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## **Make Your Web Graphics Take Off**

**From FlashPix to Shockwave, Expert Ways to Exploit the Latest Image Formats  
Scott Bury**

For graphics professionals, the World Wide Web offers a flexibility and immediacy you can't get with print – plus a wide range of new creative opportunities. You can create a line of type that marches across the screen, a logo that spins, or a boxed pull quote that blinks on and off like a strobe light. The design possibilities are endless.

But with this new medium comes a bewildering range of new graphical file formats. Just as you had to become familiar with TIFF, PICT, and EPS for desktop publishing, now you need to get acquainted with GIF, VRML, Macromedia Shockwave, FlashPix, and other graphical file formats for the Web. It's not as daunting as it may seem, though. One of the most common image file formats you dealt with in the print world – JPEG – has become a staple of Web design. In other words, you've already got a head start.

Here's a guide to the file formats in use today – as well as those on the horizon – for adding graphics to Web pages. In this article, I explain the benefits and drawbacks of the Web's graphical file formats and describe the best uses for each format. See the sidebar, "Hot Tips for Cool Web Graphics," for practical advice on how to make the most of the file formats when designing your Web pages. The rest – whether to make your logo spin, bounce, or rocket into orbit – is up to you.

### **Quick, Simple Web Graphics**

The majority of graphics displayed on Web pages today are in GIF (Graphics Interchange Format) or JPEG (Joint Photographic Experts Group) format. The reason is simple: both compress images into small file sizes, which speeds their transfer over the Internet.

Overall, GIF is the most popular graphical format on the Web because it's versatile and it gives you a small file that, in most cases, still looks good. Most Web browsers, such as Netscape Navigator, Microsoft Internet Explorer, and NCSA Mosaic, feature built-in support for GIF and JPEG, meaning that images in those formats don't require browser plug-ins in order to be displayed. In addition, most graphics packages, such as Adobe Photoshop and Illustrator, Macromedia FreeHand, and others, enable you to open and save GIF files.

BoxTop Software offers PhotoGIF, a Photoshop 3.0 (or higher) plug-in that lets you generate

smaller, better-quality GIF files (\$45 company's estimated price; 601/323-6436, <http://www.boxtopsoft.com>).

The GIF format forsakes color depth in order to create small files, however. Unlike with most file formats, GIF images are limited to an 8-bit palette of 256 colors. As a result, GIF works best for small, simple graphics – logos, spot illustrations, clip art, and colored text blocks that don't contain rich color blends or transitions. Digital photographs and images with complex color can show banding when they are translated into GIF, and color transitions can be jarring. You'd be better off with JPEG in those cases (compare the images in "GIF Photos in Close-Up").

There are two GIF variations: transparent GIF and animated GIF. Transparent GIF creates irregularly shaped masks around an illustration or digital photo, allowing you to blend the image into a colored or patterned background. If you tried this with a regular GIF, you'd

see a white box or frame around the image. Creating a transparent GIF is usually as easy as selecting the format in a Web-page-editing program's dialog box.

The animated GIF format is a simple method of adding motion by stringing together a series of sequentially changing images, like a flip book. The format works by continually replacing an image with a slightly different one, giving the illusion of movement.

### **Picturesque Color**

For adding professional-looking photographic images to your Web pages, your best bet is JPEG. Like GIF, JPEG reduces the size of images to speed up transfer across a network. Unlike GIF, however, JPEG retains 24-bit color depth, giving you millions of colors – which is why it's best for digital photographs.

JPEG's main advantage is its flexibility. In image-editing programs such as Photoshop and Fractal Design Painter, you can achieve a JPEG compression ratio from about 4:1 to as great as about 20:1. The greater the compression, the smaller the file.

JPEG is a lossy compression scheme, meaning that it discards "nonessential" image data when compressing a file. As a result, when you decompress the image, it isn't exactly as it was before it was converted to JPEG.

JPEG compression is also unpredictable. Even at high-compression settings, some images show little apparent loss of quality. Other images, however, become blocky and grainy, even at low-compression, high-quality settings. As a rule, photos of people, particularly close-ups, don't compress well. On the other hand, photos with strong patterns and textures where close-up detail isn't as important – a catalog image of a plaid skirt, for

instance – typically come through the JPEG compression with little apparent quality degradation.

While JPEG is the dominant format for high-quality images on the Web, competition is on the horizon. FlashPix, an emerging graphics format from Eastman Kodak, Hewlett-Packard, LivePicture, and Microsoft, may enable you to add high-quality photos to your Web site without slowing down the process of viewing the images on screen.

Based in part on Live Picture's IVUE format, FlashPix files contain a high-resolution version of an image plus additional copies of the graphic in lower resolutions. FlashPix has the potential to sidestep JPEG's lossy disadvantage because the original image retains its high resolution and isn't compressed.

A FlashPix file will be larger than, say, a JPEG file, however, because of the multiple versions at different resolutions. But FlashPix developers claim that working with these large

images will still be fast, as you can work on only part of the image at any one time. At press time, only LivePicture 2.5 allowed you to save images in FlashPix format; no other vendors had announced support for the format.

Meanwhile, a new lossy compression method uses wavelet scalar quantization (WSQ) mathematics, which causes less of an apparent degradation of image detail than JPEG, even at equivalent compression levels. The problem with WSQ-based compression is that Websurfers will have to download and install browser plug-ins to see images in that format. (See "Is There Life after JPEG?" Media, September 1996.)

The GIF specification lets you add any number of sequential images to one file. In addition, the format gives control over how images are sequenced. Animated GIFs can be transparent and interlaced, include lines of text, and play once or loop endlessly. Unlike animations created in Shockwave and Java, however, animated GIFs can't include audio.

To create a GIF animation, you need a program such as GIF Builder (freeware available at <http://152.163.199.26/royalef/gifanim.htm>). BoxTop Software also offers a GIF animation tool, GIFmation (\$89 company's estimated price); download a trial version at <http://boxtopsoft.com>.

### **The Web in 3-D**

Three-dimensional Web sites are becoming more common, and most of the sites use Virtual Reality Markup Language (VRML) to build those in-your-face graphical environments.

VRML is a language for creating a virtual world on the Web. While the promise is great, the reality is that 3-D on the Web currently has a number of drawbacks. First, to get the full impact of a VRML-generated site, the user needs a VRML browser and, in most cases, must dedicate a significant amount of memory to enable VRML browsing.

Second, creating VRML sites requires a 3-D modeling application, such as Infini-D 3.5 by Specular (\$449 company's estimated price; 413/253-3100, <http://www.specular.com>) or day dream Studio 4.1 by Fractal Design (\$198 company's estimated price; 408/430-4100, <http://www.fractal.com>). The 3-D modeling program lets you generate the basic VRML shapes – cubes, spheres, cylinders, and cones – and add textures, lighting, and sound.

Finally, you need a VRML authoring program to build a complete virtual 3-D world. Among those available are Virtuosi's 3-D Website Builder (\$99 company's estimated price; 919/467-9700, <http://www.virtus.com>), and Sense8's World Up and World ToolKit programs (\$4500 and \$2995 list prices, respectively; 415/331-6318, <http://www.sense8.com>).

### **The Last Word**

Ultimately, the appropriate file format for your Web graphics depends on the type of image you're creating, as well as the sophistication level of the Web user you're targeting.

For most people, GIF files are still the best bet. GIF images can hit the largest audience because they're widely supported, easily created, and quickly downloaded on screen. The JPEG format is particularly good for posting high-quality photos or images with blended colors on the Web.

Those with more ambitious Web sites in mind can roll up their sleeves and create some exciting animations with Shockwave and Java or 3-D effects in VRML. But these formats require a much higher level of expertise on the designer's part, and a significant degree of patience and interest from the viewer.

On the other hand, now's as good a time as any to gain experience with more challenging graphical formats for the Web. This year, high-bandwidth Internet services such as the cable-modem-based @Home Network will become more widely available. And with

that high bandwidth comes the opportunity to create Web sites with real-time video and audio, virtual environments, and sophisticated animation.

In other words, it won't be long before today's special effects – marching text, spinning logos, and blinking pull quotes – become the Web's routine.

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