File Formats and File Types

Identifying different types of files

With so many different types of files floating around — GIF, JPEG, JFIF, PICT, etc. — it becomes important to be able to recognize these different types in the most efficient manner possible, so that the System and its applications aren't bogged down with the task of identifying what a file contains.   One possible solution is to simply open up each file, look briefly inside at the contents, and determine the type of file this way.   This method relies on the file's format, or the order in which data is stored in the file.   For example, a JFIF file always begins with a certain sequence of characters which allows it to be easily identified.

Although this method may seem like the most logical way of handling things, it has some serious disadvantages. First, it's slow.   Opening a single file and looking inside is not so time-consuming an operation.   But when you try to look inside 10, 50, or 100 such files, this becomes a real drag on system performance.   In addition, new file formats are always cropping up, and it would be impossible to keep up with the constant stream of new file types.

In response to these two problems, the Finder implements a scheme of file typing, where it assigns each file a four-character file type, which in theory identifies the contents of the file.   This makes for very fast identification: we need only look at this file type to see what sort of file we're looking at.   We don't even need to open the file in the first place!   Thus, for JPEGView to quickly identify valid image files, it is useful to simply scan for the valid file types: JPEG, JFIF, PICT, and GIFf (the extra "f" is added to make it exactly four characters).

Unfortunately, things aren't quite so rosy.   Although the Finder maintains a record of the file's type, it does no checking to make sure that this type actually describes the format of the file it purports to.   You could give a GIF image a JPEG file type, and the Finder would be none the wiser.   This means that applications need to be responsible for maintaining the accuracy of these file types, in order to preserve the usefulness of this file typing scheme.

Where this problem becomes particularly evident is when you are transferring files from another computer which has no file typing mechanism, either via modem or by using Apple File Exchange.   Although some communications programs automatically check certain characteristics of the file to help assign the correct type, you will more often than not discover that the nice batch of GIFs you just downloaded aren't correctly typed as GIFf, as they should be.

To help keep things in order, JPEGView provides two mechanisms for correcting file types.   The first is the "Scan and Fix Image File Types" button in the Open dialog, which scans the current directory for valid image files and fixes the types of those image files whose types were incorrect to begin with.   The second method used by JPEGView is the Preferences option to "Automatically fix incorrect file types," which will change incorrect file types for an image files you open with JPEGView.

Making the icons appear

In addition to the file's type, the Finder also stores information about the file's "creator."   When used in combination with the file type, a file's creator determines which icon the Finder displays for a given image.   For example, a file with a file type of PICT and a creator of JPEGView will show JPEGView's icon for a PICT file.   The Finder also uses the creator information to determine which application to launch when you double-click on the file.   In the previous example, double-clicking on the PICT file would open JPEGView, which is identified as its creator.

When you fix a file's type in the Open dialog by clicking on the "Scan and Fix Image File Types" button, JPEGView also changes the creator of the file to JPEGView.   This allows you to just double-click on these fixed-up files to open them with JPEGView.   In contrast, the option to quietly and automatically fix incorrect file types for images that you open with JPEGView will only change the type of the file, leaving the creator alone.

In order to allow you to easily change the creator of a file to JPEGView, the JPEGView distribution contains a drag-and-drop utility, called "JPEGView AutoTyper".   To use this utility, simply drag those files whose creator you wish to change onto the AutoTyper's icon in the Finder.   This will quickly change the creators of those files to JPEGView and, if their types were PICT, JFIF, JPEG, or GIFf, give them the correct icon.   Since JPEGView only knows about these four types of files, if you change the creator of a file with an unknown type to JPEGView with the AutoTyper, you will get no special icon.

File types supported by JPEGView

JPEGView supports a total of four file types: JFIF, JPEG, PICT, and GIF.   The first of these is the JFIF (JPEG File Interchange Format), which is the current standard for exchanging JPEG-encoded graphics files between different computers.   Nearly all files that you will find publicly available are in this format, which is gradually becoming more and more accepted.   It is a very bare-bones format, storing essentially the raw JPEG data and perhaps a preview image, but nothing more, and is therefore the smallest of the supported file formats.

A related format — the JPEG format — is essentially identical to the JFIF format, except that it is missing the special codes that are used to identify a JFIF file.   Instead, these JPEG files usually contain some sort of application or company signature.   For example, you will occasionally come across Adobe JPEG files, which contain the signature "Adobe" at the beginning of the file.

The third format — the PICT format — is the Macintosh's standard way of storing data, and has been around in a simpler form ever since the first Macs were produced.   With the QuickTime extension installed, any application that recognizes and reads a standard PICT can also read a JPEG-compressed PICT, which is one reason why it is so useful to store files in this format on the Mac.   Additionally, QuickTime adds the capability to transparently store a preview image in a PICT file, which is another very handy extension.   Because it contains more information than a JFIF or JPEG file, you can expect PICT files to be slightly larger in size.

Finally, the GIF format, originally developed by CompuServe in 1987, is an aging but still popular way of exchanging files between different computers.   With the advent of JPEG, which can store much more color information in a much more tightly compressed file, this format is gradually becoming obsolete, but for the moment you will probably find GIF files more easily and find many more of them (and many more poor quality ones) than you will JPEGs.