CHAPTER 1

Introducing Photoshop CS2

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What Is Photoshop?

Maybe you already know what Photoshop is and what it does. You may be one of the people who have been using it since its first version and you use it every day. On the other hand, you might be one of the larger group of people who have a general sense of what Photoshop is and does but have little or no experience using it. It is our intention to make this book useful for both camps — and with this, the first chapter, there may be some review for the former group and some startling revelations for the latter. As you move forward and get to "What's New in Photoshop CS2" the playing field should level out, and as you move through the rest of the book, no matter what level of user you are now, there is a great deal of new and useful information throughout.

So what exactly is Photoshop and what does it do? Adobe Photoshop — Photoshop is the name of the software, Adobe Systems is the name of the company that develops and sells it — is a professional-level image-editing application. It allows you to create images from whole cloth or, more likely, modify scanned artwork and digital photographs. Photoshop is available for use on computers equipped with either Microsoft Windows or Apple's Macintosh operating system, currently OS X.

Mind you, Photoshop isn't just any image-editing application. It's the most powerful, most ubiquitous image-editing application in the world. Despite hefty competition, where professional image editing is concerned, Photoshop's not just the market leader — it's the only game in town.

Such a lack of competition is rarely a good thing, because stagnation can often result. But in Photoshop's case, the historically lopsided sales advantage has provided Adobe with a clear incentive to reinvest in Photoshop and regularly enhance, and even overhaul, its capabilities. It's as if each new version of Photoshop is competing with its own previous versions for

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the hearts and minds of the digital art community. Meanwhile, other vendors have had to devote smaller resources to playing catch-up. Some, such as Jasc Software, with its Windows-only Paint Shop Pro, have hung in there and remained commercially viable. But such success stories are few and far between. Although competitors have provided some interesting and sometimes amazing capabilities, the sums of their parts have more often than not fallen well short of Photoshop's.

As a result, Photoshop rides a self-perpetuating wave of market leadership. It wasn't always the best image editor, nor was it the first. But its deceptively straightforward interface combined with a few terrific core functions made it a hit from the moment of its first release. More than a dozen years later — thanks to substantial capital injections from Adobe and highly creative programming on the parts of Photoshop's engineering staff and its originator, Thomas Knoll — Photoshop has evolved into the most popular program of its kind.

Image-Editing Theory

Like any *image editor*, Photoshop enables you to alter photographs and other scanned artwork. You can retouch an image, apply special effects, swap details between photos, introduce text and logos, adjust color balance, and even sharpen the focus of a photograph. Photoshop also provides everything you need to create artwork from scratch, including a suite of vector drawing tools and a highly specialized painting palette. These tools are fully compatible with pressure-sensitive tablets, so you are not limited to creating only those images you can successfully draw with a mouse.

Bitmaps versus vectors

Image editors fall into the larger software category of *painting programs*. In a painting program, you draw a line, and the application converts it to a string of tiny square dots called *pixels*. The painting itself is called a *bitmapped image*, but *bitmap* and *image* are equally acceptable terms.

Photoshop uses the term *bitmap* exclusively to mean a black-and-white image, the logic being that each pixel conforms to one *bit* of data, 0 or 1 (off or on). To avoid confusion — and because forcing a distinction between working with exactly two colors or anywhere from 4 to 16 million colors is entirely arbitrary — the term bitmap is used more broadly to mean any image composed of a fixed number of pixels, regardless of the number of colors involved.

What about other graphics applications, such as Adobe's own Illustrator? Applications such as Illustrator, Macromedia FreeHand, and CorelDraw fall into a different category of software called *drawing programs*. Drawings comprise *vector objects*, which are independent, mathematically defined lines and shapes. For this reason, drawing programs are sometimes said to be *vector-based* or *object-oriented*.

As luck would have it, Photoshop bridges the gap between conventional painting and drawing programs quite nicely by providing many of the best features of both. In addition to its wealth of image-editing and organic-painting capabilities, Photoshop permits you to add vector-based text and shapes to your photographic images. These features may not altogether take the place of a drawing program, but they help to make Photoshop an increasingly flexible and dynamic image-creation environment.

The ups and downs of painting

As you might expect, painting programs and drawing programs have their own strengths and weaknesses. The strength of a painting program is that it offers a straightforward approach to creating images. For example, although many of Photoshop's features are complex — some of them extremely so — its core painting tools are as easy to use and familiar as a pencil. You alternately draw and erase until you reach a desired effect, just as you've been doing since childhood.

In addition to being simple to use, each of Photoshop's core painting tools is fully customizable. It's as if you have access to an infinite variety of crayons, colored pencils, pastels, airbrushes, watercolors, and so on, all of which are erasable. The simplicity and customization potential make these tools fun to use, and you'll find yourself creating artwork that you would never have had the time or patience to attempt manually.

Because painting programs rely on pixels, they are ideally suited to electronic photography. Whether captured with a scanner or digital camera, an electronic photograph is composed of thousands or even tens of millions of colored pixels. A drawing program such as Illustrator may let you import such a photograph and apply very simple edits, but Photoshop gives you complete control over every pixel, entire collections of pixels, or independent elements of pixels. As witnessed by a quick examination of the pictures in this book, a photograph can become anything.

The downside of paintings and electronic photos is that they are ultimately finite in scale. Because a bitmap contains a fixed number of pixels, the *resolution* of an image — the number of pixels in an inch, a centimeter, or some other defined space — changes with respect to the size at which the image is printed. Print the image small, and the pixels become tiny, which increases the resolution of the image. Like the millions of cells in your body, tiny pixels become too small to see and thus blend together to form a cohesive whole, as in the first image in Figure 1-1. Print the image large and the pixels grow, which decreases the resolution. Large pixels are like cells viewed through a microscope; once you can distinguish them independently, the image falls apart, as in the second example in the figure. The results are jagged edges and blocky transitions. The only way to remedy this problem is to increase the number of pixels in the image, which increases the size of the file.

Bear in mind that this is a very basic explanation of how images work. For a more complete description that includes techniques for maximizing image resolution and quality, check out Chapter 3.

Figure 1-1: When printed small, an image appears smooth and sharp (left). But when enlarged, the now-visible individual pixels create a grainy image (right).

The downs and ups of drawing

The process of creating a vector-based drawing might more aptly be termed "constructing," because you actually build each of the lines and shapes, point by point, and stack them on top of each other to create a finished image. Each of these objects is independently editable — one of the main advantages of an object-oriented approach — but you're still faced with the task of building your artwork one chunk at a time.

Because a drawing program defines lines, shapes, and text as mathematical equations, these objects automatically conform to the full resolution of the output device, whether it's a laser printer, an imagesetter, or a film recorder. The drawing program sends the math to the printer and the printer *renders* the math to paper or film. In other words, the printer converts the drawing program's equations to printer pixels. Your printer offers far more pixels than your screen — a 600-dots-per-inch (dpi) laser printer, for example, offers 600 pixels per inch (dots equal pixels), whereas most screens are limited to 150 pixels per inch or fewer. So the printed drawing appears smooth and sharply focused regardless of the size at which you print it, as shown in Figure 1-2.

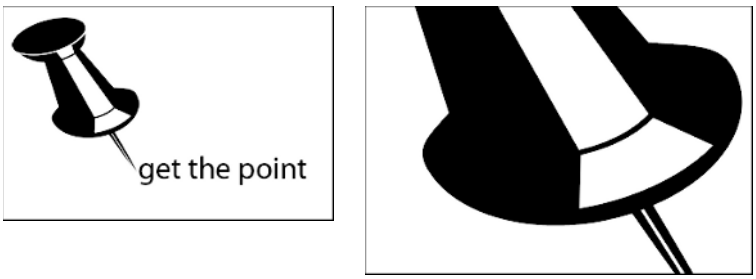

Figure 1-2: Whether printed small or viewed through a high-level zoom, this image remains crisp and clear.

Another advantage of drawings is that they take up relatively little space on a hard drive. The file size of a drawing depends on the quantity and complexity of the objects the drawing contains. Thus, the file size has almost nothing to do with the size of the printed image, which is just the opposite of the way bitmapped images work. A thumbnail drawing of a garden that contains hundreds of leaves and petals consumes several times more space than a poster-sized drawing that comprises three rectangles.

When to use Photoshop

Because of their specialized tools and methods, painting programs and drawing programs fulfill distinct and divergent purposes. Photoshop and other painting programs are best suited to creating and editing the following kinds of artwork:

- ✦ Scanned photos, including photographic collages and embellishments that originate from scans
- ✦ Images captured with any type of digital camera
- ✦ Still frames captured from videotape or film
- ✦ Realistic artwork that relies on the play between naturalistic highlights, midranges, and shadows
- ✦ Impressionistic artwork and other images created for purely personal or aesthetic purposes
- ✦ Logos and other display type featuring soft edges, reflections, or tapering shadows
- ✦ Special effects that require the use of filters and color enhancements that you simply can't achieve in a drawing program

When to use a drawing program

You're probably better off using Illustrator or some other drawing program if you're interested in creating more stylized artwork, such as the following:

- ✦ Poster art and other high-contrast graphics that heighten the appearance of reality
- ✦ Architectural plans, product designs, or other precise line drawings
- ✦ Business graphics, such as graphs, charts, and diagrams that reflect data or show how things work
- ✦ Traditional logos and text effects that require crisp, ultrasmooth edges
- ✦ Brochures, flyers, and other single-page documents that mingle artwork, logos, and body-copy text (such as the text you're reading now)

If you're serious about computer graphics, you should own at least one painting program and one drawing program. If I had to rely exclusively on two graphics applications for producing still, two-dimensional images, I would choose Photoshop and Illustrator. Adobe has done a fine job of establishing symmetry between the two programs so that they share common interface elements and keyboard shortcuts. Learn one and the other makes a lot more sense.

What's New in Photoshop CS2

While at first glance it doesn't appear that CS2 is a major upgrade from CS (or from version 7, if you happened to skip the upgrade to CS), that doesn't mean that it isn't a worthwhile investment; on the contrary, you'll find that new tools and new options for individual tools and the program as a whole make it a very important upgrade for users of all levels. Many of these improvements don't smack you in the face when you first open the application — you might not notice them until you go to do some image restoration, tinker with color or light correction, or attempt to organize your images. To give you a quick tour of what's new and improved, a list of the most significant upgrades/changes and notes as to where to find coverage of the features in the book follows — bear in mind there are a lot of smaller upgrades and changes beyond this very basic list, and you'll discover them throughout the rest of the book and in your own travels with Photoshop:

- **New Workspace Presets (Chapter 2).** In previous versions, you could save workspaces — configurations of palette and tool placements that were conducive to specific images or types of work. In CS2, you can choose from nine new workspace presets, designed for different tasks such as creating Web graphics, working with type, or correcting color.
- **The Bridge (Chapter 3).** When you upgraded from version 7 to Photoshop CS, you probably noticed the File Browser. You may not have used it much, however, because while it was a major improvement simply because such a tool was added, it wasn't the most efficient or intuitive tool. Replacing the File Browser in CS2 is the Bridge, a workspace that you can invoke through several avenues. The Bridge provides tools for searching for, sorting, organizing, and using your images for a variety of print and online distribution products — from photo album pages to a gallery of Web images.
- **Animation (Chapter 18).** Previously available only in ImageReady, Photoshop CS2 enables you to create animations from your images, building frames and establishing the playback rules for them. It's rumored that ImageReady will be going away in future releases of Photoshop, so this is just the beginning of the integration of ImageReady's tools for creating Web graphics.
- **Keyboard and Menu Customization (Chapter 2).** Now you can create your own keyboard shortcuts and customize the appearance of menus and menu commands. If you aren't a big shortcut user now, this enhancement may turn you into a keyboard shortcut junkie — the ability to make the software work the way your mind approaches your tasks is a major enhancement.

ImageReady?

Photoshop's companion program, ImageReady CS2, remains a great tool for preparing images for the Web — to animate them, to create rollovers, and to create and edit sliced images. ImageReady may disappear, however, in subsequent releases of Photoshop, and is not significantly changed in CS2. You'll find, too, that one of ImageReady's chief uses has been usurped by Photoshop — you can now animate your images right in Photoshop, with no need to go out to ImageReady to create, edit, test, and save the animation.

- **The New Spot Healing Brush (Chapter 7).** You had the Healing Brush in CS, and now it's joined by the Spot Healing Brush. With this tool, you can make quick, small restorations within your photos. Rather than manually selecting the area to be healed and the content to use in healing it, the spot healing brush makes quick restorations with one click of the mouse. No need to sample a source for the healing content — just click on the spot, stain, nick, or small tear, and voila — the healing happens.
- **Red-Eye Removal (Chapter 7).** If you've used Photoshop Elements (Adobe's bargain-priced photo-editing program), you may have been impressed with its red-eye removal tool. Complex in Elements 2 and vastly improved in Elements 3, this tool has now joined the Photoshop CS2 toolbox, and is much like the Spot Healing Brush in its simplicity and ease of use. Just set the pupil size and degree of darkening you require, and click to exorcise the demon glow.
- **Warp (Chapter 12).** When transforming a layer — a list of distortions previously limited to resizing, rotating, skewing, or adding perspective — you can now warp the content, clicking and dragging from any of a series of handles along a grid that appears over the selected layer's content. You can now bend, twist, and stretch your images into any number of shapes and in any number of directions.
- **Vanishing Point (Chapter 11).** Need to create the look of a vanishing point, to create an accurate perspective? Choose Vanishing point from the Filter menu, and create the perspective, edit it, and apply it to your image through a series of tools in a handy dialog box, much like the Liquify dialog box.
- **Smart Objects (Chapter 12).** Turn layers — individual layers or groups thereof — into objects that can be edited outside the image, in their own window, and exported easily to other images.
- **Smart Guides (Chapter 12).** Taking the ubiquitous Guides feature to a new level, Smart Guides allow you to visually align and distribute layers more easily. When Smart Guides are turned on, the guides you place on-screen are accompanied by additional guides to show you when layers are lined up — when top, bottom, or sides are aligned. The color of your Smart Guides is customizable through the Preferences dialog box.

- **New Blur and Sharpen Filters (Chapter 10).** To the list of Blur filters, add the Box, Shape, and Surface blur, substantially expanding your ability to soften and blend content. The Sharpen filters now include Smart Sharpen, a customizable sharpening tool.
- **Correct Exposure (Chapter 17).** Found in the Image, Adjustments submenu, this command allows you to quickly and easily correct a photo that was over- or underexposed. A simple set of Exposure, Offset, and Gamma sliders gives you total control over the process.
- **Lens Correction (Chapter 11).** This new filter enables you to create a fully customizable lens through which to distort your layer content. The distortion can be restorative or truly destructive, bending content around a curve that you design.
- **Image Variables (Chapter 3).** Store various visibility and type options for a single image, naming each set of variables for future use.
- **New HDR (High Dynamic Range) Mode (Chapter 4).** You can now preview and process images in 32 bits/channel mode.

Summary

Whether you consider CS2 a major upgrade or a small set of changes, this chapter's goal has been to familiarize you with what to expect in terms of new coverage throughout the rest of this book. Some features have been improved, some added, some have simply been moved. In any case, you're now ready to move forward and focus on the individual features and tasks covered in the book's subsequent chapters, and to begin exploring Photoshop CS2's new and improved features on your own.

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