

digit

May 2006

Fast Track *to*

PHOTOSHOP

The First Days With **Photoshop**

Editing Basics

Working With **Selections**

The **Layer Funda**

Advanced Effects

Repairing / **Retouching Images**

Vectors, Text, And Shapes

Donning The **Mask**

Image Formats

Getting Ready With **ImageReady**

Colour Management

Grubby Paws—**Cool Effects**
In Photoshop



 **Jasubhai**
DIGITAL MEDIA

YOUR HANDY GUIDE TO EVERYDAY TECHNOLOGY

Fast Track to **Photoshop**

By Team Digit

Credits

The People Behind This Book

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The King Of Image Management

It's something like music: everybody loves playing around with images—whether it's painting, altering colours, lending special effects, or even serious stuff like retouching photographs. The problem is, you need a good tool to be able to do these things, and most folks think Photoshop is too complex. We've got news—it's not!

When someone learns a few Photoshop tricks, his stock value instantly rises—"Wow, he can actually give a sepia tone to a picture!" or "He can use Photoshop to make cut-outs of wallpapers!" Well, our idea when we were writing this was that you should be able to teach such folks a thing or two or more. We've said Photoshop isn't complex, and by the time you're through with this little book, you should be able to do most of the common stuff—and some really cool stuff—that Adobe Photoshop is capable of. We're not claiming you'll become an expert: you'd need a few years and a few thousands of rupees in books for that.

What follows is organised this way: we first talk about the basics of editing pictures. Selections follow: these are important because you sometimes want to modify only part of an image. Layers come next—you have, in all probability, heard about layers in Photoshop. The next chapter is about advanced effects—really fun stuff you can do. After that, we get a little serious, and talk about getting some work done—like retouching old photographs and such. Vectors, shapes, and masks follow: you'll figure out soon enough what these are. We then touch upon image formats, and ImageReady—which is something like Photoshop for the Web. Towards the end, we talk about how to prepare your photos for print, and wrap up with some cool projects you can undertake.

We've used Photoshop CS2 for all the work and projects in the book. You can find the CS2 tryout on this month's DVD. The images used in the workshops are on the Digit CD.

Photoshop is great fun. But be warned: it's also addictive!

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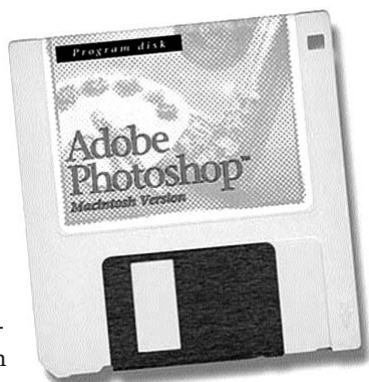
The First Days With Photoshop



The first step is usually the hardest. Even with Photoshop's simple interface, most people shy away from it just because they don't know what to do with it. Welcome to *Digit's* guided tour of everything Photoshop.

1.1 Photoshop's Curriculum Vitae

It all started with *Star Wars*. John Knoll, who worked for Industrial Light and Magic (ILM) at the time, envisioned the possibilities of computer-generated special effects, and decided to experiment with them himself, soliciting his brother Thomas' help for his purposes. Together, they invested in an Apple Macintosh II—the first one that supported colour—and began building on an



The First Photoshop Diskette

application John had started as a hobby: Display. One thing led to another, and as they added more and more features, Display became Photoshop 1.0, which was released in 1990 on a single floppy disk. While it was a big hit from the beginning, it wasn't until version 4.0 that Photoshop achieved its cult status as the ultimate in image editing, and has stayed there ever since.

What does it do?

Photoshop fanatics will probably make convincing arguments about how Photoshop is so awesome it can even cure world hunger, but there's probably still some time for that. What Photoshop is brilliant at is its original purpose—special effects. Using Photoshop, even the blandest image can be given a new lease on life. It doesn't end there, though. With its extremely powerful image-editing tools, Photoshop can be used to correct even the most disastrous flaws in pictures—from red eyes in photographs to undesirable smears of colour. ImageReady, which comes bundled with Photoshop, offers a host of features you can use for Web graphics—creating animated GIFs, mouse roll-overs, and some very aggressive compression tools that will ensure your images are the smallest possible size without compromising on their quality.

Why should I Photoshop?

While Photoshop is *de facto* for professionals, you've probably even used it at home for basic tasks like resizing images, and maybe even a few effects here and there. The idea behind Photoshop is to bring these effects to anyone who wants them, not just the people in the business. So whether it's cleaning up those old holiday snaps or creating your own artwork, there's nothing that Photoshop can't let you do.

1.2 Getting Started

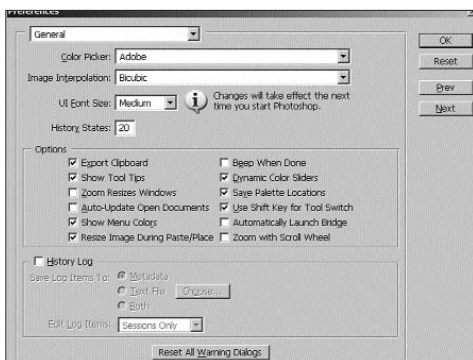
You're going to need quite a respectable machine before you start Photoshopping, but your final configuration will rest on what you really want to use it for. As a hobbyist, you'll probably do fine with anything over a Pentium III and around 384 MB of RAM—just like Adobe recommends, but a Pentium 4 with 512 MB of RAM should provide you with a smoother, more satisfying experience. If you want to use Photoshop for more intensive purposes such as creating and editing graphics for print, you should have at least 1 GB of RAM, though you should still be able to get what you want with 512 MB as well. Of course, your PC will start screaming in agony sooner than it should. Photoshop tries to load as much of the image as possible into system memory, so the general rule of thumb is that if you work with big images, you should get big memory to make everything run quick. Effects like filters require some serious number-crunching capabilities, so do take a little out of that piggy-bank for a higher-end processor (preferably a dual-core) if you're going to dabble in some professional, high-end special effects.

Preferences

Before you begin anything in Photoshop, it's a good thing to tweak a few options that will make it work better for you.

To get to the Preferences dialog, go to Edit > Preferences > General, or hit [Ctrl]+[K].

In the General Preferences, you will notice the text box that says “History States.” Photoshop’s History tracks the changes made to an image, letting you revert to any state. While it does sound like a glorified undo stack, there’s a lot more to the History



The Preferences Dialog

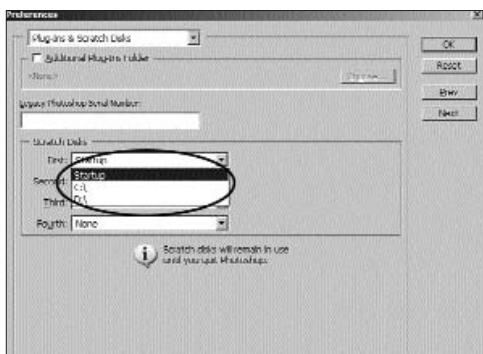
than that, as we’ll see later. Photoshop saves 20 History states by default, but you can go as high as 1,000. The History states occupy precious memory and disk space, though, so use it with caution.

The next thing you need to look at is how your tools are going to look inside Photoshop. From the drop-down list on the top left, select “Display & Cursors”. Under Painting Cursors, choose “Full Size Brush Tip”—this way, when you’re using any of the paint-brushes, you get an accurate idea of the shape and size of the brush, letting you paint with greater ease. Under Other Cursors, choose Precise, so that drawing selections and colour picking becomes much more, well, precise.

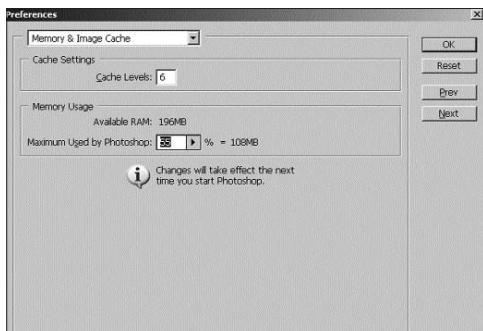
The next thing you need to guide Photoshop to is Scratch Disks. When Photoshop runs out of RAM, it uses your hard disk as temporary storage, much like virtual memory. By default, the primary scratch disk is the one where Windows is installed—you should change that in a hurry. Ideally, your primary scratch disk should be on a separate hard disk altogether, and should:

1. Have loads of free space
2. Be your fastest disk
3. Be defragmented often

Finally, you need to specify your Memory settings so that Photoshop can make the most of your system memory. In the Preferences dialog, use the dropdown list on the top left and choose “Memory & Image Cache”. Photoshop tunes its memory usage according to the machine it sits on, but if you have a lot of system RAM and aren’t going to be running any memory-intensive applications along with Photoshop, you can pull this slider to a higher memory limit.

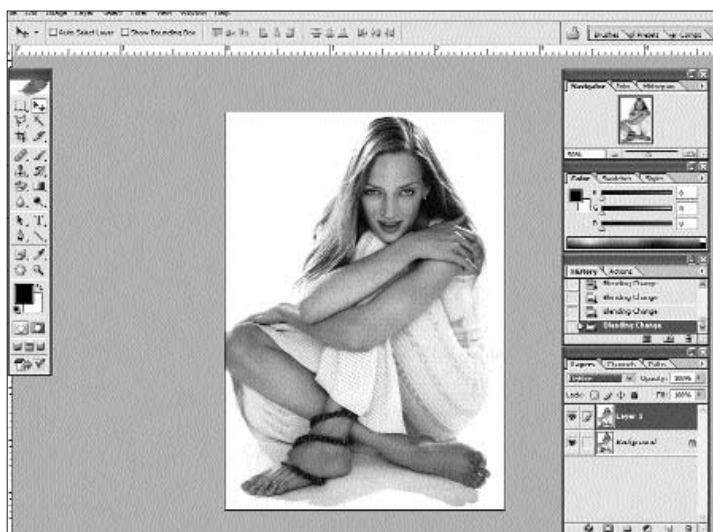


Choosing Scratch Disks



Choosing how much memory Photoshop will use

1.3 Getting Around Photoshop

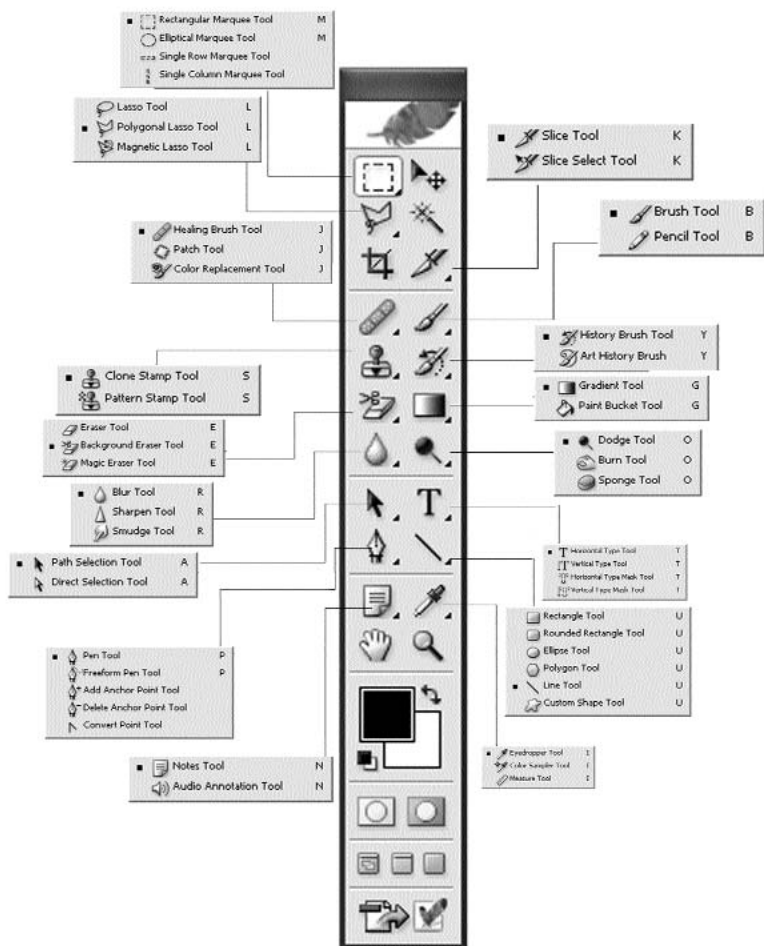


The Photoshop Workspace

Photoshop's interface is quite easy to use, and has become a model that nearly all image-editing programs follow—so even if you do switch to a different program, you aren't going to be lost. The interface is organised into the top toolbar (called the *Option Bar*), and the many palettes at the sides. You can show or hide any of these palettes in the Window Menu.

1.3.1 The Tools Palette

The Tools Palette (sometimes called the Toolbox) is where all the Photoshop magic happens. Select a tool from here to perform the corresponding action on your image. Some tools have a black arrow at the bottom right corner—this means there are more tools in that category. Click and hold on the tool to bring up the full list

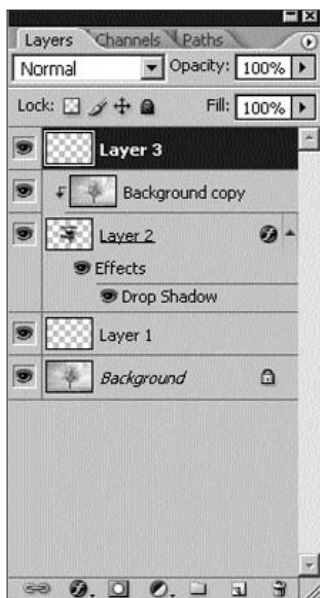


of tools. Additional options for each tool will appear on the toolbar at the top.

1.3.2 The Layers Palette

The heart of Photoshop's image editing *funda* is the Layer. The name is quite self-explanatory—much like a collage, you can edit your image in parts, and then 'stick' the entire lot onto a common background to create your final image.


Think of this: you have a bunch of transparent plastic sheets. On one, you draw the sun, on another, clouds, a river on yet another, and so on. When you put these sheets on top of each other, you will see a complete scenery. If you are dissatisfied with the way you drew the sun, you can just pick up that sheet and change it as you see fit. You've probably got it by now—this is how Layers work. The Layers palette lets you view and select the layers you're going to edit.




The Layers Palette

The Layers palette is the most important part of your workspace, so if you don't see it, enable it by selecting **Window > Layers**, or by hitting [F7].

Here's what you can do in the Layers Palette:

- Turn Layer visibility on and off by clicking on the “eye” icon next to it
- Club layers into groups by clicking on the Folder icon  at the bottom
- Link layers with each other so that they can be worked on at the

same time—hold down [Ctrl] and select the layers you want to link, and click on the chain-link icon  at the bottom

- Set layer opacity
- Lock properties of a layer such as position and transparency
- Create layer masks, adjustment layers and layer effects

If any of this confuses you, pay no heed to it for now—you will become more than familiar with these features as we go along.

At the top right corner of the Layers palette, you will find a small arrow icon—click on it to bring up the Layers Palette Menu, which gives you a list of commands you'll often need when working with layers. By default, Photoshop shows you a little thumbnail for each layer in the Layers palette, but if you are working at a lower resolution such as 1024 x 768, you can turn off these thumbnails to save some screen space. This won't seem like much at first, but it's going to make a huge difference if you have fifteen or so layers in the image. To choose the size of the layer thumbnails, bring up the Layer Palette menu and select Palette Options. Choose the size of the layer thumbnail from here.

1.3.3 The Channels Palette

The colours we see all around us are a mixture of the three primary colours—Red, Green and Blue (RGB). In a digital image, each pixel is defined by the intensity of each of these colours, in effect, making it the sum of the Red,





The Channels Palette

Green and Blue *channels*. The Channels palette shows you the intensity of the primary colours as greyscale images. For example, white areas in the Red channel indicate a 100% intensity of Red in the area, while black areas indicate the complete absence of any Red.

If you're working on a graphic for printing, you will be using the Cyan, Magenta, Yellow and Black (CMYK) channels—while RGB represents the primary colours of light, CMYK represents the primary colours of ink pigments.

For the most part, you can do to a channel what you can do to layers—paint, apply filters, tweak brightness and contrast, and so on.

Here's what you can do with the Channels Palette:

- Select individual channels for editing
- Turn channel visibility on and off using the “eye” icon next to it
- Create a new Alpha Channel that will define the transparent parts of the image (refer to Chapters 3 and 5 for more on Alpha Channels)
- Turn selections into channels by clicking on the Save Selection As Channel button 
- Turn channels into selections by clicking on the Load Channel As Selection button —for example, you could select all the blue areas of the image, even the partially blue ones, by loading the blue channel as a selection

Again, you will get more comfortable with channels as you read on.



The Paths Palette

1.3.4 The Paths Palette

When you reach Chapter 7, you will begin working with Paths, which let you create shapes that can be resized infinitely without any distortion. The Paths palette is (obviously) going to play a role here.

Here's what you can do with the Paths Palette:

- Create and delete paths
- Convert paths to selections and vice versa
- Fill the path with the foreground colour
- *Stroke* the path—that is, paint on its edge using different tools such as brushes and erasers

1.3.5. The History Palette

Right up to its fourth version, Photoshop frustrated its users with just one undo level. That's right—if you made more than one mistake in a row, you had to start editing your image from scratch. This problem was more than rectified with the introduction of the History Palette. At first sight, all it looks like is an exaggerated Multiple Undo, but there's a lot more you can do with the History Palette:

- Take snapshots of what your image looked like at a particular stage of editing, and get back to that state at any time
- Start new images from different history states
- Paint History States onto other History States using the History Brush—choose the history state to paint by clicking in the empty box next to it, and select the state to paint on by clicking its name. You can now use the history brush to start painting

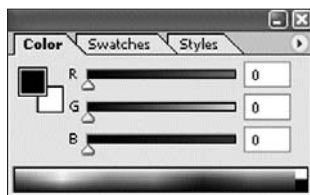


The History Palette tracks all your edits

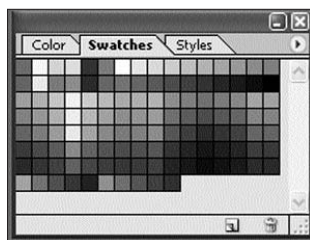
1.3.6 Colours and Swatches

The Colours palette lets you create new colours by adjusting the mix of the RGB (or CMYK) amount. You can change the colour by either using the slider that represents each channel, or by selecting it from the bar at the bottom.

Swatches are a set of preset colours that you can choose as your foreground or background. You can even add your own presets, as well as create your own custom set of swatches. To save your set, bring



Choosing colour in the Colour Palette



Preset Colours in the Swatches palette

up the Swatch palette menu by clicking on the small arrow on the top-right corner, and select Save Swatches.

At the bottom of the Swatch palette menu, you will see a lot of names like “PANTONE Metallic Coated” and so on. These are preset swatch sets that Photoshop comes bundled with—click on any of these to load them into the Swatches palette.

1.3.7 The Palette Well

At the top right of the Workspace, you will see the Palette Well, which, by default, houses the Brushes, Tool Presets and Layer Comps palettes. The Palette Well can save you a lot of space—by putting palettes in the Palette Well, you can have them on hand all the time, and yet not have them occupy any area in the workspace. Palettes only appear when you click on them.

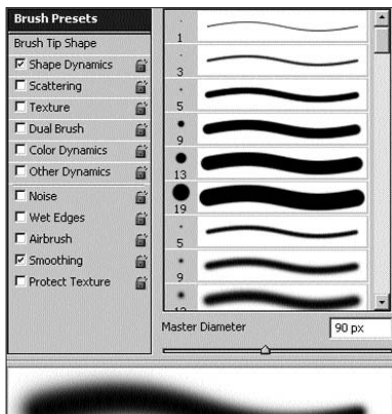


The Palette Well - a home for homeless palettes

To send a palette to the Palette Well, bring up its menu by clicking on the arrow on the top right corner and select Dock to Palette Well.

1.3.8 The Brushes Palette

When you use any brush-based tool (the brush, eraser, Dodge tool, burn tool and so on), you’re going to need this palette. It lets you choose from a set of preset brushes, customise your current brush, and edit its behaviour. We’ll be going deeper into brushes in chapter 5, where we’ll squeeze the most out of this palette.

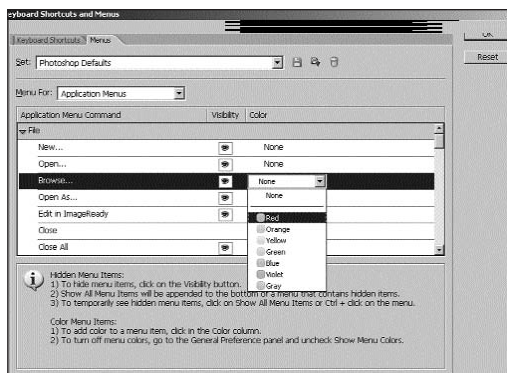


The Brushes Palette

1.3.9 Customising your Workspace

Different people use Photoshop differently, and for different purposes. Moreover, you're going to need a different set of palettes depending on what you're trying to do—analysing images, working with text, painting, and so on. Photoshop lets you save as many workspaces as you like, so you don't have to keep enabling and disabling palettes each time you want to do something new. Photoshop CS2 even comes with a bunch of preset Workspaces designed for activities such as Web design or colour correction. You can also see what's new in version CS2 by selecting the “What's new - CS2” Workspace. To begin customising your workspace, use the Window > Workspace menu.

As of Photoshop CS2, customising your Workspace took one giant leap ahead of CS—you can now change the keyboard shortcuts to suit you, enable or disable items from any of the menus, and assign colours to menu items you want to highlight (or just to make your Workspace pretty). For example, the “What's New - CS2” workspace highlights all the new menu items in blue.



Customising Menus



Customising keyboard shortcuts

1.4 Oft-Used Tools

Throughout this book, you'll be using a good number of Photoshop's arsenal of tools; what follows is a list of these often used (and much abused) tools, and a few tips to make working with them second nature—we don't want to handle our tools clumsily while unleashing our creativity, do we? More advanced work with these tools will follow later, but here's what will get you started.

1.4.1 The Zoom Tool

Shortcut: [Z]

It's quite obvious that you're going to use this tool to zoom in and out of the image. To zoom in, just click on the image, and hold down [Alt] and click to zoom out.

1.4.2 Brushes and Brush-Based Tools

Nearly all your work with Photoshop is going to involve at least one brush-based tool, be it the Paintbrush, Pencil, Eraser or the Stamp tool. Here's how to make working with them a breeze:



For All Brush-Based Tools:

- Right-click on the image to bring up a list of brush presets
- Use “[” and “]” to decrease and increase the brush size respectively
- Use “{” and “}” to decrease and increase the brush edge's hardness respectively
- Use [D] to revert to the default colours—black as foreground and white as background
- Use [X] to switch the foreground and background colours



The Brush Tool

Shortcut: [B]; [Shift] + [B] to cycle through other tools in the group

Grouped with: Pencil Tool , Colour Replacement Tool 

The Brush tool supports soft edges and is ideal for painting. You can also convert it into an airbrush by clicking on the air-

brush icon [small image], which “sprays” the paint onto the images gradually.

The Pencil Tool is better for hard-edged drawings.

The Colour replacement tool, as the name suggests, is a brush that paints over a particular colour in the image rather than the whole thing.

The Eraser Tool

Shortcut: [E]; [Shift] + [E] to cycle through other tools in the group

Grouped with: Background Eraser Tool [small image], Magic Eraser Tool [small image]

The Eraser tool deletes content from the image. The Background Eraser works much like the colour replacement tool, only deleting instead of replacing.

The Magic Eraser Tool instantly deletes areas that have similar colours.

The Blur Tool

Shortcut: [R]; [Shift] + [R] to cycle through other tools in the group

Grouped with: Sharpen Tool [small image], Smudge Tool [small image]

As the names suggest, these tools are used to apply their respective effects on areas of the image. True, they are available as filters, but if you want to use them only to correct small flaws, you'd rather use the brushes.

The Dodge Tool

Shortcut: [O]; [Shift] + [O] to cycle through other tools in the group

Grouped with: Burn Tool [small image], Sponge Tool [small image]

Use the Dodge tool to make parts of the image appear as if they were overexposed when it was shot. The Burn Tool “burns” the colour black onto the image, and the Sponge Tool can be used to increase or decrease the colour intensity.

1.4.3 The Type Tool

Shortcut: [T]; [Shift] + [T] to cycle through other tools in the group

Grouped With: Vertical Type Tool [small image], Type Mask Tool [small image], Vertical Type Mask Tool [small image]

You can create horizontal or vertical type (text) in Photoshop, either by using the respective tool or by clicking the Change Type Direction button [small image] on the option bar.

1.4.4 The Move Tool

Shortcut: [V]

Use this to move layers around in the image. To select which layer you’re going to move, you can either choose it from the layers palette, or hold down [Ctrl] and click the layer you want to move. To select multiple layers, hold down [Ctrl] + [Shift] and click on all the layers you want to move.

In the option bar, you can set the tool to automatically select the layer when you click on the image.

1.4.5 The Crop Tool

Shortcut: [C]

Use the Crop tool to draw a rectangular selection around the part of the image that you want to keep. Once you’ve drawn the selection, you can still change its size and rotate it—the selection is finalised only if you click on the tick [small image] in the option bar, or hit [Enter] on the numeric keypad.

General tips when using Photoshop

- At any time, you can hold down [Alt] and use the scroll wheel to zoom in and out of the image.
- To pan the image (if it's too big to fit in the main window or if you've zoomed into it a lot), hold down the spacebar, click, and drag.
- Hit [Tab] to hide all the palettes if you want to view only your image. Hit [Tab] again to make them reappear.
- If you want to work full-screen, use [F] to cycle among the various full-screen modes.

Now that you've armed yourselves with this preliminary knowledge, let's take a joyous nosedive into the world of Photoshop.

Editing Basics



Pictures, pictures and more pictures. They are everywhere—from blogs to news sites to personal digital albums. If a picture says a thousand words, you'd certainly want to make sure those words are what you mean, by making the image look just like you want it! This chapter covers the basics of image editing. Read on...

2.0 Basic Operations

After MP3s, images are perhaps the most commonly found files on PCs today—from your collection of wallpapers of beautiful women to dad’s collection of photographs of temples. With the advent of digital cameras, images are of more personal interest to us—meaning less generic shots of monuments and such, and more of friends, family, and personal events—making it all the important to us to retouch them if they aren’t perfect. Unfortunately, many of these images are indeed not perfect, having been shot by us amateurs under imperfect conditions. They might appear dull or unnaturally bright, they may look blurred, the *saturation* might be too much—meaning there’s too much colour in the photo—and so on. Here’s where we explain how to rectify such imperfections.

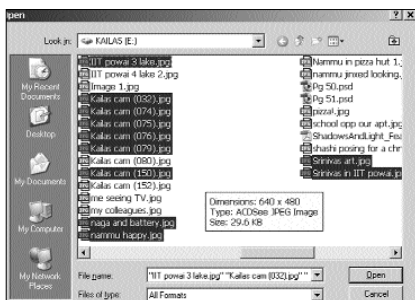
Even someone who’s just taking his first Photoshopping steps, or even doing image editing for the first time, will be able to achieve the following with ease after going through this chapter and the workshops that follow:

- Reduce the file size of the image, measured in KB or MB. This is done by *compressing* the image.
- Change the size of the image by increasing or decreasing the resolution. The resolution is measured in terms of horizontal pixels by vertical pixels. Common dimensions are 800 x 600, 1024x768, and 1280 x 1024.
- Crop images so that only a desired portion of the image is retained.
- Change the brightness, contrast and *gamma* of the image. If a photo is taken in dull light, you can actually brighten them; most photos can be made *richer* just by moving certain sliders.
- Remove red or blue tinges using Hue/Saturation correction.

Many of the operations that will be discussed here will be immediately applicable to images you have taken from digital cameras. For example, if you set the shooting mode to Fluorescent (referring to the lighting) and take the shot in Sunlight or vice versa, you will see tinges of blue or red in the photo. Defects such as these can be easi-

ly corrected using Photoshop. Nothing should prevent you from trying out these editing tools on any image to change its appeal or tweak it to your liking as well.

Now let's get started without further ado. To do any operation on an image, you first need to open it: Photoshop can open several files at once—you can select more than one file in the *Open* dialog box. Like in most Windows applications, you can click and drag the mouse over multiple files



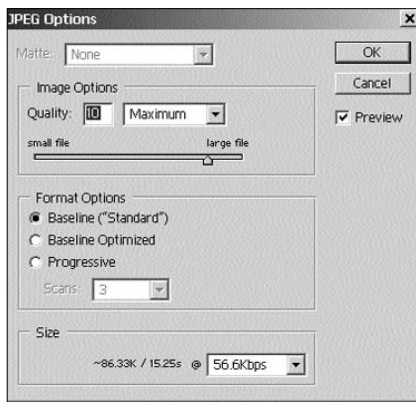
Selecting multiple files at once to open in CS2

to highlight them at once. Pressing [Ctrl] while using the mouse to click or hover on the file (depending on single/double-click configuration) will toggle the file between Select and Deselect. Use File > Open to open your file(s).

2.1 Reducing File Size

This is probably the most basic of tasks you can do with image editing software. Digital cameras often save images in high quality, and a standard 1024 x 768 high-quality image can be about 1.5 - 2 MB large, depending on the image details. E-mailing 10 such images means an attachment size of over 10MB. Unless you (and the recipient of the e-mail) have a broadband or a very reliable dial-up connection, this can be a pain. Besides, if you are uploading images onto an image-sharing Web site such as imagestation.com or flickr.com, you don't really need very high-quality images—ditto if you're embedding images into a PowerPoint presentation. In all these cases, you might want to compress your images (thus also reducing quality) making for smaller file sizes.

Once your image is open in the File menu, click on Save As. Choose the directory you want to save it in, and the extension it will have. By default, the “save as” type will be the same as that of the original image if you haven’t made changes to it such as adding layers or masks. Select the JPEG type if it’s not already selected by default, and click Save.



The JPEG saving options in Photoshop

Now a JPEG options box will pop up, giving you a quality vs. file size setting. You can move the slider to the left (smaller file size) to choose a lower quality. Alternatively, you can enter a numeric value between 1 and 12. The file size corresponding to any particular setting is displayed at the bottom of the box.

The *Format Options* allows you three choices—Baseline (standard), Baseline (optimized) and Progressive. Baseline Optimized can reduce file sizes better than Standard, but certain image reading software and browsers were not compatible with this—hence the option. However, for your purposes of sharing images today, you can safely choose Baseline Optimized.

Now, we come to Progressive JPEG: have you observed certain images on the Web appearing initially blurred and then gradually getting clearer in three to five passes? The details appear *progressively*—hence the name. If you are not saving the image for the Web, you can ignore this option.

The extent to which you can reduce the file size of your images is something you have to decide based on the quality that’s acceptable to you for your purposes. The distortion that the quality loss

will produce also depends on the image itself. For example, an image that is already pixelated will look very bad even if its file size is reduced by a small amount, while a photo from a good digital camera can be reduced to up to 60% of its original file size with no or hardly any visible loss in quality. However, assuming a similar quality of the original images, a rule of thumb is that those that have high detail—that is, considerable variation of colours across the image—must not be reduced much (say, less than 80%), while images that have uniform spreading of a single colour can be reduced to about 40% or lesser of their original size.

2.2. Changing Resolution / Pixels (Physical Image Size)

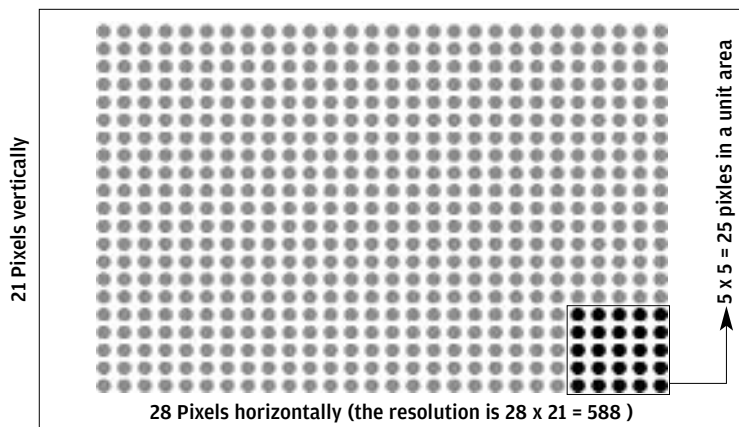
Of all digital imaging concepts, *resolution* is probably the least understood. With conventional film cameras, you just clicked the photo and relied on a developing shop (or *lab* as they called them) to give you the photo. In the world of digital photography, however, you are faced with resolution, dpi, image size, etc. if you are going to print it yourself. Digital imaging suddenly becomes simpler the moment you understand what resolution and dpi are all about. Let us look at the concept of resolution and pixels taking an oft-used analogy. We haven't invented this analogy, and are certainly not the only ones to have used it!

Imagine a large playground, analogous to your screen or an image. Now let's say there are a large number of children wearing hats of a single colour—say blue, standing in 100 rows and columns, close to each other. If you look at this arrangement from a sufficient height, the children will appear as a square of blue. If the rows and columns are increased by another 100, then you will see a larger image. Similarly, if you have a row and column of only 50 x 50, you'll see a smaller blue square.

Now think of each individual hat as a pixel. This is the most basic element that an image is composed of. The number of chil-

dren along the rows and columns can be thought of as the resolution. Hence, the greater the number of pixels, the greater is the image resolution. Resolution simply defines the number of pixels per line horizontally, called Width, and the number of pixels vertically, called Height. For Example, a resolution of 800x600 means there are 800 pixels row-wise and 600 pixels column-wise.

In the illustration below, we have a resolution of 28 x 21. Note that the ratio is 4:3. In the darkened area, you will find 5 x 5 pixels. Assuming that this area is 1 inch x 1 inch, the dpi will be $5 \times 5 = 25$. In an actual image, the numbers will be much larger, but the concept remains the same.



The concept of resolution and pixels

2.2.1 DPI (Dots Per Inch)

When we say there are 800 pixels making up a line horizontally, it is only an absolute value of pixels. But it does not define how big the image physically is (in terms of inches or centimetres). If you wish to print an image, the resolution by itself does not tell you how big or small your print is going to be. The physical size is calculated from the resolution using another value called the dpi or *dots per inch* (it can also be dots per centimetre or anything else.) As the name suggests, it defines the number of dots that compose a

given area—an inch in this case. For practical purposes, pixels per inch and dots per inch can be considered to be the same.

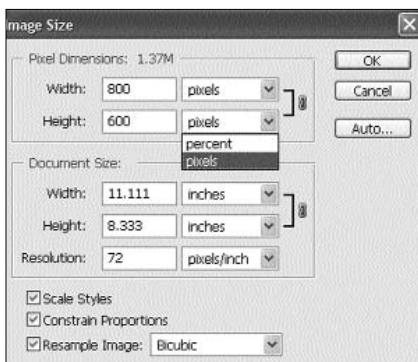
Going back to the analogy of the children with hats, if we were to say five children stand in one square metre (1m length x 1m height), the *children per metre* would be 5. If we know this number, and the total number of children, we can easily compute the area on the field that is occupied by the children. Similarly, knowing the dpi and the resolution, we can calculate the print size (that is, the actual physical size) of the image:

Resolution / dpi = size in inches.

Our screen is usually set at about 72 dpi, but good-quality prints need about 300 dpi. Photoshop saves at 72 dpi by default, but you can specify your own values. For high-quality prints, images should be at least at 200 dpi.

Photoshop allows you to change the resolution, and thereby the image size (if the dpi is kept same); it also allows you to change the dpi (and correspondingly the resolution, without changing the physical size)—or simply increase the size of the image. You can increase or decrease the size of the image by specifying

either the resolution or the actual physical size. Photoshop will do the corresponding calculation for the other values. You can scale up or down by specifying values or percentages of original. These options are all available in a single window called *Image Size*, under the Image menu.



The Image Size options in Photoshop

You can either specify the new image size in terms of the size in inches or centimetres, or you simply specify the new resolution. Note that an increase in resolution will increase the document size and vice versa (for the same dpi). When you only specify a new dpi, the resolution increases, but the document size does not change. After setting a new dpi, you can change the image size by altering the image resolution separately, or by changing the document size.

2.2.2 Resampling Algorithms

When increasing the resolution, pixels need to be created. A resampling algorithm (or logic) determines the basis on which the new pixels are calculated and used. Generally, a new pixel is introduced between existing pixels by performing some calculation on the existing ones in order to determine (or predict) the value of the new pixel. Photoshop provides you with several resampling options: Nearest Neighbour, Bilinear, Bicubic, Bicubic Smoothen and Bicubic Sharpen. Of these, the most efficient is the Bicubic algorithm, which looks at the adjacent pixels and computes the value of the pixel that needs to be added.

The Nearest Neighbour method is best avoided in most cases—it simply copies the value of the nearest pixel onto the new pixel. Bilinear is somewhat better—it averages the values of the surrounding pixels rather than simply copying them. But it is still not as effective as the Bicubic method. In Photoshop CS, two new algorithms were introduced—Bicubic Smoothen and Bicubic Sharpen. You can try these and see what works best for your image. However, smoothing and sharpening can be done by separate filters as well.

2.3 Cropping Images

“To crop” literally means “to cut or trim.” As you’ve guessed, in Photoshop, cropping is nothing but retaining only a part of the image while leaving the rest out. Sometimes, your images may not have the subject in the main focus. Too much of the background can be a distraction to the viewer. There are other reasons, of course, for retaining only part of a picture.

2.3.1 Simple Cropping

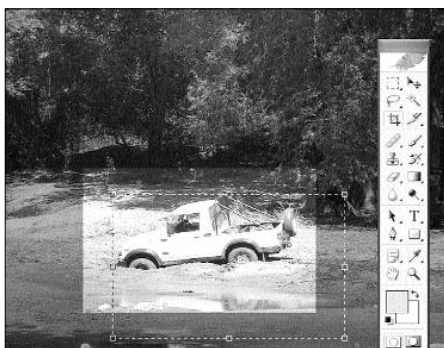
All you need to do is select the portion you want to retain using the Marquee Tool, then go to the Image menu and choose Crop. You can also use the keyboard shortcut [Alt] + [I] to access the Image menu, and then press [P] to invoke the Crop command. If you are dissatisfied with the crop, or if you have cropped more than what is necessary, you can go back to the previous steps in the History palette.

2.3.2 Using the Crop Tool

Photoshop offers a more powerful option to crop images by way of the Crop Tool. Click on the Crop Tool to acti-



vate it and select the region of the image you wish to retain. Don't try too hard to align it perfectly, because you can easily move the selection area later on. Once a rectangle is formed on the image, the selected area will appear lighter, and bordered by a dashed line that



Using the Crop Tool

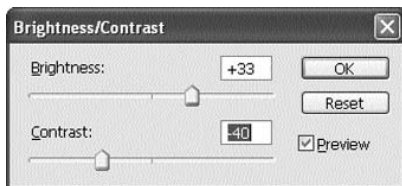
appears like it is moving. You will find tiny squares called selection handles, which can be used to change the area of selection. If you move the mouse out of the selection, you will see that the pointer changes to a two-sided arrow. You can now rotate the selection as desired. After rotating it to include the desired parts, you can fine-tune it by using the handles again. Once you are sure of the selection, just press Enter or use Image > Crop.

2.4 Adjusting Brightness And Contrast

If an image has been shot in low light, it can be made to look brighter by increasing the brightness level. Generally, when brightness is increased, the image appears to be low on contrast, that is, the colours don't appear vivid or distinct—there appears to be a whitish tinge. In such cases, the images can be made to look richer by increasing the contrast level. Contrast can be increased irrespective of the brightness levels, until the point where distortion starts to appear. This setting again is subjective, and just how much you increase contrast is your decision, based on trial and error. As a rule of thumb, keep the contrast within 5 units of the brightness. But if going beyond this range makes your image look better, just go ahead!

You can access the brightness/contrast tool from Image > Adjustments > Brightness/Contrast. The new values can be entered numerically (prefixed by a “-” sign for reducing the

levels) or by moving the slider to the left to decrease or right to increase.



For The Designer Geek—Gamma Correction

While speaking of Brightness control, we have to mention the concept of *gamma correction*. You've probably seen the Adobe Gamma applet in the Windows Control Panel, and might have even ventured to try it. Gamma, in computer graphics terminology, refers to the brightness correction that has to be applied to an image such that it is displayed in the same way it was created, even when viewed on another system.

Graphics cards, software and sometimes even monitors do not represent brightness in the same intensity. Hence, there is a chance that the picture you created might look good on your setup, but when viewed on a Mac, for example, might appear with a different brightness level. This is where the gamma correction tool comes in handy. You need to know the amount of correction the other device(s) needs and apply that correction in the photo editing software; of course, the classic trial-and-error method can be used to arrive at an optimal setting.

In Photoshop CS2, gamma correction can be found under Image > Adjustments > Expose.

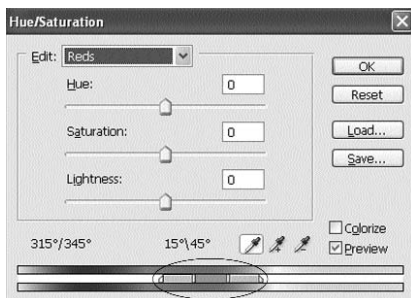
2.5 Colour Balancing—Hue/Saturation Adjustments

With just this one tool, you can make a seemingly dull and boring picture look colourful and vivid. A lot can be said about saturation adjustments, but we will only introduce you to the basics, and leave you to explore the endless possibilities.

This setting is found in Image > Adjustments > Hue/Saturation, or by pressing [Ctrl] + [U]. There you will see three settings—Hue, Saturation and Lightness. Let's start with a simple definition of each of these terms.

In computer graphics, the Hue, Saturation, Brightness (or lightness), known as HSB, is a model that can describe all possible colours. Here, the hue refers to the colour itself, saturation is the strength of the hue (can be perceived as its purity), and brightness is the amount of black/white in the colour. Brightness or lightness can also be thought of as the amount of light falling on a particular colour.

In the Hue/Saturation setting box, you will see two lines of colours at the bottom. Initially both the lines are identical, but as you move the Hue slider, the second line changes to show the colours in the first line being replaced by another colour that it (the second line) shows. The colour changes occur according to the mapping that is shown between these two colour lines. The settings can be applied to all colours or to particular colours that are available in the drop down list. Apart from these, you can select the particular ranges of colours using the slider that you see in between the two lines we mentioned earlier.



You will notice that part of the slider is darker than its border—the darker area in the centre is the colour or the colour range that is selected, while the lighter band includes the partially selected (meaning they will be only partially modified). This is to ensure that the colour change becomes gradual. You can manually specify the width (range of colours) of the fully-selected area and the partially selected area by moving the delimiters using the mouse as required.

When you move the Hue slider to the left or right, the colour changes according to the indication shown by the two colour lines. Just move the slider around a couple of times and see how the changes occur. You will soon be able to correlate this to the indication in colour lines that you see at the bottom.

For example, say you selected the red channel for modification. By sliding the Hue slider to the left, the reds will turn purple, and by sliding it to the right, the reds will turn orange first and then yellow.

Once you have made the desired colour replacements, you can strengthen or subdue the change by increasing or decreasing the saturation. Lightness, as we've mentioned, adds a white tone to the changes to simulate a lighting effect.

If you do not wish to make hue changes to the whole image, you can select part of the image using either the Rectangular Marquee Tool or the Lasso Tool. You can check and uncheck the preview box to compare the modified and original image as and when you wish. In this way, you can selectively replace colours and fine-tune the changes to make the picture look exactly like you want to. The possibilities are endless—make a red shirt appear off-red or even a totally different colour, remove bluish (or other) tinges that digital cameras sometimes produce, make lights appear brighter, and so on.

2.6 The Dodge And Burn Tool



These tools allow you to darken or lighten parts of an image. The Dodge tool makes the area where it is applied appear lighter, and conversely, the Burn tool makes the area appear darker. The Dodge and Burn tools are bundled in the same bin in the toolbox—just click on the button and hold it for the other tools to appear. For the Dodge and Burn tools, you can select the brush size you want, the range, the exposure and hardness. The greater the exposure and hardness is set to, the more pronounced the effect of the tool is.

For most practical purposes, you can set the Range to Midtones. Use the Shadows setting under the Range if you are trying to lighten darker areas in an attempt to remove them. As with other operations in Photoshop, if you are editing a large area, you can start off with a larger brush around the centre of your intended work area and then use the smaller brushes at the edges. Start with lower values of Hardness and Exposure and then work your way up—it is better to start off with lower values and see the changes in the image progressively rather than abruptly with a single high value.



The Brushes and Hardness Settings

2.7 The Basics Of Filters

From smoothening or sharpening images to adding an artist's touch, filters offer a myriad of options for corrections and after-effects. We will be discussing filters in depth in our chapter on Advanced Effects, but here, we give you an introduction to some of the more common filters you will use.

Technically speaking, a filter is a device or even a rule or logic that is used to remove unwanted parts of data (in this context, “data” refers to image data). In modern audio or image editing software however, filters do more than just remove certain parts of data. They also apply transformation—that is, they change existing characteristics apart from simply removing certain characteristics. Thus a filter performs calculations on the image based on a certain pre-defined logic and also user input in certain cases, in order to produce a variation of the original image.

There is virtually no limit to the ways images can be altered, but Photoshop offers a range of filters to perform the most commonly sought-after effects. For example, you can make an image appear as if it is seen through glass, painted on mosaic tiles, add brush strokes, and so on.

There are about 90 filters organised under different sub-menus in the Filter menu. Of these, you can use the Blur and Sharpen filters to make corrections to the image. Most of the other filters are like after-effects or artistic effects which you can use if you are trying to remove details from the image, but retain the overall *feel* of



The Filters pull-down menu

the image. For example, you may want to show a picture of a group of people without individual faces being discernable. Here, you can use the Diffuse or Blur or other filters to blur out specific details while retaining the overall shapes in the image to denote a group of people.

Let us look at the two correcting filters we mentioned above—Blur and Sharpen. Their uses are quite apparent from their names. Let's say you've shot a picture in low light, and the resulting image appears with dots all over. One way you can reduce this effect is by applying the Blur filter. While the Blur filter will reduce pixelation, it will also make parts (or even all) of the image look smudged—it is up to you to strike a balance between removing the unwanted dots and introducing the smudge effect.

The Sharpen filter is used for the opposite purpose. If your camera shook while you clicked your shot, the resulting image will look blurred. Or, let's say you want your image to have precise and well-defined edges. These are cases where you can use the Sharpen tool. This filter literally *sharpens* the image—it looks more well-defined, and the effect is something like the opposite of blurring. The downside is that if your image was originally low in quality, pixelation will occur.

You can experiment with other filters that will change your image in some particular way. Many of the filters require you to enter number values to determine by what extent the image will be changed. Just changing these values will sometimes produce variations that will surprise you! Further, you can use two or more filters, or apply these filters in a different order. So let the creativity out!

2.8 Workshops

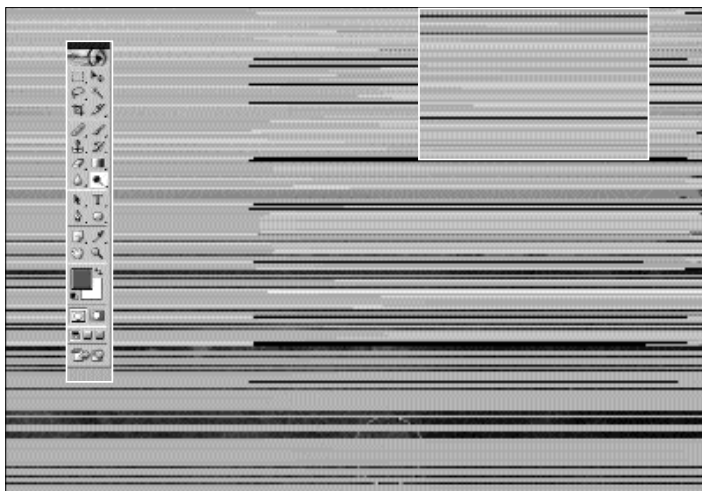
Here, we will briefly take you through the actual process of making changes to images by taking examples. The images for these workshops can be found in the root on the CD under *\Fast Track Workshops\Chapter2*. Or if you go through the CD interface then it's under the Digital Tools/ FT Workshops.

2.8.1 Correcting a photograph

Open *Hills_Original.jpg* from the *Correcting a Photograph* folder. This is an example of a typical low light and/or low shutter speed image. It's dull and rather unexciting, so let us see how we can make this image vivid and give it life.

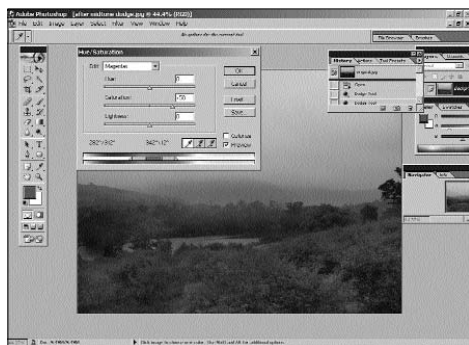
Stage 1:

The greenery appears all dark, with hardly any detail visible. It would immediately strike you that you can use the Brightness/ Contrast tool. You can try it, but you will notice that the clouds turn white and lose their variation. So, we will have to do something else to bring out the greens while not losing other colour variations.



Using the Dodge Tool

Pick the Dodge tool and select the Midtones range (see *previous page*). Set the brush size initially to about 150. The exposure has to be set to a low value—about 12 to 15%. Now move the brush over the lower part of the image where the greenery is. You will see that depending on the exposure level you have chosen, the greens gradually begin to appear. Continue this until the dark areas emerge with hitherto hidden details. Be careful not to overdo this, as bands with a whitish tinge will appear and spoil the image. Also note that there can be shadows, which must not be removed using this tool. You can move the brush over the same area to increase the effect of Dodge tool, much like actually using a brush over paper. Keep your movements in rhythm—horizontal or vertical or diagonal; don't throw the brush around at random.

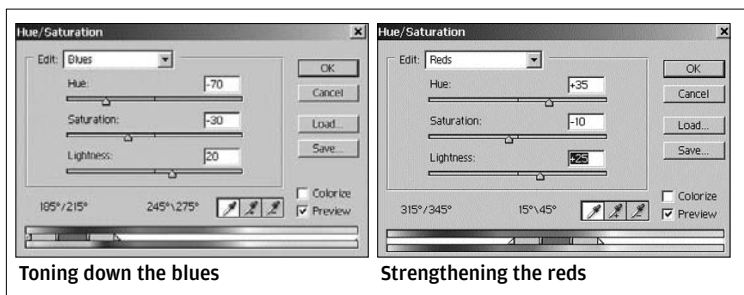


Strengthen colours using the Hue/Saturation Tool

After using the Dodge tool over the original dark area, the image will look as seen in *After Midtone Dodge.jpg*

Stage 2

Open the Hue/Saturation box, select the Green channel, and use the eyedropper tool to pick the colour in the greenery. You will notice that Photoshop recognizes it as a Yellow1 or Yellow2 channel (depending on where you pick the colour). You can set the values similar to what you see in *Strengthening greens.jpg*. Now shift the chosen colour from the greenery more toward the purer green by moving the Hue slider to the right by 12 units. Increase the Saturation by 10 units.



Similarly, choose the Blue channel and increase its saturation by 15 units. This will enrich the clouds in the background.

Do you see the pinkish flowers to the bottom right of the image? How about making them more visible? Open the Hue/Saturation box again and pick the colour of the flower using the eyedropper tool.

Increase the saturation for this colour by 50 units. You have now obtained a good contrast between the flower and the surrounding scenery.

Stage 3

Last, let us increase the overall contrast and brightness of the image. Open the Brightness/Contrast box and set the values as shown in *Setting brightness contrast.jpg*. What appears now is a colourful and wallpaper worthy image, which was lying hidden in the seemingly dull original image. The resultant image is *final.jpg*.

2.8.2 Hue/Saturation adjustments to replace individual colours

Open the *00_Original Image.JPG* in the *Hue_Saturation* folder. The parrots in the original image have three dominant colours—Red, Blue and Yellow. Let's say we wish to make the parrots look yellowish, and remove (or rather reduce) the striking reds and blues.

Why yellow, you may ask. Well, this is just an example to show to you the ease of colour manipulation in Photoshop using

the Hue/Saturation tool. By using this as a reference, you can try out similar changes with your own images.

Let us proceed in steps to make our parrots yellow. First change the reds to a shade of yellow and remove some saturation as well. Increase the Lightness such that its level gels with that of the other colours. Your image will now look as in *02_After First Change.jpg*. Similarly, in the next step, tone down the blues in the image. After this change, the



The original image (on the CD)

image will look as in *04_After Second Change.jpg*. Our final image now has parrots with a dominant yellow instead of the original Red, Blue, Yellow mix. This can be seen in *06_Final Image.jpg*.

We have chosen this image particularly because of the dominant Red, Blue and Yellow channels that are present, which makes it easier to see colour changes.

2.8.3 Filters

Explaining each of the filters with their various options would require a entire book by itself! Here are three simple filter operations that you can try and get results in a jiffy.

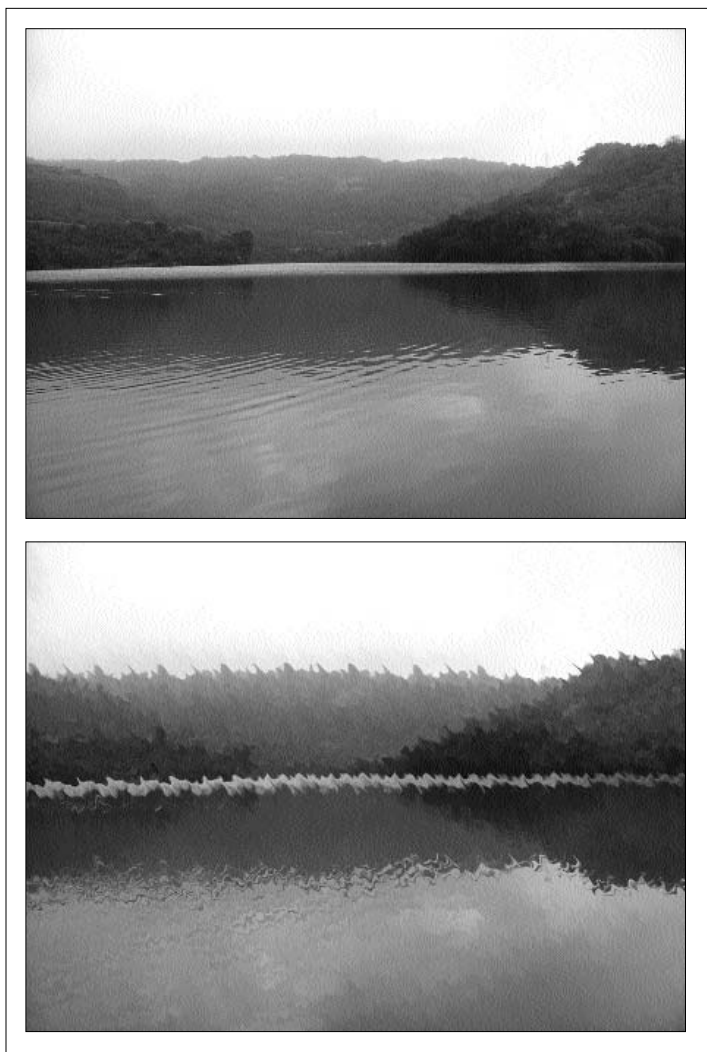
2.8.3.1 The Motion Blur Filter

Open the *00_Original.jpg* file in the *Filters/Motion_Blur* folder. This is an image of a drag race. The Motion Blur filter makes the image look like it was shot while you were moving.



2.8.3.2 The Ripple Filter

Open the *00_Original Image.jpg* file in the *Filters/Ripple* folder. Here, Artistic or Distort family of filters can be used when you want to use the image as a background and not steal focus from the subject.



2.8.3.3 The Poster Edge Filter

By distorting edges, you can add an eerie feel to any image, especially buildings. You can take a normal-looking image and turn it into a hazy one—useful if you are working with cartoons and



want to try different styles with a single base sketch.


Open *01_Ripple Filter applied.jpg* in the *Filters/Poster_edge* folder. You can apply the Poster Edge filter from the Filters > Artistic menu. Apply this filter with the default settings, and your image turns into a hazy one as in *01_Poster Edge Filter applied.jpg*.

Working With Selections



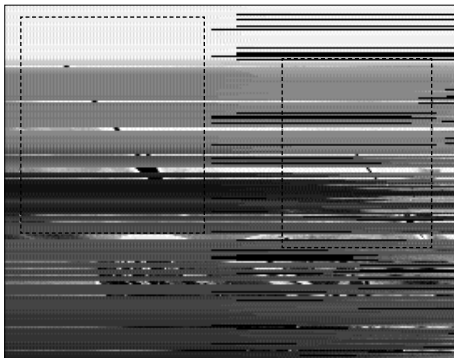
Photoshop's extremely powerful selection tools let you make exceptionally accurate selections from your image, giving you full control over what areas of the image are altered, the way you want them. Let's take a look at what they do and how they do it...

3.1 The Marquee Tools

The Marquee tools  (Shortcut: [M], [Shift] + [M] to cycle between rectangular and elliptical) are the most basic selection tools—you can make rectangular, elliptical or single-pixel row and column selections.

3.1.1 Drawing Selections With The Marquee

When you choose the Marquee tools, you will see that the cursor has turned into a crosshair. Click and drag this cursor to start making your selection. By default, you will draw the selection box from its corner—that is, the point that you click and start dragging from will become one of the corners of the selection. If, however, you would like to draw the box from the centre, hold down [Alt] before you click.



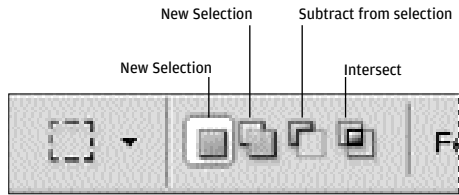
Begin selections from a corner by default (left) or hold down [Alt] to draw selections from the centre (right)

To draw a perfect square or circle, hold down [Shift] before starting your selection with the rectangular or elliptical marquee respectively. If you'd like to move the selection boundaries around while you're drawing it, hold down the spacebar—the selection will temporarily stop drawing, and moving the mouse will now change the position of the selection till you let go of the spacebar.

If you've already made a selection and want to add to it, hold down [Shift] and then select the area you want to add. On the other hand, use [Alt] to subtract areas from your existing selection.

3.1.2 More Options

When you select the Marquee tools, the option bar at the top also changes to show you more options that you can tweak




The Option Bar for the Marquee Tool

when making your selections. The four buttons—New Selection, Add to Selection, Subtract from Selection, and Intersect—let you choose the way your next selection is going to behave.

You can also Feather the selection from the option bar—by feathering the selection, you will blur its edges so they won't appear so sharp when you make changes within the selection. Smaller pixel values will cause the edges to become smoother without losing any detail from your selection, while larger values will make the edges extremely fuzzy.

For more control over the selection, you can change the Style from the default Normal to either Fixed Aspect Ratio—where you can decide the ratio of the length to width of the selection—or Fixed Size, where you will use the mouse only to place the selection once you've set its size.

3.2 The Lasso Tools

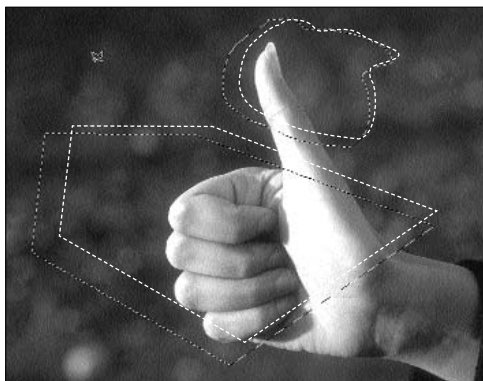
For more flexibility when choosing the shape of your selection, you should use the Lasso tool  (Shortcut: [L] to select, [Shift]+[L] to cycle).

3.2.1 Drawing Selections

The default tool is the Lasso, which lets you draw your own freehand selection. By default, the cursor takes the shape of a rope lasso, which can sometimes be confusing, especially when you're trying to draw precise selections. To show the "precise" cursor for this tool, turn on [Caps Lock], which will turn the cursor into a crosshair. When you make the selection, you can either loop it all the way around, or let the boundary close itself by just releasing the mouse

cursor; it isn't usually advisable, but does save a little effort for the lazy ones.

To make straight-edged selections, you can use the Polygonal Lasso tool. While you click away at different points in your image, the Polygonal Lasso




The Selection on the top was drawn using the Freehand Lasso; the one below was drawn with the Polygonal Lasso

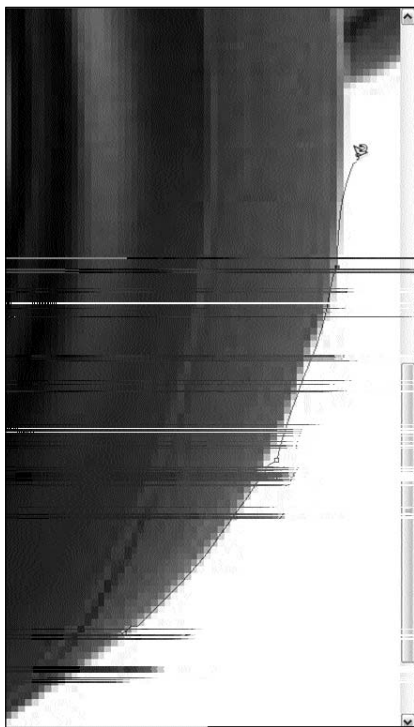
will create an irregular polygon that will then become the selection. If you want to delete a few line segments, use either the [Backspace] or [Delete] keys to delete the preceding line segments and start again. To close the selection's boundary, you can either bring the polygon back to the point where you started, or double-click where you want to stop—the selection boundary will close by joining the first point to the point where you double-clicked.

To make perfect-edged selections with the Polygonal Lasso, hold down [Shift]. The angles of the selection lines will now follow 45-degree increments.

3.2.2 The Magnetic Lasso

One of the most powerful selection tools is the Magnetic Lasso —especially if you want to extract parts of an image from a background. It's perfect if drawing freehand selections with the Lasso isn't your strength. It works by analysing the contrast at the meeting of two colours—if the difference is high enough, the selection boundary “sticks” to the edge between the colours. For example, if you had a dark coloured blob on a white background, the Magnetic Lasso is just the tool to extract the blob from its background.

To start your selection, you need to define an *Anchor Point*—this is where the selection will begin. You can now release the mouse button and move the mouse around the edges you want to select—watch as the selection automatically forms around the edges. As you move around making the selection, the Magnetic Lasso will add “fastening points” to the selection. As the name suggests, these are basically anchors that latch on to the strong edges in the image. If you find that a fastening point has been created in a wrong place, use the [Delete] or [Backspace] keys to remove the point. You can now add your own fastening point by clicking in the appropriate place.



The Magnetic Lasso sticks the selection to high-contrast edges

To end the selection, work your way to the starting point and click on it. Alternatively, you could double-click to draw a straight line that ends at the selection’s starting point.

3.2.3 Options for the Magnetic Lasso

The option bar contains all the settings you’ll need to make the Magnetic Lasso work better for you. The Width setting tells



The Option Bar for the Magnetic Lasso

it how far away from the mouse cursor it should look for an edge. For example, a setting of 10px will make the Magnetic Lasso look for edges that are in a range of 10 pixels around the mouse cursor, while a setting of 50 will make it look in a range of 50 pixels.

The Edge Contrast setting tells the lasso how much contrast there should be between two areas for it to define an edge. A lower setting will cause the selection to form even when the contrast on either side of the edge is low; a higher setting will be more sensitive to contrast and works well for well-defined edges.


The Frequency setting defines how frequently fastening points will be made—a higher setting will cause more points to be created, anchoring the selection quicker.

If you are working with a graphics tablet, the Stylus Pressure button enables the edge width to be adjusted according to the pen pressure that you apply.

3.3 Even More Selection Tools

As we've seen, Photoshop lets you draw your own selections, but there comes a time when you can't be expected to manually make your selections: what if you wanted to select all the blue areas of the image? Luckily, Photoshop's selection abilities don't end there.

3.3.1 The Magic Wand

The Magic Wand tool (Shortcut: [W])  lets you select areas that are of the same (or similar) colour—extremely useful when the lasso tools don't work.

When you click on an area of the image with the Magic Wand, areas of the image that are similar in colour to the area you clicked on become part of the selection. *How* similar is determined by the Tolerance value in the option bar at the top. A

higher tolerance is more lenient, letting you select a wider range of colour, while a lower tolerance is much more specific.

The Anti-Alias option, which is on by default, prevents jagged edges when you make alterations to a selection. When the Contiguous option is on, only connected areas are selected; if you turn it off, then *all* areas of the image with similar colours are selected.

The Sample All Layers option tells the wand to make the selection based on all layers of the image rather than just the active layer, which it uses by default.

3.3.2 Selecting Colour Ranges

Quite similar to the Magic Wand, but much more powerful is the Colour Ranges dialog, found in the Select Menu.

In the **Select > Colour Range** dialog box, you can use the given drop-down menu to choose how the selection is going to be made. By default, the option is Sample Colour. You can use the Eyedropper tool to choose which colour range to select. Drag the Fuzziness slider to the left or right to contract or expand the range of colours that will finally be selected.

You will see a black-and-white preview of your selection—the white parts indicate the selection, and the black parts indicate complete exclusion from the selection. Due to the fuzziness option, you will also see some grey regions—these are partially-selected regions, and any effect that you apply to them will only affect them partially, as opposed to the fully white regions.

You can even add or subtract colours from your current selection using the eyedropper marked with a Plus or Minus sign respectively.

Using the Select drop-down menu, you can also select reds, yellows, blues, and other colours from the image. In addition, you can even select highlights, shadows or midtones from the image.

3.3.3 The Quick Mask

Another way to make or edit selections is the Quick Mask Mode, accessed either from the bottom of the toolbox or by hitting [Q] on the keyboard. It lets you “paint” your selections using the paintbrush tool, and even lets you use a whole gamut of other tools to create the selection.

When you paint in the Quick Mask mode, your painting looks like red paint. However, when you exit the Quick Mask mode by hitting [Q] again, the area you painted now becomes a selection.

3.4 Tweaking Selections

All right, so we’ve seen the many ways in which we can make selections, but what do we *do* with them? There’s very little chance that your selection is going to be perfect as soon as you draw it, so you need to take the next step and make it just so.

3.4.1 Moving and Hiding Selections

Once you’ve made a selection, you can move it around by choosing any of the selection tools and moving the mouse cursor within the selection. The cursor will then turn into an arrow with a dotted rectangle. You can now simply click within the selection and drag it around the image. Beware, though; simply clicking and releasing the mouse button in the selection will cause it to de-select.

You can use the arrow keys to nudge the selection in smaller (one pixel at a time, to be precise) steps; hold down [Shift] to turn this into ten pixels at a time.

Sometimes, the dotted line (also referred to as running ants) of the selection boundary can be distracting; you can hide these lines using [Ctrl] + [H], which hides the boundary but keeps the selection intact.

3.4.2 Modifying the Shape of the Selections

Not only can you add and subtract from selections (as mentioned before), but you can also expand and contract them as you please. You can find these options under **Select > Modify**.

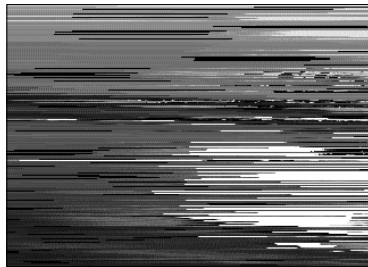
The **Border** option turns the selection into a border around the area you selected—all you need to do is specify the thickness of the border.

The **Smooth** option irons out sharp edges from the selection. The larger the value of **Sample Radius** you give it, the more smoothing it will apply to the selection.

The **Expand** and **Contract** options are quite self-explanatory—just enter the number of pixels and see the final results.

We saw earlier that you can feather selections through the option bar; you can also feather selections using **Select > Feather** and specifying the feather amount. Remember, feathering selections will cause some loss of detail in the selection boundary.

To alter the size of the selection, use the **Select > Transform Selection** option. This will give you a rectangular box around the selection, which you can use to scale, distort or skew the selection.



Copying and moving selections around—use [Ctrl] and [Alt] to copy (left) and just [Ctrl] to move

3.4.3 Manipulating selected data

Now that you've made your selection, it's time to put it to some good use. You can cut and move the area within the selection using the Move tool (shortcut: [V]) or by pressing [Ctrl] and clicking the selection to drag it around. If, however, you'd like to copy and move the selection around, hold down [Ctrl] and [Alt] before clicking within the selection.

You can create new layers (more on Layers later in this book) from existing selections in the Layers menu—go to **Layer > New > Layer via Cut** or **Layer via Copy** to either cut or copy the selection and bring it to a new layer.

3.5 Lots More About Selections

Believe it or not, Photoshop offers you even *more* ways to make selections than we've already discussed. You can instantly make selections that take the shape of layers and send the selection to other images as well!

3.5.1 Saving and Loading Selections

If you've made your selection, but don't want to use it immediately, you can save it for later using the **Select > Save Selection** option.

The Save Selection dialog box lets you write your selection to a new *Channel* (which we will talk about later). You can view this channel in the Channels palette. If you've already saved a selection, you can add more to the existing channels or making new channels for each new selection—this way, you have all the selection shapes you'll ever need right at your fingertips.



Saving the Selection in a new channel

You can now de-select the area, apply whatever modifications you want to the image, and using **Select > Load Selection**, bring back the original selection outline.

In the Load Selection dialog box, you can choose which channel to load the selection from.

You can also load layers as selections. Suppose you have a layer that's all text. It's an awfully tedious task to draw around this text to turn it into a selection. Instead, by holding down [Ctrl] and clicking on the layer's thumbnail in the Layers palette, you can instantly load a selection that is the same shape as the layer itself!



Loading the selection

3.6 Workshop: Working With The Extract Filter

We've discussed the usefulness of tools like the Magic Wand and Magnetic Lasso when we need to extract objects from backgrounds, but picture yourself trying to draw selections around hair or leaves—this horrifying scenario can be completely side-stepped thanks to the Extract Filter. You can access it from **Filter > Extract**.

In the CD, go to **Workshops\Chapter 3** and open **tree-winter.jpg**. We'll use the Extract filter to remove the tree from its surroundings.



The Extract Dialog



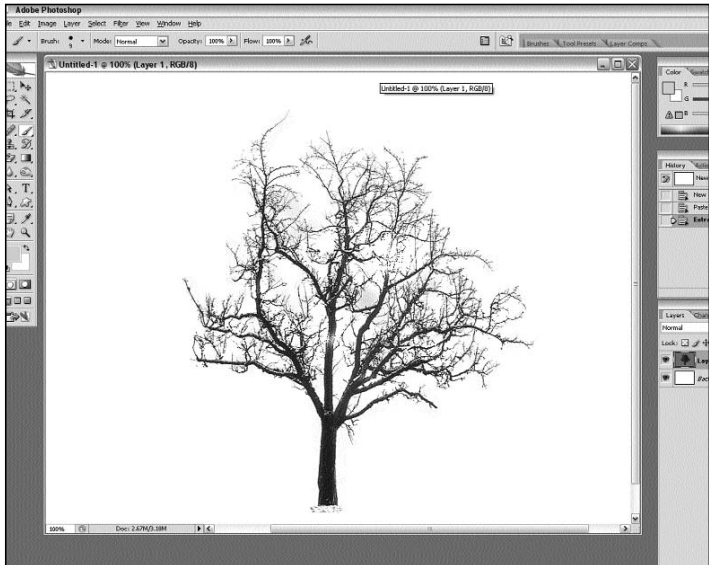
Completely paint over the thinner branches; only paint the edges of the trunk

When you are in the Extract dialog, use the Highlighter Tool to draw an outline around the area you want to extract. The outline need not be exact; the only requirement is that the highlight should cover some part of the foreground you want to extract as well as the background. In this case, we'll just highlight all those spindly branches, lending a somewhat *caulifloweresque* look to the highlighted area.

Finally, we'll draw an actual outline around the trunk of the tree, and use the Fill tool to fill in this little gap. By using the Fill tool, we've just told Photoshop what to consider as the foreground we want to extract.

Click on the Preview button to see what the final extraction will look like—you will notice that the tree is almost perfectly removed from its background! When you click OK, you'll be presented with the extracted image.

Remember, extracting deletes the background completely, so if



The Tree is Freed!

you want to retain it for later use, you should use the Extract filter on a duplicated layer.

If the image you are using has a strongly-textured background or foreground, you should enable the Textured Image checkbox and adjust the Smoothing to get the extraction right—keep using the Preview button to check what the result will look like.

If your image is especially intricate or made up of different shades of the same colour, check the Force Foreground option to set which area will be extracted. Use the eyedropper tool to select which colour will be treated as the foreground and then proceed to highlight the area you want to extract.

The Layer Funda



Layers in Photoshop help by keeping separate the many different elements that go into making a composite image, so you can easily edit different elements and hide them when they're not in use.

The layers concept and the control you get from using them is one of the best features of Photoshop. The most common use for layers is when you want to add text to an image, and want to give the text some character by colouring it or adding some effects to it. If you didn't have layers, you would have to decide and finalise on the placement of your text in the image and then set all your effects; with layers, you can make changes to only the text layer and later move it about as you please.

Let's take a look at layers in the Photoshop interface to better understand how to use them.



Here's a simple smoking chimney



Another image of a guy pointing at a hill

Here's another of a skydiver coming down to earth



Here's an anti-smoking and anti-extreme sports ad campaign—all ready in under five minutes

4.1 Layers

Using layers, you can combine multiple images, or cut out parts of images and place them in different layers. Let's take an example:

Now what we do is use the Lasso tool to cut out the parts we need, place them all on different layers in a new document, and voila!

Here, we used five layers: the background (chimney), a cut-out of the guy who's pointing, another of the parachuting skydiver, the text layer (of course), and a little more complex cut-out of the part of the skydiver that's entered the smoke. We got that effect by reducing the opacity of the fifth layer that contains the complex cut-out of the skydiver!

This may seem hard, but after you're done with this book you'll understand how easy what we just did is. Making a composite image using layers, as in this case, should take you no more than a few minutes—it took us just four minutes to make this image!

4.2 Adding And Deleting Layers

The most basic steps to working with layers are adding and deleting them. Very often, when you use the text tool, for instance, you inadvertently click on the canvas, and a new layer is formed. Now, if you don't delete these layers, you're going to end up with a *lot* of useless layers bloating the size of your image. To delete a layer, just right-click on its name and select Delete Layer. Alternatively, you can also just left-click on it and then left-click on the little trash can icon in the bottom right of the Layers palette.

When it comes to adding a layer, there are many ways to go about it. Let's say you want to add a layer for text. All you need to do is select the text tool by pressing [T] or by clicking on the "T" in the toolbar and then clicking on the canvas. A new layer is formed.

Similarly, if you've copied an image or part of an image onto the clipboard, all you have to do is press [Ctrl] + [V] to paste the contents of the clipboard into your canvas, which is automatically added to a new layer *above* the currently selected layer.

Another way of adding a layer, especially when you want the contents of an existing layer to be copied, is to right-click on a layer and choose the Duplicate Layer option. This will create an identical new layer just above the one you selected.

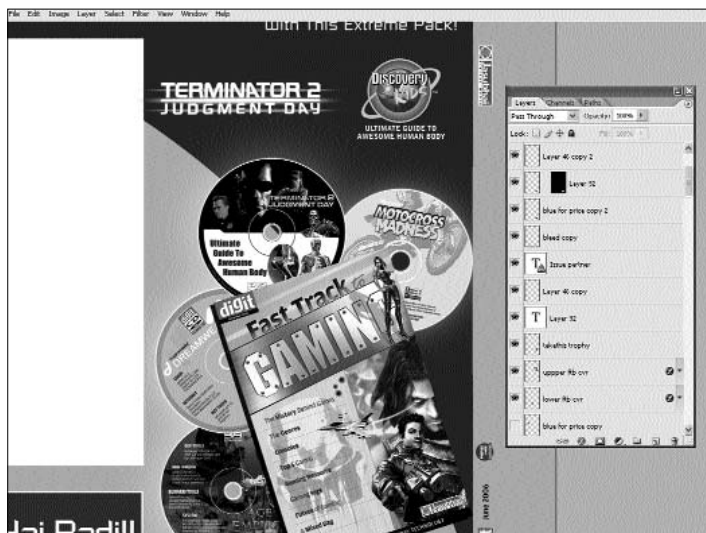
The standard way of going about creating new layers, however, is via the menu bar by going to **Layer > New > Layer**, or by pressing [Ctrl] + [Shift] + [N]. The only thing you need to get used to, however, is to select the correct layer before trying to edit or move content around. Very often, beginners find themselves trying to move or edit an element in the image and can't seem to be able to, while everything else seems to be moving about: this is a sure sign that you've not selected the correct layer!

4.3 Naming And Arrangement

Now that you know how to add and delete layers, your next step is to properly name and arrange them. This is very important, because as you get more used to Photoshop, and begin to actually get your hands dirty, you will find yourself working with over 20 or 30 layers. Now finding the particular layer that holds the element you want to edit can be a pain in the <insert body-part of choice here>!

The good thing with text layers is that they are automatically named as the text that's in them, so you don't have to worry too much about them—unless you have a lot of layers with the same text in them, which is rather unlikely!

What's hard to distinguish is images, or parts of images, especially images that are tiny compared to the entire canvas size. By default,



Lots of layers, lots of madness

Photoshop shows the entire canvas in the thumbnail view. In order to view only the contents of the layer, right-click on any layer's thumbnail and select the Clip Thumbnails to Layer Bounds option. This will show you only the layer contents, instead of the whole canvas. You can also change the thumbnail size using the same method and choosing between Small, Medium and Large Thumbnails.

The real problems arise when you have similar-looking images, placed about your canvas in different positions. This is the tricky bit, and you should name your layers according to what your image contains and where it's placed. For example, in an image with, say, a lot of apples, you can name the apple on the top left "Apple Top Left", or something else descriptive. Remember, there's no correct naming convention, because each image is different, as are the people editing them, so what's descriptive to you might make no sense to anyone else. But that's OK, because all that matters is that you know at a glance which layer is which element!

Another important thing to remember is that you should place

layers as you would place images drawn on butter paper! The one on top is the one that's always visible, and each layer below will appear behind the one on top. So make sure your background is always the layer that's at the bottom, and then pile on the layers from there. You can change the order in which the layers are placed simply by holding down the left mouse button on a layer and dragging it up or down, depending on how you want to place it. Alternatively, you can just use the following keyboard shortcuts:

Action	Shortcut
Bring Forward (move layer up)	[Ctrl] + “[”
Bring To Front (move layer on top)	[Ctrl] + [Shift] + “[”
Send Backward (move layer down)	[Ctrl] + “]”
Send To Back (move layer to bottom)	[Ctrl] + [Shift] + “]”

Here “[” is the square bracket open key, and “]” is the square bracket close key.

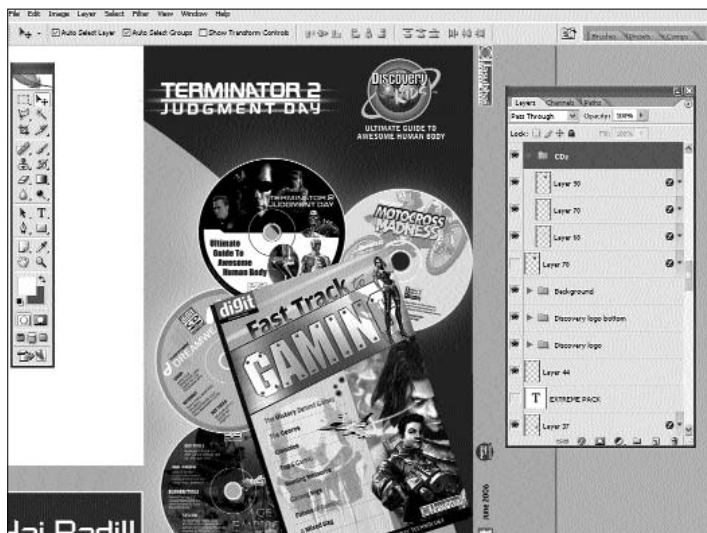
Layer Blending Modes

At the top-left corner of the Layers palette, you can choose a *Layer Blending Mode*, which determines how the layer will interact with the ones below it. You can create some really cool effects with these, as well as use them for more “proper” purposes like photo retouching. By default, the layer blending mode is Normal, which means that the layer won't interact with any of the others.

Of course, in images that have, say, 40 or more layers, all the naming conventions in the world will not help! That's where layer groups come in...

4.4 Grouping Layers

Many complex Photoshop works of art have more layers than Bill Gates has \$100 bills! Yes, we're not kidding, some PSDs that our designers right here at *Digit* work with have hundreds of layers. If it weren't for Photoshop's layer feature called Groups, all designers would be bald from tearing their own hair out! Actually, most are already getting there, but that's a story for another time!



Ah, Groups—finally, some sanity!

The Group option under the Layer menu is your saviour! Kneel and worship it for a few minutes if you have to, and then head on to **Layer > New > Group**. You will have to name the group, just as you do when you create a new layer, and then you will see a layer added to the Layer palette. Instead of a blank thumbnail, this new layer will have a folder icon with an arrow—this denotes a group of layers.

If you create a new layer while this layer group is selected, the new layer will be added under the group. You can also add layers to this group just by dragging them on to the group.

What you need to remember is to group your layers smartly, with, say, all text layers under a group called “text,” all images of apples under a group called “apples,” and so on. If you follow this practice, it will save you heaps of time later on when your image editing skills improve and you start working on complex images.

In Windows Explorer, you have little “[+]” marks next to folders that have more folders inside them, which upon clicking become “[-]” signs, and drop down all the folders contained inside the first folder. Well, Photoshop replaces the little [+] and [-] signs with an arrow that points to the right (for the [+] sign) and an arrow that points down (for the [-] sign), when working with layer groups. In order to show or hide (depending on the current state) all layers contained within a layer group, click on this arrow!

4.5 Basic Effects

You can use some basic effects in Photoshop just by using the Layer palette. Things such as opacity, which control how transparent your layer is, can give you some neat-looking overlays when working with multiple layers. The very first example in this chapter—remember? The one with the skydiver flying into the chimney—that had a little opacity setting that we tweaked. Take a look at the screenshots to better understand how we made the skydiver appear like he was flying *through* the smoke coming from the chimney—which, incidentally, was in the background layer!



Take One Chimney

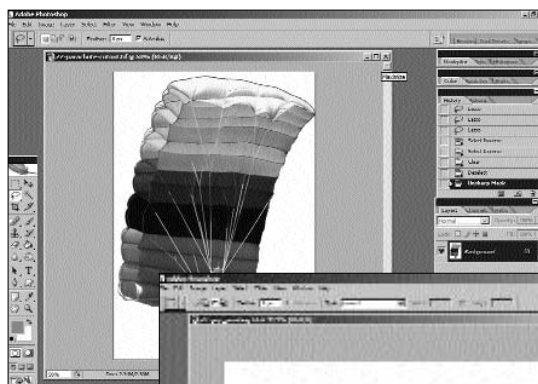


And a dash of skydiver

**The
Recipe:**

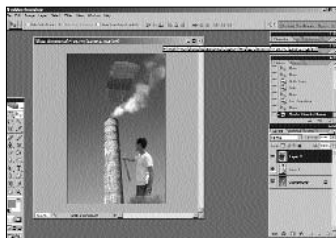


A generous helping of some guy pointing at something



Cut them
all up fine





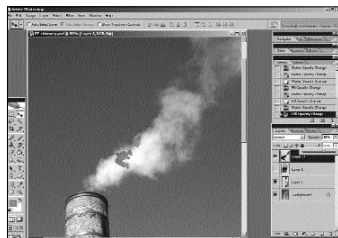
Stir them all together and place skydiver in smoke



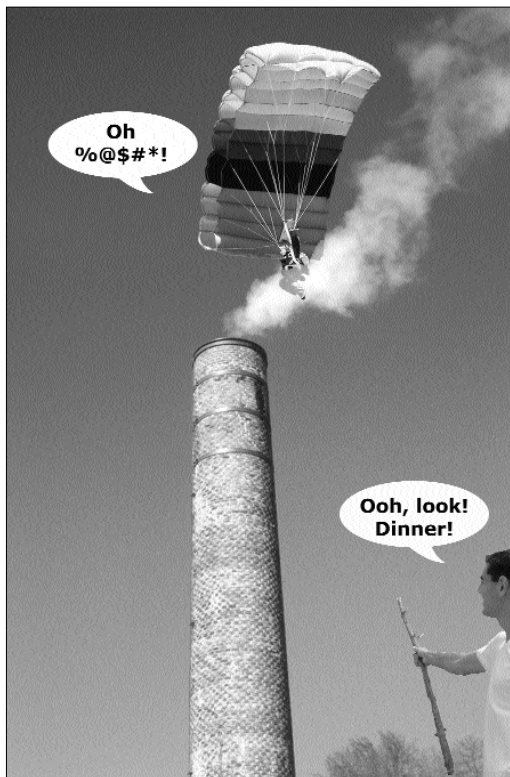
Cut up part of skydiver in smoke



Leave the rest of the skydiver as is, on simmer for a few minutes



Reduce opacity of skydiver's smoky half according to taste



Add text as garnishing, and you have a delicious image that your friends will be lapping up and praising. Time taken? Five minutes! Thank you Photoshop, because of you I now have friends!

Well, fun stuff aside, you will also be able to get a lot of serious work done once you've mastered the whole layers thing in Photoshop. Apart from just Opacity and Fill, there are loads of things you can do with layers, all of which will be covered in the chapters that follow.

Advanced Effects



Now that you've learnt the basics, and know your way around Photoshop, it's time to get a little deeper under the surface and take a look at some of the cool effects and filters that Photoshop has on offer

5.1 Layer Styles

A layer style, or more appropriately, a layer effect, is an effect applied in Photoshop to an entire layer—everything in that one layer. You can apply one or more various effects directly to a layer, such as giving it a drop shadow, embossing it, or even overlaying a layer with a colour or pattern to give it the depth that's required in order to make an image look realistic.

In order to get to the Layer Styles menu and select an effect, just right-click on the layer you want to change, and select Blending Options. You should now see the Layer Styles dialog box. From here you can use the various preset effects we will explain below.

5.1.1 Shadows

Drop Shadow

Mostly used with text, and when working with cut-outs, a drop shadow is meant to do away with the whole *Photoshopped* look of elements in your picture. Yes there's even a term called "Photoshopped," that's used by many design artists to describe when an image or element of an image does not look natural!

Tip

You can also use drop shadows if you want a certain coloured text to be easily visible on a background that does not offer very good contrast!

Basically, you can add a shadow to the contents of a layer, so as to add depth and also to match lighting sources of all elements in an image. The simplest example is text: we often want to give text a 3D look, and that's where drop shadows are important. In the images alongside, you will see that the first image has just plain text, while the second has the same text with a Drop Shadow effect applied to it. The difference is that the second is noticeably better!

In order to apply a drop shadow, just check the option in the Layer Style dialog box we told you about, play with the different settings and then click OK. Remember, trust only your eyes,

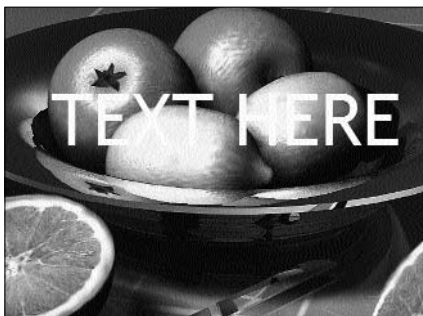
because what you see is what others will as well—so make sure to keep the little Preview checkbox ticked, so you can see what’s happening in your actual image *before* you click OK!

However, what do you do if you’re working with a dark background?

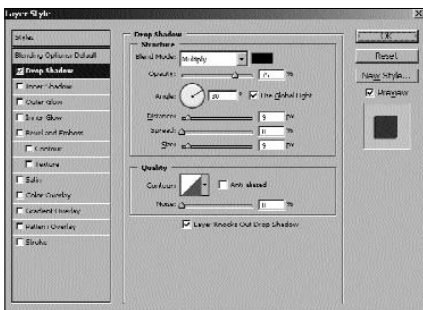
Inner Shadow

When working with dark backgrounds, it’s obviously not going to be possible to give a layer an outer (drop) shadow, simply because it will not be seen. In such cases you should use the Inner Shadow option. This creates the shadow inside the selected layer, and thus gives it the effect of being cut into the background instead of being placed upon it, as with the Drop Shadow effect.

With both shadow effects, you can select various parameters of the effect, such as the opacity of the layer, its shadow, the height / depth of the layer casting the shadow, etc. As we mentioned earlier,



As you can see here, the text was being hidden by a non-contrasting background. Not anymore!



The Inner Shadow is used for dark backgrounds where the Drop Shadow effect would not be visible

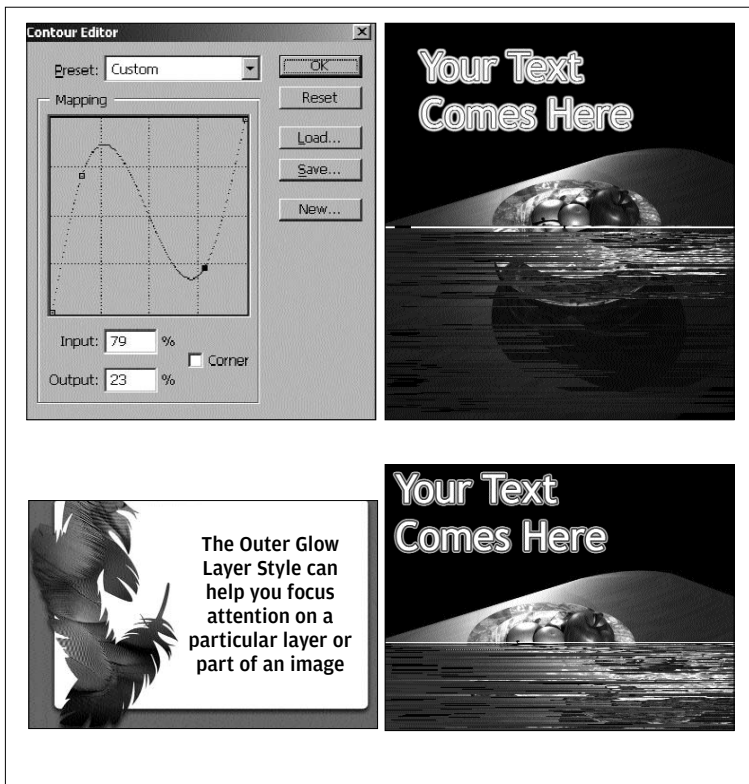
don't be afraid to play with all the settings, but use the Preview option and rely only on your eyes to get a satisfactory result.

5.1.2 Glows

Outer Glow

This effect produces a glow outside the edges of the selected layer. Sort of like a halo effect, this is very useful to highlight an element (a particular layer) of an image.

In the Layer Style box, check the Outer Glow option and then tweak the settings around till you get the desired effect. You can

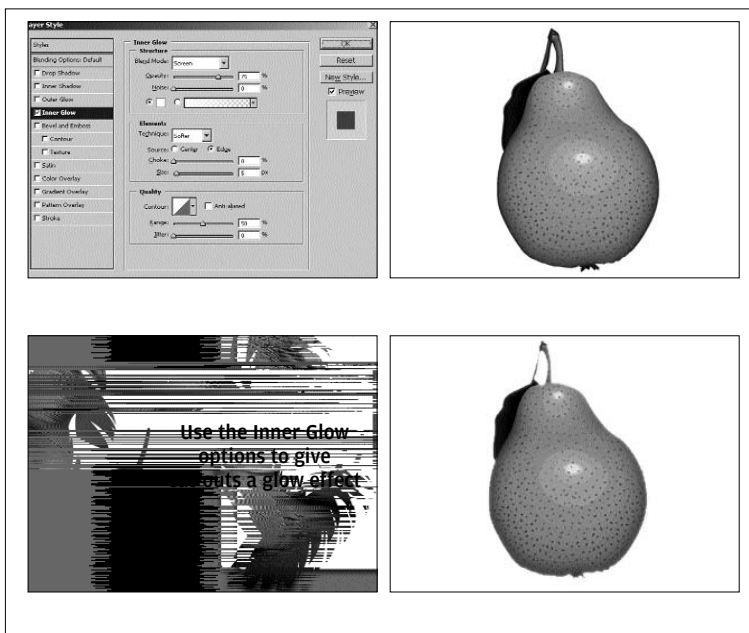


get various results just by tweaking the Contour settings—you can make a layer look like a neon sign, or end up with something like the image below.

Inner Glow

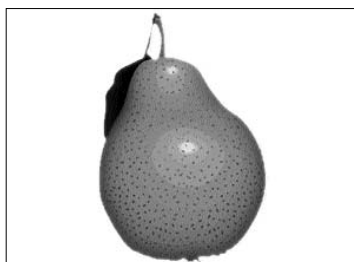
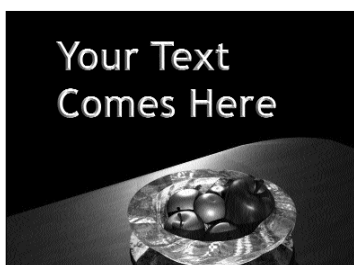
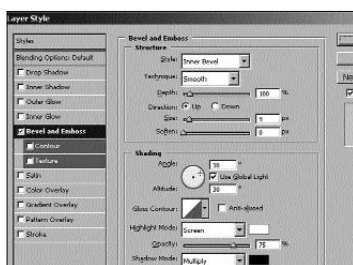
If your layer is on top of a light background, an outer glow will not be of much use. Also, if you're using a cut-out of an image, and are not sure whether you want to place it on a dark or light background, that's where the inner glow comes in.

Choose between the Center and the Edge options for the source of the glow, then set the Contour and click OK.



5.1.3 Bevel and Emboss

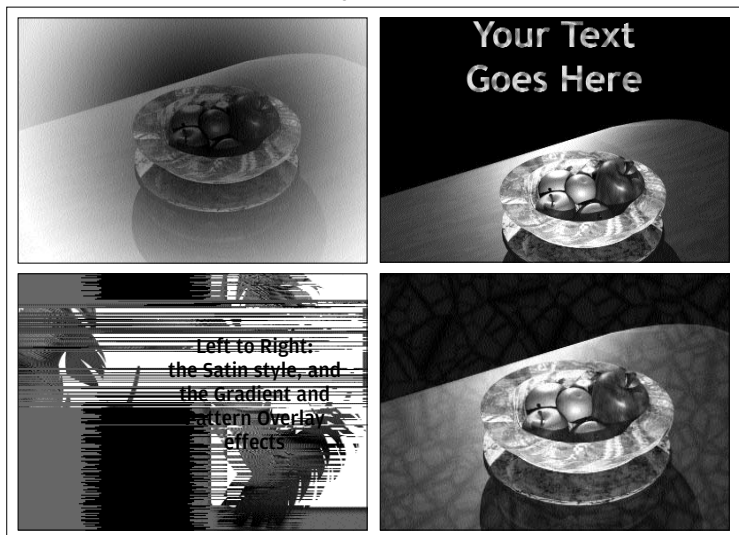
A very popular style is the Bevel and Emboss effect, especially for text. This gives the layer the effect of being a 3D object placed on top of the background layer. When used on text, you can make the text look like it's been chiselled from a solid block. You can control the height of the Bevel or Emboss and also the lighting and shadows. You can play around with the various options and settings to achieve the desired effect.



5.1.4 Satin, Overlays and Stroke

Satin

The Satin layer style applies an inner shadow that gives the layer a look of satin cloth. You can use this to make the surface of a shape or text look smooth and wavy.



Overlays

A colour overlay is used to give a layer a tint of a particular colour. Unfortunately, this book being black and white, we cannot show you too much in terms of images for this, but just go ahead and use it, and you'll quickly understand it. Make sure to use the Opacity setting carefully and preview the image when using this layer style.

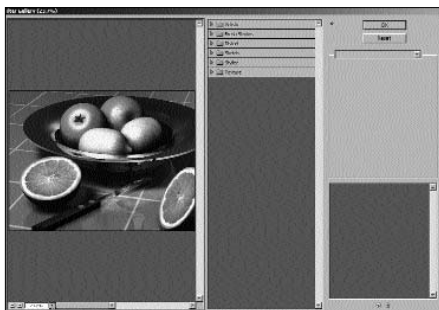
A Gradient Overlay can be used to bring about some really cool effects. This effect will allow you to apply a colour overlay that changes the tint of the layer gradually from one colour to another.

A Pattern Overlay will allow you to give a texture to the layer you're editing. You can use it, as we have, to apply a cool shadow effect to a picture. You can also give text or images some character and depth by using the pattern overlay.

5.2 Filters

Filters are slightly more advanced effects in Photoshop that are used to do everything from sharpening images to making images or selections look like stained glass windows! Unlike layer effects, which are applied to entire layers, filters can be

applied to an entire image or even just a selection in a layer. However, in order to apply filters to text, Photoshop will rasterise the typed words into an image—you need to remember this because once rasterised, the text will not be editable!



Use the Filter Gallery to preview Filter effects

Here we'll list out all the filters and a general description of what they do. In order to get a better understanding of the nuances of each filter effect, it's best to use each one on a wide variety of images.

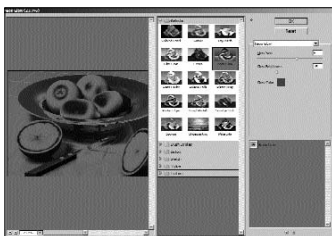
All the filters are stored under the Filter menu, and are conveniently arranged according to a few categories. Instead of listing out each and every filter, we'll look at the broader categories and show you a few cool effects in each one.

5.2.1 The Filter Gallery

The Filter Gallery lets you preview the following effects on your image or selection. We suggest you use the Filter Gallery on various images to better understand how each filter works. The gallery is also a little heavy on resources, so if you have really large, high-resolution images, and an older computer (under 2 GHz, less than 1 GB of RAM), be prepared for a little wait while each filter is previewed in Photoshop CS2!



Colored Pencil converts your image into something that looks like it's been drawn by colouring pencils



The neon glow will give your image a psychedelic effect



The Palette Knife makes an image that looks like it was drawn using a blunt instrument—less details of the image and more of the canvas



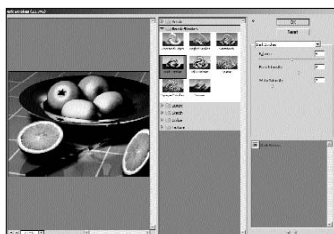
The Plastic Wrap filter makes the subject in your image look like it's wrapped in cling film—details on the surface are more visible



The Watercolor filter converts your image into something that's been drawn using water-based paint and a medium-thickness brush

Artistic

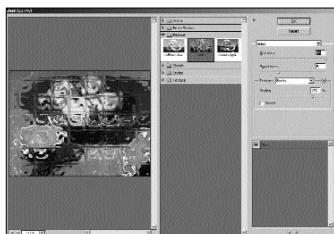
The artistic filters consist of effects that render your image or selection into something that looks hand painted or drawn. With effects such as “Coloured Pencil”, “Paint Daubs” and “Watercolor”, these effects can add some really cool effects into your imaging.



The Dark Strokes filter converts your image into a painting that has been drawn with short, tight, dark strokes for dark areas, and long, white strokes for lighter areas.



The Spatter effect makes it look like the image has been spray-painted onto a canvas



The Glass filter offers you the really cool option of making your image look like it is being viewed from behind a block of glass—with options to change the type of glass



The Ocean Ripple effect makes your image look like it's being viewed as a reflection on choppy waters, or an image that's underwater

Brush Strokes

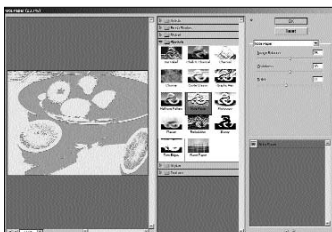
The next set of filters are the Brush Stroke filters, which, as the name suggests, are filters that convert your images into what



The Chalk and Charcoal effect is self-explanatory



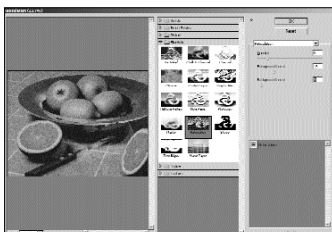
The chrome effect gives your image a cool metallic look



Caption: The Note Paper filter can make some cool backgrounds for personalised snail mail



The Photocopy filter will let you see what your image would look like if you photocopied it



Reticulation will give you a really nice grainy look

seems to be a painting. Here are a few of the Brush Stroke filters:

Distort

The Distort filters, as the name suggests, geometrically distort an image to give it a 3D or liquidised effect.

Sketch

The Sketch Filter effects are all black-and-white effects that convert your image into something that looks like a pencil sketch.

Stylize

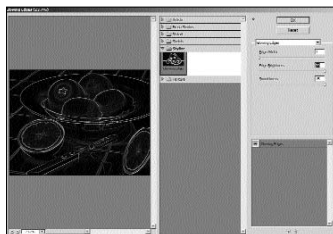
Here you have only one good psychedelic effect—Glowing Edges! This effect puts a neon-like glow on every edge that's visible in your image to give it a weird neon-painted look.

Texture

The Texture Filter set has six filters that include Craquelure, Mosaic Tiles and Stained Glass. These filters are pretty self-explanatory, and you can see the results of applying the filters below:

This covers a few of the effects that are available to you through the Filter Gallery. However, under the filter menu, you will find more filter effects, such as Blur, Noise, Render, etc.

Let's take a look at some more Filters:



The chrome effect gives your image a cool metallic look



Mosaic Tiles show you what it would look like if your image were painted onto tiles and put on a wall or the floor



The Stained Glass look converts an image into small cells that take on the predominant foreground colour of the image behind it

5.2.2 Other Effects

Blur

The Blur filter is generally used to smoothen out and image that is very noisy. Here you have various options, such as “Average,” which finds the average colour of a selected area and fills the area with it. The Gaussian Blur works at a pixel level, depending on the radius of the blur you select.

The Motion Blur is also another important filter you might find use for. This filter can be used to create the illusion of great speed, even in a photo that has nothing in motion!

Noise

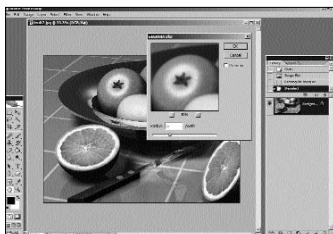
Sometimes images can look a little too crisp to be real. In such cases, you can always add a little noise using the **Filter > Noise** effect.

Sharpen

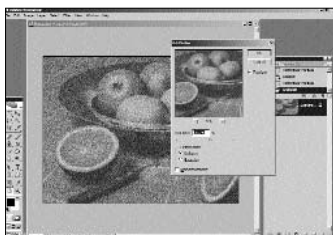
The opposite of Blur, the Sharpen effects make an image crisper, and add a little noise to make the image seem more sharply in focus.

5.2.3 Liquefy

This effect gets a special mention of its own because of how cool an effect it is. Liquefy basically turns your image into silly putty, and lets you mould it and change it as you see fit. This effect is particularly useful for those who like to make cartoonish-looking people by morphing photographs.



This Blur effect works at the pixel level to bring smoothness and remove noise



Here's an example of how you can get an image to display something like your old TV that receives images via a broken cable



You can even improve the quality of out-of-focus images with smart use of the Sharpen filter



You can make your friends a lot funnier-looking using the Liquefy filter

5.3 Painting

Imaging began with painters who captured living beauty on canvasses! Even today, nothing beats the skill of a brush, and Photoshop provides you with all the brushes you'll ever need to create your own masterpieces. The painting tools in Photoshop change the pixels of an image that you're painting on to.

5.3.1 Brushes

The Brushes palette in Photoshop allows you to select from preset brushes or design your own custom brushes. Just as you would when actually painting, the brush you choose determines the characteristics of the resulting stroke.

When in Photoshop, select the Brush Tool by pressing [B], and then press [F5] to bring up the Brushes palette. Here you will see all the different brushes available to you, and all the settings associated with them. We'll just walk you through each setting for the Brush tool so that you know what settings to choose for what purpose.

Shape Dynamics

The first option you will see in the Brush palette is the Shape Dynamics preset.

The Size Jitter setting defines the randomness of the stroke. So a setting of 0 per cent will make a stroke that's perfectly symmetrical and solid, and at 100 per cent, you will get strokes with the largest amount of randomness. In order to make your painting more realistic, you will definitely need to use a decent amount of Size Jitter.

Pen Pressure defines how hard you want the brush to press down on the canvas. The Angle Jitter settings defines how you would change a brush angle about when actually painting. The Roundness Jitter defines how smooth the tip of the brush or pen is. The minimum roundness will let you control the minimum solid thickness of the stroke. Thankfully, there's a good preview of the resulting stroke, so you know exactly what you're getting when you change a setting—even before you actually start using the brush.

Hereafter, remember that all Jitter settings define the randomness of the stroke, and a zero jitter setting will produce a very smooth and unrealistic stroke!

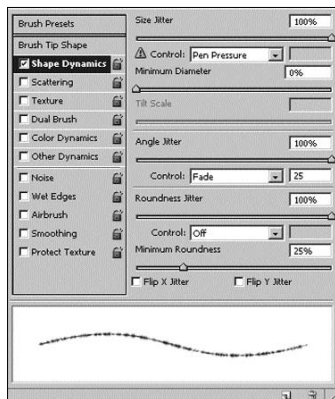
Using Brush Shortcuts

Result

Delete brush
Rename brush



Here's an example of how you can get an image to display something like your old TV that receives images via a broken cable



The Shape Dynamics settings for the brush

Shortcut

[Alt] + click brush
Double-click brush

Decrease/increase brush size	“[“ or “]”
Decrease/increase brush softness/hardness by 25%	[Shift] + (]) or ([)
Select previous/next brush size	[.] or [.]
Select first/last brush	[Shift] + [.] or [.]
Display precise crosshair for brushes	[Caps Lock]
Toggle airbrush option	[Shift] + [Alt] + [P]

Scattering

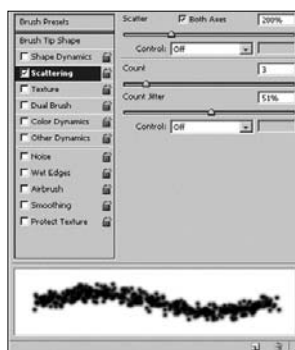
This brush setting will determine the way the stroke will scatter about both the X and Y axes. This will give a realistic splatter and scatter to your stroke, just as a real brush would.

Texture

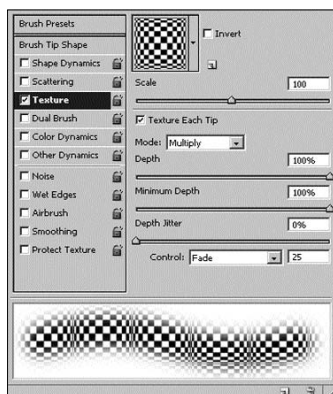
This, quite simply, makes each brush stroke paint a texture, instead of just colour. Use the settings shown to tweak the size and intensity of the texture being painted. If you have the patience, you can create your own oil canvas textures in different colours, so that when you paint you can use these textures to get a perfect canvas feel to your image. Apart from this, you can also give some depth to your painting, especially if you are skilful at using layers and transparencies!

Dual Brush

The Dual Brush setting uses two different brush tips simultaneously to paint your strokes, so as to give the effect of touching up a



Use the Scattering option to make your brush strokes scatter more like a real paintbrush

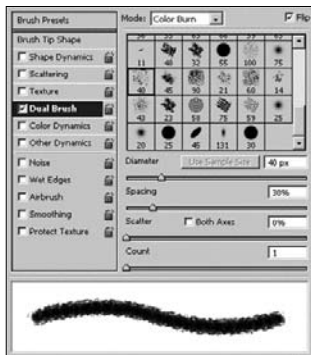


Use the Texture option to paint textures instead of colours

stroke with another using a different brush. This setting gives you some realistic-looking strokes, with just the right amount of cracks and gaps in each stroke, just as you would get when using thick paint on a canvas. The wide variety of brushes that can be used in the Dual Brush mode also means that there are literally hundreds of different combinations you can try so as to get a completely unique-looking brush stroke. With thousands of different brushes available for free download, made by Photoshop and art enthusiasts, the possible combinations available for use increases in orders of magnitude!

Note: You will first need to select the primary brush shape from the Brush Tip Shape option right at the top of the Brush Palette first, then select the shape of the second brush you want to combine into your stroke.

The Color Dynamics and Other Dynamics settings change the way the brightness of colours, flow and opacity of a stroke are handled. Use them to better understand what they do. Below these settings, you will find these options: Noise, Wet Edges, Airbrush, Smoothing, and Protect Texture. These are better understood by using them, and are quite easy to understand using the preview window. For example, Noise simply adds a lot of distortion to your stroke, and the Airbrush adds the strokes lightly, making you go over and over a few times before you get the same stroke that you would with the normal brush—perhaps a little like how artists sketch, by making light, repeated strokes. The Airbrush is great for sketches! If you use the Smoothing option, the strokes will have smoother curves, so that you don't end up with jagged edges in case you slip up with the mouse or stylus!



Use the Dual Brush to get some really unique stroke effect combinations

More Brushes

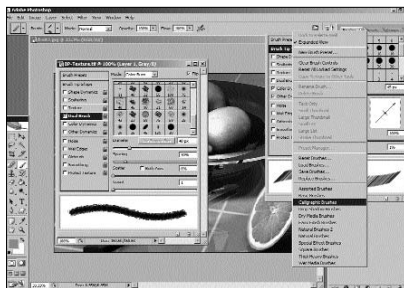
You've probably used all the settings and familiarised yourself with the different brush options you have at hand. However, if you still cannot find that brush stroke you wanted, it's probably because you haven't reached the best part yet: all these settings change the stroke of every individual brush tip, and what you see in your Brush Tip Shape options are just *the default set of brushes!* Here's the good news: you can now select from a whole range of brush sets, including Calligraphic, Drop Shadow, Dry Media, Faux Finish, Natural, Special Effect, Square, Thick and Wet brushes! Of course, you can also go online and download some of the freely available custom-made brushes that enthusiasts have made—we found over a thousand brush sets available for download, though most people are happy with what Adobe provides.

5.3.2 The History and Art History brushes

These brushes are very useful when you're editing images. One is a very useful tool to help you correct mistakes, while the other helps you obtain a very nice painting effect.

History Brush

The history brush, along with the History Panel, help you step backwards when editing or creating an image. The History Panel, as previously explained, will help you step back incrementally in time, retracing every step and effect you applied. This means that if you used a normal brush to



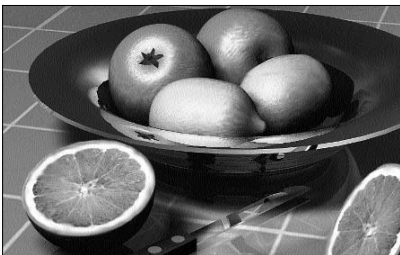
How many different types of brushes do you think you'd need? Photoshop added a few hundred more...

paint over the existing image, and step back in time using the History Panel, you undo all the changes you made in your last action. In contrast, the History Brush tool helps you undo only a portion of an image or a stroke that you made. What it does is

revert the areas you stroke with the History Brush to the last saved image state. If you're someone who saves often (which you should do), and also make many changes in a single step—like painting over half the image in a single step—the History Brush will help you revert small parts of an image to the last saved state.

Let's explain this in more detail by using images (as we should):

Step 1: The original image.



Here you see a fruit bowl with a knife

Step 2: Let's say we added the Glowing Edges filter.



We forgot we didn't want to apply the filter to the knife.

Step 3: Now we want to remove this filter only from the knife in this picture, but not from the fruit.



Using the History Tool, we were able to restore just the knife to its original splendour.

It's as simple as that! Just run the History Brush over the desired area to get the last saved image back!

Art History Brush

The Art History Brush tool paints stylised strokes, using a specified history state or snapshot. By experimenting with different paint styles, sizes, and tolerance options, you can simulate the texture of painting with different colours and styles.



Here's the same image used above after using the Art History Tool

Like the History Brush tool, the Art History Brush tool uses a specific history state as the source data. The Art History Brush tool uses that data along with the options you set to create different colours and artistic styles.

Repairing / Retouching Images



Despite its power as an image creation software, the most common use for Photoshop is simple retouching or repairing of images. Most of us just fire up Photoshop when we want to make an existing image look better. You could use simpler software such as IrfanView to do the same, but Photoshop usually does a better job of it



Let's take a look at how most of you will be using Photoshop. In order to show you how to retouch or repair images, we need some images. Shown alongside are the images we will use throughout this chapter to illustrate each tool and method of retouching your images.



6.1 The Clone Stamp Tool

The first tool you should know about when you're thinking of repairing images is the Clone Stamp tool, an enduring Photoshop classic. The Clone Stamp tool works by taking a sample of an image, which you can then use to paint over a different portion of the same image, or even a different image. You can clone portions of one layer to another by painting the layer on using brush strokes, or even clone a portion of one layer within the same layer!

The tool works by using the sampling point you select, and then painting exactly what is at the sampling point to another layer, image or area of your choice. The stamping area (the area that gets painted) moves in tandem with the brush, so you know exactly what part of an image you currently are stamping.

Select the Clone Stamp tool, keep [Alt] pressed, and then left-click on an area you want to sample. Now, let go of [Alt] and then just begin painting. This tool is a godsend for those of us who have wrinkles or no hair. You can use the Clone Stamp to hide your wrinkles or bald spots—digitally, though. This still beats all the fitness diets, wrinkle creams and advice from elders!

Let's look at the image of the old lady. As you can see, she's got a lot of wrinkles, which she may or may not be happy about, but we're going to "soften" them anyway—and try and make her look a few years younger, using just the Clone Stamp tool. You can create a new layer by right-clicking on the background layer and selecting Duplicate Layer. Now work on the new layer you've created. It takes a little patience and deft mouse work, but you can achieve decent results. You might have to use the History palette quite often, especially when you accidentally sample the wrong area with the Clone Stamp, and end up with a big unsightly pink or black patch in the middle of the face.

The trick is to sample the smoother skin that's close to the wrinkles, and then paint it over the wrinkles. The reason why you choose skin close to the wrinkles is because you need the same, or at least similar, lighting and skin tone to make it look credible.

Now, we're using the layer on top of the actual background because the Clone Stamp tool flattens the image, and is not particularly good when it comes to skin—it's better used on areas of solid colours. So once you're done stamping out the wrinkles, you might feel that the image looks too plastic and flat, and that all the details of the face have been wiped clean. This is where the original image in the background layer comes in. Play with the Opacity and Fill values of the top layer to let some of the details of the background layer come through. This will give you the missing details, and also show lighter wrinkles instead of the "no wrinkle look" (which looks plastic) on the face.



Before: The original image



Stamped: The Clone Stamped layer, which looks too plastic



The final result, after Clone Stamping and setting the Opacity of the upper layers

Take a look at the Before, Stamped, and After images below to better understand what we're talking about:

6.2 The Pattern Stamp Tool

The Pattern Stamp tool offers some really cool effects, provided you have the right sense of style and know exactly what you want. What this tool does, basically, is use a brush to paint a pattern onto your image. Because you can create your own patterns in Photoshop, this tool becomes even more powerful for those very special effects you might want to create.

Using our previous subject, let's say we didn't want to remove wrinkles from the old lady's face, but wanted to add freckles. *Lots of freckles!*



Here's the old lady again

The first step is to create a new duplicate layer of the background, and then choose a suitable pattern from the presets provided. Now use a decent-sized brush tip, and paint over every part

of the old lady's skin. The pattern looks really funny, but don't worry—that will soon be fixed. You should take care not to paint a pattern over anything that shouldn't have freckles, such as the eyes, the lips and the nostrils. Once you've finished painting the pattern over the entire face you will end up with something that looks like the image alongside.

Now, this is where you have to rely on your eyes, and judge what you want your final image to look like. Adjust the Opacity and Fill of the layer you just pattern-stamped, and you should end up with something like the image alongside. You can also choose to just add freckles to the cheeks and nose, or whatever you want to do. You can also create your own freckle pattern, or even make some really cool metallic-looking patterns to get the whole android look!

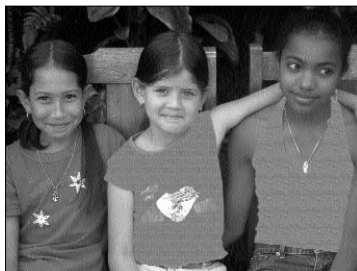
Another thing you can do is change the texture of clothes. In this second example, we have taken an image of three little girls. We decided that the two on the right needed some texture in their shirts. The first thing we did, as usual, was to create a duplicate layer of the background. Then, using two different patterns, we covered their shirts. Then, again, using the Opacity and the Fill settings, we blended the two layers to form the final image. It's not a professional job, because we didn't sit down and make special cloth patterns—but you could always do that yourself. We were content with using two of Photoshop's default patterns for the job.



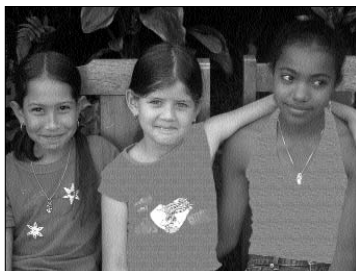
We know, this looks ridiculous right now, but it gets better, we promise!



Now here's an old lady who has a *lot* of freckles!

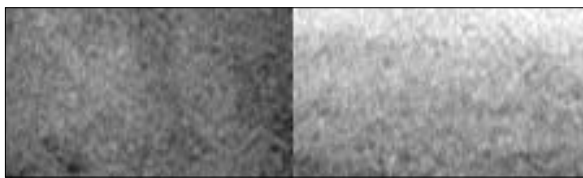


Top Left:
The original image
of the kids



Top Right:
We pattern-
stamped them...

...and *voilà*, they're now wearing the same design of shirts, but of a different material (also a slightly different colour, but if you make your own pattern, you could avoid changing the colour as well)



Here are some more images to show you the pattern changes of all the images we used, in close-up



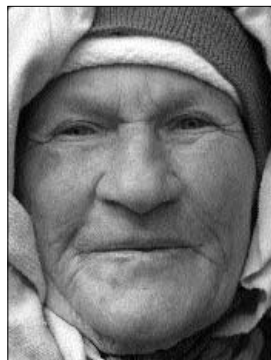
6.3 More Retouching Tools

Now come the big daddies of image repair tools! Photoshop CS2 has a lot of tools specifically meant to repair photographs and retouch imperfections. Let's start with the Healing Brush Tool.

The Healing Brush corrects imperfections, making them disappear into the surrounding image. Like the cloning tools, the Healing Brush tool paints with pixels sampled from an image or pattern, but the difference is that the Healing Brush matches the texture, lighting, transparency, and shading of the sampled pixels to the pixels being healed. Therefore, the repaired pixels seem to blend seamlessly into the rest of the image.

We've already shown you how to remove wrinkles using the Clone Stamp tool. Now it's time to do it in a better way—by using the Healing Brush tool. Ideally, you would use both the Clone Stamp and the Healing Brush to remove wrinkles—or imperfections in general.

What we've done is use the *Spot Healing tool* as well as the Healing tool to completely remove all traces of wrinkles on the old lady's face. The Spot Healing tool works just like the Healing tool, except that the pixels are sampled automatically, instead of you having to hold down [Alt], select an area to copy from and then proceed to use the Healing tool. Unfortunately, the Spot Healing tool is no good at the edges of the old woman's face, because it keeps selecting the woman's scarf instead of



Here's our favourite old lady back again



Here's what resulted from the Spot Healing and Healing tools

only the skin. So we healed most of the face using the Spot Healing tool, and did our touch-ups using the Healing tool. We also used the Clone Stamp tool in very few areas, because we wanted to flatten the skin texture, and also because both the Healing and Spot Healing tools were not giving us the desired results.

Once we were done, we set the Opacity and the Fill to 85 per cent each so as to get some of the original texture and lines back from the background image, and then flattened the image. You can see the results below:

We now come to the Patch tool, which is very useful for some specific purposes. A lot of us have digital cameras, and we've all started clicking a lot of photographs. In fact, with the coming of megapixel camera phones, there's millions of budding photographers out there. However, the one thing most of us forget to do is to turn off the date stamp in the photographs. As a result, we get this irritating little orange-coloured date and time stamp at the bottom right of the image. In order to remove this, you can use the Clone Stamp tool or even just cut a patch and paste it over the date, but the easiest way to do this is by using the Patch tool.

You can just select a patch, then drag it and drop it on the area you want to hide. Instead of just pasting the patch, like a copy-



Here's the final result when we brought back some of the textures and lines from the original image by decreasing the Opacity and Fill



Here's the final result from using only the Clone Stamp tool, so that you can compare the beauty of using only the Clone Stamp tool as compared to using all the retouching tools in unison

paste of the selected area would do, the Patch tool handles the patch like a healing tool, and matches the colours, luminosity, texture and shading to make the patch blend into the rest of the image. You could also use the patch tool to heal a complete image, but the Healing tool is much more handy for that purpose.

Finally, we come to what is perhaps the tool you will be using the most. The Red Eye Tool is for the most common error in the images we click. Because not all of us are professional photographers, we very often use the wrong flash settings, or end up using the flash on our camera phones, which causes red eye. In order to remove red eye errors, just select the Red Eye Tool, and click on the eyes of the subject. Voila—red eye gone! Yes, it really is that simple!



Here's a poor poochie that looks like the devil because of the evil red eye



A click on each eye later, here's good old poochie captured just as he was meant to be

Vectors, Text, And Shapes



You've probably seen Flash presentations on the Web that adamantly refuse to distort no matter how much you zoom into them. This magical effect happens thanks to a brilliant concept called *Vector Graphics*. In this chapter, we'll learn more about these and how to work with them in Photoshop.

7.1 How Vector Graphics Work

The images you encounter nearly everywhere are called *Raster* images, or simply rasters. In plain words, raster images are a large collection of pixels—to draw the raster, you need to provide information about each of the pixels. Vector images (or “vectors” for convenience), on the other hand, use primitive shapes such as lines, curves and polygons rather than pixels.

Vector images are a smarter way of storing graphics information—let’s see how. To draw a red circle in the raster format, an image editing program will plot pixels on to the image one pixel at a time—something like “One red pixel here, one red pixel there,” and so on. Drawing the same circle as a vector image makes a lot more sense—it draws it the way you would draw it on paper, using the following information:

- Where the centre of the circle is located
- The radius of the circle
- The colour of the circle

Armed with this information and a few mathematical calculations, the image editing program can calculate the size of the image in pixels—because ultimately, everything that is displayed on your screen is going to be translated into pixels.

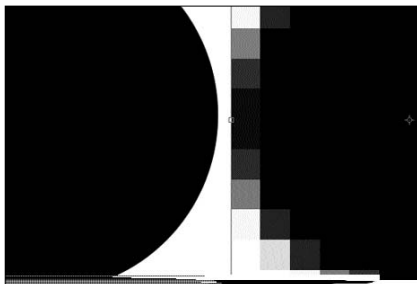
Obviously, this is a lot less information to store. Suppose you want the circle bigger. For the raster, you will need to add more and more pixels, each of which comes with a baggage of three bytes (one each for the Red, Green and Blue levels) to add to the file size. On the other hand, to change the size of the vector graphic, you’re just going to change the value of the radius—something that is going to make a marginal, if any, difference to the file size.

Resizing Vectors and Rasters

Let’s say that we saved the aforementioned circle image as a 640 x 480 bitmap file and now wanted to change its size to 1024 x 768.

The image only contains the information for $640 \times 480 = 307,200$ pixels, but we want to turn it into an image that contains $1024 \times 768 = 786,432$ pixels! Where are we going to get the information for all those extra pixels? The image editing program will now try to

“guess” these pixels based on the information it already has, and this is when things are apt to go horribly wrong. The image is going to pixelate, and the circle’s edges are going to end up jagged.



The Circle on the left is a vector; the one on the right is raster

In a vector graphic, as we discussed earlier, the final size of the circle is calculated on-the-fly, so no matter how much you resize a vector graphic, it’s going to have perfect, well-defined edges.

Vectors in Photoshop

In all fairness, Photoshop is hardly a program you would associate with vector graphics—for that, there are programs like Adobe Illustrator and CorelDRAW, both dedicated to the cause of vector art. However, Photoshop is quite capable in this department as well—it not only lets you easily create vector graphics, but also uses the principles of vectors to take its own raster editing capabilities one step ahead. There are three aspects of Photoshop that use vector graphics:

- Paths—the most direct way of creating and manipulating vectors in Photoshop. Paths are curves that are defined by key points, called *control points*, which can be manipulated at any time to change the shape of the curve.
- Type—starting with version 5.0, Photoshop treats text as a vector graphic, allowing you to resize and manipulate it for as long as you want before converting it into a raster.
- Shapes—to save the time it would take you to draw them using paths, Photoshop lets you draw basic shapes like rectangles, ellipses and polygons as vector images.

7.2 Show me the Path

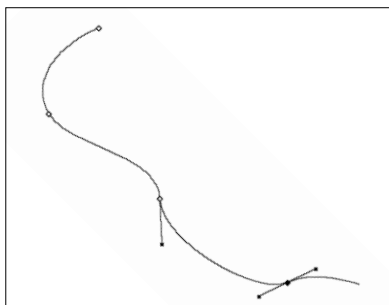
Many Photoshop users shy away from paths, mainly because the way they are drawn greatly differs from our “traditional” idea of drawing things. Once you get used to it, though, paths are really easy, and you can use them for a variety of different purposes.

What you can do with paths:

- Fill them with colour to create vector graphics
- Convert them to selections when the standard selection tools fail to accurately select the area you want.
- Use them as vector masks to hide areas of a layer (more on vector masks in the next chapter)

What’s The Point?

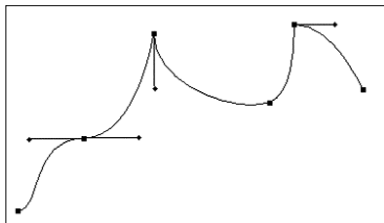
Paths are primarily segments of lines and curves which terminate at points called *Anchor Point*. Each anchor point then has two *Direction Lines*—one which shows the direction of the segment entering the point, and one for the segment leaving it.



A typical path with Anchor Points and Direction Lines

There are two types of anchor points:

- *Smooth Points*, which connect smooth curves. Direction lines on smooth points always move together to keep this smoothness intact.
- *Corner Points*, which, as the name suggests, con-





Smooth Points and Corner Points

next segments at a sharp corner.

The more anchor points a path has, the more control you are going to have over its shape, but too much of a good thing can be bad—many unnecessary anchor points are going to make the path difficult to edit.

Enough talk; let's begin creating our paths.

The Pen Tool

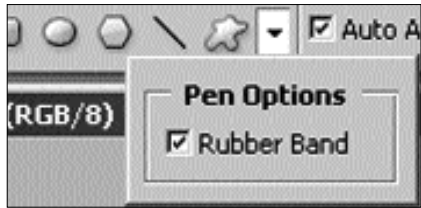
You can draw paths one anchor point at a time using the Pen tool , or use the Freeform Pen tool  to draw the path freehand.

When you select either of these tools, use the option bar to select whether you want to create a shape layer (a new layer will be created and the path will fill with colour as you draw it) or create an empty path.



The Path Options

If you'd like to see a preview of the path as you draw it, click on the inverted arrow on the option bar and select Rubber Band. We recommend using this option, especially if you're new to vectors and paths.



Turn on the Rubber Band to see the path as it is being made

Drawing The Path

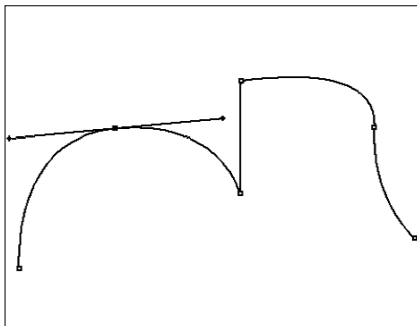
To draw a path with the Pen tool, click to create an anchor point, and drag the mouse to set the direction for the path. To create a closed path (one without a beginning or an end), work your way back to the first anchor point; you will notice a small "O" appear next to the cursor—this means that the path will be closed when you click.

By default, all anchor points are smooth points. However, with a few handy keyboard shortcuts, you can customise your path as you draw it:

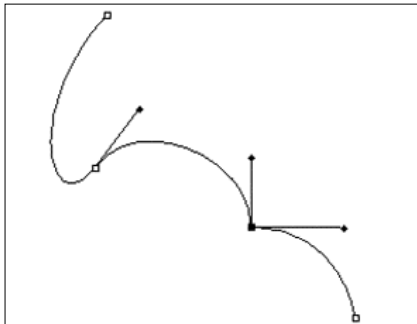
- To create a corner point, hold down the [Alt] key, then click and drag to create the corner point.
- The direction lines for smooth points are always in the same line. To create a corner with different direction lines for the incoming and outgoing curves, Click, Drag and hold down [Alt] before you release the mouse button. You can now change the direction line of the curve leaving the anchor point. It's a little tricky, so it will take a couple of trials before you get it right.

You can edit your path while you are drawing it as well:

- To add an anchor point on a segment that you've already drawn, just move the mouse cursor over the path. A small "+" sign will appear next to the cursor, meaning that you can add an anchor point there.
- To delete an anchor point, click on it (a small "-" sign will appear next to the cursor before you do this)
- To delete your last anchor point, hit [Delete] or [Backspace]. This might cause the path to get confirmed—the next time you click, a new path



Hold down [Alt] to create corner points



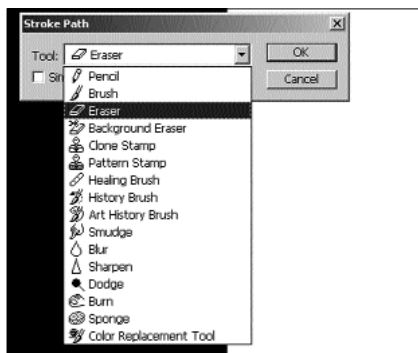
Fiddling with direction lines

will begin. To resume drawing the path, click on the last anchor point you created (a small “/” will appear next to the cursor before you do this)

- To convert a smooth point to a corner point, hold down [Alt] and click on it
- To convert a corner point to a smooth point, hold down [Alt], click on it and drag the mouse to set the direction lines
- To move anchor points or adjust the direction lines, hold down [Ctrl] and click on the point. To prevent both direction lines from moving together, hold down [Ctrl] and [Alt] and then move the direction line.

Using the Path

Once you’ve created your path, the Paths palette lets you choose what you want to do with the path. You will find it in next to the Layers palette at the bottom-right of your screen. If you don’t see this on your workspace, select **Window > Paths**.





The Stroke Path options

Click on the arrow at the top-right corner to bring up the Paths palette menu. From here, you can choose to save the path, delete it, fill it with colour, or *stroke* it.


Stroking a path means that the tool you select from the Stroke Path dialog will be used along the path. For example, if you draw a path in the shape of an “S”, stroking it with a paintbrush means that the Brush tool will be used to draw the same “S” shape.

You can also use paths for greater control over selections. If you’ve drawn a selection using any of the standard selection tools, editing its shape can be quite troublesome. Instead, you can use the pen tool to draw a path around the area you want to select, tweak it as much as you like, and finally use the Convert Path to


Selection button  at the bottom of the Paths palette to turn it into a selection.

Alternatively, you could first make the selection, convert it to a path by using the Convert Selection to Path button , tweak it using the path tools, and then convert it back to a selection.

7.3 The Written Word

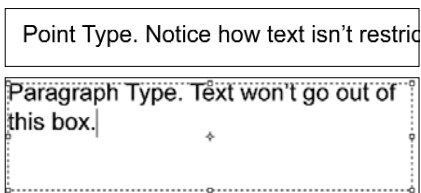
To add text to images, we use the Type Tool (T) . In Photoshop, text (or type, as it is commonly called) is also rendered as a vector graphic—its size is calculated on the fly, so no matter how much you resize your image, type will always have crisp, perfect edges.

The first steps

Creating type is as easy as clicking anywhere on the image with the type tool. You will be presented with a cursor, and all you need to do now is type away as you would in any word processor. Use the option bar to select the font and font size for the type. When you're done typing, click on the Accept button  on the option bar or hit the [Enter] key on the numeric keypad to finalise the text. To edit this text, just bring up the type tool again and click on the text.

There are three ways that you can create type:

- Create Point type by clicking anywhere on the image. All your text will sit in one line till you decide to hit [Enter]
- Create Paragraph type by clicking and dragging the mouse to draw a box to which your text will be confined. This is recommended if you have more than three words of text, or if you need to work within a limited space (you can switch between Point Type and Paragraph Type in the layers menu—Layer > Type > Convert to Point (or





Paragraph) Text, or by choosing the Type tool and right-clicking on the text).



- Create type on a path. When you bring the type tool over a path you've drawn, the cursor changes, meaning that you can now create type that will always follow that path. Moreover, you can still edit the path *and* the type whenever you like.

When you create type, Photoshop creates a new layer on your image—this lets you alter the type as much as you want without ever disturbing the rest of the image. Moreover, unless you explicitly rasterize the type layer, you can edit your text no matter how many effects you've applied to it.

What you can do with a type layer without having to rasterize it:

- Transform it using the Transform Tool ([Ctrl] + [T]) (Except Perspective and Distort)
- Apply layer styles (you've read about these in Chapter 5)
- Warp the text using the Create Warped Text button on the option bar 
- Switch between horizontal and vertical text using the Change Text Direction button 


You will only need to rasterize type if you want to apply filters to it or paint on it.

Turn to Chapter 12 to check out a few cool effects that you can create with type.



Open the Character Palette from the option bar to edit the properties of your type


7.4 Shapes

Try drawing a perfect circle using the Pen tool. Exasperating, isn't it? This was a painful flaw in Photoshop before version 5.5. Thankfully, now you can create simple vector shapes like circles, rectangles and polygons using the Shape Tool (U) .

When you select the Shape tool, you can choose to create Shape Layers, paths or raster shapes from the option bar. Your best bet is the Shape Layer—it creates a new layer filled with the foreground colour, and a path that you can edit later on as well.



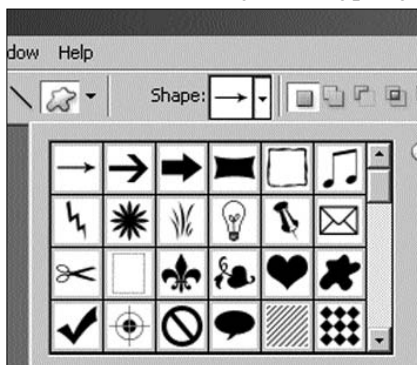
A New Shape Layer is created for each shape

You can also combine shapes in the same shape layer by choosing the Add to Path Area button  in the option bar.

Drawing shapes on your image is just like drawing a selection with the marquee tool—even the keyboard shortcuts that we mentioned in Chapter 3 apply here.

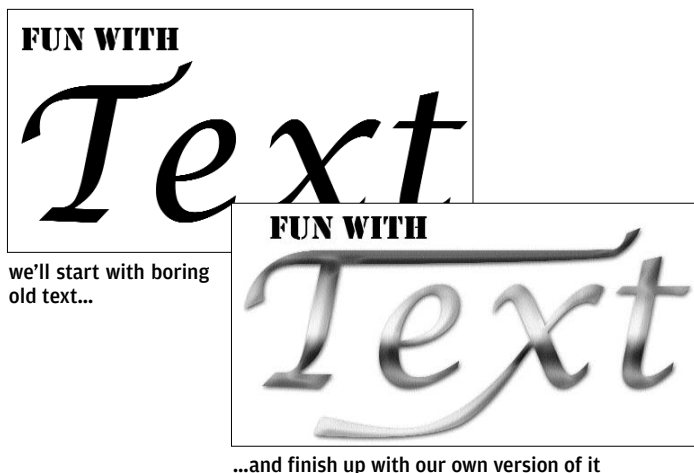
Just like type layers, you can transform and add layer styles to shape layers without having to rasterize them. And just like type layers, you will have to rasterize them to paint or apply filters to them.

To change the colour of the Shape layer, double-click on its thumbnail in the Layers Palette—the colour picker will come up, and you can choose the colour you want.



Select Custom Shape from the option bar to choose from a variety of cool shapes

7.5 Workshop: Customising Type



Why should we limit ourselves to the plain old fonts that are installed on our machines? Using the Path tools we just learnt about, you can teach an old font some new tricks!

Start with a new document (we chose 640x480), and start creating a new type layer.

Stage I: The Text

We decided to use a nice curvy font for this one—for one thing, we won't have to take the pain of converting corner points into smooth points when we convert this text into a path.

We chose Lucida Calligraphy, and manually entered a size of 200pt. If you don't have this font installed on your system, Lucida Handwriting should work well too—it doesn't really matter as long as you have pretty curves that will have lots of anchor points and are easier to edit.

Once you're satisfied with the text, accept it by hitting the [Enter] key on the numeric keypad.

Now, right-click on the type layer and select Convert to Shape.

Stage II: Editing The Shape

The first thing we are going to do is temporarily reduce the fill of the new shape layer. This will let us concentrate on the outline path without the layer's colour distracting us.

Select the Pen tool ([P]) to begin editing the shape. Hold down [Ctrl] and click to select the first "T". With [Ctrl] still held down, click and drag around the top four points to select them, and drag them towards the right. You can let go of the [Ctrl] key now.

Repeat the above procedure for the "x". The effect isn't as good as the one we saw with the T—we need to smooth out that ugly straight line.

Use the pen tool to add anchor points to both sides of the "x"—a small "+" sign will appear next to the cursor when you move it over that part of the path. Hold down [Ctrl] to move the anchor point and edit the direction lines.

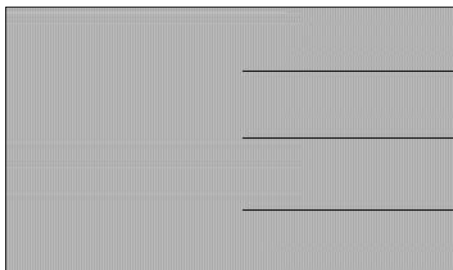


Reducing the Fill

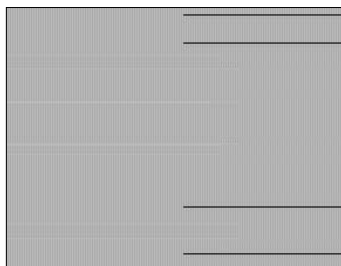


Stretching the T

Finally, select a style of your choice from the Styles palette (**Window > Styles** if you don't see it at the top-right of the workspace), and you're done!



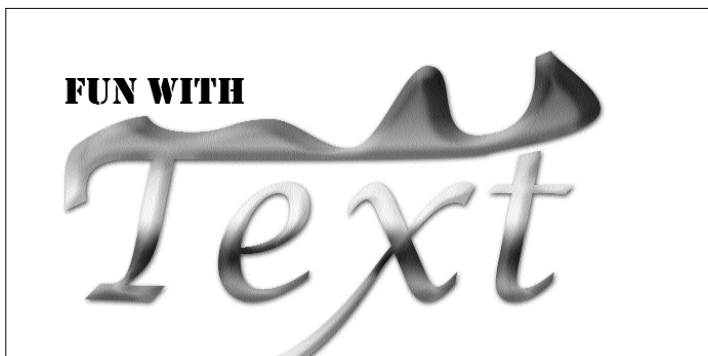
X—the first stretch



Create the first Anchor Point...



...and then the second



Experiment with the Pen tool a little more to come up with your own zany text effects

Donning The Mask



Just as we use masks in real life to hide, show or protect parts of our faces, so must we use them in Photoshop to give our images the same privileges. Much like selections, masks define which parts of the image will be affected by our tinkering and which parts won't. They also determine which parts of a layer will be shown and which remain hidden.

8.1 Masks And Alpha Channels

We already know that images are made up of three channels—Red, Green and Blue. But every once in a while, you will hear the words “Alpha” or “Alpha Channel” used in the context of digital imagery.

What are Alpha channels?

All channels are greyscale images that basically represent the intensity of that particular colour. For example, white areas in a Red Channel mean that those areas have full (100 per cent) red intensity. Similarly, black areas mean that those areas have no red in them.

The Alpha channel, too, behaves this way, only instead of colour, it represents *transparency*, or rather, the presence of the image itself. So black areas in an alpha channel mean that the image is fully transparent (or not there) in those areas, while the image will show through the white areas. When you create a mask for a layer, you’re actually creating an Alpha channel for it.

Why Masks?

A good deal of what can be accomplished by using masks is also possible with a few well-made selections here and there, so why use them?

Well, for one thing, masks are treated just the same as any other layer—any effect you can apply to a layer can also be applied to the mask, giving you the ability to create some incredible effects that would take days to accomplish with just selections. Moreover, masks allow for completely non-destructive editing—that is, you




The black part in the layer mask lets the underlying image show through

don't need to make *any* alterations to the layer you're working on, and getting back to where you started is as simple as shutting off or deleting the mask.

8.2 Getting Started With Masks

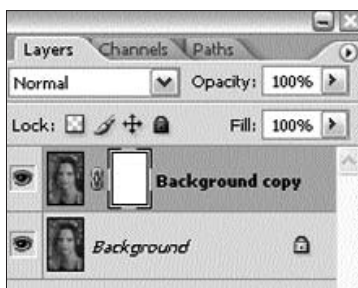
Now that we've got an idea of what masks are, it's time to see how we can create and edit them.

Creating a mask

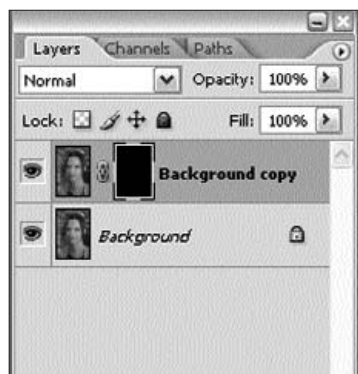
To create a mask for a layer, click on the Create Layer Mask button () at the bottom of the Layers Palette. By default, Photoshop creates a "Reveal All" mask, which is filled with white. The name is quite suggestive—the Reveal All mask lets the layer appear as is, and it is only after you paint on black areas in the mask that the underlying layer shows through.

To create the exact opposite, use the "Hide All" mask, holding down [Alt] before clicking on the Create Layer Mask button. You will now see a mask that is filled with black instead of white.

Alternatively, you could go to Layer > Add Layer Mask > Reveal All or Hide All to create a new layer mask.



The Reveal All mask is filled with White



The Hide All mask is filled with Black

Switching between an active mask and an active layer

As soon as you create your mask, it is made *active*—you can now paint on it and apply filters to it. You will notice that the colours in the toolbox have changed to black and white, and the thumbnail for the default colours now show white as the foreground with black as the background. In the Layers palette, the thumbnail for the mask has a thicker border than the main layer.

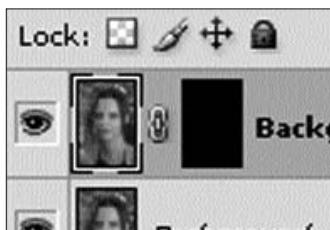


Signs that the Mask is active



Signs that the Layer is active

If you'd like to edit the layer and not its mask, click on its thumbnail. Now, the layer's thumbnail will have the thicker border, the colours in the toolbox will revert to whatever they were before you started with the mask, and the default colours will once again be black foreground and white background.



The chain-link icon in the middle tells us that the Layer and Mask are linked

Linking and unlinking masks

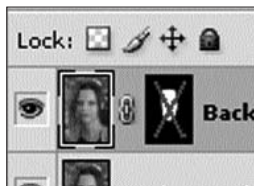
By default, layers and their masks are linked to each other—if you use the move tool to move a mask, the layer moves with it and vice-versa. The chain-link icon between the two thumbnails indicates this linkage.

If you'd like to move or transform the layer and mask independently of each other, you can unlink them by clicking on the chain-link icon.

Temporarily disabling the mask

If you want to see what an image looks like without the mask, hold down [Shift] and click on the mask's thumbnail. A red "X"

will appear on the mask's thumbnail and the effect of the mask will now vanish from the layer. To get it back, [Shift] + left-click the thumbnail once again.



The “X” means that the mask is disabled

The layer mask in the main document window

We've discussed how layer masks create new Alpha channels for the image—you can see this new channel in the Channels palette. By default, the channel's visibility is turned off (there is no “eye” icon next to the thumbnail). However, it sometimes becomes a little annoying to have to edit masks and judge the outcome based on the corresponding layer.

To see the mask itself in the document window, turn on the visibility of the channel in the Channels palette. The mask will now appear in the main document window as a 50% transparent red layer. You can change this appearance if you want by right-clicking on the mask's thumbnail and selecting Layer Mask Options.



Turn on the mask's channel visibility to see it in the document

Gradient masks

Like we said before, the great thing about masks is that they can be treated like normal layers, and this means that we can even apply gradients to them. When you apply a gradient to a mask, you end up with a very interesting fade-out effect for the layer—the white part is completely opaque, the black part is completely transparent, and the intermediate areas fade according to the intensity of white or black.



A Gradient mask

Creating a gradient mask is as simple as using the gradient tool—just configure it as you would do so for any other purpose, and instead of filling the layer with the gradient, just fill the mask.

Clipping masks

You will often encounter this term—a clipping mask is when you use one layer as a mask for another. Clipping masks don't pay attention to greyscale—the image is either there or not.

When you create a clipping mask for a layer, the layer below it becomes the mask. Where the lower layer has image data (this could be a brush stroke, a shape, anything), the layer shows through, otherwise it doesn't.

To create a clipping mask, go to Layer > Create Clipping Mask or hold down [Alt] and click on the dividing line between the two layers. You will notice that the cursor shape changes before you click the divider.

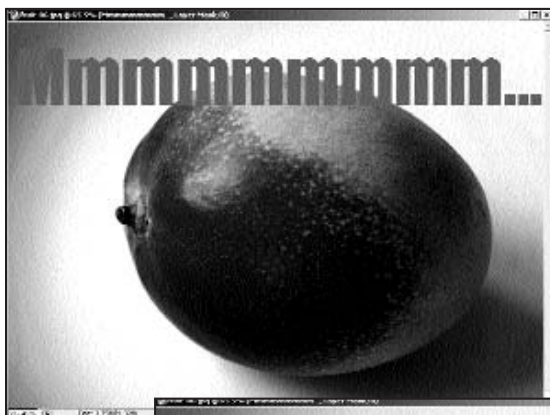
Unlike layer masks, clipping masks aren't linked to the layer they are masking—you will have to do this yourself if you intend for the two layers to move together.

All this talk about masks isn't going to get us anywhere till we sit down and do something with them, so here are a couple of workshops to get you going.

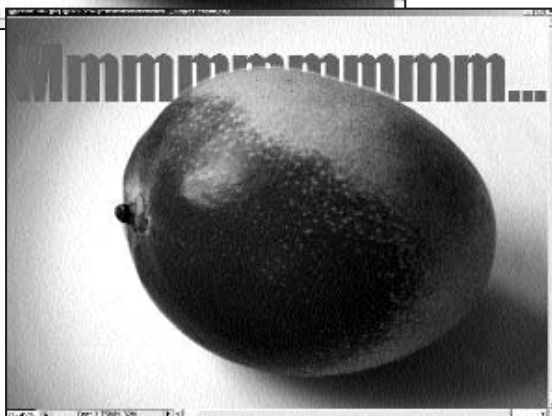


The brighter picture on top shows through only inside the shape below it

8.3 Workshop: Putting Text Behind An Object

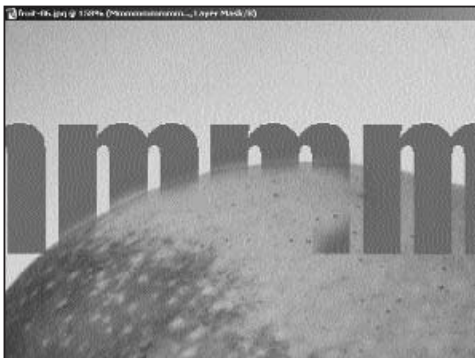


With a few brushstrokes, we will bring the fruit back where it should be—the foreground



We're going to start our journey with masks with a simple tutorial—making it look like text is behind an object, when it really isn't. We will start with *fruit-06.jpg*, located in the *Workshops\Chapter 5* directory on the CD. It looks quite basic, but using masks in this situation gives us some very significant advantages. First, of course, is the fact that neither the original background layer nor the type layer will be affected in any serious way. If you were to try this effect without using masks (it's quite easy to do so, too) you would have

to rasterise the text layer, making the text un-editable (more on text and rasterisation later). So if you wanted to change the text, you'd have to erase the unwanted part all over again. With the masks method, you can continue to edit the text and it will still look like it's behind the fruit. Try it!




Use a soft-edged brush to get a smoother effect

Step I: The text

Use the Type tool ([T]) **T** to start typing your text. Use a strong font (we used Impact) and a large font size (we used 40 pt). Once you've typed what you wanted, click on the tick-mark on the option bar at the top to confirm the type layer. Create a new reveal-all mask for this layer by clicking on the Create Layer Mask button in the Layers palette.

Step II: The mask

Click on the mask's thumbnail to make sure it's selected. Choose the Brush tool [B]  to start painting on the mask. Right-click on the image to bring up the brush selector and scroll down to choose a brush with a slightly soft edge.

Choose black as the foreground colour, zoom into the image where the text overlaps the fruit, and start painting along the edge of the fruit. You will see the text slowly vanish. Continue this way till no text overlaps the edge of the fruit. *Voila!*

Simple, isn't it?

8.4 Workshop: Cutouts and the Vector Mask


If your aim is mainly to cut objects out of their background, you can also use the Vector Mask. It works much in the same way as the Layer Mask, only instead of drawing or painting onto the mask, we will use the Pen tool to draw a *vector*, which can be resized and reshaped as and when we feel like it. (More information on vectors and the Pen tool later).

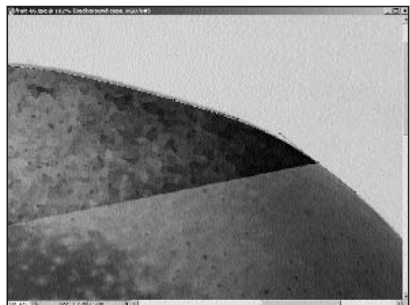
Step I: Beginning

We'll use the same fruit image as we did for the previous workshop. Duplicate the Background layer in the Layers palette and apply a filter to it—any filter will do; we're just using it to verify the effectiveness of the mask. We chose the Fresco effect from the Artistic filters (Filter > Artistic > Fresco).

We will start by creating a new hide-all vector mask from the Layer menu: Layer > Vector Mask > Hide All.

Step II: The vector mask

You will need to zoom in really close for best results; select the Pen tool ([P])  from the toolbox and start with the cutout. To use the pen tool, click to create a *control point* and drag the mouse in the direction you want the curve to go. Keep repeating this along the edge of the fruit to see how it works. The direction of the curve can be controlled by adjusting the *control handles* at the control points (they look like dumbbells sticking out on either side of the control point). While you're drawing the curve, hold down [Ctrl] to switch to the Direct Selection Tool (a white mouse pointer). With this tool, you can now select and move the various control points as well as the control handles.



Look at the effect shine through

It's going to take some getting used to, so you will require some patience.

While you are drawing, hold down the spacebar to pan the image when you reach the edge of the document. To get a nice, clean cutout, stay just a tiny bit inside the edge of the fruit. As you draw, you should start seeing the Fresco-ed fruit appear inside the region. Once you've made it all the way around, close the path by clicking on the first control point.



What your Layers palette will look like

You can now adjust the shape of the vector mask whenever you want by using the Direct Selection Tool ([A]) .

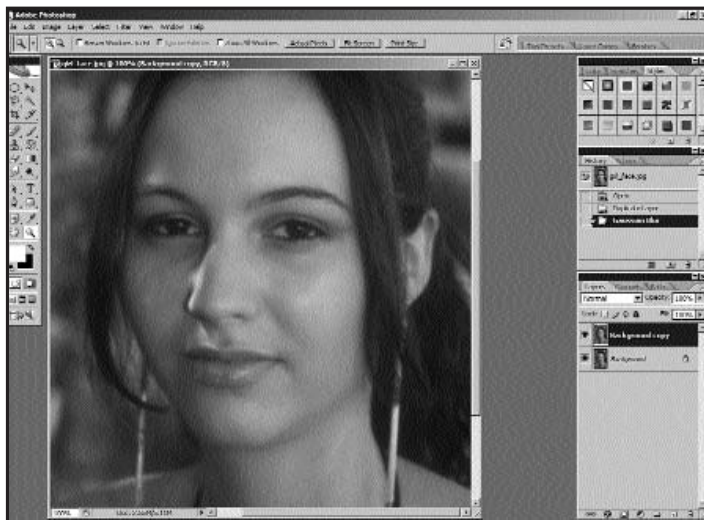
8.5 Workshop: Cleaning Up Photographs

Thanks to inexplicable debauchery on the part of cameras and ambient light, casual photographs, especially close-ups, aren't the most flattering. Here's how you can turn an ordinary photo into a softer, more professional-looking one.

Take a look at *girl_face.jpg* in the *\Fast Track Workshops\Chapter 5* folder on the CD. It isn't really a bad photo, but it would be nice if skin texture was a little smoother.

Step I: Deception

To start with, duplicate the Background Layer. We'll first apply a Gaussian blur to soften the skin. Go to *Filter > Blur > Gaussian Blur* and set the radius to a low value—depending on what you're working on, it should be between 1 and 3 pixels for a good balance between too little and too much detail. Keep an eye on the skin to see what you like best—we'll sort out the remaining later. We used a radius of 1.6 pixels for this.

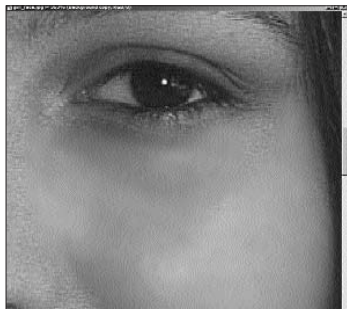


The not-too-bad-but-could-have-been-better photo

Now that we've decided what we want the skin to look like, it's time to bring the mask into the picture. Create a new Hide All mask by Alt-Clicking on the Create Layer Mask button.

Step II: Painting

Use the Brush tool [B], right-click on the image to bring up the brush picker, and pick a soft-edged brush. You will be tweaking the size quite often, so keep your hand on the "]" key to increase and "[" to decrease the size. Make sure the layer mask is selected, and with the foreground colour as white, begin painting on the skin. Avoid painting on areas like the hair, eyes, eyebrows, lips or nostrils—we don't want to lose any detail there. You should see the effect coming out quite nicely now.



If you look closely, you'll see the pores vanish. No face-cream, though

Step III: The final touches

Before you wrap up, go to the Channels palette and turn on the visibility for the Alpha channel that represents your mask. Brush out any red blotches you see on the skin area—this way you'll know that you've covered all the skin.



The final shape of the Mask

Finally, if the image looks too plastic, turn down the opacity of the blurred layer to about 65-70% to let some of the original detail show through.

Image formats



When you do a ~Save As~ in Photoshop, you will find a long list of different image formats in which you can save your image. Just what do these formats mean? Or, why do we even need them? Is there any benefit in saving certain images in certain formats? Or is there on best format that can be used for all applications? We will answer these questions in this chapter.

Image Formats

You would have seen movie files with different extensions - .avi, .mpg, .rm, etc.; document files in .doc, .rtf, or .swx. These are different types of files, meaning data is stored in the file in different ways. Similarly with images we have several formats with different kinds of optimisation and features for different purposes. It is difficult to say just which format is the absolute best - but what we can do is list out the advantages and disadvantages of some common formats so that you know what to use when.

All formats can be classified under two headings, lossless and lossy.

While lossless formats store all of the image information and are great for photo editing work, their downside is the huge file sizes that make it impractical for web applications or for embedding images inside documents or presentations. TIFF is an example of a lossless format, as is Photoshop's native PSD.

Lossy formats compromise some detail from the images in order to reduce file sizes to more manageable levels. The amount of detail that is removed can be set in the image editing software. Sacrificing detail will not make any apparent change to the image at moderate compression levels, but if you are going to work further on the image, the loss of detail will affect the final image quality. A commonly used lossy format is the JPEG format.

9.1 The JPEG format

The most common format that you would have come across is the JPEG format, often written as ~JPG~. You will find some files with the extension .jpeg, some with .jpg and some others with .jpe - these are all the same. The shortening of the four letter extension to three is in keeping with the DOS limitation of three characters for an extension. JPEG is an acronym for Joint

Photographic Experts Group (official site: www.jpeg.org). Most of the natural images found on the net are JPEGs (small banners and line diagrams are usually .gif; we'll come to that later). This is because JPEG is designed keeping in mind the limitations of the human eye.

The details that the human eye cannot make out are removed in a jpeg image. For example, we cannot distinguish between minute colour changes, so regions of the image where there are only minute variations in colour will be made into a single colour. However, if the image is to be analysed by a computer, (like an Optical Character Reader system) the losses may become noticeable. The ability to set the amount of detail to be removed gives great flexibility to the image maker to choose between quality and file size. The image readers can choose between a ~fast~ decompression with some loss of clarity or a ~slower~ decompression with better clarity.

JPEG uses 24 bits per pixel to store colour information. This means $2^{24} = 16$ million different colours can be represented in JPEG. This works great for ~real~ images, like photographs. In greyscale mode, JPEG uses 8 bits to store one pixel's information - 256 shades of grey.

After all this theory, you will be asking 'When should I save as JPEG and when should I choose other formats'? Here is your answer:

- JPEG works great with photos or scenery. If you do not wish to edit the file in future, you can safely save the image as a jpeg.
- Saving images for the web can be done in JPEG format (images displayed in your website or a photo sharing site).
- JPEG does not work well with drawings, especially straight line drawings or block diagrams where every line is well defined. For these kinds of images, it is best to choose a .gif
- Images that have a large area of a single colour benefit more from gif than from jpg. If you have a single coloured background and the subject is not very detailed or very colourful, you should prefer GIF.

- If you are saving images for print, do not save in a .jpg format. Remember, jpeg is meant for the human eye, but devices can be affected by the losses.
- If you are going to be editing the file later on as well, they shouldn't be JPEGs, especially not highly compressed ones.

~Setting quality levels and saving jpegs in Photoshop is discussed in Chapter 2.1~

9.2 The GIF format

You would have seen most banners or small images being stored in the .gif format on the web. This is because gif works very well with images that are non-real, like diagrams or straight line images. GIF (Graphic Interchange Format) offers a much better way of rendering straight lines than jpeg does.

GIF is a lossless 8 bit compression technique. This means, so long as the colours can be represented within the $2^8 = 256$ colours that GIF can use, there will be no loss in quality. But if a 24 bit photo image is forced to a GIF format, there will be a quality loss. One has to bear in mind that gif was not designed to be used with real images that have varied colours. For the purposes of scientific drawings, tree diagrams, cartoons, etc, all of which have limited or only black and white colours, GIF offers superb quality for very small file sizes.

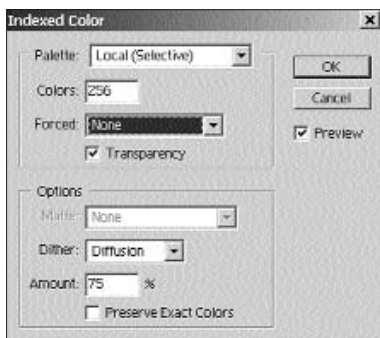
An exciting feature of GIF that has added so much life to the web is the ability to animate them. All browsers as of today support the gif animation format. More than one image, rather layers can be embedded in a single file and the browser displays the different layers successively in repetition. This again is achieved with a very less file size.

- Use gif when the image is composed of straight lines and has vast areas of single colour.
- Thumbnails can be created as gifs as their quality is not all

- important but small size for quicker loading is the criteria.
- GIF is a no-no for print purposes or for further editing.

9.2.1 Setting transparency in GIF using Photoshop

You can make the background of a gif transparent such that only the selected portion of the gif will be visible while the remaining parts show the background on which the GIF is placed. This makes it very easy to place images on web pages without the page itself losing its look and feel. If the web page has a Grey background, just image how it would look if small images with a Reddish background are placed all over it!



Setting the GIF Transparency

Using the Magic Wand or Lasso tool, select the area of the image you want transparent and delete them by pressing [Del]. Now choose to save the image as a GIF and click on Save. You will then be prompted to choose palate options. In this box, check the option that says ~Transparency~ and say ~OK~. Now you can use this image on any background and have only the subject of the GIF visible with its background transparent.

9.3 The PNG format

Often pronounced as 'Ping', the Portable Network Graphics format was created to replace the GIF image format. PNG offers better compression than GIF but does not support animations. PNG compression is fully lossless and supports up to 48-bit per pixel for colour or 16-bit greyscale. Being an open platform scheme, a PNG image created by any supporting software will be readable by others. Drop Shadow effects and variable transparencies make PNG the preferred choice over GIFs where animations are not required.

Add to that there is no royalty or fee for using the PNG. Recently, CompuServe (the developer of GIF) announced that it would charge a fee on the usage of its GIF format. You can try to save your images as PNG in place of GIF or JPEG - see if the quality vs file size is acceptable and take your own call!

9.4 Uncompressed Formats - TIFF

TIFF is an acronym for Tag(ged) Image File Format. It was developed by Aldus and Microsoft Corp. to provide a common format for scanners to save images. The specification was owned by Aldus, which has now merged with Adobe Systems, Incorporated., which hence owns the copyright for the TIFF specification. TIFF is a versatile and flexible format owing to its ability to store image data in an uncompressed raw format or to use other compression formats such as JPEG to store with a lesser file size. If a JPEG compression is used, then what is the need for TIFF? The advantage is that TIFF can store different layers that you might create in the course of editing. Hence it is easy for anyone to revisit the document using any imaging tool and work on the file. This eliminates the need for all the persons working an image to use the same software for editing layers. For example, a designer working with GIMP or Paintshop can save his work as a TIFF and share it with someone who uses Photoshop, while not losing the layer information.

TIFF can support arbitrary number of bits per pixel ranging from 1 to 64 unlike other formats which support only 2^{\sim} powers of 2 $^{\sim}$ like 4, 8, 16 etc. The colour schemes supported include CMYK, RGB, Grayscale, etc.

Dabba

Saving for Print

- If you wish to print your image on another machine which may not have Photoshop installed, you can save the image in a TIFF format (uncompressed). Try as much as possible not to use any compression unless you are hard pressed for space.

- If you are saving the document for printing using Photoshop itself, you can simply save your work as a .psd, which is Photoshop's native format.
- Set your dpi to 300 or more depending on your printer's dpi ability. This has been covered in chapter 2.

9.5 Saving for Web - using web colours

Saving for the web traditionally means using limited number colours (256) as opposed to all the composite colours of the image. This was because not all display cards of earlier days could display more than 256 colours. If a higher bit depth image is forced on a lower bit depth display card, the image would appear distorted. Thus came the idea of using ~safe colours~ for the web so that all users, irrespective of their hardware could view the image properly. Later on, even after higher capacity display cards came into vogue, the 8 bit (256 colour) scheme was retained in order to reduce the file size. Besides, web images are not meant for printing. Hence it still makes sense to reduce many non-real images, if not all to a 256 (or even lower) colour scheme.

Access the ~Save for Web~ option under the File menu. You can choose from the presets available or make your own. Click on the ~Optimized~ tab to see the image as you apply changes to it, or ~2 Up~ to compare the optimised image with the original and. At the bottom of the image you will see the file size and the settings. Try out the different settings available and see which one suits you best. Different options are available for different file types. Use GIF / PNG or JPEG according to the nature of the image as we have discussed in the previous sections.

If you click on the ~4 Up~ tab, you can see the original image along with three variations of it. You can use this to compare how the different settings make your images look. Once you have finalised your settings click on ~Save~. If you want a HTML file to be created with the image tag placed in it, choose to save the file as ~HTML with Images~. If you just want the image and don't need the HTML file, just choose ~Images only~.

9.6 Saving for Web - Slicing

Photoshop provides an excellent feature by which you can select different parts of an image to be saved with different compressions. The part of the image where you need detailing can be set to a lesser compression and the parts that are just background or unimportant can be set to a higher compression. Thus you will be able to strike a better balance between effective file size and quality of the image. This is done by ~slicing~ the image into different parts and applying a different compression (or quality setting). Another advantage is that each of the slices gets stored as a separate image and hence the user can see at least part of the composite image as it gets downloaded, rather than wait for the whole image to appear.

To make a slice, just click on the slice tool in the tool box and drag it across an area which you want to slice. Photoshop automatically creates other slices in the remaining parts of the image such that each slice is a rectangle. You can create any number of slices you like.

Now go to File > Save for Web. Just click on a slice to select it and choose the optimisation you require. You can choose from the presets available or set your own preferences that are available for each of the formats. Apply settings of your choice on each slice and click on ~Save~. Select to save as ~HTML with Images~. In your destination folder the html file and an image folder will be created. The HTML file will have the HTML tags to read and display images from the images folder that has been created. This html file can be put on your website. Anyone who accesses this file will be able to see the image that you have just optimised with slicing. The best use that this finds is when it is used in conjunction with HTML editing tools. A line of text can be so made into an image such that every word (made into a slice) links to a different location!

9.7 Saving for Future Editing

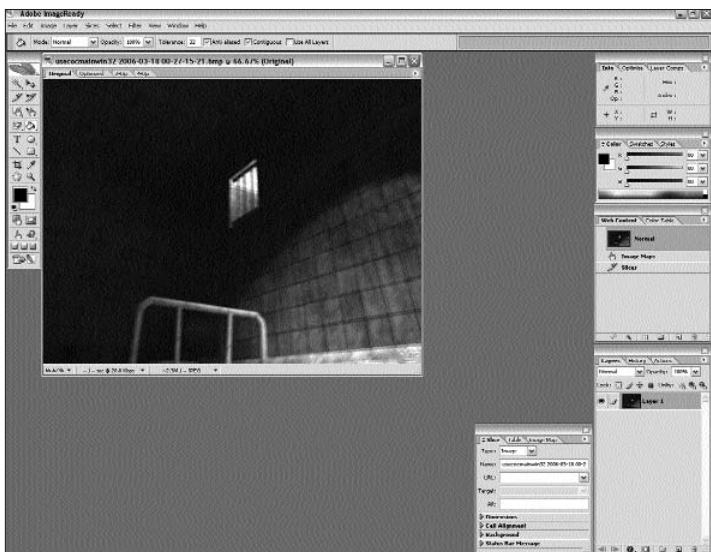
If you wish to resume working on your file at a later time then save your file as a .psd. This will preserve all the layers, masks, texts that you have used, which can be edited later on. If you wish to work only on layers on a software other than Photoshop, use the TIFF format, preferably with no compression.

Getting Ready With ImageReady



An oft-ignored tool that piggybacks on Photoshop, Adobe ImageReady brings to the Web the same ridiculously powerful features that Photoshop brings to print or the desktop. Not only can ImageReady serve as a mini-Photoshop on its own, it packs in many more goodies that keep Web graphics looking their best without being bandwidth hogs.

10.1 Getting Around



You'll feel right at home in this Land of ImageReady

You will find the shortcut to ImageReady in Start > Programs, right next to Photoshop. The first thing you're going to notice about ImageReady is that it looks suspiciously like Photoshop—and to be fair, it is. You'll find old friends like the toolbox (albeit altered a tad), the Layers, History, Actions, Colours and Swatches palettes among others, and a few new palettes we'll deal with in subsequent pages.

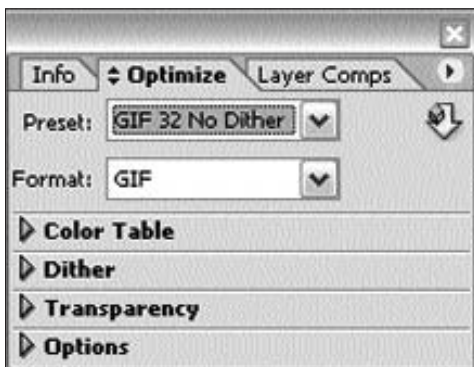
10.1.1 The Differences Between ImageReady And Photoshop

Even though they are designed to be nearly identical, there are a lot of differences in the way the two programs behave. One of the first things you'll notice is that unlike Photoshop, ImageReady allows for multiple undo levels—so instead of using [Ctrl] + [Alt] + [Z] to step back in history like you would in Photoshop, just a simple [Ctrl] + [Z] will do ([Ctrl] + [Alt] + [Z] will undo or redo your optimisation settings). There's a History Palette here, too, but it just

serves to show you what you've been up to—not nearly as powerful as the one in Photoshop. You'll also see a few new palettes, notably the Optimize palette at the top right. This lets you choose the optimization settings for your image—we'll do that in detail in just a bit.

Below the Optimize palette is the Web Content palette, which shows you the Slices, Image Maps and Rollovers in your image (we'll be coming to these later as well).

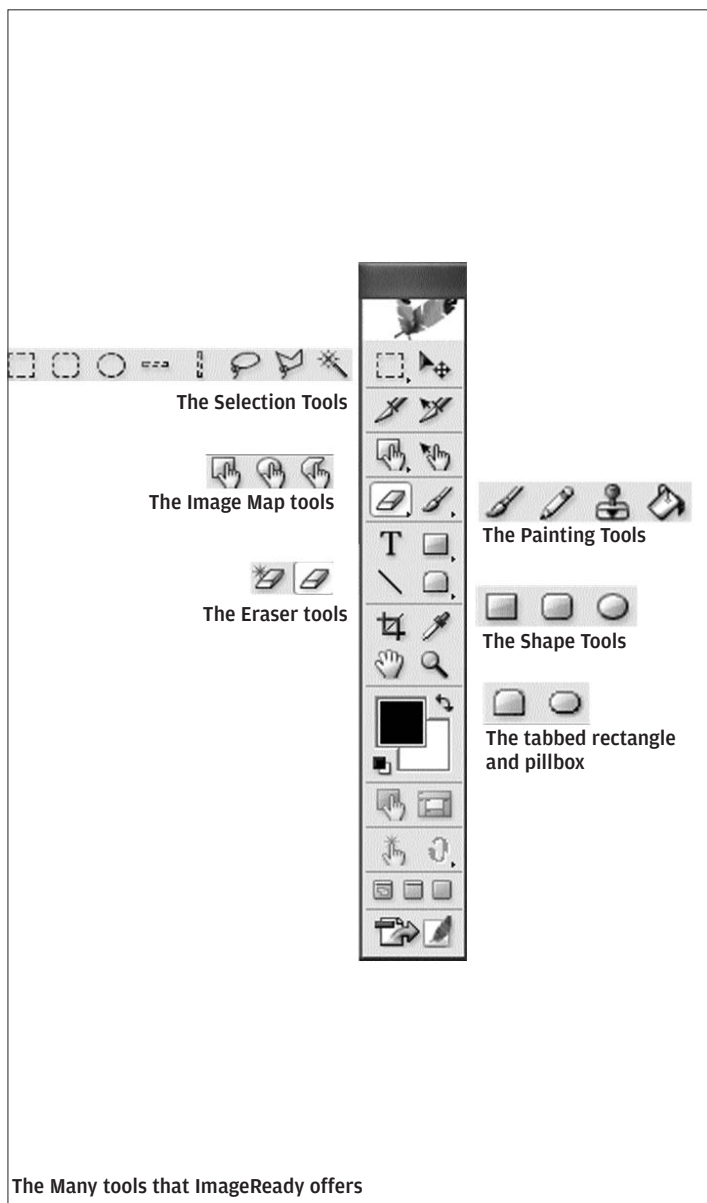
The toolbox, too, has changed a little, and in ImageReady, you can drag out all the hidden tools to make it a floating toolbox as well. Just click and hold a button to bring up the complete list of tools, and without lifting your finger off the mouse button, drag the cursor to the small arrow at the bottom of the list. The entire set of tools will now become a floating box until you close it.



The Optimize Palette



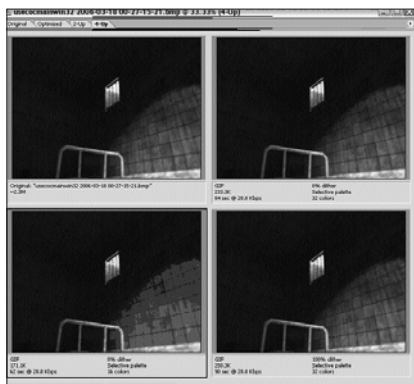
The Web Content Palette



10.1.2 The ImageReady Tabs

If you've opened an image in ImageReady, you will notice that the main document window has four tabs—Original, Optimized, 2-Up and 4-Up. The Original tab, as the name suggests, shows you the “original” image—as it appears in its native format—be it PSD, JPEG, GIF, TIFF and so on.

The Optimized tab shows you the image as it will appear once you have applied your chosen optimisation settings to it: this is what the image will look like after you've saved it. This view will keep updating every time you choose a new optimisation setting. At the bottom of this window, you will also see three items of information: the first one is the Zoom Level indicator, the second one tells you the size of the optimised image and how much time it will take to download over a 28.8 kbps connection, and the third shows you a size comparison between the uncompressed and optimised images. The latter two can be changed as you see fit by just clicking on them—the menu that comes up shows a host of other options.



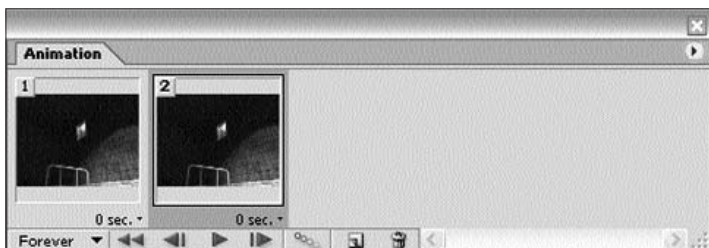
The 4-up Tab



All that you can see in the status bar

10.1.3 The Animation Box

This isn't usually visible on ImageReady's first load, so go to **Window > Animation** to enable it. The name explains itself—this is where you will be creating and controlling your animated GIFs.



The Animation Box

The button at the bottom left corner lets you decide whether the animation will run only once or loop forever; you can also specify how many times you want it to run. We'll get into the nitty-gritty's of animation later in this chapter.

10.1.4 The Slices Palette

You've read about slices in Photoshop in the previous chapter, but it was ImageReady that brought this concept with it, letting you turn a simple image into so much more.

The Slices palette lets you assign URLs to slices of the image, turning what looks like a single picture into a collection of as many links as you like.



The Slices Palette,
fully expanded

10.2 Optimising Images For The Web

Once you've finished editing your image, it's time to optimise it to minimise its size and hence the time it will take to download, while still keeping looking good, of course. The centre of operations for this activity is the Optimize palette, located in the top right corner of the ImageReady workspace. If you can't see it, select **Window > Optimize** to bring it up.

To see how the image will look once it's been optimised, use the Optimized, 2-Up or 4-Up tabs in the main document window.

10.2.1 How Indexed Colour Works

Before we begin, we need to understand how Indexed colour—used in the GIF format—works. We know that the colour of every pixel is defined by the Red, Green and Blue intensities. In the JPEG format, the level of each colour is represented by one byte—256 levels each of Red, Green and Blue, enabling 16 million possible colours.

To create GIF images, image editing programs create an *index* of 256 colours that will represent all the colours present in the image—either accurately or approximately, and then by assigning an index position, pixels will be matched to their colours. The index is often called a *Colour Table*.

This is a rough analogy of how this works:

Colour Table

No.	Colour
1	R=10, G=15, B=55
2	R=0, G=100, B=20

...and so on.

The Image

Pixel No.	Index Number
1	2
2	2
3	1

...and so on.



The Optimize Palette for GIF Optimisation

10.2.1.1 The Optimize Palette—A Guided Tour

We'll start right at the top with this one. The first two options on the Optimize palette are Preset and Format. Under Format, you can choose to optimise the image for JPEG, GIF, PNG-8 (That's the PNG format that supports 256 colours), PNG-24 (which supports 16 million colours) and WBMP—a black-and-white bitmap meant for older mobile phones.

For each format, ImageReady comes with its own set of presets. More often than not, these are quite enough for a good size/quality balance, but it never hurts to tinker and see what could help you achieve a lower file size.

Expand the Colour Table pane by clicking on the arrow next to it. You'll see a drop-down menu for Reduction. This is the algorithm that ImageReady uses to decide where it should preserve colour variations and where it should approximate them to a single value. The Perceptual and Selective algorithms are the best, as they give priority to colours that the human eye has greater sensitivity to.

The Colours drop-down lets you select how many colours will be there in your colour table. For images with a few solid colours (like logos which have around three colours and so on), you can safely pull this down to even 16 colours. Of course, this is going to cause the colours to degenerate a little, so use this carefully. 256 colours will naturally give you the best quality, but also the largest size.

If any of the colours in the colour table are within close range of Windows' default colour table for the Web, you can set a tolerance to "snap" to that colour—that is, if the colour in the image's colour table is within, say 5 per cent of the Windows colour, it will use the Windows colour in the table instead. You can view the colour table by clicking on the button next to the Colours drop-down.

Your colour table isn't always going to contain all the colours necessary to reproduce the image, so to simulate these colours, you can use *Dithering*.

Dithering uses the colours in the colour table to build the closest possible colour to the original one. Greater values for dithering will lead to greater file sizes, so keep this as low as possible.

Converting to GIF is nearly always going to wreak havoc with any transparent or semi-transparent areas that you have in your image; turn on Transparency to build a separate colour table for transparent colours. If you turn it off, transparent areas will be filled with the Matte colour or White if you haven't selected one.

Finally, you can choose whether or not the GIF will be interlaced. Being "interlaced" means it will download in passes rather than all in one shot. You could also decide to use a Unified Colour Table, which applies the same colour table to all frames of the animation and all rollover states (we'll be coming to these soon). The Add Metadata option lets you add data about the image in the header of the image.

You can mix and match optimisation settings within the same image as well using *slices*, discussed later in this chapter.

10.3 Animating With ImageReady

One of the most exciting things about ImageReady is its ability to make GIF animation really easy. At the most basic level, all you need to know to get your first animation out is how to turn layer visibility on and off (we're hoping you've read the previous chapters and know this by now).

Unlike other GIF animation programs, though, ImageReady works closely with the PSD format and image layers to create animated GIFs, so if you've used any of these other programs (such as Paint Shop Pro), it's going to take you a little while to learn it the ImageReady way.

To get past the first few hiccups, here's what you can animate:

- **Layer Visibility**—the simplest animations work on turning layer visibility on and off as the animation moves on. A classic example is blinking text.
- **Layer Position**—moving layers around can create some interesting effects.
- **Layer Opacity**—change this for cool fade in/fade out effects.
- **Layer Blending Modes**.
- **Layer Styles**—these can be added at any time to any frame without upsetting any of the other frames in the animation.

If you're going to change content in the animation—like turning a blue vase into an orange one—you'll have to create a new layer for the orange vase and play with the layer visibility or opacity.

10.3.1 A Flashing Banner

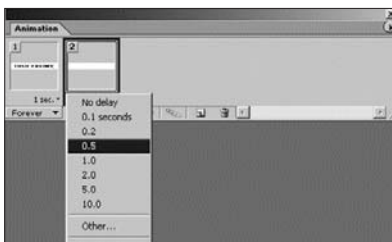
We've hinted more than a little at how animation is as easy as turning a layer on and off: now we'll prove it.

Start with a new image ([**Ctrl**] + [**N**]) and choose Web Banner from the Image Size drop-down menu. Use the Text Tool ([**T**]) to type out whatever you want on the banner. Change the font to Impact for a better... well... impact, and the font colour to red. Or you could just skip formatting the text and move on by just using a large font size.

In the Animation Box (if you can't see this at the bottom left, go to **Window > Animation** to enable it), click on the Duplicate Current Frame button to create a new frame for the animation. Select the second frame in the box, and in the Layers palette, turn off the visibility of the type layer by clicking on the “eye” icon next to it.



Start with simple text



Choose a frame delay

Click on the Play button in the Animation box to preview the animation—it's ready! Of course, it's blinking too fast, so change the frame delay by clicking on the little arrow below the frame's thumbnail in the Animation box. Here you can choose how long the animation will pause at each frame.


10.3.2 The Magical Graph

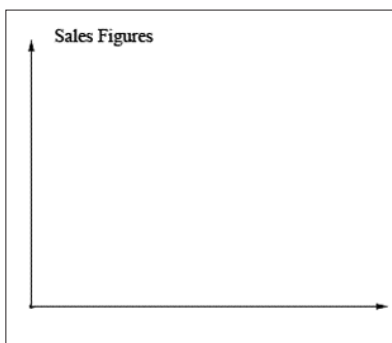
We're now going to animate a layer's position to create the effect of a graph drawing itself. From the Workshops\Chapter 10 folder on the CD, open Graph.psd. This file has five layers—Arrows, Screen, Graph, Sales Figures (a type layer) and the Background. What we'll be doing is using the screen to reveal the graph progressively, to give us an animation of climbing sales figures.

Create a new frame in the Animation box. Keep the second frame selected, and in the Layers palette, select the Screen layer. Hold down [Shift] and [Ctrl], and use the right arrow to nudge the Screen layer to the right. Keep doing this till the entire graph is revealed. You should end up with one frame that only shows the axes, and another that shows the graph in its entirety.

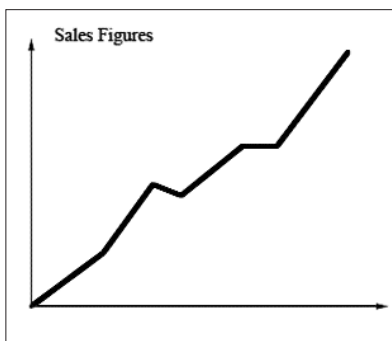
Previewing the animation right now is likely to cause considerable bitterness—it's quite the disappointment. What we should have done is create more frames and nudged the screen a little bit in each one of them—that would have really conveyed the graph-drawing-itself effect. Fortunately for our lazy selves, we can do that in a snap, thanks to a handy concept called *tweening*. Tweening between (that, incidentally, is how the name comes—"tween" is the poetic truncation of "between") two frames of an animation means that intermediate frames will be added so that the transition between them appears smoother. In our case, we

will tween to introduce a few more frames so that the screen actually appears to move rather than just disappear.

Keep the second frame selected, and click on the Tween button  in the animation box. In the Tweening dialog that pops up, you can choose whether you want to use the previous frame as a reference or the first one. You can also decide how many frames will be inserted into the animation, as well as *what* will be tweened—layer position, opacity, or layer effects. If, for instance, you had Frame 1 where Layer 1 is visible, and Frame 2 where Layer 1 is now hidden, turning on the Opacity option will create intermediate frames with Layer 1 fading out. If you turn off the option,



The Empty Document

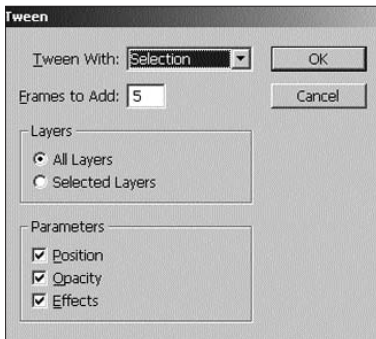


The Graph magically appears!

ImageReady won't look at layer opacity at all.

We'll just accept the defaults for now.

Now that the animation has grown from two frames to seven, preview it again—the effect is much more convincing now, isn't it? If you want to ensure that the graph is drawn only from corner to corner, select the individual frames and nudge the Screen layer to where you want it for that frame.



The Tweening Options

10.3.3 Optimising your animation

Apart from the GIF optimisation you're going to use on the animation anyway, ImageReady also optimises the animation even more—it isn't going to be just a collection of individual GIFs, you see. To turn on Animation Optimization, click on the little arrow at the top right of the Animation box and select Optimize Animation from the menu. You will see two checkboxes, both of which are checked by default.



Optimising the Animation

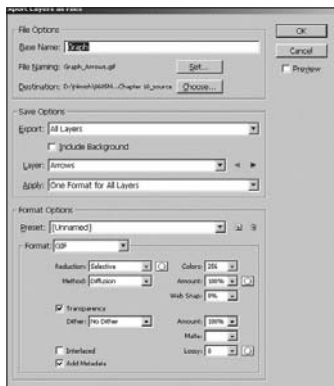
Bounding Box optimisation cuts out only those areas of the image that have changed between frames, and discards the rest. So in the magic graph example, information like the “Status Report” text or the axes of the graph will only be stored once for the first frame and then reused, rather than being present in every frame.

Redundant Pixel Removal makes every unchanged pixel transparent—while you will still see full individual frames in the Animation box, your final product will be reusing pixels from the first.

10.3.4 Exporting the animation

You aren't limited to saving your animations as just animated GIFs anymore—you can export them to the Macromedia Shockwave format as well! Just go to **File > Export > Macromedia Flash SWF** to do this. Vector art such as Type and Shapes will remain vector in the SWF format, so you won't see any distortion when the SWF is resized on the Net.

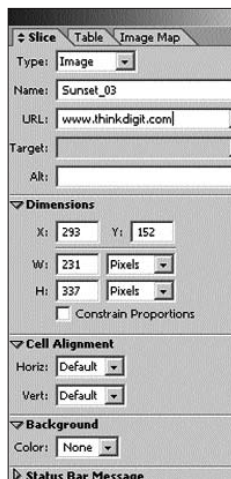
If you're working on a PSD and want to take all the layers into Macromedia Flash, go to **File > Export > Layers as Files**, and at the bottom, choose SWF as the export format. Each layer will now become an individual SWF file, and when you open these in Flash, each will appear on a different layer for you to edit.



Setting the Export Options

10.4 Slashing File Size With Slices

You will often find yourself sacrificing file sizes and download times just because some part of your image has a lot of detail and compressing it ruins its quality—for example, a photo of yourself against a clear sky. The sky will continue to look good under even the most aggressive compression, but your face is going to be reduced to a blotchy monstrosity. Thanks to ImageReady's Slices, you don't have to deal with this anymore. It lets you cut up the image into a number of smaller images, so you can optimise each one with the settings that suit it best—so you can apply very little JPEG compression to the area with your face in it, and a very brutal GIF compression to the sky around it.




The Slices Palette

Another handy feature of slices is the ability to turn individual slices into Web links—you can attach a URL to each of your slices, so when you post the lot on the Web, it will look like different areas of the image lead to different places.

10.4.1 The first cut

Use the Slice Tool ([K])  to make your first slice. The rest of the image will now fade away while ImageReady lets you edit the options for this slice. In the Slice palette, you can assign a URL to this slice, enter its pixel dimensions manually, enter “Alt” text for it (text that will be displayed on the page if the image doesn't load), and even specify a status bar message that will appear when the mouse cursor moves over the slice.

One of the first things you'll notice is that ImageReady automatically creates more rectangular slices for the rest of the image as well. However, you can only edit the size and position of the one

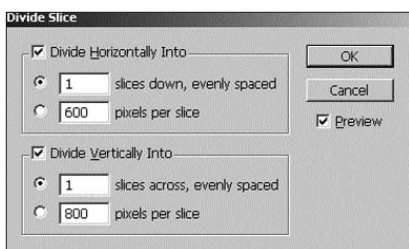
you created. Use the Slice Select tool ([O])  to select the individual slices. In the Optimize palette, you will now be able to apply different optimisation settings to each slice.

10.4.2 Equal pieces

If you have a large image that you want to put on the Web, it's hardly recommended to put it up as a single image—if the connection starts to flag, then a visitor to your site will get nothing on his screen! What you should do is cut the image up

into equal slices and then put it up. This way, you at least guarantee that most of your image will be seen. Moreover, many small images render much faster in browsers than one large one, so the chances of the entire image loading will now be much higher.

To do this, select the Slice Select Tool, right-click on the image and select Divide Slice. In the Divide Slice dialog, you will now be able to decide how many horizontal and how many vertical slices you want to divide the image into.



Dividing the document into slices

10.4.3 Saving slices

When you save a sliced image using **File > Save Optimized As...**, you have the option to save as HTML and images, which saves the slices as individual images in a folder called “images” and creates an HTML document that will finally display these images as one. You can also save just the images or just the HTML.


When you've saved the HTML file, open it in Notepad and copy the code to the part of your Web site where you want the image to appear.

10.4.4 Image maps

If you want to assign URLs to different parts of the image without cutting them up into separate images, use the Image Map Tool ([P]). Unlike slices, you aren't restricted to rectangular maps—you also have the option to create circular or polygonal image maps. Also unlike slices, you won't be able to use different optimisation settings for different image maps—they're just a way to add "active" areas to the image, which link to other Web sites or trigger rollovers (more on rollovers in the next section). The Image Map Palette (**Window > Image Map**) will let you enter the URL that the image map will point to.


10.5 Rollovers In ImageReady

Ever been to a Web site that has buttons that start glowing when you move your mouse cursor over them? A *rollover state*, or simply rollover, is an effect you add to an image, which will show up when you move the mouse cursor over it. Rollovers work on slices and image maps—in fact, a default slice covering the entire image is created for this purpose if you haven't sliced it on your own.


To create a new rollover state, click on the New Rollover State button  in the Web Content Palette. You'll see that ImageReady has automatically created a slice that covers the entire image, and the Rollover state is under it. If you double-click on the rollover state in the Web Content palette, you get the Rollover State Option dialog, which lets you decide among these options:

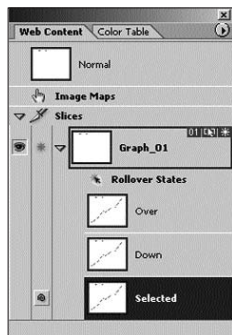
- **Over**—selected by default, this means that this state will appear when the mouse moves over the slice or image map.
- **Down**—the state will appear when you depress the mouse button.
- **Click**—the state will appear when you complete a click, that is, press and release the mouse button.
- **Custom**—if you know JavaScript, you can specify your own custom code here.
- **Selected**—the state will appear when the image has been selected.

- **Out**—the state will appear when the mouse cursor moves outside the slice or image map.
- **Up**—the state will appear when you release the mouse button.

To preview the rollover, click on the Preview Document button  in the toolbox or hit [Y] to switch between the Preview and Edit modes.


10.5.1 Animated rollovers

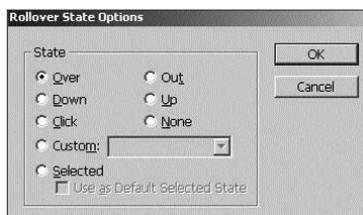
To animate a rollover state, select the state in the Web Content palette and click on the Create Animation Frame button at the bottom . You now have animation frames available to you in the Web Content palette, and you can edit these the way you would any other animation. Even tweening is going to work here—all you have to do is select one of the frames and choose your tweening options.



Make different Rollover States

You can try this on Graph.psd, which we used to demonstrate animation; only, instead of animating the graph just like that, create a new rollover state and turn the animation into a rollover animation instead. If you've already made an animation and want to turn it into an animated rollover, follow these steps:

- Create a new rollover state.
- Click on the Create Animation Frame button.
- At the top level in the Web Content Palette, you will see this little icon  next to Normal. Right-click on it and enable "Include Animation Frames in Web Content Palette".
- Now that you've done this, click on the arrow on the left of Normal to expand it into the animation frames.
- Now, just drag these frames to the animation frames that you created for the rollover, and you're done!



The Rollover State Options

Colour Management



Colour is colour is colour, right? Sadly, unbeknownst to us, the devices we use each look at colour differently—what may be deep blue to our monitors might be an indigo to a printer, and so on. Thankfully, Photoshop can play interpreter and help all your devices talk colour in the same language

11.1 Why Colour Management?

Ever printed out a holiday photo only to find that the print copy hardly looks as good as the one on your screen? Countless expletives have been uttered in such situations, all in effect asking the same question: Why do images look so different on my monitor and when they finally print?

If you've used your old film camera often, you might have noticed that the brand of film you choose can have a distinct effect on the way your prints appear—some brands will give you rich, saturated colours, some will cause skin tones to look darker than they are, and so on: different chemicals are affected differently by the same colours. Similarly, different devices will interpret the same real-life colour in the way they understand it.

Colour Spaces and The ICC

A device's *Colour Space* is the entire range (or gamut) of colours that the device is capable of reproducing. You can deduce that these colour spaces are highly dependant on the device and its eccentricities—even two otherwise identical printers might have different colour spaces!

Then there's the editing colour space, which defines the colour range you do your work in. Editing colour spaces don't depend on devices at all, so there's no restriction on which colours you can work with. And this is where things start to go wrong—the moment you decide to use a colour that isn't in your printer's colour space, you'll end up with a sub-standard image.

Thankfully, the International Color Consortium (ICC) has come to our rescue and set a standard profile (called an ICC profile) that defines how devices treat colour. Printer profiles will tell Photoshop (or any other image editing program) what the printer is capable of, and will let Photoshop decide how to accurately bring the image on your screen to paper. The editing profiles provided by the ICC tell you which colours it is safest to

work with, and Monitor profiles tell your OS how to display colours on the monitor.

Why do I need to know this?

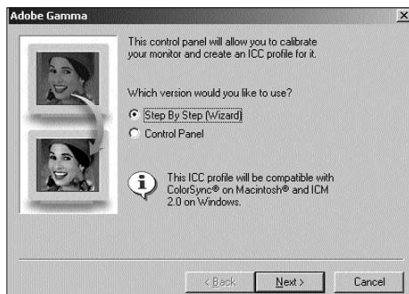
By using colour space profiles, you are ensuring that your image will appear the same irrespective of what monitor it is viewed on or what printer it is printed on—you'll never have to tinker with colour correction once you've set a profile.

11.2 Getting Consistent Colour

Enough *gyan*; let's set up our machines for consistent colour to prevent any colour-related woes in the future.

Stage I: The Monitor

Calibrating your monitor is the most important step in colour management. After all, it's where you will be seeing your work the most.



Adobe Gamma

When you install Photoshop, it also installs a Control Panel tool called Adobe Gamma, which will help you calibrate your monitor. It isn't what you would use if you were a graphics professional—there is highly specialised hardware and software for that—but for the average user, Adobe Gamma is quite adequate.

You need to keep a few things in mind before you go through Adobe Gamma's setup procedure:

- Make sure your monitor has been on for about a half hour or so. You need to let the CRT warm up to a point where it displays consistent results.

- Make sure you've selected 24-bit colour from the Display Settings in the Control Panel.
- Your monitor should be in a neutral lighting environment: there shouldn't be lights shining directly on the screen, and there shouldn't be lights shining directly into your eye, either.

If you aren't a colour geek (which most of us aren't, anyway), choose the step-by-step Wizard when you start Adobe Gamma. When you click Next, it will ask you to give a name to the colour profile you're going to create. Do so and click Next.

You will first set up the brightness and contrast for your monitor—starting with zero brightness and 100 per cent contrast. This setting results in excellent reproduction of colour, but can be quite uncomfortable, especially on CRT monitors.

The next step is choosing your monitor phosphors—the materials that are used in monitor tubes to show you the picture—which we will trust Adobe on and go with the default. The steps that follow are quite straightforward too, and the tool gives you more than adequate guidance through the procedure, right to the point where you have to choose the colour temperature, or *White Point*.

Use the Measure button to set the Hardware White Point to check what colour temperature your monitor operates at. Once you are through here, you can use software to adjust the colour temperature to your own preferences.

Selecting a colour temperature is important, because this is



Choosing a colour temperature

going to vary across purposes. Many monitors and graphics cards come with a colour temperature set to 9300K, which gives a bluish tint to everything. Use this when you need to see maximum colour contrasts. The 5000K setting simulates the lighting in an art gallery and gives whites a slightly sickly-yellow characteristic. If your work is going to hang in typical bulb-light, select this temperature. When in doubt, select 6500K—it accurately represents normal daylight conditions.

Once you are done with Adobe Gamma, you must save this profile so that Photoshop can use it to manage colour for your monitor.

Stage II: Photoshop

To begin setting up colour management in Photoshop, select **Edit > Colour Settings** or hit **[Ctrl] + [Shift] + [K]**.

The default setting—North America General Purpose 2—should suffice for anyone, but you should really try out a few variations to see which one you like.

Under Working Spaces, you can select the colour space that you will be working with. sRGB profiles are often quite restrictive, but on the bright side, they are quite printer friendly—you won't have to worry about colours that won't be handled by your printer. The Adobe RGB colour space allows for a larger range of colours, but increases the risk of printer foul-ups.



Photoshop's Colour Settings dialog

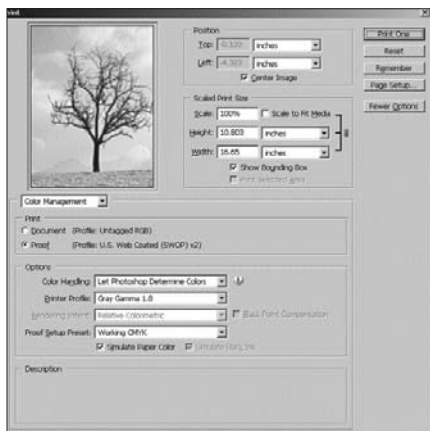
The Colour Management policies let you decide whether to use your own colour profile or profiles that may come embedded with images. The remaining settings are a good bit beyond the scope of this book—they're more the domain of hardened print and colour professionals.

Stage III: The Printer

You should be able to obtain the colour profiles for your printer from the manufacturer. If not, they should be available for download on the Internet—there's probably some kindly soul out there who has used his own professional

profiling equipment to build a profile and put it up on the Net. Copy the profile to "WINDOWS\system32\spool\drivers\color" to install it.

To use this profile, go to **File > Print with Preview**. At the bottom of the dialog, you will find Colour Handling under Options. You could let the printer decide its own printing profile, or you could select "Let Photoshop Determine Colours" and choose the printer profile you installed.



The Print with Preview dialog

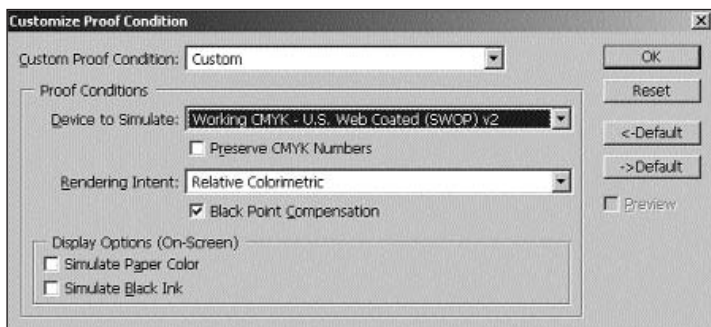
11.3 Proofing Images

Before you unleash your prints upon the world, you'll have to check whether colours are being reproduced correctly—this is called proofing. Thanks to colour management, though, you don't need to keep taking printouts every time you change the image—you can “soft proof” them; use all the colour profiles you created for an on-screen preview of how your image is going to look when you print.

Of course, the quality of a soft proof depends greatly on the quality of your monitor and how well you've calibrated it. It also doesn't take room lighting into consideration, so you'll need to make some allowances and not accept a soft proof as the final word.

Setting up the soft proof

To soft proof the image, go to **View > Proof Setup > Custom** to customise the situation you are going to proof for.



Customising proof settings

Under Device to Simulate, you can choose from various colour space profiles that you can preview your image in. The following are available to you under Rendering Intent:

- **Perceptual:** with this option turned on, Photoshop will try to preserve the relationships between colours to preserve the way the image looks to the human eye.

- **Saturation:** turn on this option to tell Photoshop to output rich, vivid colours. You might lose some colour accuracy, though.
- **Relative Colorimetric:** the default option, this uses the white of the current colour space as a reference, and alters the remaining colour values (if necessary) to suit this colour space. Out-of-gamut colours are replaced by the colours closest to them, but within the colour space.
- **Absolute Colorimetric:** this only affects the out-of-gamut colours, replacing them with their closest neighbouring colours.

To see colours in the image that might be out of your printer's gamut, turn on the Gamut Warning from the View menu, or hit [Shift] + [Ctrl] + [Y].

Colour management, as you have seen by now, is one of the most perplexing aspects of image editing, and it doesn't help that we aren't physicists with intimate knowledge of colours and pigments. You're going to need to experiment a lot with colour management before you have a stable, consistent solution in place. And remember, it all hinges on your monitor, so make sure you calibrate it well.

Grubby Paws—Cool Effects In Photoshop



All right, so we've told you plenty about Photoshop and what it's capable of. To satisfy your urge to tinker, here's a few cool effects you can create in Photoshop. You can find the source images for these in the `\Fast Track Workshops\Chapter 12` folder on the CD. They're all royalty-free, so use them as you like!

12.1 Workshop: The Vista Aero Glass Effect



Ever since the first preview, Vista's Aero Glass Effect has made countless people worldwide go "Ooooh...pretty!" In this workshop, we'll learn how to create an Aero-esque panel on our images.

Stage I: The Translucent Distortion

We're going to add (feign, rather) the effect of transparency with a little glassy distortion to the image.

Start by duplicating the Background layer. From the Filters menu, select Distort > Glass. Set the Distortion to 10, the Smoothness to 15, the Texture to Canvas and the Scaling to 70% to give a subtle jitter to the image.

Next, apply a Gaussian Blur from the Filter > Blur menu, and set the Radius to 3. This is what the image is going to look like when viewed from the glass panel.

Stage II: The Panel

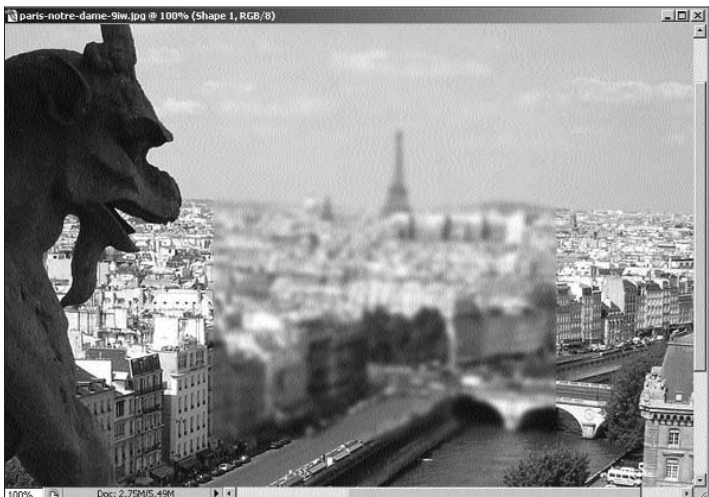
For now, turn off the visibility of the Background Copy layer—we'll



turn it back on when we need it. On top of the Background layer, create a new layer and use the Shape Tool [U] with the Fill Pixels option to draw a rounded rectangle on it. We're using a shape, but the effect will work on anything—even a few brushstrokes. More importantly, it will work on anything more that you add to this layer as well.

Drag the shape layer between the Background and Background Copy layers. Hold down [Alt] and click on the line dividing the Background Copy and shape layers to create a Clipping Mask—this means that the content of the layer on top (the Background Copy) will only show where there is content on the lower layer (the shape). Try painting on the shape layer—you will now notice that as you paint, more of the distortion effect shows through. When





Notice the blurred image showing through only where the rounded rectangle was

you move the layer around, you will see that the shape is now your “window” to the distorted background.

Stage III: The Final Touch

To complete the Vista effect, all we need to do now is to apply a drop shadow and a bevel to the shape. In the Layers palette, create a Drop Shadow and a Bevel and Emboss effect; the defaults should do just fine, but you should tweak the settings to see what suits you best.

12.2 Workshop: Night Vision in Three Easy Steps

In this workshop, we'll take a drab old picture of a doorway, and make it look like something you might see if you were wearing a pair of night vision goggles. To get the most convincing effect from this technique, you should pick a picture of a setting that one would normally use night vision in—dark corridors, outdoor night-time photographs and the like.



The door (before)

Stage I: The Blinding Light

Night vision basically squeezes light out of dark scenes to help you see as much as possible, and so when you look at an otherwise dull bulb through night vision goggles, it's going to look like a blinding beacon.

By that reasoning, the first order of business is to kick up the highlights in the image to make the bright spots *really* bright.

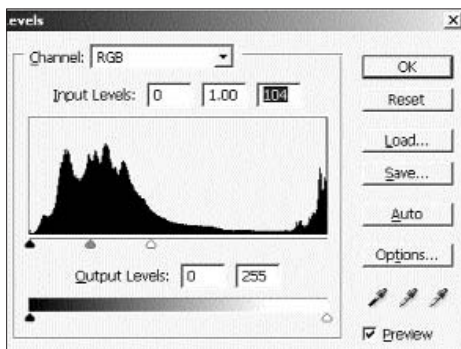
Go to Image > Adjustments > Levels, or press [Ctrl] + [L] to get to the Levels dialog box. Drag the slider on the right towards the left to bring it closer to the most dense part of the histogram; you will see the highlights getting exaggerated as you do this. To avoid losing details in so much light, also drag the slider on the right towards

the histogram—keep an eye on the image as you do so—we don't want too intense shadows either.

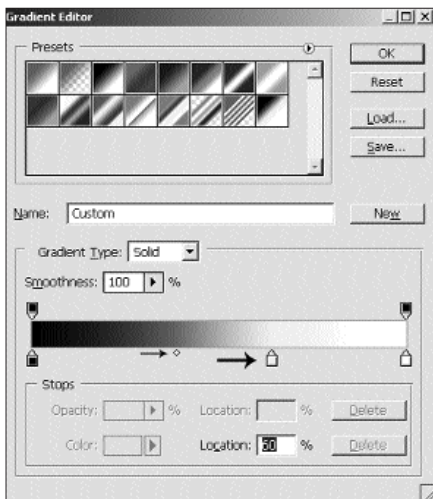
Stage II: The Gradient Map

When you use a Gradient Map on an image, areas with the same brightness get assigned the same colour, picked from the gradient you specify. So if your gradient is Green-Blue-Red, the darkest parts of the image become green, moving towards blue for the midtones, and finally red for the highlights.

Go to Image > Adjustments > Gradient Map to bring up the gradient mapping tool. It lets you preview the final image right there, so you can see the effect your changes will have. We're going to create our own gradient here. Right-click on the gradient in the dialog box to bring up the Gradient Editor. Choose a three-colour gradient from the presets as a starting point. Click on the sliders underneath the gradient to bring up their options at the bottom of the dialog. Your gradient should be Black-Green (R=0, G=255, B=0)-White. In the image preview, you'll notice that at the

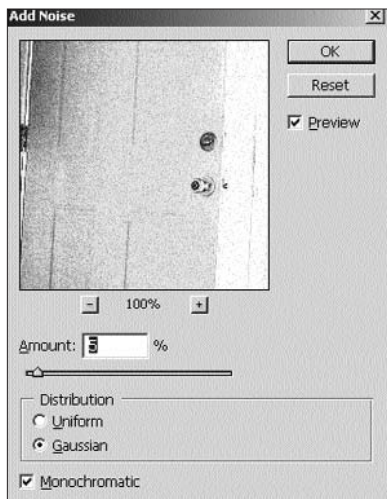


Kicking up highlights using Levels



The Gradient Editor

default settings, too much detail is being lost in the greens. To correct this, move the middle (green) slider in the gradient editor towards the right (you'll notice the value in the "Location" box at the bottom gradually increasing). Stop at around 60%. Do the same for the colour midpoint (the little diamond between the green and black sliders). Once you're satisfied, enter a name for the gradient and click "New".

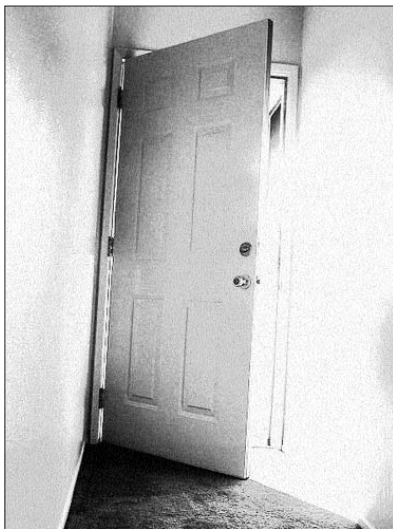


Adding Noise

You're done here, so click on OK to apply the gradient map.

Stage III: The Final Touches

The image still looks too clean and unrealistic, so we're going to add a little noise to make it look a little more gritty. Go to Filter > Noise > Add Noise, and apply a 5 per cent Gaussian Monochromatic Noise to the image to finish it up.



Ta-da!

12.3 Workshop: The Interlaced Monitor Effect

Remember the old PC monitors that doubled your electricity bills, fried your retinas and had very visibly interlaced pictures? Now you can recreate the effect on your current monitor—albeit without the power bills and burning retinas. We'll use ImageReady to create an animation of a command prompt as you would have seen on one of those old monitors. Once you've got the hang of it, you can use the interlaced effect to make images look as if they were shot from a security camera or are being displayed on an old TV screen as well.

We'll start with a new Web banner in ImageReady (File > New > [choose Web Banner from the Image Size menu]). Fill the Background layer with black.



Stage I: Setting Up

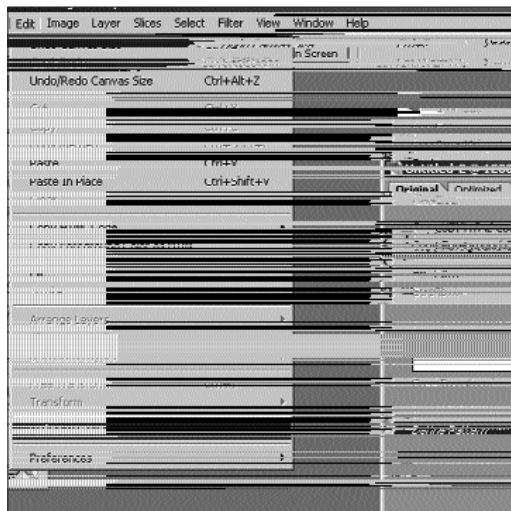
Use the Type Tool [T] to create a new type layer; type in the default DOS prompt—"C:\>". Choose a fluorescent green colour, and a very "system-looking" font like Fixedsys or OCRA Extended.

For the blinking cursor, we'll just create another type layer with the same colour and font, with the underscore () character.

Stage II: The Pattern

To get the interlaced effect, we'll create a new pattern, which we will then stick on top of the text to make it look like it is being displayed on an old monitor.

Create a new document, 20 pixels wide and 2 pixels high. Zoom into it to about 1200 per cent. Click and hold down on the Marquee tools in the toolbox and choose the Single Row Marquee. Click within the image to select one of the rows, and fill it with black ([Alt] + [Delete] with black as your foreground colour). You should be looking at one black and one white row.



Defining the pattern

To set this as a pattern, go to Edit > Define Pattern. You will notice that unlike Photoshop, ImageReady doesn't let you save your own library of patterns—just one at a time. If you're trying this effect in Photoshop, you can save this pattern as "Interlace" to use it later.

Create a new layer in the document, go to Edit > Fill, and choose Pattern. Click on OK, and you'll now see the top layer filled with lines. Change the Blending Mode to Multiply, and the effect is complete!

Remember, if you're working with a larger image, it might be a good idea to play with the thickness of the pattern—instead of a 2-pixel high pattern, consider turning it into a 4-pixel pattern—two black and two white.

Stage III: Animating the Cursor



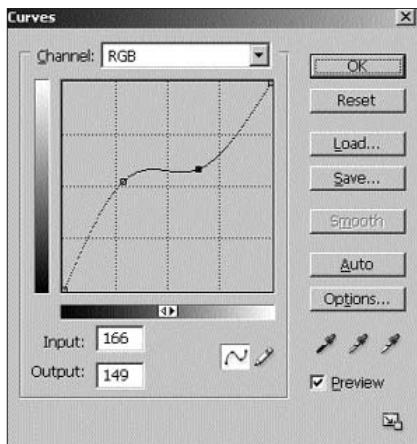
This is the simplest part. In the Animation Palette (Window > Animation), drag the first frame onto the New Frame button to duplicate it. In the second frame, turn off the visibility for the underscore layer. Set the delay for each frame to 0.5 seconds, and set the animation to loop forever. Play the animation to watch your new retro DOS prompt.

Save this animation by going to *File > Save Optimized as* and choosing GIF.

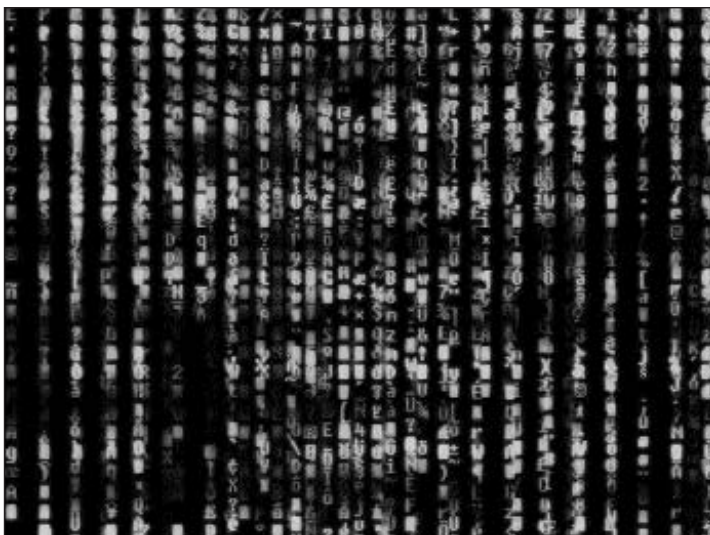
Creating the Security Camera Effect

With a few little enhancements, we can use the above method in Photoshop to make an image look like it was taken from a security camera. Follow the same procedure to create the interlaced layer, only this time add just a little noise to the interlaced layer (Filter > Noise > Add Noise) and add a little Gaussian noise with the Monochromatic option on.

Desaturate the underlying image using Image > Adjustments > Desaturate. Security camera footage tends to look a little washed out, so adjust the curves (Images > Adjustments > Curves) to get the effect you want.



12.4 Workshop: Enter The Matrix



In about fifteen minutes, you will have created your own Matrix Code wallpaper, thanks to good old Notepad and some judicious use of masks.

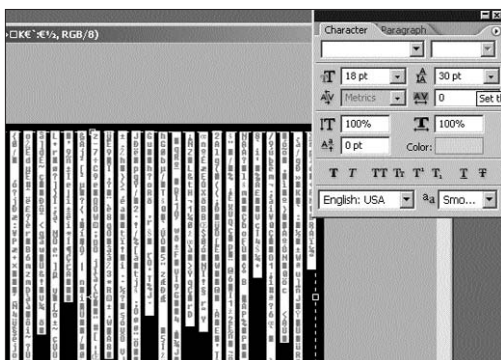
Stage I: The Matrix Code

For the arcane lettering that is the Matrix code, we'll use a cheap but effective substitute—open Notepad, and drag any program's EXE into it (really now, don't expect us to tell you where to find this). Copy a considerable chunk of this gibberish onto the clipboard.

In Photoshop, create a new 1024 x 768 document (or whatever wallpaper size you want) and fill the Background layer with black. Select the Vertical Type Tool (click and hold down the mouse button on the Type Tool in the toolbox or use [Shift] + [T] to reach it) and draw a type box over the document.



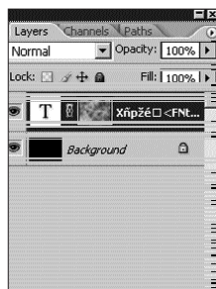
Choose a convincing code font such as Fixedsys. Alternatively, you could choose a symbol font such as Wingdings or Webdings. Change the font colour to a fluorescent green and the font size to 18 pt (assuming you've selected 1024 x 768 as your document size—you should experiment with your own values to see which you prefer). Paste the text you copied into this type layer.



Open the Character palette by clicking on the icon in the option bar. With all the text selected, change the character leading to 30 to space the lines out better.

Stage II: The Mask

Now that the text is ready, you need to create a new layer mask for this type layer. With the



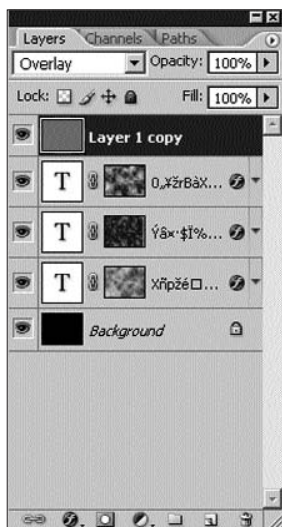
mask selected in the Layers palette, go to Filter > Render > Clouds to create some clouds in the mask (remember to hit [D] before you do this to restore the foreground and background colours to black and white).

Things seem to be looking up now, but the text still looks a little drab. Spice this up by adding an outer glow that's the same colour as the font.

Stage III: Lather, Rinse, Repeat

All you need to do now is duplicate the type layer a few times, re-render the clouds so that each layer has a different mask, change the text by copying different blocks from Notepad, and move the layers around so that the text doesn't overlap. A little movement here, some transparency there, and we're done!

If you wish, you can add a little more to the image by slapping on an old monitor effect, which we've covered in the Interlaced Monitor workshop.



12.5 Workshop: Your Own Oil-on-Canvas



If you want your images to have that hand-painted look, you'd probably turn to one of the Artistic Filters like Fresco or Paint Daubs. Of course, you can't control the effect as much as you'd like, and worse—anyone who's ever used Photoshop will be able to tell in a heartbeat, so you'll never be able to fool anyone into believing that you can actually paint.

The way out? Paint! And with the Art History Brush, you don't need much talent, either.

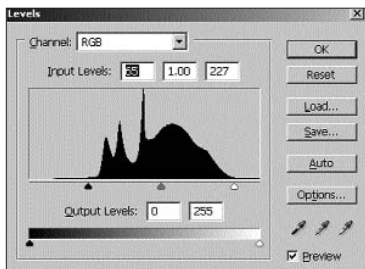
Choosing The Image

Using the Art History Brush will destroy a lot of detail, so you want to pick an image that has big, obvious elements. In the image we've chosen—*landscape.jpg*—we don't mind losing the minute details of the little village; the stark colour difference will quite clearly indicate the presence of trees. There's also enough variation in the colours of the mountains, so it won't look completely flat.

Stage I: Preparing The Image

As it stands, the picture looks quite washed out and bland. We shall first turn it into an evening scene to make it more dramatic.

Duplicate the Background layer. We're first going to darken the sky, so use the Magic Wand Tool [W] with a Tolerance of 30 and click on the sky to select it. Next, use the Burn Tool [O], and with the Range set to Highlights and Exposure to 100%, paint inside the selection. It's advisable to try and cover as much as possible area in the first stroke itself; don't be too worried about *complete* coverage—in fact, a few light patches will look even better in the final image. When you're satisfied, use [Ctrl] + [D] to deselect the sky.



Boost both highlights and shadows using Levels

To darken the rest of the image, change the Blending Mode of the layer to Multiply. We'll kick up the highlights and shadows using Image > Adjustments > Levels, and set the Input Levels to 65, 1.00 and 227. Flatten the image, save it as *landscape-evening.jpg*; close and reopen it. We're now ready to turn it into a painting.

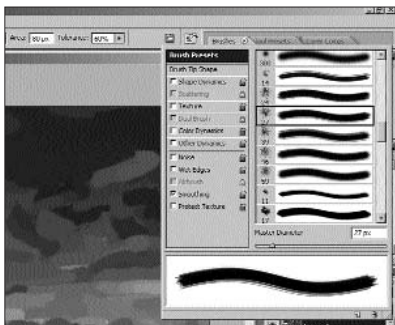
Stage II: The Painting

The Art History Brush is one that just begs to be experimented with—you'll actually never get identical results for the same setting twice. It's also a tool that needs a lot of patience—it will take a while before you will get an effect that will satisfy you.

Create a new layer over the background—this is the one we will use to paint on. Select the Art History Brush from under the History Brush in the Toolbox. The effect you get will depend a lot on the Style you chose—the tight styles pack the brush strokes closer together and give you a lot more control over the result, and the

loose styles let the strokes run wild (within reason, of course). The Area parameter lets you decide the area within which strokes will be made—a larger value will cause the brush strokes to be spread over a larger area.

To get a rough, painted effect, choose one of the splatter brushes from the Brushes palette in the palette dock at the top-right.



Pick a rough-looking brush

Use the Tight Long style for the brush—this will give us long, flowing strokes. Set the area to 40 px to keep the strokes in check. Now start painting, preferably in the same way that you would have painted the scene on a drawing paper—one thing at a time, stroking in the same direction. Keep the brush size small if you want to preserve smaller details, or increase it for a splottier look. You'll also need to keep switching styles to get the best results.

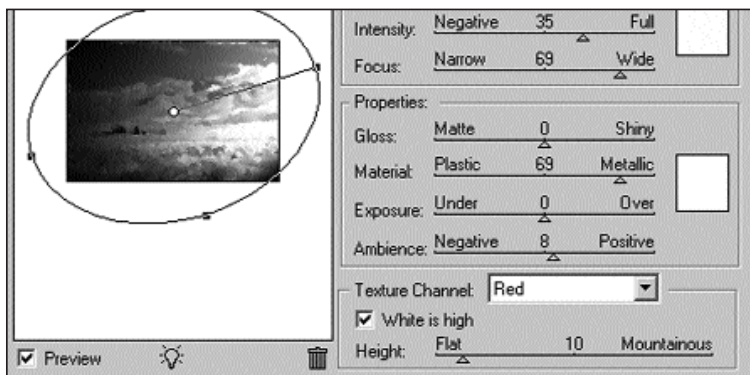
Keep going till you've filled the layer (turn off the background layer to spot any areas you've missed).

Stage III: Finishing Up

Now that we're done with painting, it's time to make the image look like it was painted on a canvas. The first thing we will do is bring out the brush strokes to make them look like thick layers of paint.

Open the Lighting Effects filter from Filter > Render. Change the position of the light to make it shine from the right. At the bottom of the dialog, change the Texture Channel to Red, and the height to around 10. Apply the filter.

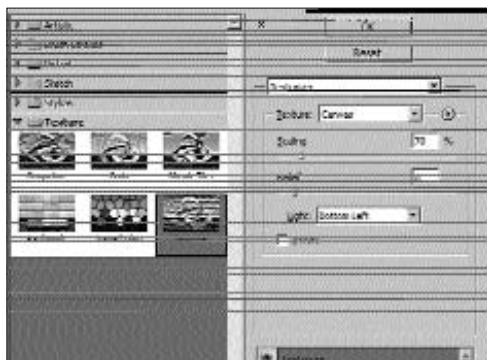
To apply a canvas-like texture, create a new layer and fill it



Any channel will work well as a texture channel

with 50% grey. Go to Filter > Texture > Texturizer and pick a Canvas texture with 70% Scaling, a Relief of 5, and light from the Bottom-Left.

Set the blending mode for this layer to Overlay and the opacity to 50%, and you now have your very own painting!



12.6 Workshop: Postage Stamp Edges



Postage stamp-style perforated edges make for unique photo frames as well as a cool effect for large text, and are deceptively easy to achieve.

Choosing The Image

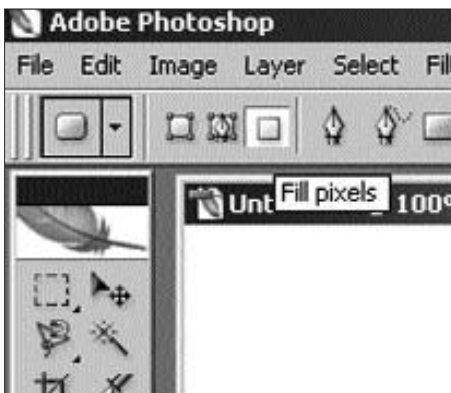
The best place to use this effect is on a shape or a really huge letter (if you're applying the effect to type). Once you're done with the shape, all you need to do is paste the photo on top of it and link the layers.

Stage I: The Shape

We'll start with a new image for this one—a new 800 x 600 document should do fine. Create a new layer and select the Shape Tool [U]. From the top toolbar, select the Fill Pixels option, choose your shape and draw it on the new layer. We chose a rounded rectangle, but any shape (though only *some* of the custom shapes) should work fine.

We will now convert the outline of this shape into a path. Hold

down [Ctrl] and click on the layer's thumbnail in the Layers palette to load it as a selection. Go to the Paths palette, click on the arrow on the right and select Make Work Path. The outline of the shape is now a path. We'll use this to perforate the edges of the shape.



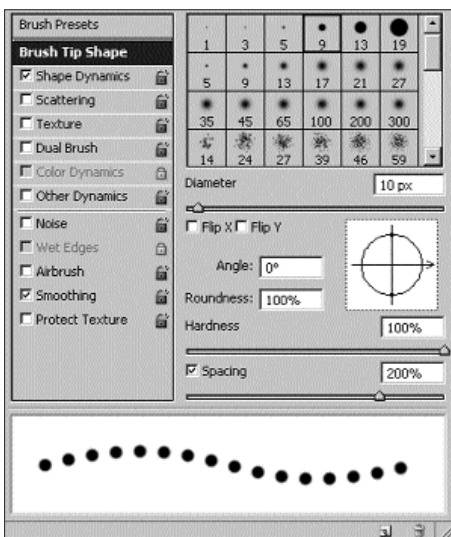
Stage II: The Brush

Click on the Brushes tab in the Palette Well at the top right. Under Brush Tip Shape, create a brush with a 10 px diameter, 100% Roundness and Hardness, and a 200% Spacing. Click on the New Brush icon at the bottom right of the palette to save the brush; call it "Stamp".

Select the Eraser tool [E], right-click on the image to bring up the brush selection and select this new brush.

Stage III: The Final Stroke

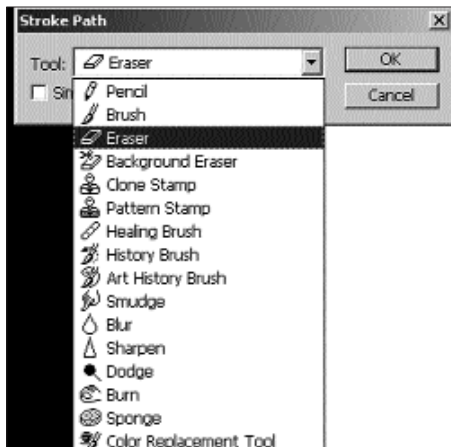
Now go back to the Paths palette and select the work path we made. Click on the arrow on the right and select Stroke Path. In the dialog that



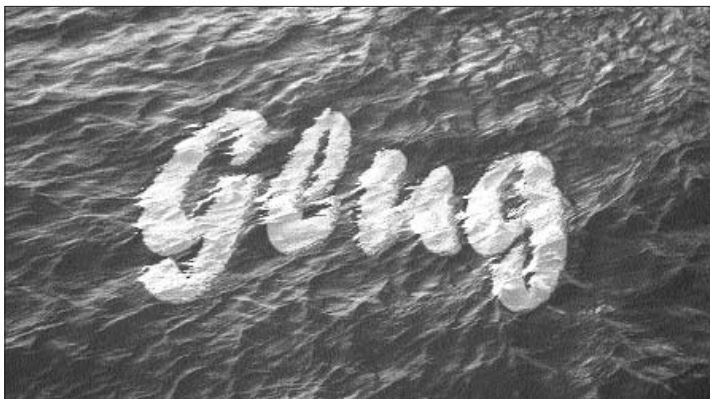
Setting the brush properties

comes up, select Eraser and click OK. And you're done!

Remember, the same brush setting won't work for all image and shape sizes, so you'll need to experiment with size and spacing to get what suits your purposes best.



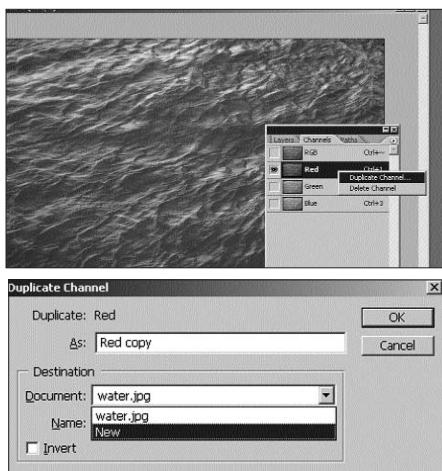
12.7 Workshop: Write Your Name In Water



You can use the little known *Displace* filter to convincingly slap text on to any surface—water, rock, you name it. Here, we'll make our text appear as if it was just under the water's surface.

Stage I: The Displacement Map

The Displace filter uses a file, called the *Displacement Map* to distort an image. The displacement map should be a greyscale document with strong contrasts to bring out the distortion best. Open *water.jpg* from the CD. In the Channels palette, check the individual channels to see which one has the most pronounced contrasts; we picked the Red channel. We're now going to use this channel as a displacement map, so we need to save it in a separate



document. Right-click on the channel and select Duplicate Channel. In the dialog that comes up, select *New* under Destination. A new file will be created—save this as *displace.psd* on your hard disk.

Stage II: The Text

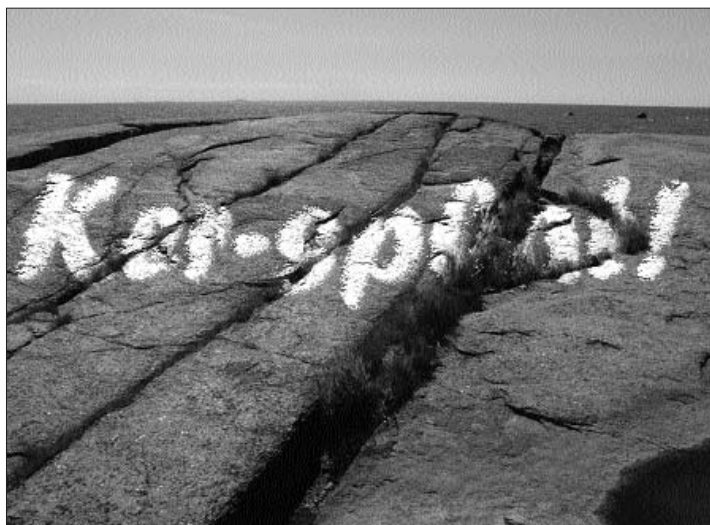
Create a new type layer on the image with a sufficiently large font size. Font face doesn't really matter, but for best results, choose a thick one—we are, after all, going to distort it, so we don't want to lose the text if the font is too thin. We need to match the perspective of the text with the image to make it look like the text is on top of the water, so rasterise the type layer by right-clicking on it in the Layers Palette and choosing Rasterize Layer. Hit [Ctrl] + [T] to transform the layer; right-click on it and select



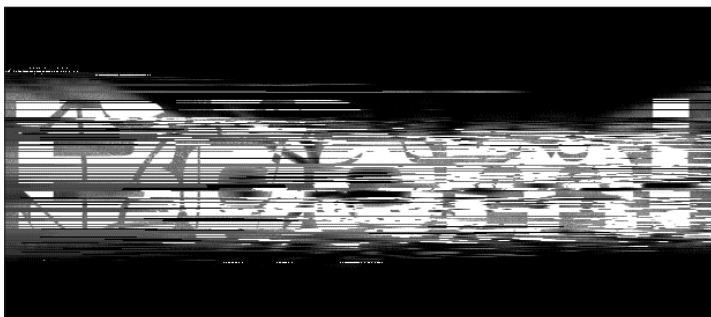
Perspective. Now, drag the handles at the top to make it look like the text is on top of the water (see picture above). Once you're satisfied with the transform, double-click the layer to confirm it.

Go to Filter > Distort > Displace to bring up the Displace filter. You can enter the horizontal and vertical scale here—this is how strongly the displacement will be applied. We'll just accept the defaults for now. You'll be asked for a displacement map—point it to *displace.psd* that you created earlier. Finally, change the blending mode of the layer, and *voila!* Your own water-banner.

You can try this on other surfaces as well—it works brilliantly with rocks (even more so if you apply an Inner Shadow layer effect afterwards), walls, cloth or trees. We've even put *rock.jpg* on the CD to satisfy your experimentation needs.



12.8 Workshop: Text Go Boom



Armed with a trusty lasso and a couple of blur tools, we can carry out a few demolition operations of our own! Watch and learn!

Start with a new image (the same old 640 x 480) and fill the background with black. You can do this with white as well, but black just looks cooler.



Create a new type layer—use a thick font and a red or orange-based colour. Right-click on the layer in the Layers Palette and rasterise it.



Whip out the Lasso tool [L] and select a small part of the image at random. Hold down [Ctrl] and drag the selection a little away from the original



Lather, Rinse, Repeat



Duplicate the type layer once and use Filter > Blur > Radial Blur. Set the blur type to zoom, the amount to 100% and the quality to draft for that grungy blown-up effect

Finally, throw on an outer glow layer effect to complete it



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NOTES

A series of 21 horizontal dotted lines for taking notes.