Chapter 1

Handling Web Graphics Tasks

In This Chapter

- Graphic language for the Web
- Using Paint for Web graphics
- Creating GIF and JPEG files

Graphics are the key to making the Web interesting and useful. Before the Web became popular, users employed the Internet largely to send text messages back and forth. In the early 90s, Marc Andreesen added the <IMG>, or image, tag to the first widely used Web browser, Mosaic. Suddenly, the Web came to life.

Text alone is boring, but add graphics and it becomes interesting. Think of the difference between a traditional text-only book and a magazine or newspaper. Text-only books are vitally important, of course, but newspapers and magazines catch and hold the eye. Now more and more books, such as the one you are holding in your hand, use graphics and sophisticated layouts to make them more readable and fun.

Graphics clearly make the Web fun for users, but what do they mean to people who create Web pages? Most Web page creators know how to write fairly presentable text for Web pages. However, people are taught the three R's — reading, writing, and arithmetic — and there's no G for graphics or D for design in the three R's. So, although most people can create a Web page with fairly interesting text, they might have trouble using graphics to make the page look good or to help make a point.

This book closes that gap by showing you the basics for using graphics in your Web pages and designing them so that they make a positive impression on all your Web page users — even you!

Words for the Web-Wise

You probably know quite a few Web graphics terms; in fact, you may not even realize how many of them you do know. Although widely used, many of these terms are poorly understood. So we take a moment to explain them. In doing so, we can also begin to communicate some of our philosophy about how to create great Web graphics.

A few Web words

Before you do anything on the Web, the first word you need to know is *HTML* — HyperText Markup Language. HTML is a mix of ordinary text with special commands called *tags.*

Because HTML tells computers what to do, it's referred to as *code,* even though it's not a full programming language. However, HTML is much easier to read than computer programming languages are. Here's a snippet of HTML code:

```
<H2>Fun with Clowns</H2>
Here's an example of an image within a Web page: a clown!<P>
<IMG SRC="clown.jpg">
```

Figure 1-1 shows the code snippet, along with the Web page it produces. As you can see, "Fun with Clowns" is a heading. Here's a simplified description of what all the pieces in the HTML snippet do:

- `<H2>` **tag:** Tells the Web browser to display the following text as a header.
- **"Fun with Clowns":** This text is displayed as a header because it is preceded by the `<H2>` tag.
- `</H2>`**:** Tells the Web browser to stop displaying text as a heading and to put the next text or graphic on a new line.
- **"Here's an example . . .":** More text. No tags affect it, so it is displayed normally.
- `<P>`**:** End of a paragraph. Put the next text or graphic on a new line.
- `<IMG SRC="clown.jpg">`**:** Display an image. The file to display is `clown.jpg`.

Don't be afraid to go over this code a few times. Compare the HTML code to the Web page it produces. After you understand how the code works, you'll know much of what you ever need to know about HTML.

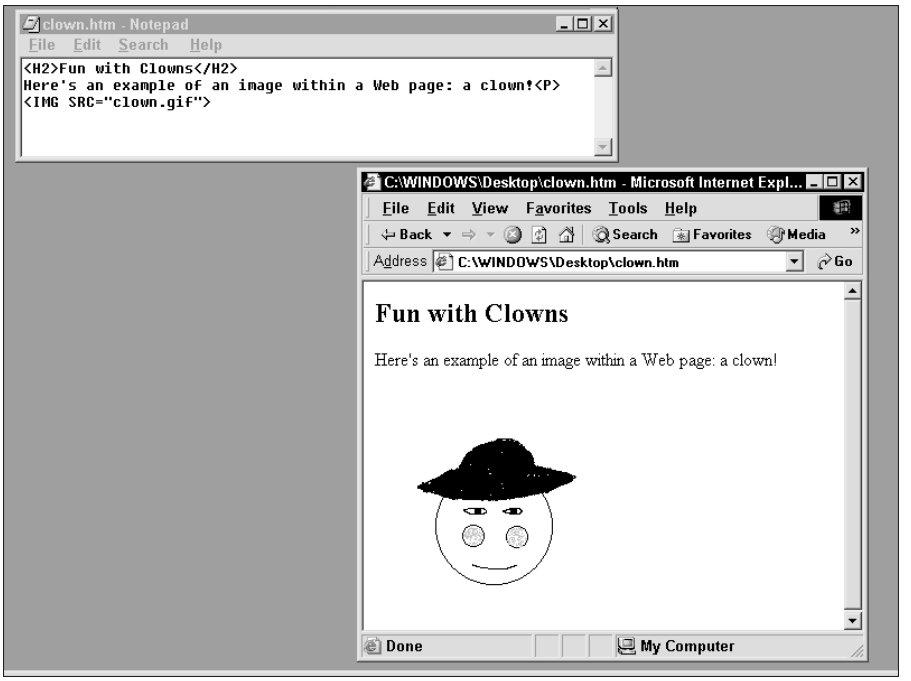

Figure 1-1: A Web page that's not afraid to clown around.

In addition to understanding the role of HTML, you need to know what a *Web server* is. A Web server is a computer that actually stores the files that make up Web pages. When you type a Web address, such as `www.dummies.com`, a request goes out over the Internet for the Web server that has the name `www.dummies.com`. Eventually, the request reaches the Web server with that name, and the server responds by sending back an HTML page stored at the base directory, or *root,* of the Web server's file system.

Through a bit of trickery, a single Web server can contain multiple domains. Each domain is mapped to a separate subdirectory on the server. It can be a bad day for several people when one of these Hydra-headed Web servers goes down!

When you use the Web, in general here is what happens: A request from the user causes a Web server to send a particular file to the user. A Web page consists of an HTML file plus all the graphics files referred to within the HTML file. For more information on this topic, check out the sidebar "One is the loneliest number," later in this chapter.

Finally, you need to understand *download time,* the time it takes a file to be transferred from a Web server to your computer. Download time includes the time it takes your computer to request an HTML file and then request each graphics file, along with the time it takes the Web server to start transferring the files and the time it takes all the files to arrive at your computer.

As you can probably see, having a slow connection to the Web at any point greatly increases the download time for a Web page. Some users, of course, have fast connections such as a shared corporate data line, or a cable line and cable modem, or a DSL phone line and DSL modem. Others have a slow connection — a regular phone line and a 28.8 Kbps, 33.6 Kbps, or 56 Kbps modem.

A slow user connection makes download time longer, but so does a slow or busy Web server, or a slow connection between the Web server and the Internet, or congestion on a corporate user's Local Area Network (LAN), or on the Internet as a whole. Web pages can take a long time to download for many reasons.

However, the biggest limiting factor on download speed is still the user's connection. It takes about 1 second to download 3K of data over a typical modem connection, so a 30K graphic takes 10 seconds to download. That's a long time for the user to sit and wait! This book will give you many tips and techniques for achieving good-looking results while minimizing the user's waiting time.

To summarize, HTML is the code in which Web pages are written. You may already know how to use HTML. If not, *HTML 4 For Dummies,* 4th Edition, by Ed Tittel and Natanya Pitts (Wiley Publishing, Inc.) is a good place to start — or use a tool such as FrontPage or Dreamweaver to create the Web page without dealing directly with HTML.

A Web server sends HTML files and the graphics files associated with them to the user's computer. Each Web page is one HTML file plus the graphics to which the HTML file refers (except for framed pages, described in the section, "A few Web design words"). The total amount of time it takes for all the files to be sent over the Internet is the download time of the page.

Some graphic language

In our explanation of how HTML works, you may have noticed that the image of a clown's face was stored in a file called `clown.jpg`. This image is a *JPEG file,* a term you've no doubt heard before. Check out the upcoming sidebar, "Convention-al filenames," for information on naming HTML, JPEG, and GIF files.

JPEG stands for Joint Photographic Experts Group. Many years ago, a group of experts joined together to specify a way to compress photographic images so that they would take up much less space when stored in a computer file, with as little loss of quality as possible. JPEG is the answer they came up with, and it's a good one.

As you may already know, JPEG is used almost exclusively for compressing photographs. It's *lossy compression* — you actually lose information when you store an image in JPEG format. The beauty of JPEG is that you keep most of the impact of the original photograph while storing the image in a file that's much smaller than the original.

The complement to a JPEG file is a *GIF* file (GIF standing for Graphics Interchange Format). Several people invented GIF — the argument over just whom is still going on — and was popularized by the CompuServe online service about 20 years ago.

GIF is good for storing images that don't have lots of colors in them, which includes most images created from scratch on a computer. GIF files are used for storing just about any image that didn't originate as a photograph. Most of the little graphics in a Web page are GIF files.

GIF also supports three neat tricks that you won't usually find in JPEG files: interlacing, transparency, and GIF animation. *Interlacing* allows a GIF file to download in bands so that a blurry version of the image appears quickly and then sharpens as the rest of the image data downloads. *Transparency* allows you to drop the background around an image so that it appears to be embedded directly in the page, not surrounded by a rectangular window. *GIF animation* is also the easiest way to create animated images on your Web pages. You find more on all these features in Chapter 2.

Special effects such as interlacing, transparency, and animation are important, but the most important thing about HTML, GIF, and JPEG files is that they're the only file types recognized by nearly every Web browser (this differs greatly from typical PCs and Macintosh computers, which are likely to have scores of different file types). If you understand how HTML, GIF, and JPEG files work, you've already gone a long way toward understanding how Web pages function.

A few Web design words

There are libraries of books on page layout for printed pages, with specific coverage of layout for books, magazines, newspapers, and other kinds of printed material. The Web is a relative newcomer here; the art of page design for the Web is still in its infancy.

However, some good ideas are emerging, and we include them in our recommendations for how to do things. You do, however, need to know a few terms in order to participate in the discussion.

Convention-al filenames

If you just want to trust us, you can read the rest of this paragraph, follow the conventions (that is, rules) it describes, and go on: Always simplify your filenames to an 8-character filename with no uppercase letters, spaces, or special characters — just the 26 letters of the alphabet and the 10 digits, 0–9. Always end your filenames with `.htm` for HTML files, `.gif` for GIF files, or `.jpg` for JPEG files.

Some of you, however, will want to know why these rules, or conventions, should be followed. Here's a brief description.

Users are likely to employ four computer systems to transfer and store Web files, in this order of preference: PCs running Windows; Unix systems; Macintosh computers; and PCs running DOS.

Each of these computer systems has different rules for handling filenames. PCs and Macs ignore uppercase versus lowercase differences; Unix systems treat `BIGFILE.htm` and `bigfile.htm` as different files. PCs, Unix systems, and Macs all have different lists of special characters that they support, whereas PCs running DOS (or early versions of Windows) recognize only "8.3" filenames — an eight-character filename followed by a three-character extension.

The big problem is that when you send your file to be hosted on a Web server, you may not know the kind of system it will end up on. Your hosting provider may even move your Web site from, say, Windows to Unix without telling you. In addition, your file may be stored temporarily on any kind of system on its way to a long-term home on another kind of system.

Because different systems use different filename conventions, putting the wrong filename on the wrong kind of computer — even briefly, as the file is moved around — can actually cause the filename to be changed. All links to such files will instantly break. Note that navigation or the display of graphics on your Web site can stop working for reasons that are hard to determine after the fact.

The safest bet is to keep your filenames short and simple, as previously described. If you just can't stand short filenames, though — and they're harder to manage than long ones — at least follow these looser rules: Keep the main part of the filename to 30 characters or less; use three-letter, not four-letter, extensions; never use spaces; avoid special characters; and never use capital letters.

If you follow these rules, your files are much more likely to behave well as they travel through cyberspace — and to have the same filenames that you expect them to have when they finally end up in their long-term home on a server.

The first, and most important, term is page weight. *Page weight* is the total size, in kilobytes (K), of all the files in a Web page, which means the HTML file that makes up the Web page plus all the graphics referred to in the HTML file.

Figure 1-2 shows a typical Web page as it downloads. The Web page was captured partway through downloading to dramatize the fact that most users don't see the whole page at once; they see part of it and have to wait for the rest.

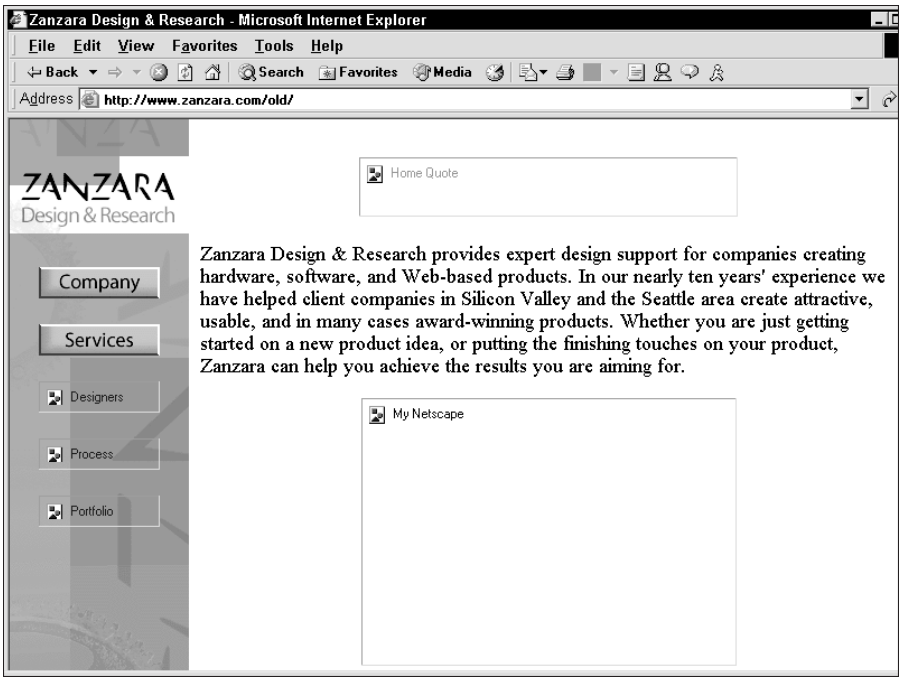

Figure 1-2: Less page weight means less waiting.

Smart Web page developers set a maximum page weight for all the pages in their sites. A typical page weight for a commercial Web site is 30K, or a 10-second download time for a typical user on a slow modem connection.

Smart Web page developers also break the page weight rule sometimes. For example, it may be a good idea to put a high-resolution photo of the hot new bicycle you're selling on your Web page, even if it's more than 30K. Fair enough — but provide a thumbnail version first so the user can get an idea of what the bike looks like before deciding whether he or she wants to click the thumbnail or a link to see a larger version of the picture and wait for the download.

Another key Web design term is tables. A *table* is an organizational tool that Web page developers use to divide a Web page into rectangular pieces. Each piece has different content.

You may have visited a badly designed Web page that didn't have a table-based format. If so, you first saw text appearing without graphics. Then, just as you started reading the text, it lurched alarmingly to one side. A graphic then started to appear where some of the text had been. With a really poorly designed page, this can happen two or three times as various graphics appear on-screen.

The good news is that a properly designed table-based page locks all the pieces into place. (You have to specify the size of table cells and images in your HTML file for this to work correctly.) Text flows into the space where it belongs, graphics appear where they should, and nothing lurches. The user can start reading even before the graphics appear. So tables are a good thing.

Frames, on the other hand, are not necessarily a good thing. Frames are like table cells on steroids. Each frame is a totally separate area in the Web page with its own separate HTML file and, potentially, its own scrollbars. Having separate scrollbars can sometimes be confusing for users. Framed pages give you a lot of options, but they tend to burden the poor user with more decisions than they may really want to make on a Web page.

Frames can be used intelligently, and we talk a bit about how in Chapter 6. For an example of a positive use of frames, see Figure 1-3, a page created by one of the authors (Bud Smith). Notice there's only one scrollbar — the fact that the page was created with frames is almost invisible to the user. In most cases, that's the way to do it.

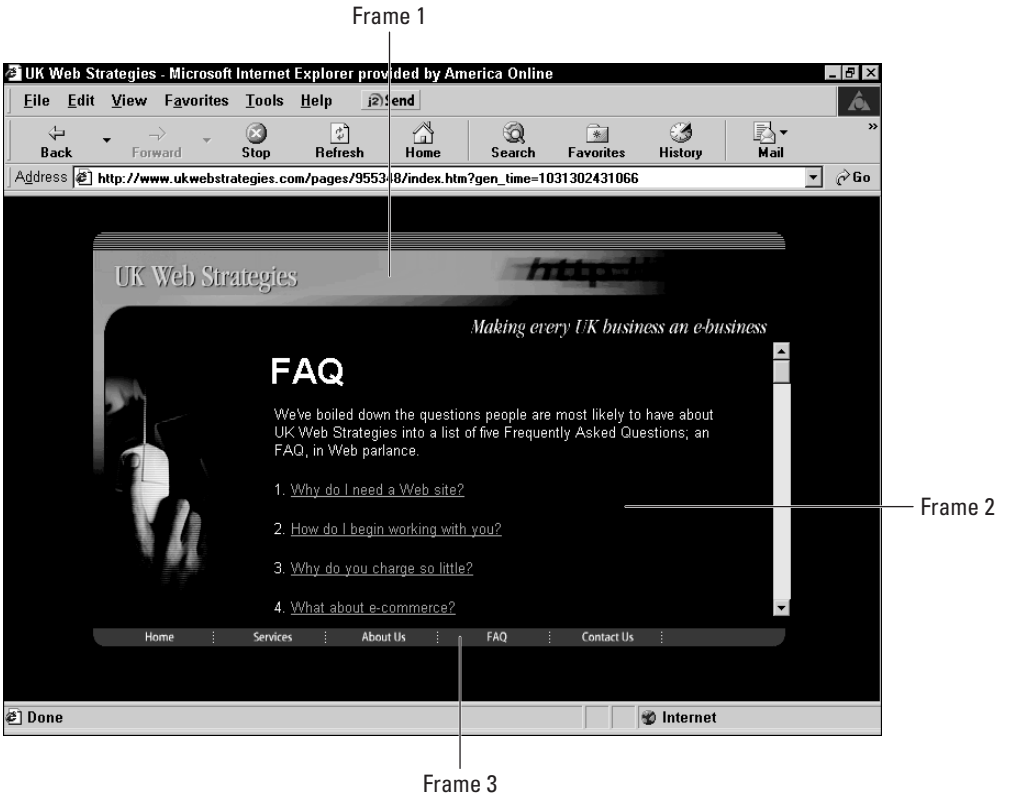

Figure 1-3: Frames are best neither seen nor heard.

Keep in mind that page weight is an important part of managing how long users will have to wait for your Web pages to download. Tables and frames are important page layout tools to make your pages look and work better — tables are almost always good, whereas frames can be used effectively or ineffectively.

To see all the files in a Web page, save the Web page using a recent version of Internet Explorer. The HTML file will be saved as a document, and all the images in the Web page will be saved in a folder with the same name as the document. Look in the folder to see all the graphics files associated with the Web page. Right-click any file or folder to see just how large it is in kilobytes. Divide the total of all the file sizes by 3, and you'll see how many seconds it takes a typical modem user to receive the entire Web page.

Using Paint for Web Graphics

You can create lots of useful images using a free program that comes with every Windows PC: the Paint program. Using newer versions of Paint, you can even save graphics in GIF or JPEG format. The quality of the results won't be very good, but Paint is a great tool to have handy when you're using a random PC in someone else's office, or at an Internet café, or in a hotel business area.

Paint is also great when you're just trying out ideas or are in too big a hurry to boot up a more capable program, and it saves files in Windows bitmap format (the filename ends with `.bmp`). Bitmap format uses *lossless compression* — it doesn't compress your file, so you can edit it and save it again and again without losing image quality.

Although bitmap format preserves image quality, when you resave a file in a GIF or JPEG format, you may lose some image quality (this is a possibility with GIF and a certainty with JPEG). Also, Paint does a lousy job of saving files, so you may want to reopen your original file in a better program later and save a superior GIF or JPEG version. Always keep a bitmap original of your Paint graphics so you can start with a pristine version before saving the final version to GIF or JPEG for display on the Web.

In this section, we give you step-by-step instructions on how to use Microsoft Paint to select a portion of a screen shot. Along the way, we provide several tips and tricks that you'll find useful no matter what image-editing program you're using.

You may have some experience with Paint or other graphics programs already, or you may be new to this kind of program. In either case, walk through these steps. You'll almost certainly discover something new.

Follow these steps to capture a screen shot using Paint:

1. **Open the Windows Paint program by choosing Start➪Programs➪Accessories➪Paint.**

   The Paint program may be in a different folder on your system — look around until you find it, and then open it.

2. **Open an interesting file on-screen.**

   You can open a graphics file, a word-processing document, or a spreadsheet. You can fire up a Web browser and go to a Web page you like. Or just leave the Paint program in the foreground.

   You can use any content you want for this exercise, because you don't end by putting something on the Web. However, always be careful when you capture content that may be protected by copyright. Don't publish such content on the Web without permission.

3. **Press the PrtScrn, or Print Screen, key.**

   It may have a slightly different name on your keyboard, such as PrtSc, but the key should still be recognizable. We refer to it as the PrtScrn key for consistency in this book.

   Pressing PrtScrn makes a copy of the current screen contents — in bitmap format — and puts the image in the Windows Clipboard.

4. **Bring the Paint program to the foreground, if it isn't already.**

   A blank drawing area appears in Paint.

5. **Choose Edit➪Paste (Ctrl+V).**

   The screen image is pasted into the Paint drawing area. It will be larger than the window size of the Paint program.

   Now choose part of the image to make into a GIF file.

6. **Reinitialize the selection rectangle by clicking the Eraser icon and then the rectangular Select icon (the dashed-box icon in the upper-right corner).**

   When you first paste an image into Paint, the selection rectangle is drawn around the entire pasted image. To select part of the image, rather than the whole thing, you have to deselect the entire image by clicking somewhere else. But, because the screen image fills the entire Paint window, the best place to click is in the tools area.

7. **Scroll to an interesting area of the screen, and using the selection rectangle, click and drag to select the area you'll use for your graphic. Select an area about 250 x 250 pixels in size.**

   Figure 1-4 shows how the screen looks during this process.

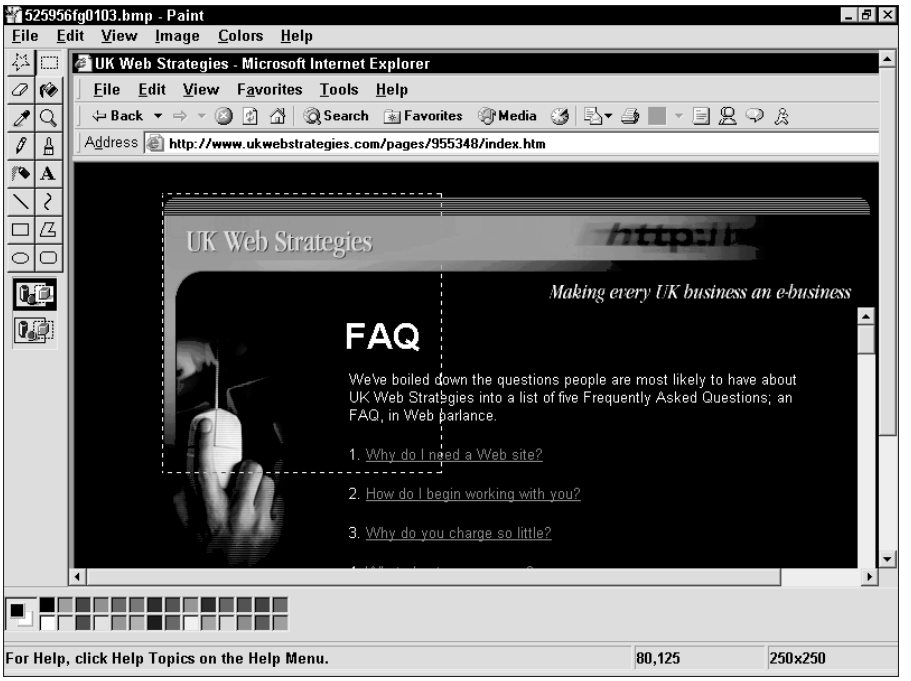

Figure 1-4: Using Paint to select part of a screenshot.

8. **Copy the selection to the clipboard by choosing Edit➪Copy or by pressing Ctrl+C.**
9. **Clear the current image by choosing File➪New or pressing Ctrl+N.**

   A dialog box appears to ask, "Save changes to untitled?" You've already copied the only piece of the captured screen image that you want, so click No.
10. **Press N or click the No button to bypass saving the file and close the dialog box.**

    The drawing area is cleared.
11. **Make the drawing area smaller by grabbing the lower-right corner of it and dragging it up and to the left — leave an inch or so in the upper-left corner of the screen.**

    When you do this and then paste the selection, the drawing area will automatically expand to fit the selection.
12. **Paste the selection into the drawing area by choosing Edit➪Paste or by pressing Ctrl+V.**

    The selection will appear in the drawing area.

13. **Save your file (in bitmap format) by choosing File➪Save or pressing Ctrl+S.**

    Because the document has not previously been saved, the Save As dialog box appears.

14. **Use the dialog box to navigate to the folder of your choice on your hard disk or to the desktop. Then press Alt+S or click Save to save the file and close the dialog box.**

    Your file is saved in bitmap format.

Creating GIF and JPEG Files

GIF files are really cool. You can do all sorts of neat things with them. However, for now, we're just going to explain the basics on how GIF works, how to create a GIF file, and how to use a GIF file in a Web page.

As we mentioned previously, GIF stands for Graphics Interchange Format. It has been around for a long time and supports neat tricks such as interlacing, transparency, and GIF animation.

The GIF format is very limited — and very efficient. No GIF graphic can have more than 256 different colors in it. This means that GIF graphics can be very small files, can be created easily, and can be displayed quickly.

Photographs, however, tend to have hundreds or thousands of different colors in order to accommodate subtle shadings found in natural images. So GIF is not usually a good choice for photographic images.

GIF is perfect, though, for most of the graphics that people create on computers, because most of us lack the patience or talent to use anything like 256 colors in the graphics we create. All the bullets, dingbats, business graphics, American and other flags, and cartoonish-looking images you see on the Web are stored and transferred as GIF files (or should be!).

JPEG, on the other hand, is perfect for photographs. Photos use hundreds or thousands of different colors to accommodate subtle shades. When you or I look at a photograph, we see a few colors — brown hair, a red sweater, a green lawn. But the photograph actually uses hundreds or thousands of shadings of hair color, or of the folds of a sweater, or of the rise and fall of a grassy hill to communicate depth and other subtle features of the image.

The JPEG file format uses some fairly tricky technology to assign color patterns to groups of pixels in a photograph. These patterns can be stored much more compactly than individual pixel colors. JPEG also allows you to control

What about the Mac (and Unix)?

This book focuses on the Windows versions of various programs such as the free Microsoft Paint utility, Paint Shop Pro, and Photoshop Elements. This is for two reasons. The first reason is, of course, that many more people use a PC than a Macintosh. Focusing on PC users makes it much easier for us to give simple, straightforward steps for solving common graphics problems.

The other reason is more subtle: Most Macintosh users already know how to perform basic graphic tasks. The Macintosh is very popular among graphics pros. Relatively few Mac users are novices when it comes to graphics in general, or Web graphics in particular.

One of us (Peter Frazier) is a graphics pro who uses a Mac whenever possible; the other (Bud Smith) worked at Apple for five years and still uses a Mac on occasion. Both of us are aware of Mac-specific concerns. But we're also aware that providing instructions for multiple platforms makes it harder for everyone to follow what should be simple steps.

Also, we're both aware that creative people who use a Mac or Unix for most of their work need a Windows PC with Web access for testing their output before it goes up on the Web. So, if you have a Windows PC available, please consider using it to run the programs mentioned in this book.

If you are a Mac user who's a graphics novice and lack even occasional PC access, please use available Macintosh programs — the Mac Notepad, the excellent BBEdit text editor, Claris Draw and Paint, and others — to duplicate the steps given here. Similarly, if you're a Unix user, utilize programs available to you to create plain text files and simple graphics. Or get access to a Windows PC to run the programs mentioned in this book, as well as to test your graphics and Web pages before putting them up on the Web. We aren't able to provide specific steps for Macintosh or Unix in this book, but we hope that, if you use these platforms, you'll be able to use your system or a borrowed Windows PC to follow along with the main concepts of the book.

how much the various shades in a photograph are averaged out into each other. You can have a crisp, high-resolution image that's stored in a fairly large file, or a bumpier, blotchier image that's quite small in file size.

In this section, we describe how to create a GIF file using a captured image. Then we show you how to create a JPEG file as well. Afterward, we demonstrate how to combine the GIF and JPEG files in a Web page.

Saving a Paint file in GIF format

In the section, "Using Paint for Web Graphics," earlier in this chapter, we show you how to capture a screen image and bring it into Paint. You can also open an existing bitmap image or a GIF or JPEG file in Paint.

One is the loneliest number

It's hard for most people to understand why graphics files take up so much space, especially compared to text. Here's a brief explanation of the answer.

A text file is made up of 26 characters — the letters of the alphabet — plus digits, capital letters, and punctuation in various combinations. A single text character or punctuation mark accounts for many, many pixels on the screen, generally at least 5 pixels across by 9 pixels high for a single character, plus many pixels of white space around each character.

A graphics file is much more complex. Every pixel has its own color. In a GIF file, a single pixel can be one of 256 colors. In other graphics formats, each pixel can be any of thousands of colors.

Here's the first tricky part. A computer stores information in bits — each bit is either a 0 or a 1. Eight bits are combined into one byte. With 8 bits available, each set to 0 or 1, a byte can contain up to 256 separate possible values.

Text characters are stored one character per byte. So a single byte holds a character that takes up about 45 pixels on the screen. But graphics images need many more bytes. A GIF image requires one byte for every pixel — 45 times more bytes per pixel than a typical text character. Other graphics formats use two, three, or four bytes per pixel — and require that much more storage than a GIF image.

A Web page full of text requires only about 2,000 bytes (2K) when stored. A Web page filled by a GIF image will require about 240K — or one-fourth of a megabyte (MB) — when stored. An image that uses more colors will be 2, 3, or 4 times as large — up to 1MB in size.

Here's the second tricky part. A typical phone modem can download about 3 kilobytes per second. That's more than a full page of text in 1 second. But the same phone modem would require nearly 2 minutes to download a full-page GIF image and 4, 6, or 8 minutes to download a full-page graphic in some other format.

Even worse, for technical reasons, the Internet is much better at transmitting lots of small files than it is at sending a few big ones. Small files are requested and sent quickly; if one is held up, others are easily transferred around it. Big files tend to cause bottlenecks all along the line, slowing transmission further. In many cases, big files don't download correctly the first time and need to be retried one or more times before they finally make it to the user.

This is why Web pages need to be text-heavy; they would take far too long to send as all-graphics or graphics-heavy pages. If you become frustrated by all the work it takes to downsize and compress your graphic images, just think how frustrated users would be if they had to wait two minutes or more every time they clicked a link to a Web page.

When you open a file in Paint, you can save it as a GIF file. Follow these steps:

1. **If you have not already done so, start Microsoft Paint by choosing Start➪Programs➪Accessories➪Paint.**
2. **Press Ctrl+O or choose File➪Open to open an existing graphics file.**

Use a file created with a screen capture, as described in the "Using Paint for Web Graphics" section, or open an existing graphics file on your hard drive.

You can use Start➪Search➪For Files or Folders to bring up the Search dialog box. Search for bitmap (`.bmp`), GIF (`.gif`) or JPEG (`.jpg`) files. Open the file you choose in Paint.

3. **To begin saving the file in GIF format, choose File➪Save As.**

   The Save As dialog box appears.

4. **From the Save as Type drop-down list, select Graphics Interchange Format (*.gif), as shown in Figure 1-5.**

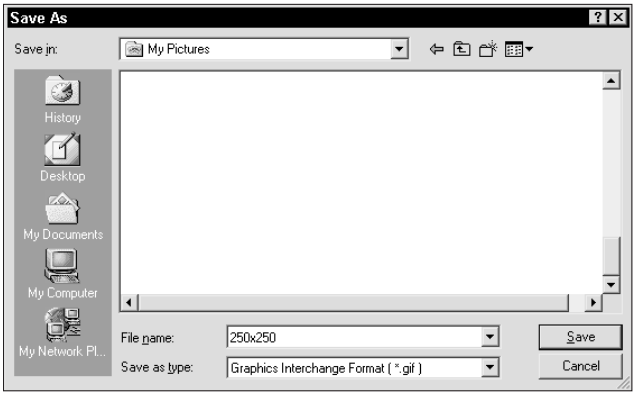

Figure 1-5: The GIF that keeps on giving.

The * represents the filename you'll enter. `.gif` represents the extension that Windows will add to the filename to identify it as a GIF file.

Windows often hides the filename extension when you're looking at or selecting files. However, Windows uses an extension to identify the file type, what icon to use to display the location of the file in a folder, and so on. Understanding all this information can be important when, for example, you want to save a file you create in a text editor (normally a `.txt` file) as an HTML file (which ends in `.htm`). Simply saving the file with a name ending in `.htm` forces Windows to save it with that file extension, ensuring that it will be recognized as an HTML file.

5. **Enter the filename in the File Name text box.**

6. **Press Alt+S or click the Save button to save the file.**

   A dialog box appears with the following message: "Saving into this format may cause some loss of color information. Do you want to continue?" You continue, even if you may lose information in doing so, because you've already saved the file in a lossless format.

When you see a dialog box of this type in the future, always make sure that you have saved the file in a lossless format, such as Windows bitmap format or native Paint Shop Pro or Photoshop format, before proceeding.

7. **Press the Y key or click Yes to save the file.**

   The file is saved. You'll probably notice that the image in the drawing area changes colors. This change in color is caused by Paint's conversion of the file to the GIF format. When converting the file to GIF, other programs use techniques that are less likely to cause dramatic shifts in color.

8. **If you want to go on to the next section and save the same image as a JPEG file, leave Paint open for now. Otherwise, close Paint by pressing Alt+F4 or by choosing File➪Exit to exit the program.**

Saving a Paint file in JPEG format

The preceding section shows you how to save a file in GIF format. This section shows you how to save a file in JPEG format. In Paint, the process of saving in GIF or JPEG is nearly identical. Other programs give you many more options for saving a file as GIF versus JPEG; we look into those in Chapter 3.

Follow these steps to save a file from Paint into JPEG format:

1. **If you have not already done so, start Microsoft Paint by choosing Start➪Programs➪Accessories➪Paint.**
2. **Press Ctrl+O or choose File➪Open to open an existing graphics file.**

   Use a file created with a screen capture, as described in the "Using Paint for Web Graphics" section, or open an existing graphics file on your hard disk.

   You can use Start➪Search➪For Files or Folders to bring up the Search dialog box. Search for bitmap (`.bmp`), GIF (`.gif`) or JPEG (`.jpg`) files. Open the file you select in Paint.

3. **Choose File➪Save As to begin the process of saving the file in JPEG format.**

   The Save As dialog box appears.

4. **From the Save as Type drop-down list, select JPEG File Interchange Format (*.jpg, *.jpeg).**

   The * represents the filename you enter. `.jpg` represents the extension that Windows adds to the filename to identify it as a JPEG file. Windows and Paint also treat a file as a JPEG file if it ends with the extension `.jpeg`. However, we recommend that you use the shorter `.jpg` extension.

The process of saving a file as a JPEG image in Paint is much simpler than in other programs. Normally, you have to choose a level of compression for the image, which determines both the quality of the image's appearance and the size of the file needed to store the image. The higher the image quality, the larger the file. Paint automatically uses a moderate level of compression.

5. **Enter the filename in the File Name text box.**
6. **Press Alt+S or click the Save button to save the file.**

Unlike the process of saving a file as a GIF, you don't get a warning telling you that you'll lose information when saving the file as a JPEG. This is odd, because there are circumstances in which you may not lose information when saving to GIF, but you always lose information when saving from a lossless format to JPEG.

When you see a dialog box of this type in the future, always make sure that you have saved the file in a lossless format, such as bitmap format or native Paint Shop Pro or Photoshop format, before proceeding.

7. **Press the Y key or click Yes to save the file.**

The file is saved. You'll probably notice that the image in the drawing area gets a bit fuzzier. This change is caused by Paint's conversion of the file to the JPEG format. Other programs give you control over the degree of compression to use when creating the JPEG file.

Programs also differ in the quality of their JPEG compression and the size of the resulting files at various compression levels. Experimentation is the only way to be certain of usable results.

8. **Close Paint by pressing Alt+F4 or choosing File➪Exit to exit the program.**