

## JPEG, TIFF, PSD, PDD, BMP, PICT, PNG, and GIF Explained

- ✚ *I need to learn which format is best for saving my photos: JPEG, TIFF, PSD, PDD, BMP, PICT, PNG.*
- ✚ *I really don't understand which format is best for what.*
- ✚ *Is there a list that would tell when to use which one, and explain why?*
- ✚ *Also, when I am saving [JPEG], a box comes up asking if I want to save it in Baseline, Baseline Optimized, or Progressive. I have NO idea which of these is best!*

**Answer:** Here are some general guidelines:

- If the images are for the Web or online, use **JPEG, PNG, or GIF**.
- If the images are for print, use **TIFF (but- here in com tech unless I tell you other wise use jpeg)**
- If you want to keep a version that remains editable, choose your software's [native file format](#). (**PSD for Photoshop**, PSP for Paint Shop Pro, CPT for Corel Photo-Paint, etc.)

Here are brief descriptions of common graphics file formats, with links to follow for more information:

**JPEG** - JPEG is best for photos when you need to keep the file size small and don't mind giving up some quality for a significant reduction in size(Generally here in com tech we can't see the difference). JPEG is not suitable for images with text, large blocks of color, or simple shapes, because crisp lines will blur and colors can shift. Only JPEG offers the options of Baseline, Baseline Optimized, or Progressive.

- **Baseline (Standard)** - This JPEG format is recognized by all Web browsers.
- **Baseline Optimized** - This JPEG format option provides optimized color and slightly better compression. It is supported by all modern browsers, but was not supported in the very earliest of Web browsers. It's your best choice for JPEG files today.
- **Progressive** - Creates a JPEG file that displays gradually as it downloads, starting out blocky, and gradually getting clearer as it downloads. It doesn't make the image download any faster, but it can give the illusion of speed since the blocky image is loaded right away on a slow connection. With the majority of internet users on high speed connections today, Progressive JPEG is rarely used.
- **So, the best choice for use is Optimized.**

**TIFF** - TIFF is good for any type of [bitmap](#) (pixel-based) images. TIFF produces large files, but there is no loss in quality. TIFF also preserves layers, alpha transparency, and other special features when saved from Photoshop. The type of extra information stored with TIFF files varies in different Photoshop versions, so consult Photoshop's help for more information.

**PSD, PDD** - PSD and PDD are Photoshop's native format. Use PSD when you need to **preserve layers (do not save it as a jpeg or tiff until you are finished editing it)**, transparency, adjustment layers, masks, clipping paths, layer styles, blending modes, vector text and shapes, etc. The PDD extension was used in Adobe PhotoDeluxe (now discontinued), but it is identical to PSD format and the two can be used interchangeably.

**BMP** - Use BMP for any type of bitmap (pixel-based) images. BMPs are huge files, but there is no loss in quality. BMP has no real benefits over TIFF, except you can use it for Windows wallpaper.

**PNG** - Use PNG when you need smaller file sizes with no loss in quality. PNG files are usually smaller than TIFFs, in my experience. PNG also supports alpha transparency (soft edges- important for some web applications to be discussed later) and was developed to be a Web graphics replacement for GIF.

**GIF** - Use GIF for simple Web graphics having limited colors. GIF files are always reduced to 256 unique colors or less and they make very small, [fast-loading graphics for the Web](#). GIF is great for Web buttons, charts or diagrams, cartoon-like drawing, banners, and text headings. GIF is also used for small, compact [Web animations](#). GIF should rarely be used for photos.

## **JPEG Myths and Facts**

**Don't believe everything you hear about JPEGs. Get the facts here.**

By [Sue Chastain](#), About.com

With the explosion of scanners, digital cameras and the World Wide Web, the JPEG image format has quickly become the most widely used digital image format. It's also the most misunderstood. Here's a collection of some common misconceptions and facts about JPEG images.

### **JPEG is the proper spelling**

**True.** Although the files often end in the three-letter extension JPG (or JP2 for JPEG 2000), when referring to the file format it is spelled JPEG. JPEG is an acronym for Joint Photographic Experts Group, the organization that developed the JPEG format.

### **JPEGs lose quality every time they are opened and/or saved.**

**False.** Simply opening or displaying a JPEG image does not harm the image in any way. Saving a JPEG repeatedly during the same editing session (without ever closing the image) will *not* accumulate a loss in quality. Copying and renaming a JPEG will not introduce any loss, but some

image editors *do* recompress JPEGs when the Save As command is used. To avoid more loss you should duplicate and rename JPEGs in a file manager rather than using "Save As JPEG" in an editing program.

**JPEGs lose quality every time they are opened, edited and saved.**

**True.** If a JPEG image is opened, edited, and saved again it results in additional image degradation. It is very important to minimize the number of editing sessions between the initial and final version of a JPEG image. If you must perform editing functions in several sessions or in several different programs, you should use an image format that is not lossy (TIFF, BMP, PNG) for the intermediate editing sessions before saving the final version. Repeated saving *within the same editing session* won't introduce additional damage. It is only when the image is closed, re-opened, edited and saved again.

**JPEGs lose quality every time they are used in a page layout program.**

**False.** Using a JPEG Image in a page layout program does not *edit* the source JPEG image, therefore no quality is lost. However, because each page layout software uses different types of compression on their native document files, you may find your layout documents are considerably larger than the sum of the embedded JPEG files.

**If I compress a JPEG at 70%, then later reopen it and compress it at 90%, the final image will be restored to a quality setting of 90%.**

**False.** The initial save at 70% introduces a *permanent* loss in quality that can't be restored. Saving again at 90% quality only introduces additional degradation to an image that has already had considerable loss in quality. If you must decompress and recompress a JPEG image, using the *exact* same quality setting each time seems to introduce little or no degradation to the unedited areas of the image.

However, the same setting rule just explained doesn't apply when *cropping* a JPEG. JPEG compression is applied in small blocks, typically 8 or 16 pixel increments. When you crop a JPEG, the entire image is shifted so that the blocks are not aligned in the same places. Some software offers a lossless cropping feature for JPEGs, such as the freeware [JPEGCrops](#).

**Choosing the same numeric quality setting for JPEGs saved in one program will give the exact same results as the same numeric quality setting in another program.**

**False.** Quality settings are not standard across graphics software programs. In other words, a quality setting of 75 in one program may result in a much poorer image than the same original image saved with a quality setting of 75 in another program. It's also important to know what your software is asking for when you set the quality. Some programs have a numeric scale with

quality at the top of the scale so that a rating of 100 is the highest quality with little compression. Other programs base the scale on compression where a setting of 100 is the lowest quality and the highest compression. Some software and digital cameras use terminology like low, medium, and high for the quality settings. See [screen shots of JPEG save options](#) in various image editing software programs.

**A quality setting of 100 does not degrade an image at all.**

**False.** Saving an image to JPEG format, *always* introduces some loss in quality, though the loss at a quality setting of 100 is barely detectable by the average naked eye. In addition, using a quality setting of 100 compared to a quality setting of 90-95 or so will result in a considerably higher file size relative to the degree of image loss. If your software doesn't provide a JPEG preview, try saving several copies of an image at 90, 95, and 100 quality and compare file size with image quality. Chances are, there will be no distinguishable difference between the 90 and 100 image, but the difference in size could be significant. Keep in mind, though, that subtle color shifting is one effect of JPEG compression--even at high quality settings--so JPEG should be avoided in situations where precise color matching is important.

## Should You Capture Digital Photos In Raw or JPEG?

### RAW or JPG for Digital Photo Capture?

From [Steve Bohne](#), for About.com

There is so much misinformation about RAW and JPG that even many professional photographers and graphics designers are confused. I won't name names, but there are several so-called "experts" who spout misinformation on the web and at seminars, and they are sponsored by brand name companies.

I'm a full time professional photographer. I work with JPG files every day. I never shoot Raw for my day-to-day work. That does **not** mean everyone should work just like me, but you should know some **facts** and forget the **fiction**.

- 1) If you're working with images that are vitally critical, shoot RAW: any major exposure or color correction is easier to make.
- 2) **No**, Raw files will **not** be sharper than the JPG files, and anyone who says they will doesn't know what they're talking about.
- 3) The secret to using JPG files is: Set a proper White Balance, make a proper exposure.

If you are using Auto White Balance (AWB), you may find your color is not consistent from one file to the next, so set a custom white balance. Read your camera's manual to do this — it's not very involved on most of today's cameras.

Once you set a custom white balance for your studio work, you will not have to change it when working in the studio. Most cameras today permit you to have 2 or 3 custom white balances. Outdoors (or even in the studio) a product called the [ExpoDisc](#) can make this an easy process.

If you include a gray/white/black card in the first scene, you can set your color balance and density in Photoshop on the first image, then apply that curve to each following image. Much faster than RAW.

4) If you photograph in JPG, the file does **not** degrade with each subsequent opening of the file. If you:

- A. open a JPG
- B. save it with a new name
- C. work on it

Your original has not been degraded, and there is nearly no change to the overall pixel quality of the new file. Remember that working on *any* digital file is basically discarding data. *You can't add data — no way, no how!* You can only alter or discard it.

5) Your files will be sharp if printed in JPG — in fact, if you send files to a lab via FTP, most insist on JPG. I belong to a group of photographers who, back in the pioneer days of digital, took the same image in Raw and JPG. They made a 30x40 from each file, and had the lab keep a note of which was which (they mounted them on different substrates). Not one *professional* photographer — including several who owned labs — could tell the difference!

In my own situation, I sent a 24x30 family photo to a lab for printing. They made a display print and put it on display in their lobby. **Everyone**, including the *lab owner*, thought it was film. It was a JPG from a Fuji S2 — the owner thought I had scanned the film and sent him a TIFF on CD!

6) Here's a biggie: you do **not** have to photograph on the least compressed setting when you photograph JPG to get the best image quality! I normally photograph weddings and portraits of groups of 3 or less in **medium** JPG on my Canon 20D. *You will not be able to tell the difference — regardless of how large you print — between the "high" and "medium" settings!*

Why? Because you are still taking all the information from the sensor and it is being oversampled. I did not realize this until I spoke to my friend, Claude Jodoin. Claude is a technical editor and contributor to several professional digital imaging magazines, as well as an

equipment tester/reviewer. He told me to try it on a wedding with 2 cameras. So I took (back then) 2 Canon 10D, and shot the altar groups twice: once with a camera set at High JPG and the other set at Medium JPG. I then returned to my studio and made a file 16x20 @ 268 dpi. I printed an 11x14 section of this image on my Fuji 4000 printer. The two prints were indistinguishable!

Does this mean you should never photograph in Raw mode? **NO!** Some cameras don't even have JPG mode (such as the Sigma SD9 and SD10). Others have a color bias in JPG mode: the Canon 1Ds Mark II and 1D Mark II being examples. If I photograph with my 1D Mark II in JPG mode, the file is noticeably saturated in the reds. I can correct it in Photoshop, but I would avoid this if I photographed in Raw. So maybe even I will end up photographing in Raw some of the time!

I hope this has cleared up some of the confusion and myths that are still rampant.