

Digital photo file formats

What's the big diff between JPEG and TIFF?

by Russell Shaw

File formats define how information is organized within a file. And since the manner in which information is organized can have a dramatic impact on the appearance of a digital photograph and the amount of storage space it requires, it pays to have a firm understanding of the two most common digital-photo file formats: JPEG and TIFF.

You can tell the format in which a digital photo is stored by examining the last three letters following the dot in its file name (the file name's "extension"). Windows relies on the file-name extension to determine the appropriate program to work with that file. A file named "photo.jpg," for example, indicates that this file contains a photograph stored in JPEG format. A file named "photo.tif," meanwhile, tells us

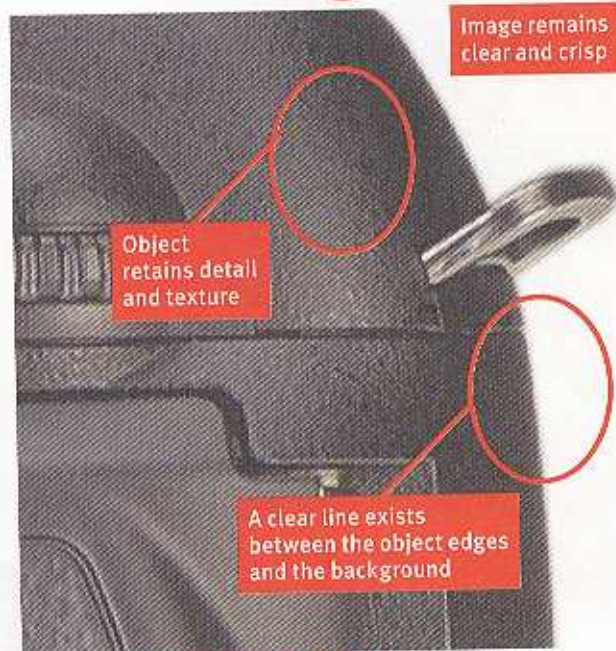
that the file contains a photograph stored in TIFF format. Double-click on files with either of these extensions, and Windows will launch its Picture and Fax Viewer to display the photograph.

ALPHABET SOUP

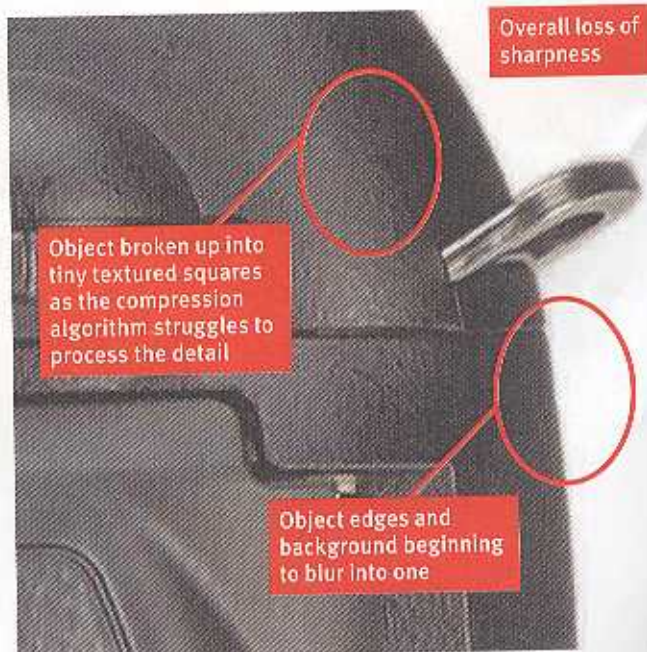
JPEG is by far the most common file format associated with digital photography. The acronym, by the way, stands for Joint Photographic

Artifacting

The trade-off for the diminutive size of JPEG files is the loss of fine detail. Save in TIFF format while editing; use JPEG at the end.



TIFF IMAGE AT 200%



JPEG IMAGE AT 200%

Image remains clear and crisp

Object retains detail and texture

A clear line exists between the object edges and the background

Overall loss of sharpness

Object broken up into tiny textured squares as the compression algorithm struggles to process the detail

Object edges and background beginning to blur into one

LET'S GET SMALL

JPEG and TIFF are great file formats for digital photographs, but when you're sending a lot of these files to friends and family via email, there's an even better compression solution: Zip 'em!

Zip is a highly effective lossless compression utility built into Windows XP. Unlike TIFF and JPEG, however, a file that's been compressed using Zip must first be uncompressed before it can be viewed. Zip is also an archive file format, meaning that a single Zip folder can hold many individual compressed files.

To Zip a file within Windows XP, simply right-click on the file. When the pop-out menu appears, click on Send To and choose Compressed (zipped) Folder. Windows will create an archive folder and place a compressed copy of the selected file in that folder. Any other files that you drag into that folder will also be compressed. There are few more efficient ways to send files via email. The TIFF version of the guitar photo in this story consumes more than 17,000 kilobytes of storage; when zipped, the file required less than 7,500 kilobytes of space.

To restore the files in a Zip archive, right-click on the folder and choose Extract All from the pop-out menu to launch the extraction wizard.

Experts Group, the standards body that defined this file format back in 1991. The vast majority of digital cameras on the market today are capable of saving their shots in JPEG format. Upscale digital cameras provide the option of storing photos in TIFF (Tagged Image File Format); professional and semi-pro cameras, meanwhile, also support the RAW format.

There are many image-related file formats in addition to JPEG, TIFF, and RAW, but these three are the most common formats used by digital cameras. Most of the other image-file formats—including GIF, BMP, PIC, PSP, and PSD—come into play when you open and then save the file from within an image-editing program.

Some file formats are native to particular software (Adobe Photoshop files are identified with a .psd file extension, for example, while files created with Jasc Software's Paint Shop Pro are identified by a .psp extension). Other file formats, such as BMP (Windows Bitmap) and GIF (Graphics Interchange Format), are somewhat more generic.

THE RIGHT FORMAT

Just because your digital camera stores its photos in JPEG format doesn't mean you need to keep them in that format. In fact, if you're

going to edit your photos on your computer, you *shouldn't* keep them in that format. Here's why.

When a photo is stored in JPEG format, the file is compressed in order to reduce the amount of storage it consumes. The JPEG format uses a "lossy" compression algorithm that achieves very small file sizes by permanently discarding some of the information contained in the original image. In an ideal situation, the discarded information is redundant and your eye won't even notice that it's missing.

Look closely at the two camera photos on the facing page. One image was stored in TIFF format and consumed more than 17,000 kilobytes of storage; the other image was stored in JPEG format and consumed just 464 kilobytes of storage. At normal magnification, you can't tell them apart.

Load that JPEG file into an image-editing program, edit it, and re-save it in JPEG format, however, and the image will be compressed—and some information discarded—a second time. Repeat this process a dozen or more times—a not-unlikely scenario during editing—and you'll begin to notice distortion in the form of compression artifacts.

Files stored in TIFF format are also compressed, but with one significant difference: TIFF uses a "lossless" compression

algorithm. Using this technique, all the information removed during compression can be restored; the tradeoff being that TIFF files are much more voluminous than JPEGs. RAW files, meanwhile, are so named because they undergo no compression at all (as a result, RAW files are even larger than TIFF files).

A SIMPLE SOLUTION

Fortunately, you can have your cake and eat it, too. When you transfer JPEG files from your digital camera to your computer, open the files in your favorite image-editing software and re-save them as TIFF files. Edit them to your heart's content (you'll find several stories on image editing elsewhere in this issue), but always save them as TIFF files (with modified names, so you don't overwrite the original files).

Once you've finished editing, save the final version once as a TIFF and a second time as a JPEG. This way, you'll enjoy all the file-size benefits of JPEG and all the lossless-compression benefits of TIFF.

You'll need the diminutive JPEG versions for emailing photos to friends and family, posting on your personal Website, or for use with photo-sharing services such as PhotoSite, Ofoto, and Shutterfly. Keep the original TIFF versions for further editing or other projects. ■