KNOW YOUR IMAGE FORMATS
MEGA CHEAT SHEET

JPEG PNG GIF TIFF BMP

IMAGE FORMATS & WHEN TO USE THEM

Not all image formats are created equal. All have different uses and different attributes. Know exactly what image format to use for web use, print, social platforms, logos and much more with this handy cheat sheet.

JPEG

JPG files, also known as JPEG files, are a common file format for digital photos and other digital graphics. When JPG files are saved, they use "lossy" compression, meaning image quality is lost as file size decreases.

Released in 1992

File extension: .JPG or .JPEG

"JPEG" "Joint Photographic Experts Group"

JPEG has a very complex compression algorithm.

It allows image details to be "Forgotten" and the filled when displayed on screen.

The Human eyes sees light and dark better than color detail.

JPEG images uses this weakness in our eye to help compress the file. It sacrifices some color detail to save file space. This process is called "Lossy Compression"

Mozilla created their own version of the jpeg called "Mozjpeg" which reduces file sizes by 15% with no loss in quality

- 24-bit color with up to 16 MILLION COLORS
- JPEG is the standard format for most digital cameras
- Great for making smaller file sizes
- Great for images with more than 256 colors
- Compatible across MAC & PC as well as other mobile devices, web browsers and image editors.

JPEG Browser Compatibility (without use of a plugin)

11.0 ✓
38.0 ✓
43.0 ✓
8.0 ✓
15.0 ✓

Best Uses

- Black and white images.
- Images with complex coloring
- Still life imagery
- Real life photographs

PNG

Portable Network Graphics (PNG /ˈpɪŋ/) is a raster graphics file format that supports lossless data compression. PNG was created as an improved, non-patented replacement for Graphics Interchange Format (GIF), and is the most used lossless image compression format on the Internet.

Created in 1996

File extension: .PNG

"PNG" "Portable Network Graphics"

- Background images without jagged edges
- Lossless compression which means there's no data loss

There is two types of PNG image format.

PNG-8
- Similar to GIF
- 256 colors and 1-bit transparency
- PNG-8 files are even smaller than GIF files

PNG-24
- 24-bit color, similar to JPEG
- Can include over 16 million colors
- Lossless compression means larger files than JPEG

Alpha Channels

- Transparency can be set between opaque and completely transparent, allowing for a faded look
- PNG formats can go on any background and still maintain appearance
- Older browsers can have trouble with PNGs because they can't handle Alpha channels

Best Uses

- Web images, flat areas of colors, logos, transparent or semitransparent images
- Great for text images
- Images in the middle of the editing process
- Complex images like real-life photographs if file size is not an issue.

GIF

An image file format commonly used for images on the web and sprites in software programs. Unlike the JPEG image format, GIFs uses lossless compression that does not degrade the quality of the image. GIFs store image data using indexed color, meaning each image can include a maximum of 256 colors.

Created by CompuServe in.. 1987

File extension: .GIF

"GIF" "Graphics Interchange Format"

- GIFs have fewer colors so files start even smaller than JPEGs
- Lossless compression which means there's no data loss

GIFs image format uses 256 COLORS

You can use "Dithering" to make the file even smaller. This process is where two pixel colors combine to make one.

GIFs come alive with ANIMATION

GIF animation is incredibly simple to work with and it is automatically recognizable to most Web browsers. It works by creating a series of GIF frames to make up the moving image.

You will need to use Photoshop to create your own animated GIFs or on websites like gifmaker.me

GIF images is that is allows you to preserve transparency.

GIF was designed by CompuServe in the early days of computer 8-bit video, before JPG, for video display at dial up modem speeds.

It uses an LZW-compressed format designed to minimize file size.

Best Uses

- Simple images like line drawings, color boarders and simple illustrations.
- Animations
- Web graphics with not many colors
- Very small icons

TIFF

TIF is an image format file for high-quality graphics. TIF files are also called .TIFF, which stands for "Tagged Image Format File." TIF files were created in the 1986 as a file format for scanned images in an attempt to get all companies to use one standard file format instead of multiple.

Created by Aldus Corp in... 1986

File extension: .TIFF

"TIFF" "Tagged Image Format File"

- TIFFs can be viewed and edited in nearly every photo editing software.
- Whether compressed or not, TIFFs do not lose any image data.

TIFF Compression Types

LZW
(Lemple-Zif-Welch) Lossless compression; supported by TIFF, PDF, GIF, and PostScript language file formats. Most useful for images with large areas of single color.

ZIP
Lossless compression; supported by PDF and TIFF file formats. Like LZW, ZIP compression is most effective for images that contain large areas of single color.

JPEG
Lossy compression; supported by JPEG, TIFF, PDF, and PostScript language file formats. Recommended for continuous-tone images, such as photos.

The reason to use compression, whether it's ZIP, LZW or JPEG, is entirely to do with file size. You'll have files that are smaller without any loss in quality, which means quicker transfers over networks and you can fit more of them on any given amount of disk or server space.

Because of its incredible image quality, .TIFs is the preferred format for scanning photographs and other complex imagery.

.TIF format was created by Aldus Corporation in 1986. In 2009 the patent was acquired by Adobe Systems.

Best Uses

- Images that will be sent to print.
- If images are being edited and layers are needed.
- High quality digital photography

BMP

The BMP file format, AKA bitmap image file or device independent bitmap (DIB) file format is a raster graphics image file format used to store bitmap digital images, independently of the display device (such as a graphics adapter), especially on Microsoft Windows and OS/2 operating systems

Created in.. 1994

File extension: .BMP

"BMP" "Bitmap Picture"

- Microsoft Corp took full control of the format definition and has been a stable image format since Windows 3.0
- BMP files does not support effective image compression

- BMP files may be easily created from existing pixel data stored in an array in memory.
- Bitmap files translate well to dot-format output devices such as CRTs and printers.

Best Uses

- Images that will be sent to print.
- If images are being edited and layers are needed.
- If you need to preserve layers, and alpha transparency.
- Good for any type of bitmap (pixel-based) images.

IMAGE FORMAT COMPARISON CHART

	JPG	TIF	PNG	GIF	BMP
Lossy compression	✓	✗	✗	✗	✗
Lossless compression	✗	✓	✓	✓	✓
Uncompressed option	✓	✗	✗	✗	✓
Grayscale	✓	✓	✓	✓	✗
RGB color	✓	✓	✓	✗	✓
8 bit color (24 bit data)	✓	✓	✓	✗	✓
16 bit color option	✗	✓	✓	✗	✓
CMYK or LAB color	✓	✓	✗	✗	✓
Indexed color option	✓	✓	✓	✓	✗
Transparency option	✗	✓	✓	✓	✓
Animation option	✗	✗	✗	✓	✗
Layers	✗	✓	✗	✓	✓
Print or Web	Both	Print	Web	Web	Print

WHAT IMAGE FORMAT TO USE?

There is no universal image format that is best for all scenarios. Every type of image format has their own advantages and disadvantages. Here's a summary of each formats best uses.

JPEG — WEB GRAPHICS
Probably the most web friendly image format there is. JPEG is great for images when you need to keep the size small, such as when you need to upload it online. If you don't mind compromising the quality of the image a bit, use JPEG.

GIF — WEB GRAPHICS / ANIMATION / CLIP ART
Out of the three formats (GIF, JPEG & PNG) GIF is the worst choice for web graphics, although file sizes are very small, and they load very fast. Plus, if you want to add animation effects, use GIF. Also great for clip art.

TIFF — PRINT GRAPHICS
TIFF is the best and only choice for professionals when images are intended for print. Its ability to read CMYK and YcbCr color, plus its ability to store such high pixel intensity makes it the only choice for designers, photographers and publishers.

PNG — WEB GRAPHICS / LOGOS & LINE ART
PNGs are great for web graphics. If you want to keep the size small, but still retain the image quality, simple and alpha transparencies, the PNG is the format for you.

BMP — PRINT GRAPHICS
These files are large and uncompressed, but the images are rich in color, high in quality, simple and compatible in all Windows OS and programs. BMP files are also called raster or paint images.

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