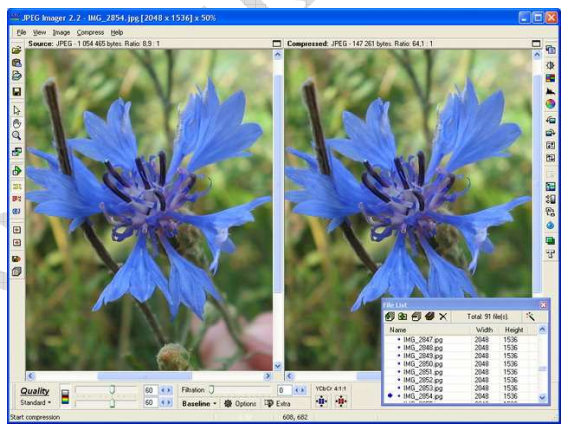
Image Formats

Different forms of file formats are used in computing to create image files. The most common image files are **JPEG** (Joint Photographic Expert Group), **PNG** (Portable Network Graphics) **GIF** (Graphics Interchange Format) **TIFF** (Tagged Image File Format) etc. These file formats are based on compression algorithm to create realistic scenes and pictures. But based on the file formats the colour quality, transparency and resolution of images vary.

JPEG Image

This is the method of **lossy compression** for photographic images. The term JPEG is the acronym for the Joint Photographic Expert Group, the name of the committee that created the standard for JPEG image. In JPEG format, the degree of compression can be adjusted to allow selectable tradeoff between storage size and quality. Typical compression ratio of JPEG format is 10:1with negligible loss in quality.JPEG/Exif is the most common image format used in Digital camera and other photographic devices. The file format JPEG/JFIF is used to transmit images in the internet.



JPEG Image

The typical use of JPEG format is lossy compression. This reduces the image fidelity.JPEG format is not suitable for files that will undergo multiple editing since some quality will lost during editing. The **decompression** and **recompression** during editing particularly during **cropping** will reduce some details of the image.

To avoid this, the image will be stored in a **lossless format** for editing with a copy of JPEG exported for distribution. Several additional standards have been developed to prevent loss of image quality. **JFIF** (JPEG File Interchange Format), **Exif** (Exchangeable image file) **ICC colour profile** etc are some of such file formats. The commonly used colour profiles are **sRGB** and **Adobe RGB**. A JPEG image consists of a sequence of segments, each beginning with a **marker**, each of which begins with a **0xFF byte** followed by a byte indicating what kind of marker it is. Some markers consist of just those two bytes; others are followed by two bytes indicating the length of marker-specific payload data that follows. JPEG can produce a smaller file than PNG for photographic images, since JPEG uses a lossy encoding method specifically designed for photographic image data.

PNG

PNG (Portable Network Graphics) is the **bitmapped image** format that uses a **lossless data compression** technique.PNG supports **palatte based** grey scale, grey scale alpha, RGB images. The most common use of PNG format is the transmission of images in the web.PNG format images are not suitable for printing. PNG offers a variety of transparency options. With true color and grey scale images either a single pixel value can be declared as transparent or an alpha channel can be added.

PNG Image

PNG is a better choice than JPEG for storing images that contain text, line art, or other images with sharp transitions. Where an image contains both sharp transitions and photographic parts a choice must be made between the large but sharp PNG and a small JPEG with artifacts around sharp transitions. JPEG also does not support transparency.

GIF

The Graphics Interchange Format (GIF) is a bitmap image format introduced in 1987 for use in Web due to its wide support and portability features. The GIF format supports **8 bits per pixel** allowing a single image to reference a palatte of up to **256 colours** from **24 bit RGB** colour space.GIF also supports **animations** and allows a separate palatte of 256 colours for each frame. The color limitation makes the GIF format unsuitable for reproducing **color photographs** and other images with continuous color, but it is well-suited for simpler images such as graphics or logos with solid areas of color.

GIF Image

GIF images are compressed using the **Lempel-Ziv-Welch** (LZW) lossless data compression technique to reduce the file size without degrading the visual quality. GIFs are suitable for **sharp-edged line art** (such as **logos**) with a limited number of colors. This takes advantage of the format's lossless compression, which favors flat areas of uniform color with well defined edges. GIFs can also be used to store low-color sprite data for games. GIFs can be used for small animations and low-resolution film clips.

TIFF

Tagged Image File Format (TIFF) incorporates wide range of options. This makes TIFF useful format for interchange between professional image editing applications. The most common general-purpose, lossless compression algorithm used with TIFF is Lempel–Ziv–Welch (LZW).

TIFF Image

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