

# What's all this, then?



The Web is an apparent mystery to many of its millions of users; it's got odd combinations of letters, obscure error messages, weird explanations. Is it all an ex-Soviet plot? Or, at least, are the Masons involved?

No, the Web is merely a very technical medium that zipped into the public consciousness without the normal preprocessing and prepacking that accompanies technology. There's a thin veneer, therefore, separating the most technical of details from the most basic of users.

"WebSpy" has two goals: first, to uncover corruption in the government. No, sorry, that's the *Washington Post*. Actually, first, to explain how sites do what they do; second, to bring up issues of importance to creating sites on the Web.

On the first score, we'll be accepting suggestions at the E-mail address [WebSpy@adobe.com](mailto:WebSpy@adobe.com). Send your ideas for sites to investigate; the Spy will



endeavor to ferret out the secrets of their construction.

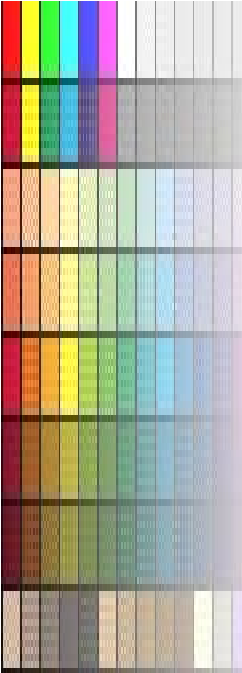
On the second item, points of interest as we pass along the Infobahn will be seized upon, dissected, and lectured about at length while you doze on the shoulder in the heat of the midday data-sun.

Enjoy the ride, and, most of all, tell us what you want to know. We have ways of making you ask.

### **GIF über Alles?**

Many folks wonder why the somewhat inferior-quality GIF (graphics interchange format) has not been replaced by the extraordinary and wonderful JPEG (Joint Photographic Experts Group) format. All right, I'm overstating the case. GIF is not really so bad, but JPEG is clearly better for image fidelity and compression.

GIF is the standard mainly because the first World-Wide Web browser, Mosaic, supported GIF as an ostensibly free and widely accepted standard. It turns out that it wasn't free—CompuServe, the promulgator of GIF for its own



online service, turned out to have unintentionally and mildly infringed Unisys's patent on the mode of compression that GIF uses. (When this was uncovered and Unisys released the information, this reporter was quoted—not quite correctly, unfortunately—in *New York Newsday* saying, "It's a bombshell!")

JPEG already involves patented algorithms, for which any company that incorporates code that reads or writes JPEG files has to pay licensing fees to Unisys. (Adobe, for instance, pays some amount yearly to support the various patents it has licensed in various compression algorithms that Photoshop and other programs use.)

### So what advantages did and does GIF have?

- *A small color space* (this is also a disadvantage, by the way—see the advantages of JPEG, below). GIF can use only 256 colors maximum, or 8 bits of color. Two years ago, when Mosaic was developed, the majority of computers had 8 bits or fewer of screen color depth. This is not quite the same today, as most new machines can display 16 bits (32,768 colors) or

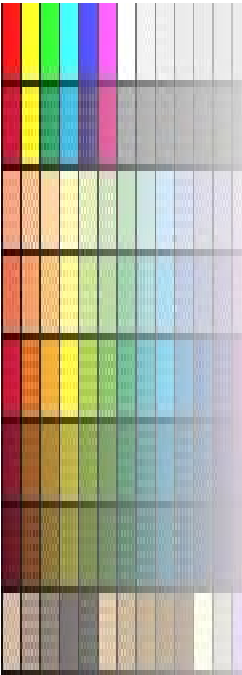


greater. But 8-bit color is still in the majority.

- *Color integrity.* GIF files aren't dithered (approximated using a pattern made up of other colors) in order to appear in 8-bit color; the actual colors in its small color map are directly translated on the local machine.
- *Compression.* GIF has adequate lossless compression (that is, compression with no loss of data) to keep file sizes small.

### JPEG, on the other hand, has these advantages:

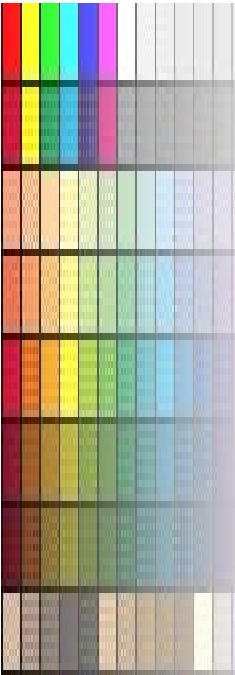
- *Big color space.* It can support 24-bit color, or millions of colors. A failing, however, is that colors must be dithered on an 8-bit display, providing unpredictable results. This might be a small price to pay, though, depending on what you're trying to accomplish.
- *Choices of color fidelity versus compression.* The more you want to preserve the colors, the bigger the file. But in many instances a highly compressed file, even at a compression ratio of 20:1, looks virtually identical on the screen to the original.

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- *High compression ratios.* JPEG will compress 100:1 in some cases. The worst case on what's called "best" compression (on a scale from best compression to best fidelity) is often 50:1. GIF, on the other hand, compresses well only when you have big color fields, not complex images. JPEG is more uniform in its ability to compress and trade off color.

GIF was originally the only format supported for "inline" display of graphics on the Web: that is, display in which the image appears in the browser window as part of a text stream or layout. JPEG began its journey with the first release of Netscape, and now all the major browsers support it.

So I would like to start a jihad in favor of JPEG. The arguments for Web designers are persuasive:

**Advanced browser dominance.** Regardless of whether you're a Netscapee or a Microserf, the Netscape Navigator and Internet Explorer browsers from those two companies, respectively, at this writing have something like 80 percent hegemony. Given Netscape's and Microsoft's recent agreements



with Netcom, CompuServe, America Online, and Prodigy, that should increase to more than 95 percent by summer 1996.

The remaining browser market is, and will probably remain, divided between many commercial flavors of Mosaic (Spyglass, CompuServe, and others), the original and continually updated NCSA Mosaic, and several also-rans that have tenths of a percentage of the user market. Finally, a large chunk of users still use lynx! Yes, lynx, the original terminal, character-based browser that sticks in a message like “[image]” to mark images, but can only display text.

**Shorter download times.** JPEGs may be anywhere from one-half to one-twentieth the size of an average GIF. So using them means faster sites for users.

**Less storage space.** A corollary to the above: Better compression means less server space is needed on graphics-intensive sites.

**Less bandwidth to pay for.** Another corollary: With JPEGs, you can run more traffic over a slower line.

**Bigger images.** A final corollary: If the images compress better, you can use full-screen images, which now take improbable periods of time to down-



load on the average 14.4-kbps modem.

An interim solution: Netscape supports several IMG (image) tag extensions, including a low-res extension. So you can code something like

```
<IMG SRC="regular.old.image.gif" LOSRC="cool.preview.jpeg" HEIGHT=400  
WIDTH=500>
```

If you use the LOSRC (low-resolution source) attribute, the advantage is that the entire page, including the low-resolution image, is loaded first and displayed. Then, and only then, is the regular SRC (source) attribute read and that image loaded over the low-res one. This makes for a faster initial load, for sure.

Another option involves some programming and server access. On the site <http://www.corelnet.com>, for instance—one of my company's clients—CoreINET's logo, which appears on the page, is a script. It checks what browser is out there, and if the browser is a JPEG-inline-supporting one, it feeds out a JPEG image automatically; otherwise, the browser gets a GIF. This means keeping multiple copies of images in GIF and JPEG format, but it also presents the user with the optimal format.

So, designers of the world, unite! You have nothing to lose but high file transfer times, bad color fidelity, and users tapping their toes. ●

