

## **A Raw file is...**

- not an image file per se (it will require special software to view, though this software is easy to get).
- typically a proprietary format (with the exception of Adobe's DNG format that isn't widely used yet).
- at least 8 bits per color – red, green, and blue (12-bits per X,Y location), though most DSLRs record 12-bit color (36-bits per location).
- uncompressed (an 8 megapixel camera will produce a 8 MB Raw file).
- the complete (lossless) data from the camera's sensor.
- higher in dynamic range (ability to display highlights and shadows).
- lower in contrast (flatter, washed out looking).
- not as sharp.
- not suitable for printing directly from the camera or without post processing.
- read only (all changes are saved in an XMP "sidecar" file or to a JPEG or other image format).
- sometimes admissible in a court as evidence (as opposed to a changeable image format).
- waiting to be processed by your computer.

## **In comparison a JPEG is...**

- a standard format readable by any image program on the market or available open source.
- exactly 8-bits per color (12-bits per location).
- compressed (by looking for redundancy in the data like a ZIP file or stripping out what human can't perceive like a MP3).
- fairly small in file size (an 8 megapixel camera will produce JPEG between 1 and 3 MB's in size).

if you're shooting in jpeg and you hit the shutter to let all the beautiful light flood your sensor and record the image onto your memory card, the camera collects the information and quickly compresses it down into a reasonably sized file. It judges things like the colour of the sky and the temperature of the light. Even when you've taken the image in manual mode and set everything yourself, the jpeg still needs to make some decisions as it smooshes all that information into one little file.

But if you shoot in raw, the sensor stays hands-off and says "ok, hot shot. YOU deal with it!"

...this means that you have total, blissful control of your entire image.

...but not without some work of your own.

RAW files need to be imported into a computer program like Adobe Lightroom or Adobe Camera Raw and then either instantly exported as jpegs (yikes!)

...or perfected according to your vision for the image with editing and then exported as a jpg or other printer-friendly format.

So just to make sure you get it I'll say it this way: a raw file isn't an image. It's information gathered by the sensor and delivered to you on a memory card. It's totally your job to then do what you want with that information before compressing it into an 'image'.

Also, a raw file won't usually have included the in-camera sharpening that jpeg compression provides. So don't fret when you think your image isn't as sharp as it should be – this also needs to be done by you in the post production editing process.

So -----4 reasons you shouldn't underestimate the power of a jpeg (and why you just might want to go back to it from time to time)

Instant Use – If you want to use your images rather quickly and don't have time to convert your raw files, you'll want to go jpeg.

Less work – A well-exposed jpeg will be less in need of TLC than a raw file. The contrast is higher and the focus is sharper because your sensor has made all the important decisions instead of requiring time and brain power on your behalf. Sometimes a plus, sometimes not. You decide when it's right for you!

Space – if you have a small(ish) memory card or you're very nearly running out and you HAVE to get in 10 more shots, you might want to quickly switch to jpeg rather than risking the chance of losing the shots. Jpegs take up substantially less space than raw files.

Speed – if you're shooting continuous (getting that perfect football goal) you'll shoot faster in jpeg. Raw files take longer to store on your memory card and so the continuous bursts from your shutter will be slower. But switching to jpeg can mean the difference between getting the perfect shot and missing it by a millisecond.

## Reasons to Shoot Raw

- A raw file is comparable to the latent image contained in an exposed but undeveloped piece of film. It holds exactly what the imaging chip recorded. Nothing more. Nothing less. This means that the photographer is able to extract the maximum possible image quality, whether now or in the future. A good analogy with the traditional world of film is that you have the opportunity to use a different type of developer or development time at any point in the future if one comes along that you think might do a better job of processing the image.
- Raw files have not had white balance set. They are tagged with whatever the camera's setting was, (either that which was manually set or via auto-white-balance), but the actual data has not been changed. This allows one to set any colour temperature and white balance one wishes after the fact with no image degradation. It should be understood that once the file has been converted from the linear space and has had a gamma curve applied (such as in a JPG) white balance can no longer be properly done.
- File linearization and colour filter array (Bayer) conversion is done on a computer with a fast and powerful microprocessor. This allows much more sophisticated algorithms to be used than those done in a camera with its slower and less powerful processor and with less space for complex conversion programs.
- The raw file is tagged with contrast and saturation information as set in the camera by the user, but the actual image data has not been changed. The user is free to set these based on a per-image evaluation rather than use one or two generalized settings for all images taken.
- Possibly the biggest advantage of shooting raw is that one has a 16 bit image (post raw conversion) to work with. This means that the file has 65,536 levels to work with. This is opposed to a JPG file's 8 bit space with just 256 brightness levels available. This is important when editing an image, particularly if one is trying to open up shadows or alter brightness in any significant way.