File formats

When information is stored in digital form, the data must be arranged in a defined structure. These data structures are called file formats, and over the years there have been thousands of file formats developed to store images. Many more formats have been developed to store other types of data such as word processing documents, sounds and numerical data.

Many of the file formats developed to store images are obsolete or rarely seen, but you can still expect to encounter a wide range of different formats.

Some of these file formats are only used by a particular application program. In these cases, you may be able to open the file and access its data only with the program that created it. Other file formats are standards readable by many programs, and others are semi-standard formats, with variations and options supported differently, or not supported at all, by different applications.

Some of the more common formats:

JPEG
Named after the committee that invented the compression method used to make the files smaller (Joint Photographic Experts Group), JPEG files use lossy compression. Compression means making a digital file store information in a compact way, so that the file sizes are smaller. Lossy compression means that some quality is lost in the process. (In non-lossy compression, no quality is lost at all.) JPEG files allow photographs, and images which resemble photographs, to be stored using up to 100 times less storage space than uncompressed formats. The loss of quality, however, increases as the file size decreases.

JPEG is useful in situations where file size is more important than quality, but should never be used as a working format. Each time you save a file as a JPEG you lose more image quality. Use a non-lossy format as working format, and save a copy as a JPEG.

TIFF
TIFF stands for Tag (or Tagged) Image File Format. A common format for storing bitmap images, it is one of the most widely used formats in publishing software. TIFF supports a wide range of compression options (both lossy and non-lossy) and other features; anyone can come up with a new version of the TIFF standard. In practice, the TIFF files created by most professional-level programs can be read by most other graphics applications.

EPS
EPS (Encapsulated PostScript) is a metafile: this means it can contain more than one type of data at once. EPS files can contain both bitmap and vector data. In addition, they contain both PostScript data and a screen preview. The PostScript data portion is used when printing to PostScript compatible printers. The screen preview is used to show a rough approximation of the file on a computer screen. In many cases, if you print an EPS file to a non-PostScript printer, the screen preview gets printed, yielding a crude, low-resolution image.

PDF
Adobe's PDF (Portable Document Format) or Acrobat format is an attempt to create a universal file format. Converting a file to PDF allows anyone with the free Acrobat Reader software to view and print the file. This makes it a useful format when distributing files to an audience which may not have the same software you used to create the files. PDF files are difficult to edit, and you should always keep a version of the file in its original format should you need to make changes.

GIF
The Compuserve GIF (Graphic Image Format) is limited to a maximum of 256 colours, or 8 bits per pixel. This means it is unsuitable for photographic images, but useful for images such as logos or diagrams with few colours. For these types of images, its non-lossy compression method can dramatically reduce file size. GIF files can also store simple animations as a series of still images.

BMP
BMP files are used on Windows computers in simple graphics software and for things like wallpaper (desktop backgrounds.) They are rarely seen in professional graphics applications.

PICT
Macintoshes once used the PICT metafile format for graphics displayed within programs and in simple graphics applications. It is of limited use on other operating systems.

WMF/EMF
Windows MetaFiles and Enhanced MetaFiles are similar to PICT, but on the Windows platform. Non-Windows operating systems have a limited ability to deal with these files.

Application-specific formats
Virtually every application program has its own format. These files are often openable only in the program that created them; an Adobe InDesign file can only be opened by InDesign. Some application formats may be openable in other programs, sometimes reliably, sometimes less so. A file created in one version of a program may not be openable by other versions of that program.