the top of every gallery page.

- *Site Name* is the title of the gallery that appears at the top of every page and in the browser's title bar.
- *Photographer* is the name of the photographer.
- *Contact Info* provides a way for a viewer to contact the photographer—perhaps an address, phone number, or e-mail address.
- *Date* specifies a date that appears on every gallery page. The default setting is the current date.
- *Font* and *Font Size* drop-down arrows format the banner text.

■ *Large Images* designs the gallery pages that appear when a visitor clicks a thumbnail.



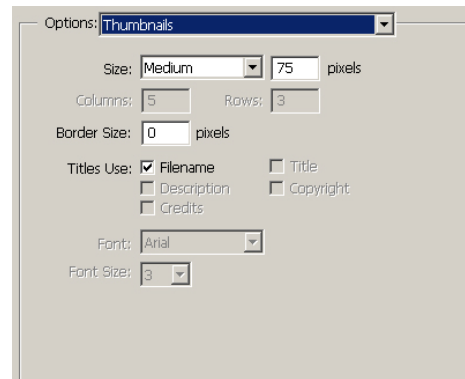
- *Resize Images* drop-down arrow or text box specifies the size of large images. To keep the width and height proportional, choose *Both* from the *Constrain* menu; to resize only one dimension choose *Width* or *Height*. To set *JPEG Quality*, choose an option from the menu, enter a value between 0 and 12, or drag the *File Size* slider (higher values produce better image quality but increase file sizes).

- *Border Size* specifies the width, in pixels, of the border around each image.

- *Titles Use* check boxes specify what labels are displayed for each image. Choose from *Filename*, *Title*, *Description*, *Copyright* and *Credits*. (The information is taken from the image's metadata—page 31.)

- *Font* and *Font Size* drop-down arrows format the label text.

■ *Thumbnails* designs the home page displaying thumbnails.



- *Size* drop-down arrow or text box specifies the size of thumbnails.

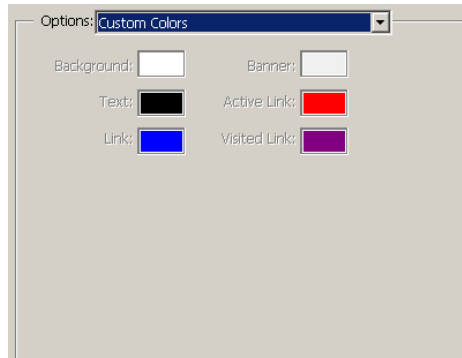
- *Columns/Rows* lays out the thumbnails in the specified grid. This option doesn't apply to galleries using the *Horizontal Frame Style* or *Vertical Frame Style*.

- *Border Size* specifies the width, in pixels, of the border around each image.

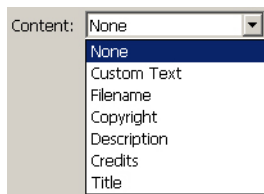
- *Titles Use* (see same section under *Large Images* above).

- *Font* and *Font Size* drop-down arrows format the titles.

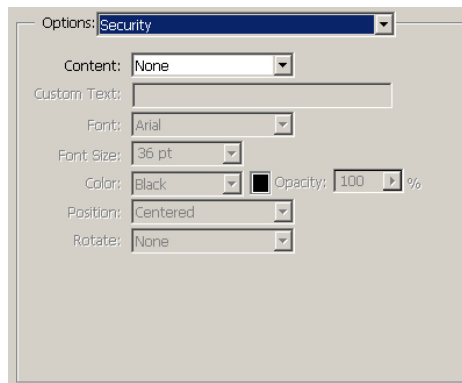
■ *Custom Colors* displays color swatches for various gallery elements. To change a color of a particular element, click its color swatch to display the color picker and select a new color. The *Background* option lets you change the background color of each page. The *Banner* option lets you change the background color of the banner.



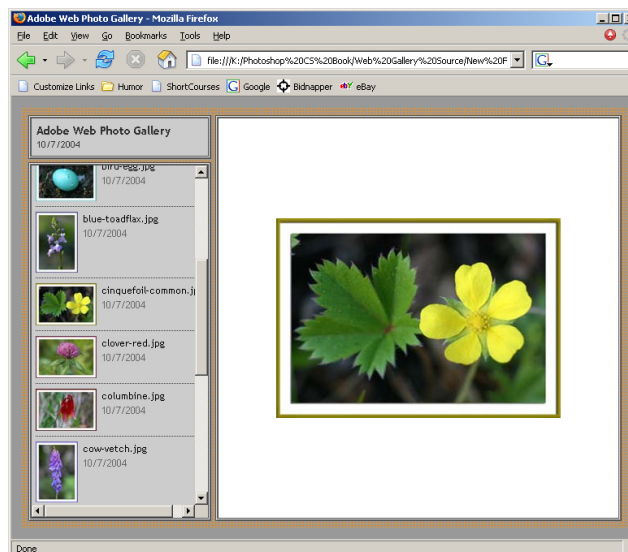
■ *Security* superimposes copyright information over the full-sized images, much like a watermark. The *Content* drop-down arrow displays choices. To add your own text, select *Custom Text*. To format the security text use the *Font*, *Font Size*, *Color*, *Opacity*, *Position*, and *Rotate* drop-down arrows. You might find you need a very large type, rotated slightly and with a low opacity or contrasting color. To choose a custom color, click the *Color* swatch or drop-down arrow.



The Security options Content choices.



A finished Web Gallery home page with thumbnails on the left and the large image for the selected thumbnail on the right.



MERGING IMAGES INTO A PANORAMA

TIP

■ Capturing panoramic images is discussed in detail in *The Textbook of Digital Photography* and that lengthy discussion is not repeated here.

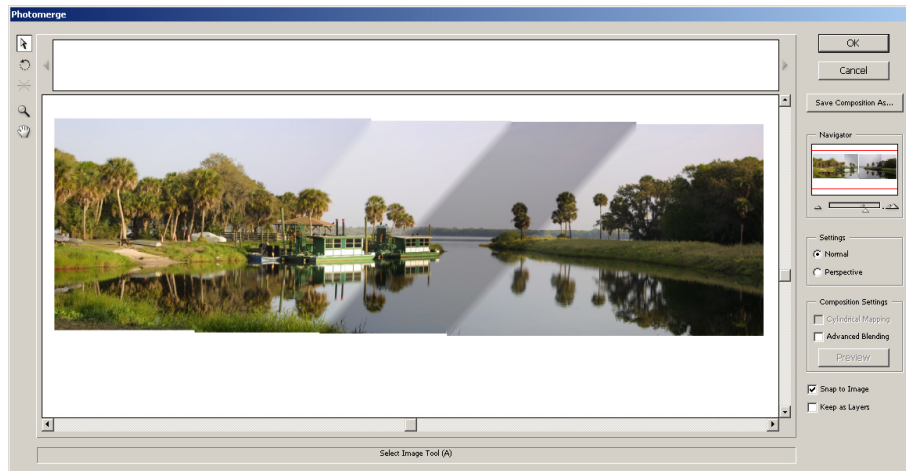
Although panoramic photographs have been taken in sections and pasted together for years, it was the development of computer software that made seamless panoramas possible with a digital camera. To create a seamless panorama, you begin by capturing a series of overlapping images. You then stitch these images together with the *Create Photomerge* command.

CREATING A PHOTOMERGE COMPOSITION

Although you can merge images in a variety of way, we recommend the following approach to make things as predictable and easy as possible.

To begin, open the File Browser and select the folder that contains the images you want to use. If there are also other images in the folder, individually select the ones you want to use. When ready, choose *Automate > Photomerge* from the File Browser's menu and the images in the folder or the selected images are automatically merged and displayed in the Photomerge dialog box. (If you select unmergable images, or a folder containing no mergable images, the Photomerge command is dimmed and unavailable.) If any image can't be merged it is displayed on the lightbox at the top of the dialog box.

Here the images have been merged but you can see serious banding where the images were joined.



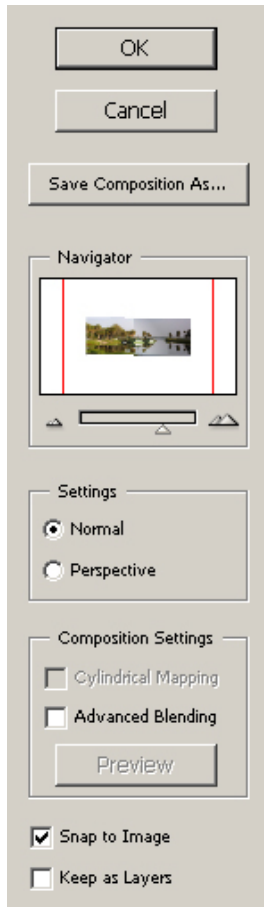
The tools include (from the top down), *Select Image*, *Rotate Image*, *Set Vanishing Point*, *Zoom*, and *Move View* tool.

With the panorama displayed in the Photomerge dialog box, you can adjust individual pictures using tools for manipulating the composition, a lightbox for storing images that are not currently included in the panorama, a work area for assembling the panorama, and options for viewing and editing the panorama.

■ *The lightbox* is the narrow strip at the top of the dialog box where you drag images you are not using at the moment. You can drag images between the lightbox and work area, or double-click an image in the lightbox to add it to the panorama.

■ *Tools* in the upperleft corner of the dialog box include the following:

- *Select Image tool* selects images in the panorama so you can drag them.
- *Rotate Image tool* rotates the selected image. To do so, point outside of the bounding box so the pointer turns into a curved arrow, and drag.
- *Set Vanishing Point tool*, only active when the *Perspective* option



The Navigator and Settings sections in the Photomerge dialog box.

button is on, makes the image you click the vanishing point in the panorama. The vanishing point image, originally the middle image, has a blue border around it when selected.

- *Zoom tool* zooms the image when you click it or unzooms it when you Alt+click.

- *Hand tool* drags in the work area to move the panorama. (You can also use the scroll bars or navigator.)

- *OK* creates the final merge using the settings you have made and displays the panorama in a new window so you can save it.

- *Cancel* closes the dialog box. When you hold down Alt the button changes to *Reset* so you can return all settings to their defaults. All of the images automatically move to the lightbox.

- *Save Composition As* button saves the panorama in its current state so you can continue editing it later. It doesn't complete the merge process as does clicking the *OK* button.

- *Navigator* scrolls and zooms the panorama. The red view box represents the boundaries of the work area.

- To scroll the panorama, drag the view box or the scroll bars.

- To zoom the panorama drag the slider, or click the zoom in or zoom out buttons below the Navigator (or use the zoom tool).

- *Settings* option buttons let you change the image's vanishing point:

- *Normal* (the default) sets the vanishing point to the middle image in the panorama. When selected, the image is surrounded by a blue border.

- *Perspective* activates the *Set vanishing point* tool so you can click any image to make it the vanishing point. When on, perspective correction works up to an approximately 120° angle of view. If you captured a wider angle of view, click the *Normal* option button to turn off *Perspective*.

- *Composition Settings* section controls distortion and blending:

- *Cylindrical Mapping* check box, when on, reduces the "bow tie" distortion that occurs when you apply perspective correction. To use this option, the *Perspective* option button must be on.

- *Advanced Blending* check box, when on, reduces banding caused by merging images that were exposed differently. It does so by blending colors that appear in broad areas, such as the sky, over a large area, while blending smaller details over a smaller area.

- *Preview button* applies the settings to the image so you can check their effects. To return to edit mode, click *Exit Preview*.

- *Snap to Image*, check box, when on, ensures overlapping images snap into position when the program recognizes common elements.

- *Keep as Layers* check box, when on, preserves layers in the merged panorama.

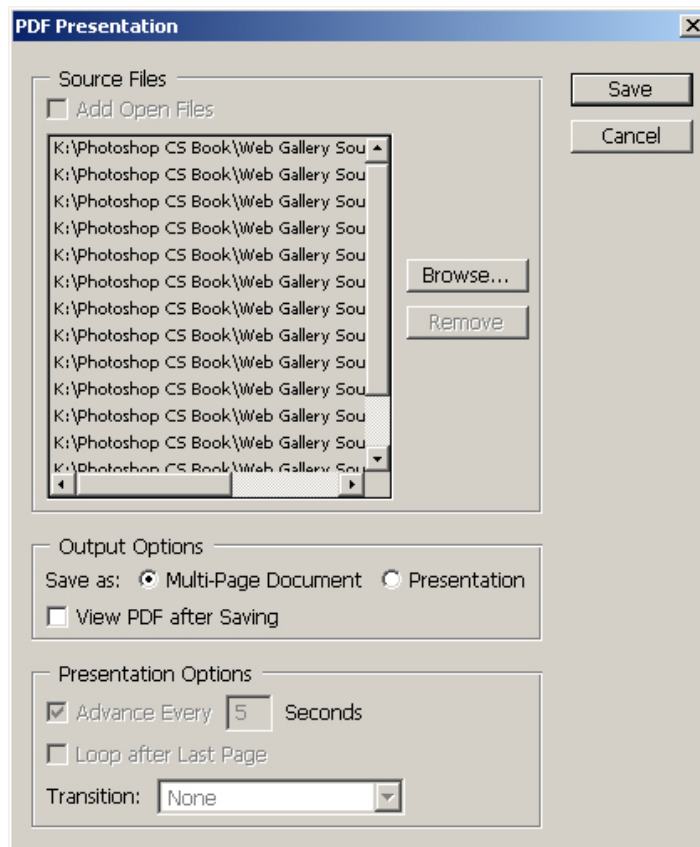
CREATING A PDF PRESENTATION

TIPS

- On most systems you can open a PDF slide show just by double-clicking its filename.
- You may want to create a title slide, and make it the first image on the list.
- If the order of the images is important, drag them into a new position on the *Source Files* list
- To make the selection of photos easy, copy them all into a folder of their own so you can just select the folder instead of individual images.

Newer versions of Adobe's Acrobat Reader can play high-quality slide shows that you create with Photoshop. Since this reader is free and already installed on so many computers, it offers a great way to distribute slide shows to friends, family, and others. If they don't have already have it on their system, or they have an older version, they can download the latest version for free from www.adobe.com.

Although you create a PDF presentation in a variety of way, we recommend the following approach to make things as predictable and easy as possible. To begin, open the File Browser and select the folder that contains the images you want to include. If there are also other images in the folder, individually select the ones you want to include. When ready, choose *Automate>PDF Presentation* from the File Browser menu to display the PDF Presentation dialog box with the following choices:



- *Source Files* section selects the images to be in the slide show. The images appear in the show in the same order in which they appear on this list.

- *Add Open Files* check box, when on, adds open images to the list of source files.
- *Browse* button displays the Open dialog so you can select the files to be included in the show. Remember you can click the *View Menu* drop-down arrow and click *Thumbnails* to visually select images. To select multiple files see page 24. The names of the selected files are displayed on the *Source File* list.
- *Remove* button removes a selected file from the list.

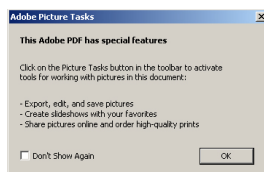
■ **Output Options section:**

- *Multi-Page Document* creates a PDF document with the images on separate pages.
- *Presentation* creates a PDF slide show presentation.
- *View PDF After Saving* check box, when on, opens the created presentation in Adobe Acrobat or the Adobe Reader.

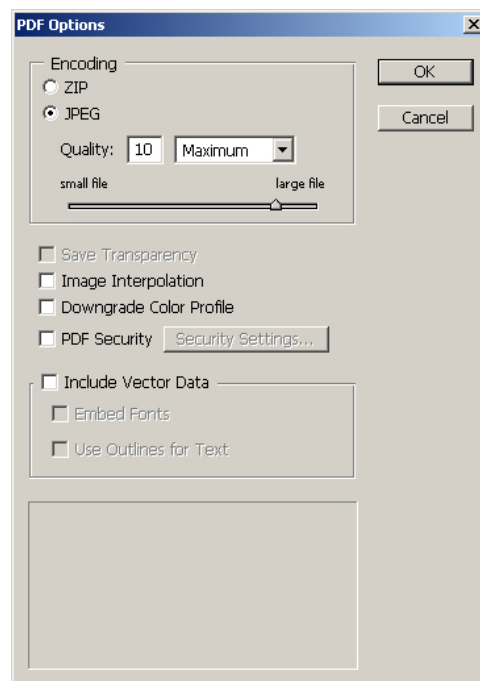
■ **Presentation Options**, available only if you select *Presentation* as the output, specifies the basic characteristics of the slide show.

- *Advance Every* check box, when on, specifies that the show advances automatically when played back. When off, you advance the show during playback by pressing the spacebar or clicking the image. Press Esc to end the show. *Seconds* text box sets the time each slide is on the screen during automatic playback.
- *Loop after last page*, check box, when on specifies that the show plays over and over again. When off, the show stops when finished.
- *Transition* drop-down arrow lets you select the transition that blends one image into the next.

■ **Save** button displays the save dialog box so you can enter a name and click *Save* to display the PDF Options dialog box with the following settings:



Be aware that people who access your show can extract, save, and print the images.



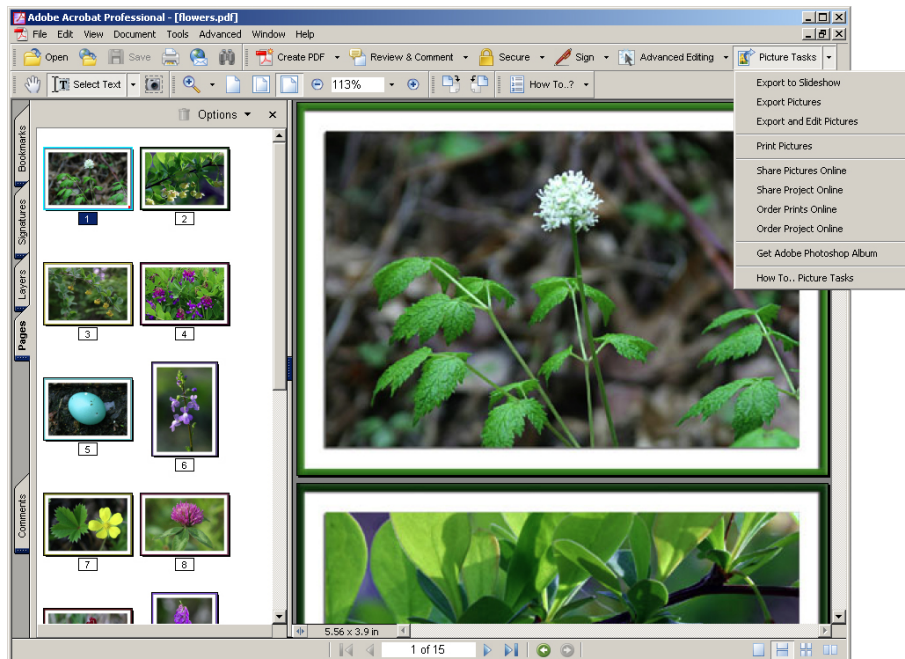
- *ZIP* and *JPEG* option buttons select the format in which the show is saved. *ZIP* files use lossless compression so files may be significantly larger than when saved in *JPEG* format. *JPEG*, when on, lets you type in a *Quality* setting (1–12), select if from a drop-down arrow, or set it with the slider bar.

- *Save Transparency* check box, when on, preserves transparency in the images.

- *Image Interpolation* check box, when on, will anti-alias the printed appearance of a low resolution image.

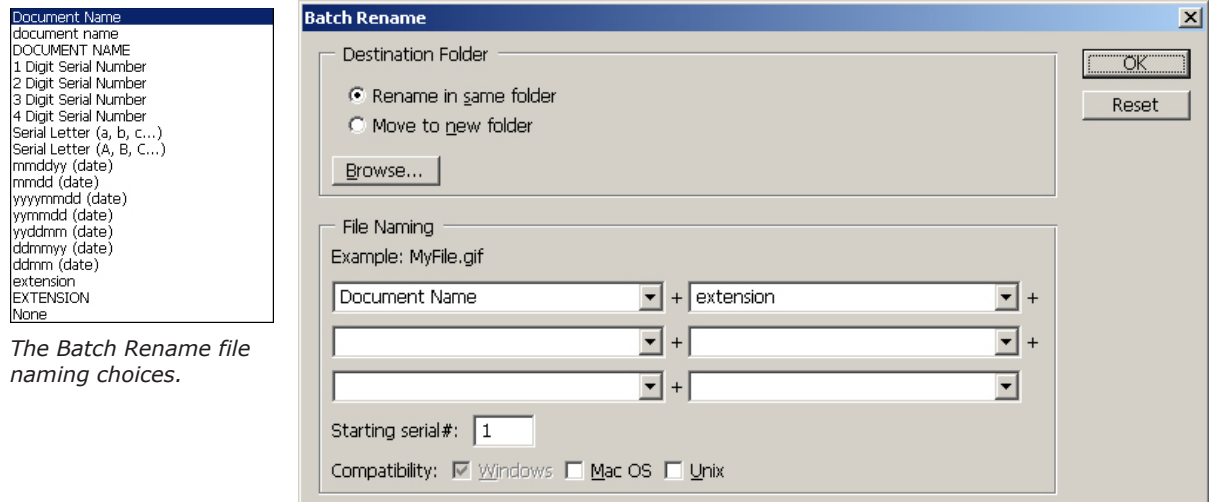
- *Downgrade Color Profile* check box, when on, downgrades a version 4 ICC Profile (selected in the Save dialog box) to version 2 so you can open the file in an application that does not support version 4 profiles.
- *PDF Security* specifies security options such as password protection and restricted access to a file's content. Choose 40-bit or 128-bit RC4 encryption for a lower or higher level of security.
- *Include Vector Data* preserves any vector graphics (such as shapes and type) as resolution-independent objects, ensuring smoother output.
- *OK* closes the PDF options dialog box and generates the slide show using the files and settings you have selected. If you turned on the *View PDF after Saving* check box (page 169) the PDF is displayed. The file has the name and location you specified in the *Output File* section.
- *Cancel* cancels the procedure and returns you to the PDF Slideshow dialog box.

When the presentation opens in Acrobat, there are many options available.



BATCH RENAMING FILES

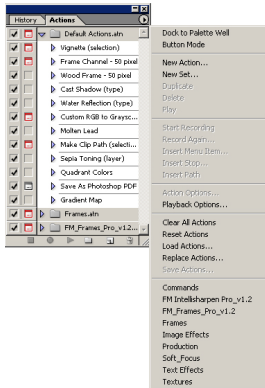
Batch Rename lets you quickly rename a group, or batch of files and even choose the same settings for all the selected files. To begin, select the files you want to rename, or select a folder in the Folders palette. Then, choose *Automate > Batch Rename* to display the Batch Rename dialog box and set the following options, then click *OK*.



The Batch Rename file naming choices.

- *Destination Folder* specifies whether the renamed files are placed in the same folder or in a different folder. If you select *Move to New Folder*, click *Browse* to select a different folder.
- *File Naming* section has drop-down arrows used to select the elements you want to combine to create your new filenames. You must include one of the document name, serial number, or serial letter choices so each file has a unique name.
- *Starting serial #* is the number you want sequential numbers to start from.
- *Compatibility* check boxes, select the operating systems with which you want renamed files to be compatible. The current operating system is selected by default, and you cannot deselect it.

CREATING AND USING ACTIONS



The Actions palette and palette menu.

If you have a Web blog or Web site, create slide shows, convert RAW files, or perform many other tasks with your photos, you find yourself performing the same routine procedures over and over again. When this happens, it's time to automate the process using an *action*—a recorded sequence of commands that you play back to adjust a single file or a batch of files. Although Photoshop includes some actions that you can use as is, or customize to better meet your needs, you'll probably want to create your own. To do so you turn on record mode, adjust one image the way you want it—perhaps change its pixel dimensions or file format, then turn off record mode. The procedures you recorded can now be played back on other images with the click of a button.

USING THE ACTIONS PALETTE

When creating and using actions, the Actions palette is your control center. To display the palette choose *Window>Actions*. The palette is initially in its default list mode so you can click triangle icons to expand and collapse folder-like sets used to organize and store actions, actions, and even the individual commands that make up actions.



Arrowheads in the Actions palette indicate whether sets, actions, or commands are collapsed (left) or expanded (right).

- To expand or collapse a set, action, or command, click the triangle icon to its left. Alt+click the triangle to expand or collapse all actions in a set or all commands in an action.

- To select an action, click its name. You can also Shift+click to select multiple, contiguous actions that run one after another, and Ctrl+click to select multiple, discontinuous actions.

- To toggle between list and button mode, choose *Button Mode* from the Actions palette menu. In button mode clicking an action plays it straight through, but you cannot view sets or the individual commands that make up actions.



The New Set dialog box.

- To create a new set in which to store your own actions, click the *Create new set* button or select *New Set* from the palette's menu to display the New Set dialog box. Enter the name of the new set and click *OK*. (When creating the first action for a new set, if you create and name the set first it will be displayed in the New Set dialog box so you can add the new action to it. You can also drag it into the set later on the Actions palette.)

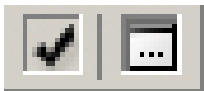


Buttons on the Actions palette include (left to right), Stop playing/recording, Begin recording, Play selection, New set, Create new action, and Delete.

- To toggle a command on or off, click the check mark icon in the first column of the palette. When the command has a check mark it runs when you run the action.

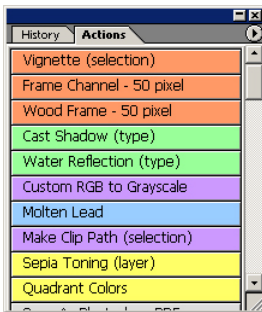
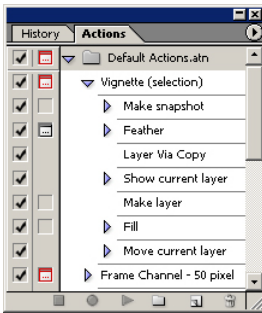
- To toggle dialog boxes on or off during playback, click the icon in the second column of the palette. When you expand an action to see its commands, some may have blue dialog box icons that indicate a dialog box will be displayed at that point in the action and require you to take an action.

- Red icons indicate that dialog boxes associated with commands hidden so they are not displayed when you run the action. Click a red icon to display the hidden icons for those commands. When all are displayed, the icon for the title is blue. If you click this blue icon, you hide all of the dialog icons in the action or command and it changes to red.



The Toggle item on/off (left) and Toggle dialog on/off (right) buttons.

- To prevent a dialog box from being displayed when you run the action, click its icon so it is hidden. Normally you don't want dialog boxes dis-



The Actions palette displayed in list (top) and button (bottom) modes.

played because they stop the action at that point until you do something. If you are processing a large number of files with the action in a batch command (page 176) you are forced to sit there so you can respond to each dialog box that appears.

- To move sets or actions in list mode, drag them so a horizontal line indicates where you want to move them and drop them.
- To rename a selected set of actions, choose *Set Options* from the palette's menu to display the Set Options dialog box, enter the name of the set, and click *OK*.

RECORDING ACTIONS

Recording actions is no more complicated than turning on record mode, doing what you normally do to edit an image, then turning off record mode. Along the way you give the action a name so you can play it back later.

You'll find that you can record most commands and tool operations. When you encounter places where you can't do so, you can insert a *stop* that pauses the action so you can perform a task that can't be recorded, such as using a painting tool, then click *Play* to resume.

In this introduction, we can't get into all of the complexities of actions. At their most advanced level, they become a form of programming. To start, we recommend the following:

- Use actions that work on the entire image, perhaps changing an image's size, sharpening it, or converting it into another format. It's also easy to record adjustments such as white balance correction or exposure adjustments when you want to process a group of photos taken under the same lighting conditions.
- Record the complete cycle from opening the image file, editing it, saving it and then closing it. This ensures that you can later batch process a group of files unattended. Ideally, change the image's format to PSD so the processed copy has the same name as the original, and is easy to track, but has a different extension so it can be moved into the same folder as the original.
- Always have the action save the processed image in a new folder so you don't risk overwriting your working copies.

To create a new action just follow these steps:

1. Create a new folder in which the processed files will be stored. Don't make it a subfolder of the folder the source files are in.
2. Create a new set in which to store your actions by clicking the *Create new set* button on the Actions palette to display the New Set dialog box. Type a descriptive name for the set and click *OK*.
3. Open one of the image files you want to adjust and click the *Create new action* button in the Actions palette or choose *New Action* from the palette's menu to display the New Action dialog box (page 174). (You can also access this dialog box later by selecting the action and then choosing *Action Options* from the Actions palette menu.)
4. Name the action, specify the set it's to be saved in, and attach it to shortcut keys if you want.
5. Begin recording by clicking the *Record* button and adjust the image the same way you want to adjust the others.

TIP

■ You can record operations that you perform with the Marquee, Move, Polygon, Lasso, Magic Wand, Crop, Slice, Magic Eraser, Gradient, Paint Bucket, Type, Shape, Notes, Eyedropper, and Color Sampler tools—as well as those that you perform in the History, Swatches, Color, Paths, Channels, Layers, Styles, and Actions palettes.

TIPS

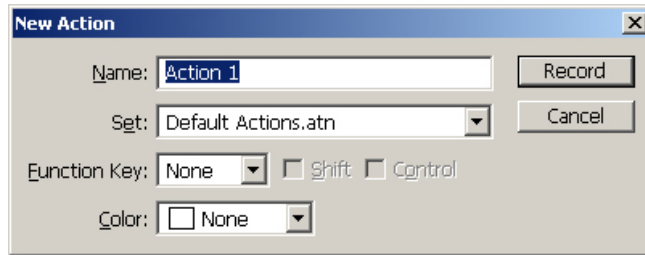
■ To be sure you can undo an entire action, take a snapshot in the History palette before you play it, and then select the snapshot to undo the action.

■ Since dialog boxes often retain their settings check to be sure they are what you want to record.

6. *Save the adjusted image* using the *File>Save As* command, but don't change the file's name. If you do so, Photoshop records the new filename and uses it each time you run the action, renaming each file you use it on. If you follow our advice and save processed images in a separate folder, or if the action changes the file's format, you have no need to specify a new filename.

7. *Stop recording* by clicking the *Stop* button, choosing *Stop Recording* from the Actions palette menu, or pressing the Escape key. To resume recording in the same action, choose *Start Recording* from the Actions palette menu.

The New Action dialog box offers you the following settings:



■ *Name* text box is where you enter a descriptive name for the action.

■ *Set* lists the current set but you can click the drop-down arrows to select another set in which you want the action stored.

■ *Function Key* drop-down arrow lets you assign a keyboard shortcut to the action. You first choose a function key F2–F12 and then specify if you hold down Shift, Ctrl, or both to execute the command—for example, Ctrl+Shift+F3. Some keys may be dimmed because not all combinations are available.

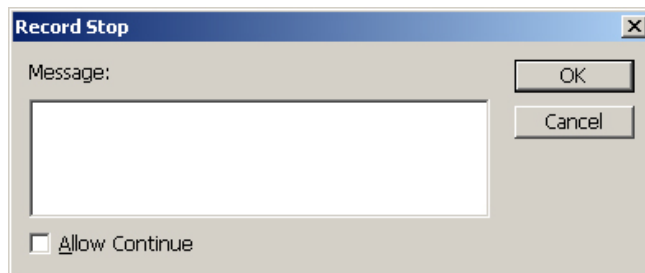
■ *Color* assigns a color for the button in button mode.

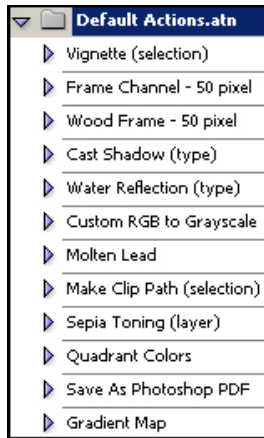
■ *Record* button starts recording the action and as long as you are recording, the palette's *Begin recording* button is displayed in red.

INSERTING STOPS

You can include stops in your action that let you perform a task that cannot be recorded or when you want to make custom changes to each image as it's processed. For example, you can stop the action at the point where you want to use a painting tool or change the foreground color. Once you've completed the task, click the *Play selection* button on the Actions palette to complete the task. You can insert a stop when recording an action or after it has been recorded.

To insert a stop in a previously recorded action, select the action's name to insert the stop at the end of the action, or select a command to insert it after the command. When ready, choose *Insert Stop* from the Actions palette menu to display the Record Stop Dialog box with the following settings:

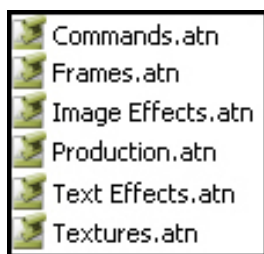




The default set of actions indicate those that work only on selections and type layers.



Buttons on the Actions palette include (left to right), Stop playing/recording, Begin recording, Play selection, New set, Create new action, and Delete.



Photoshop comes with sets of actions you can load.

■ *Message* text box is where you enter a message that you want displayed when the action reaches the stop. It should be a reminder of what you're to do at that point.

■ *Allow Continue* check box, when on, includes a *Continue* button in the message box so you can click it to resume if nothing needs to be done.

■ *OK* enters the stop.

PLAYING ACTIONS

After an action has been recorded, you can play back the entire action or individual commands within it. (In button mode, clicking a button executes the entire action—though commands previously excluded by clicking the *Toggle item on/off* icon are not executed.)

■ *To specify which file the action is played on*, select it in the File Browser or open it and make it the active image. (Using the Batch command you can play it on multiple files—page 176.)

■ *To play an action on a file*, do one of the following:

● *To play an entire action*, select the action name, and click the *Play* button in the Actions palette, or choose *Play* from the palette menu.

● If you assigned a key combination to the action, press that combination to play the action automatically.

● *To play part of an action*, select the command from which you want to start playing, and click the *Play* button in the Actions palette, or choose *Play* from the palette menu.

■ *To play a single command in an action*, select the command you want to play and do one of the following:

● Ctrl+click the *Play* button in the Actions palette.

● Hold down Ctrl and double-click the command.

LOADING AND MANAGING ACTIONS

You can load action sets including your own, those included with Photoshop, and those obtained from other people or companies.

■ *To load a set of actions* do one of the following:

● Choose *Load Actions* from the Actions palette menu. Locate and select the action set file, and then click *Load*. (In Windows, Photoshop action set files have the extension .atn.)

● Select an action set from the bottom of the Actions palette menu.

■ *To restore actions to the default set*, choose *Reset Actions* from the Actions palette menu to display the prompt *Replace the current actions*, and the choices *OK*, *Cancel*, and *Append*. Click *OK* to replace the current actions in the Actions palette with the default set, or click *Append* to add the set of default actions to the current actions listed in the Actions palette.

■ *In Windows XP actions are stored in the following location:*

C:\Program Files\Adobe\Photoshop CS\Presets\Photoshop Actions

To find them on other systems, use your operating system's Find or Search command to locate the folder holding files with the extension .atn.

USING THE BATCH COMMAND

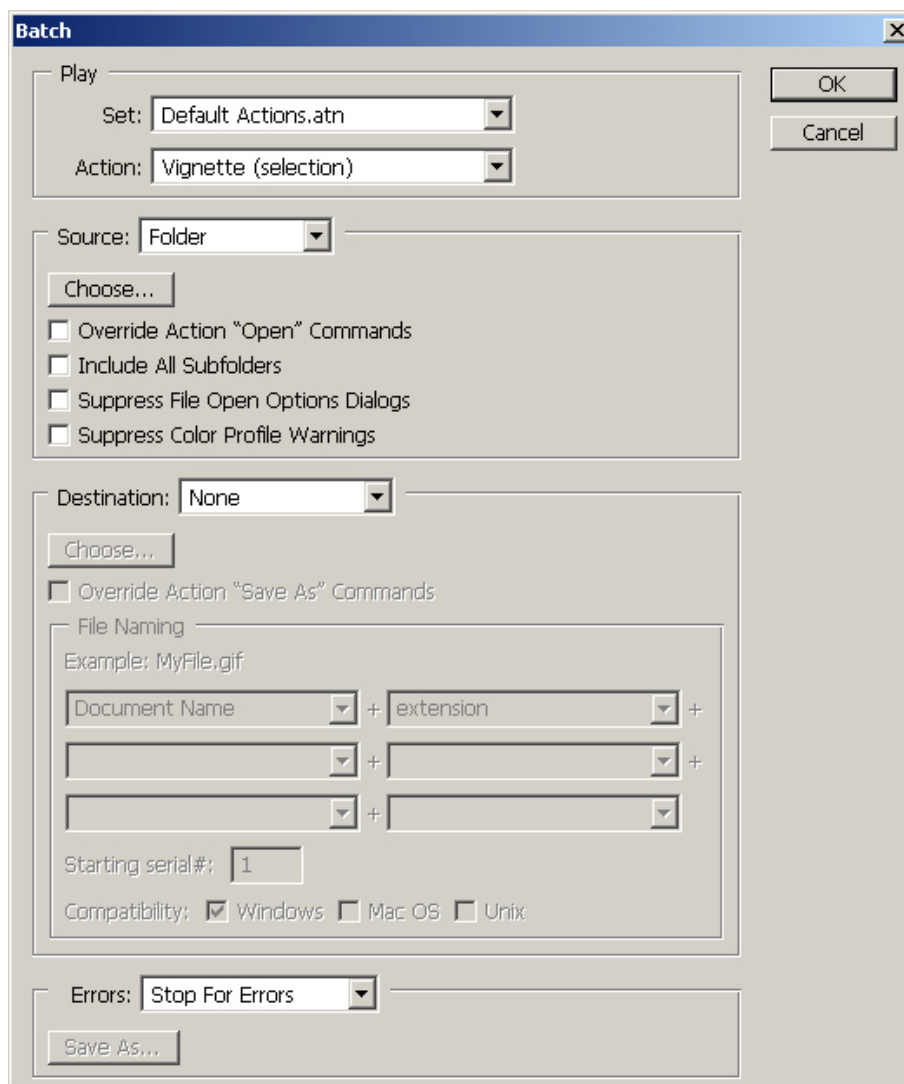
TIP

■ Our basic approach to batch processing can be summed up as “open and close in the action, suppress and override in the batch.” This simply means your action should include the complete cycle from opening the image to saving and closing it. In the batch file dialog box you then turn on any check box that has to do with overriding save or open commands and suppressing dialog boxes.

The Batch command lets you play an action on a number of images that are in a folder, open in the work area, or selected in the File Browser. You can even import and process images from a digital camera with a single action.

When batch-processing files, you can leave all the files open, close and save the changes to the original files, or save modified versions of the files to a new location (leaving the originals unchanged). If you are saving the processed files to a new location, you may want to create a new folder for the processed files before starting the batch.

To batch-process files using the Batch command choose *File>Automate>Batch* to display the Batch dialog box with the following settings:



TIPS

- To import images from your digital camera the camera may require an *acquire* plug-in module that supports actions. If yours won't work during batch-processing contact the plug-in's manufacturer for further information.
- To improve batch processing performance, reduce the number of saved history states and deselect the *Automatically Create First Snapshot* option in the History palette.

PLAY SECTION

The *Play* section lets you choose the action you want to use to batch process selected images.

- *Set* drop-down arrow lets you select the set containing the actions you use to choose the set that contains the action and the action itself.
- *Action* drop-down arrow lets you select any action in the selected set.

SOURCE SECTION

The *Source* section lets you specify which images are to be processed and how any Open command in the action are to be handled. It also lets you suppress dialog boxes and warnings.

- *Source* drop-down arrow lets you specify what files are to be affected by the action you play. The choices include:
 - *Folder*, our recommended choice, plays the action on all of the images in the selected folder. Click the *Choose* button to locate and select the folder.
 - *Import* imports and plays the action on images from a digital camera, scanner, or PDF document.
 - *Opened Files* plays the action on all open files. This choice is OK to use if you planned for it and didn't include an *Open* step in your action.
 - *File Browser* plays the action on the files selected in the File Browser.
- *Override Action "Open" Commands* works as follows:
 - *When on*, the *Open* command in the action opens the batched files you are processing, not the file you used to create the action. This is the recommended option if you recorded an *Open* step in the action as we recommend.
 - *When off*, the action operates on open files, or opens the file you used to record the action.
- *Include All Subfolders* check box, when on, processes files in subfolders.
- *Suppress File Open Options Dialogs* check box, when on, hides File Open Options dialog boxes. This is useful when batching actions on camera raw files. The default or previously specified settings will be used.
- *Suppress Color Profile Warnings* check box, when on, turns off the display of a dialog box when there are profile mismatches (page 185).

DESTINATION SECTION

The *Destination* section lets you specify how and where the processed images are stored. This is straight-forward unless the selected action also has save commands (which we recommend they have). Our recommendation is to always save your processed files in a separate folder so you don't inadvertently overwrite the working files. (The original image files are stored separately on a CD, aren't they!)

- *Destination* drop-down arrow lets you specify how the processed images are saved. The choices include the following:
 - *None* leaves the files open without saving changes (unless the action includes a Save command). This is a safe option to use but consumes a lot of memory if you are processing a lot of files.
 - *Save and Close* saves the files in their current location, overwriting the original files. Avoid this option until you have mastered batch files or you may end up overwriting original files.
 - *Folder* saves the processed files to the specified folder. If you select this choice, click the *Choose* button to select the destination folder—preferably one created specifically to hold processed images. This is the recommended choice since you never put any image files at risk of being overwritten.
- *Override Action “Save As” Commands* check box specifies how Save As commands in an action are processed.
 - *When on*, the processed images are saved using the format you specified in the action, but in the folder specified in the *Destination* section described above.
 - *When off*, you can encounter problems that neither you nor I have time to go into.
- *File naming section* is used if you chose *Folder* as the destination to specify a file-naming convention and select file compatibility options for the processed files. Normally you would leave these at their default settings so processed files have the same name as the original files, but are in a different folder and perhaps have a different extension if the action changes the file’s format. Retaining the original filename makes multiple versions of the same image easier to track.
 - To specify how files are named, click the drop-down arrows and select elements from the menu or enter text into the fields to be combined into the default names for all files. The fields let you change the order and formatting of the filename parts. You must include at least one field that is unique for every file (for example, filename, serial number, or serial letter) to prevent files from overwriting each other.
 - *Starting serial #* text box is where you enter a starting number for any serial number fields. Serial letter fields always start with the letter “A” for the first file.
 - Compatibility check boxes let you specify which operating systems your filenames are compatible with. Your choices include Windows, Mac OS, and UNIX operating systems.

ERRORS SECTION

The *Errors* drop-down arrow lets you specify how errors are processed.

- *Stop for Errors* suspends the process until you confirm the error message. You may want to use this choice while testing the action.
- *Log Errors to File* records each error in a file without stopping the process. If errors are logged to a file, a message appears after processing. To review the error file, open with a text editor after the batch command has run. If you select this choice, click the *Save As* button to specify a filename and folder for the log file.

BATCH PROCESSING CAMERA RAW IMAGE FILES—A TUTORIAL

TIP

■ The files for this tutorial are on the same CD as the eText version of this book in a folder named *RAW images*. If you don't have this CD copy 5 or 6 of your own RAW images into the folder. They will work just as well.



Buttons on the Actions palette include (left to right), *Stop playing/recording*, *Begin recording*, *Play selection*, *New set*, *Create new action*, and *Delete*.

TIP

■ When you use an action to open a camera RAW image file, the Photoshop Camera Raw plug-in settings are based on the settings in the dialog box when the action was recorded. You may want to create different actions for opening camera raw image files with specific settings.

To help you better understand actions and batch files, here is a step-by-step tutorial that processes RAW files into Photoshop (PSD) files.

GETTING READY

When you run a batch command, you can specify where the images are to be found (the source) and where the processed images are to be stored (the destination). There are many possible combinations but we will use separate folders:

1. *Create a folder named actions-source* for the RAW images you want processed and copy the RAW images into it.
2. *Create a folder named actions-destination* where the processed images will be saved. Saving them to a separate folder ensures processed images won't accidentally overwrite your original files. (RAW files can't be overwritten, but we're encouraging careful work habits here.)
3. Open Photoshop, display the File Browser and select the *actions-source* folder to display the RAW files you are going to convert. Doing this before we begin recording keeps these steps from being part of the action.

CREATING THE ACTION

Follow these steps to create an action that opens camera RAW image files and then saves them in the Photoshop (PSD) format.

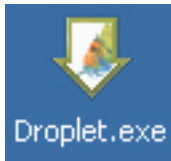
1. *To display the Actions palette* choose *Window>Actions*
2. *To create a new set*, click the palette's *Create new set* button to display the New Set dialog box. Enter the name *RAW Image Processing* and click *OK*.
3. *To begin recording an action*, click the *Create new action* button to display the New Action dialog box. Enter the name *RAW to PSD Conversion*. Check that the *Set* is *RAW Image Processing*, and click the *Record* button. The palette's *Begin recording* button turns red to remind you that you are in record mode.
4. *Double-click a camera raw image file* to open it in the Camera Raw plug-in (page 80). If necessary, click the *Settings* drop-down arrow and choose *Selected Image* so that each image's own metadata settings will be used when playing back the action.
5. *Perform the operations you want to record*. If you are just using the action to convert the files to the Photoshop format you don't need to do anything here. (You can insert a stop later—page 174—if you want the Camera Raw plug-in to pause on the screen so you can make custom adjustments to each image.)
6. *To open the RAW image in Photoshop*, click *OK*. If you get an Embedded Profile Mismatch dialog box, click *OK*.
7. *To save the file*, choose *File>Save As* to display the Save As dialog box. Set the *Save in* folder to *actions-destination*, the *Format* to Photoshop (PSD), and click the *Save* button.
8. *To close the file*, choose *File>Close*. You have now recorded an entire cycle.

9. *To stop recording*, click the palette's *Stop playing/recording* button. The action you've created can now be used when you want to convert one or more camera raw image files.
10. *Use the File Browser* to look at the contents of the *actions-destination* folder and you will find the processed file there in PSD format.

CREATING THE BATCH COMMAND

Follow these steps to use the action you created to process a batch of RAW files, saving all of them in the Photoshop (PSD) format.

1. *To display the Batch dialog box*, choose *File>Automate>Batch* from the main menu or *Automate>Batch* from the File Browser menu.
2. *To specify what action is to be used*, be sure the *Set* is *RAW Image Processing* and the *Action* is *RAW to PSD Conversion*. If they aren't, use the drop-down arrow to make these settings.
3. *To specify which images are to be processed*, click the *Source* drop-down arrow and select *Folder*. Click the *Choose* button to display the Browse for Folder dialog box so you can choose the folder in which your RAW images are stored, in this case *actions-source*. Click *OK* to return to the Batch dialog box.
4. *To have Open commands in the action refer to the batched files* rather than the filenames specified in the action, turn on the *Override Action "Open" Commands* check box. When a dialog box appears, read it and then click its *OK* button.
5. *To keep the Camera Raw dialog box from opening* for each camera raw image file being processed turn on the *Suppress File Open Options Dialogs* check box.
6. *To prevent color profile mismatch warnings from being displayed* for each image when its opened, turn on the *Suppress Color Profile Warnings* check box.
7. *To specify a destination for the processed files*, click the *Destination* drop-down arrow and select *Folder*. Click the *Choose* button to display the Browse for Folder dialog box so you can choose the folder in which processed PSD images are stored, in this case *actions-destination*. Click *OK* to return to the Batch dialog box.
8. *To ensure the processed files are stored in the format specified in the action and the folder specified in 7 above*, turn on the *Override Action "Save As"* check box. When a dialog box appears, read it and then click its *OK* button.
9. *To process the files*, click *OK* in the Batch dialog box. If you get an *Embedded Profile Mismatch* dialog box for each file, you have encountered a bug in Photoshop. Since you turned on the *Suppress Color Profile Warnings* check box in step 6 this dialog box shouldn't appear but it does. Just click *OK* each time it appears. (If you don't see it, it means Adobe fixed the bug.)
10. *Use the File Browser* to look at the contents of the *actions-destination* folder and you will find the processed files there in PSD format.

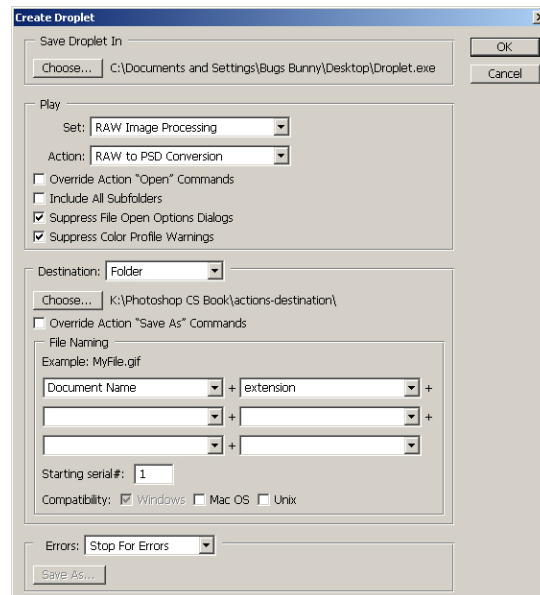


A droplet icon on the desktop.

CREATING A DROPLET

A *droplet* applies an action to one or more images that you drag onto the droplet icon that you have saved on the desktop or to another location on disk. Here we use the droplet to convert RAW images but you can create others to perform such routine tasks as resizing images for e-mailing or posting on a Web blog.

1. To display the Create Droplet dialog box, choose *File>Automate> Create Droplet* from the main menu. The dialog box is almost identical to the Batch dialog box discussed on page 176.



2. To specify a location for the droplet, click the *Choose* button and select a folder, for example, the desktop folder.

3. To have Open commands in the action refer to the batched files rather than the filenames specified in the action, turn on the *Override Action “Open” Commands* check box. When a dialog box appears, read it and then click its *OK* button.

4. To prevent the Camera Raw dialog box from opening for each camera raw image file being processed turn on the *Suppress File Open Options Dialogs* check box.

5. To prevent color profile mismatch warnings from being displayed for each image when its opened, turn on the *Suppress Color Profile Warnings* check box.

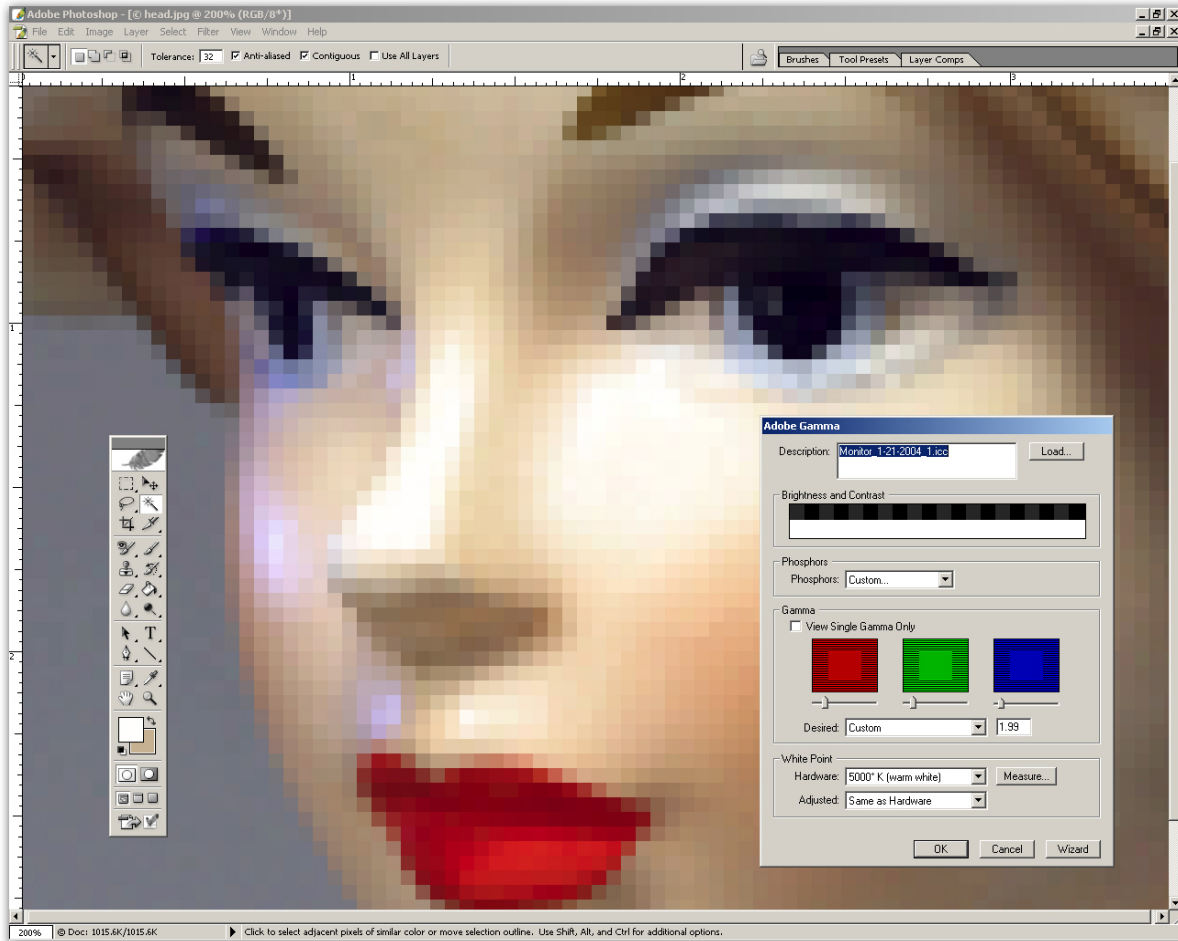
6. To specify a destination for the processed files, click the *Destination* drop-down arrow and select *Folder*. Click the *Choose* button to display the Choose a Batch Folder dialog box so you can choose the folder in which your RAW images are stored. Setting the other options in the Create Droplet dialog box is up to your discretion.

7. To ensure the processed files are stored in the format specified in the action and the folder specified in 7 above, turn on the *Override Action “Save As”* check box. When a dialog box appears, read it and then click its *OK* button.

8. To finish, click *OK*. You can now open single or multiple camera raw files by dragging them onto the droplet.

Chapter 9

Color Management



CONTENTS

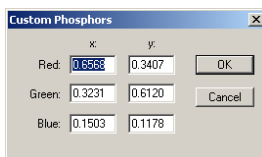
- Calibrating Your Monitor
- Color Managing Your Images
- Using Profiles

Colors in the original scene pass through a number of steps before they finally emerge to be displayed on the screen or in a print. To ensure that colors change as little as possible as they pass from one device to another, you must perform at least three basic steps in Photoshop—calibrating your monitor, customizing color settings, and creating profiles of your equipment. Although you don't have to do these things, you should do so because the choices you make influence how the colors in images are displayed and printed. The entire process is referred to as *color management* and it sounds more complicated than it is. Taking the time to color manage your system saves you much uncertainty and frustration in the long-run, especially when capturing photos where color accuracy is important. Much of the background of color management is discussed in *The Textbook of Digital Photography* and that lengthy discussion isn't repeated here.

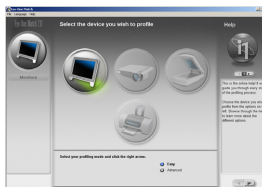
CALIBRATING YOUR MONITOR

TIPS

- Adobe recommends that your screen resolution be set to at least 1024 x 768 and colors to 24-bits (Windows) or Millions (Macs).
- Before calibrating the monitor make sure it has been on for at least 30 minutes. Also use the same room lighting you normally use and have the monitor in its usual position.
- If you do not have a default profile, contact your monitor manufacturer for appropriate phosphor specifications.



Selecting Custom from the Phosphors dropdown menu displays a dialog box where you can enter settings from your monitor's manual.

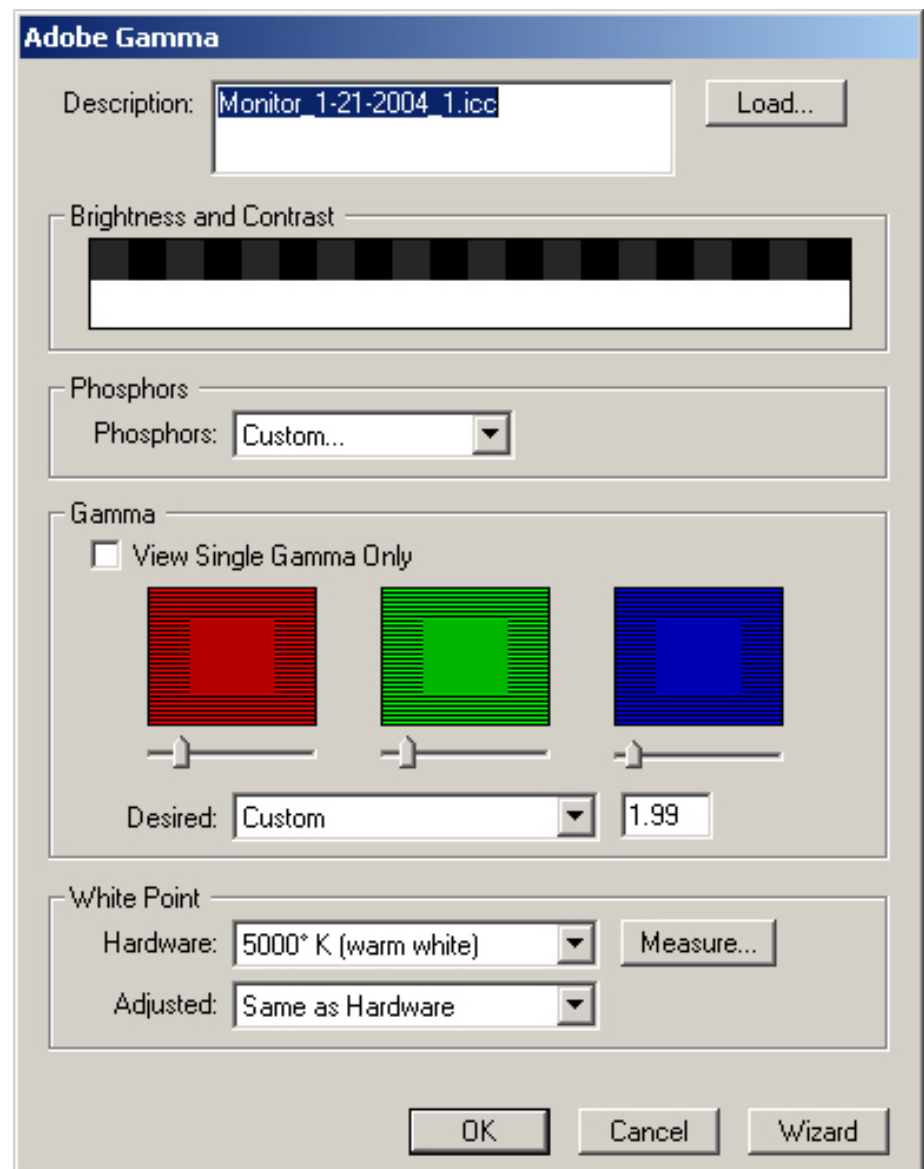


Hardware and software from companies such as GretagMacbeth make it easy to profile all parts of your system.

One of the first things you should do when you start photo-editing is calibrate your monitor using Adobe Gamma or a third-party package of software and hardware for even more accurate calibration. This standardizes at least one part of your system so grays are neutral without color casts and your prints aren't always too dark or too light. To create a monitor profile on a Windows system, you use the Adobe Gamma software that was installed with Photoshop:

■ *On a PC* look for it first on Windows' control panel under *Appearance and Themes*. If not there, it should be stored in the *Program Files/Common Files/Adobe/Calibration* folder on your hard drive. If you click *Adobe Gamma.cpl* it opens the Adobe Gamma dialog box or another dialog box that lets you also open the Wizard.

■ *On a Mac* you use the Display Calibrator Assistant which isn't covered in this book.



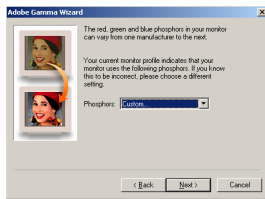


When you start Adobe Gamma its dialog box appears on the screen with the following settings:

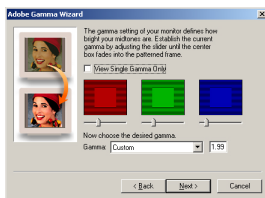
■ **Wizard** button, in the lowerright corner of the dialog box, leads you through the entire calibration process step-by-step with help along the way. As you page through the steps by clicking the *Next*> button, you fill find the choices below.



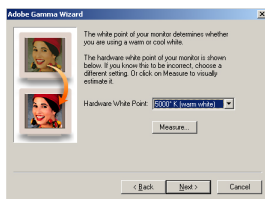
■ **Description** text box lists the name of the current monitor profile. If you are changing settings, you can enter your own name for the new profile but the one that's current when you enter a new name becomes your starting point for settings so it should be the best one available for your monitor. Type a name you will easily identify, such as the monitor name and the date. When you click *OK* at the end of the adjustment session, the *Save As* dialog box opens so you can save it under its own name. The *Load* button displays the *Open Monitor Profile* dialog box so you can load a previously saved profile.



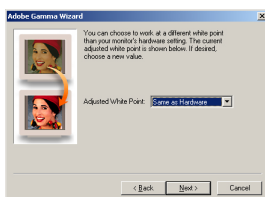
■ **Brightness and contrast** setting in the dialog box displays a checker board pattern and a pure white section so you adjust the brightness control on your monitor to make the alternating gray squares in the top bar as dark as possible (but not black), while keeping the bottom bar a bright white. In the Wizard you adjust a box within a box.



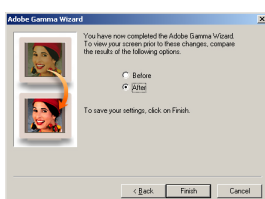
■ **Phosphors** drop-down arrow lets you select your monitor. If it's not listed, you can select *Custom* to display the *Custom Phosphors* dialog box and enter the settings found in your monitor's user manual.



■ **Gamma** sliders adjust the brightness of the middle tones and is a necessary step because the range of tones displayed on a monitor is not linear. If you graphed the brightness of all tones between white and black, they would form a curve, not a straight line. As a result, tones in the middle get crunched together so image gradations aren't as smooth as they could be. Gamma adjusts the middle tones so they more closely match a printer's output.



When the *View Single Gamma Only* check box is on you adjust the overall tones instead of the individual color channels. When off, you adjust the red, green, and blue channels separately by dragging their sliders until the small central square in each blends as closely as possible with the surrounding area. The *Desired* drop-down arrow lets you specify if you want to adjust for the *Windows Default*, *Macintosh Default*, or *Custom* environment. You should make this choice before using the sliders to adjust the gamma.



■ **Hardware White point** sets the point at which red, green, and blue screen elements create white. The *Measure* button displays a dialog box explaining that when you click *OK* you will see three squares and you are to select the most neutral.

■ **Adjusted White Point** check box should usually be left set to *Same as Hardware*.

■ **Before and After** option buttons (on the Wizard only) let you switch between before and after views. If you load a photo into Photoshop before beginning the calibration, you can see what affect your adjustments have on the way it looks as you click back and forth between the two buttons.

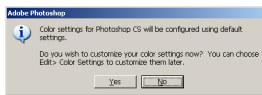
■ **OK** button complete the process and displays the *Save as* dialog box so you can name and save your changes if you want to reuse them.

Clicking the *Wizard* button guides you through adjusting gamma step by step.

SPECIFYING COLOR SETTINGS

TIP

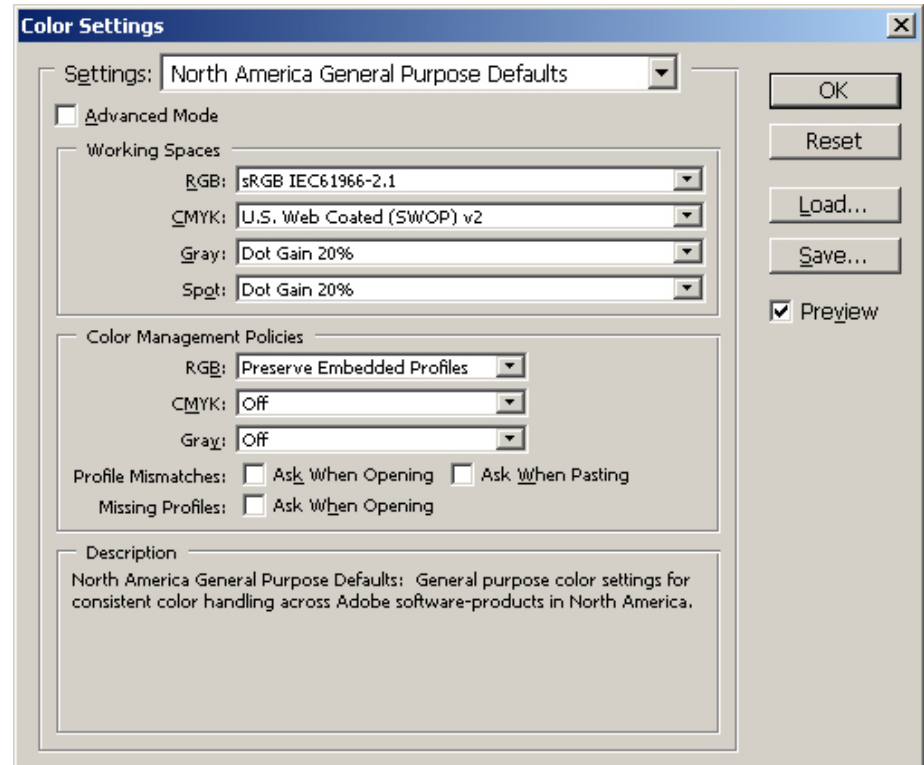
■ It is important to use the same color settings in other color-managed applications so your color is consistent between the applications. However, even then, colors will probably not match between color-managed applications and non-color-managed applications.



The first time you start Photoshop after installing it or restoring its default settings (page 8), a dialog box appears asking if you want to customize color settings.

Access to the Color Settings dialog box is offered the first time you launch Photoshop, but it's also accessible any other time by choosing *Edit > Color Settings*. Using this dialog box, you can choose from lists of predefined color management settings. Although outside the scope of this book, you can also create and save your own custom settings and even share them with other users and other Adobe applications that support color management.

Regardless of how you got there, when you display the Color Settings dialog box you have the following choices:



■ *Settings* displays the currently selected preset. You can click the drop-down arrow to select another setting and some choices to consider include the following:

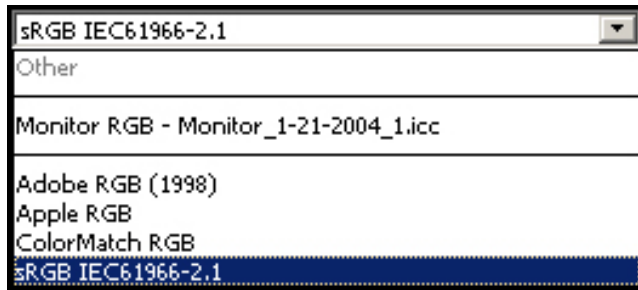
- *North American General Purpose Defaults* (the default setting in North America) uses general purpose color settings for consistent color handling across Adobe software products in North America. If you live in another area, select an equivalent setting for your region. (Other choices include Japan and Europe.)
- *U.S. Prepress Defaults* manages color for printing on a printing press at a commercial printer in the U.S.
- *Web Graphics Defaults* manages color that will be published on the World Wide Web.
- *Color Management Off* is not a good choice when working mostly with digital camera images that are tagged with color profiles.

TIP

■ A word you may encounter in color management is *metamerism*. This refers to how print colors look different under different light sources such as tungsten lighting and natural sunlight.

The *Setting* you choose has accompanying *Working Spaces* and *Color Management Policies* so when you change the *Setting* to another preset, others areas of the dialog box change to reflect that choice. However, you can still go to these other sections and make changes. If you do so, the *Setting* changes to *Custom*. If you do make changes and want to reuse them, you can click the *Save* and *Load* buttons. Here are the other settings you can change:

- *Advanced Mode* check box, when on, displays additional choices outside the scope of this book.
- *Working Spaces* section let's you choose a working space—the default profile that defines the color space in which you edit an image. Your choices include sRGB, Monitor RGB, Adobe RGB, Apple RGB, and Color Match RGB.



- *Color Management Policies* section specifies what Photoshop does when you open an image with a color profile that differs from the one you have specified in the *Working Spaces* section above. The three image types—RGB, CMYK, and Gray scale—can be set to one of the following settings using the drop-down arrows:

- *Off* does not color manage new, imported, or opened color data.
- *Preserve Embedded Profiles* is best when you work with both color-managed and non-color-managed images, or with images that use different profiles within the same color mode.
- *Convert to Working Space* is best when you want to force all images to use the current working space.

The check boxes in this section specify if messages are to be displayed when there is a profile mismatch. Initially you might want to turn all of these on. You can always turn them off later. When on, you will be given the option to override the policy's default behavior.

If your camera has applied a different color space than Photoshop is set for in the Color Settings dialog box, the Embedded Profile Mismatch dialog box appears.



- *Description* section displays descriptions of the options when you position the pointer over a section heading or menu item.

USING PROFILES

TIP

■ Profiles are discussed in detail in *The Textbook of Digital Photography* and that lengthy discussion is not repeated here.



Sony's Artisan Color Reference System has integrated profiling hardware and software.



The colors of prints depend on the light under which you view them. Many photographers are using Solux bulbs and lamps to evaluate their prints because they so closely approximate daylight. Courtesy of Solux (<http://www.solux.net>).

One problem digital photographers have to cope with is the way the colors and tones in our images look different on different devices. This becomes especially apparent when we print an image and it doesn't look the same as it does on the screen. What is the point of making an image look perfect on the screen if it looks different on other screens, or if prints made from it are too light or dark or have color casts? To keep colors and tones as consistent as possible, we use a process called *color management*. The basic idea is to attach a profile to each image that describes what colors the image contains—technically called a *color space*. Many cameras use a color space called sRGB when capturing an image and then attach a profile for sRGB colors so other devices will know what color space was used. A few cameras let you choose a color space. If so, one called *Adobe RGB* has a wider range of colors—called a *gamut*. Attaching a profile to an image is only the first step. To give it value, other devices such as monitors and printers must be able to interpret the profile so they can accurately display or print the colors it contains. This is done by assigning each device its own profile that acts much like a translation table when the image is printed or displayed on a monitor. The process goes something like this:

1. The printer or monitor looks at the image's attached profile to see what color space it uses and then sets its profile to the same color space. It's as if a tour guide meets two tourists and asks "What language do you speak?" If one responds "English" and the other "Deutsch" the guide knows how to interpret between the two.
2. As each pixel now arrives from the image, the printer or monitor checks its color value and then looks up that color in its profile to see how to print or display it. Without profiles to translate between devices, the devices would just be able to display a fixed set of unadjusted colors.

To make this system of profiles as universal as possible, a group called the International Color Consortium writes the rules, so many profiles are identified as *ICC profiles*.

When you open an image, you can check to see what color profile is attached, and then leave it as is, or change it. You would change the profile to better match the colors to the device you are planning to output it to. For example, if you are going to display an image on the Web, you can let an sRGB profile attached by the camera manage the image, or if the camera attached an Adobe RGB profile, you can replace it with an sRGB profile.

■ *To see which, if any, color space the camera used to capture your image, select File>File Info and then click the Camera Data 2 heading. It's listed next to the heading Color Space. You can also see what color profile is attached using the File Browser's Metadata tab where it is listed under File Properties. It's also displayed when using the File>Save As (page 35) and File>Print with Preview (page 39) commands.*

■ *To change the color profile attached to the image, select Image>Mode>Assign Profile to display the Assign Profile dialog box. Click the Profile radio button and then the drop-down arrow to select a new profile.*

■ *To convert an image to another profile, choose Image>Mode>Convert to Profile to display the Convert to Profile dialog box.*