

ANIMATION

ON THE WEB

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THE PEACHPIT GUIDE TO WEBTOP PUBLISHING



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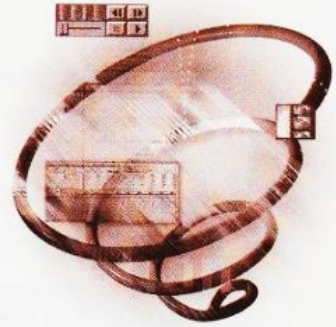
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CHAPTER EIGHT



Animation in a GIF

The majority of animations on the Web are based on CompuServe's Graphic Image File format, commonly known as GIF. (The jury is split as to whether the term should be pronounced "giff," like "gift," or "jiff," like "jiffy.") The current standard GIF format is GIF89a, which denotes the year of the format's release but which far precedes the use of the format for animation. You may encounter an older flavor, GIF87a, but it has been almost universally replaced by the new standard.

Some animation formats actually have more sophisticated—better, in my opinion—features for Web animation delivery, including QuickTime and Macromedia Flash. But no format has come close to gaining the popularity and widespread acceptance of GIFs. This acceptance is due to the ease of creating GIFs (particularly with readily available shareware tools) and to the fact that

animated GIFs are supported in most browsers without the hassle of installing extra plug-ins.

Should you use GIF as your animation file format? That depends on the objectives you have for your animations and the limitations you're willing to live with. Here are some of the pros and cons of GIF as an animation format:

GIF PROS:

- Plays on almost all browsers without plug-ins.
- Easy to create.
- Easy to include in HTML.
- Lossless file compression.
- Custom color palette support.
- Timing set for individual frames.
- Transparency over browser backgrounds.

GIF CONS:

- Limited to 256 colors.
- No audio or MIDI support.
- LZW compression poorly suited to photographic images.
- Hot spot definitions in image maps apply to all frames.
- No layering of animation components.
- Text track not supported by browsers (i.e., sprites).

- Timing in 1/100-second increments not synchronized to other browser events.
- Inconsistent features in different browsers.

GIF's Legal History

The fact that GIF is the de facto standard for Web animation is an amusing accident of Web history. The version commonly used on the Web today is called GIF89a, the number denoting the year it was released. But the format, introduced by CompuServe, actually existed for many years before anyone knew that it could be used for animation. GIF was designed for displaying image files, but its potential wasn't discovered until a New York computer jock named Royal Frazier stumbled across its use as a animation format and posted his discovery on the Net. Then a German programmer, Heiner Wolf, persuaded Netscape to support GIF's animation features.

Being the only ready-to-use animation format available to Web designers, and obviating the need for complex and costly CGI or server-push animations or user-hostile plug-ins, the format's popularity spread like wildfire.

The format, however, came with a major flaw that was almost fatal: lawyers. GIF89a uses LZW compression, a scheme that was developed and patented by Unisys. When the file format caught on and became the next big thing on the Web, Unisys decided to cash in by demanding a royalty from any commercial site that used the technology. Public howls of contempt made the company retreat, and the format now seems to be safe for royalty-free use. (Commercial software developers still must pay a royalty on LZW, however.)

Characteristics of GIF89a

To really master animation with GIF files, you need to thoroughly understand the features supported by the file format. Some features are supported by some GIF animation programs; others aren't. Often, though, you can simply build a GIF animation in one program, save it, open it in another program, and fine-tune it for Web delivery. This approach allows you to create animations with your creative tool of choice and optimize them for delivery online. In the following section, I describe the features supported by the GIF file format and explain how these features translate in browsers.

Frame-at-a-Time Delivery

Although GIF files contain embedded timing information, browsers generally download and display GIFs one frame at a

time and then play them through again at full speed if the animation is set for looping playback.

Color Bit Depth

GIF supports color palettes from 1-bit black-and-white to 8-bit, 256-color palettes. Unfortunately, 256 colors are not enough for very satisfying display of photorealistic images with subtle gradations in color unless you use custom palettes—and even then, the image must contain a fairly limited range of colors. On the other hand, 256 colors are enough to result in very large animation files (by current Web standards), so it may be to your advantage to optimize the animation to contain even fewer colors.

TIP ▶ *For cross-platform animations on the Web, the best pixel-depth setting usually is 6 x 6 x 6, which corresponds to the Web Safe palette. The System palette or a grayscale, 1-bit palette should be used for black-and-white images. Other settings may cause the animation to dither unpredictably on cross-platform browsers.*

Although an animation that uses the Web palette is essentially an 8-bit file, some GIF applications allow you to remove unused colors from the animation's color palette, thereby reducing the size of the animation slightly.

Custom Color Palettes

You can save, from a program such as Photoshop, DeBabelizer, or GIFBuilder, a custom color palette that contains the exact colors used in your animation. You can attach these palettes to the animation as often as every frame or simply to the first frame, which allows you to use colors other than those in the Netscape palette for optimum color display of your images. The down side of this approach is the fact that custom palettes add a small amount of data to your animation for each palette.