

## Raw Files – Some Basic Facts

Most modern digital cameras give the option of storing images either as jpeg files or as raw files or sometimes both. Here are some basic facts:

Raw files are captured in 12-bit format giving 4096 different shades of red, green and blue. Jpegs only support 8-bit format, that is 256 different shades of each colour.

Jpegs produced in the camera are processed from the captured 'raw' data by software in the camera (called firmware). Some manufacturers make firmware updates available but usually only to correct bugs. All processing for raw files is done at the PC stage where much more power is available and the opportunity for simple upgrades to the processing technique exists.

As a result of the increased amount of data in a raw file, they are generally 2-3 times larger than a high quality jpeg. However, there is considerable advantage to be gained in detail, colour and effective dynamic range from the use of raw.

Raw files are processed in Photoshop and Elements by a plug-in called Camera Raw which comes packaged with the main program when you buy it. See detail sheet for updating the plug-in.

Having processed a raw file in Photoshop (or Elements) and opened it into the main editing work area, you can make further enhancements if you wish, print from the 12 bit image, save as a 16-bit .psd file or convert to 8-bit ( **Image – Mode – 8-bits per channel** ) and save as a jpeg or as an 8-bit .psd file. But please note – many of the features in the main editing work area of CS, and even more so Elements, will not work in the 16-bit editing mode and you will need to convert to 8-bit. Best to do as much as possible in Camera Raw.

There is no fixed standard for raw files either between manufacturers or sometimes between different cameras from the same manufacturer. Raw files are recognisable by the filename extension, and here are a few of the main manufacturers:

<b>Make</b>	<b>Filename extension</b>
Canon	.crw .cr2
Fuji	.raf
Nikon	.nef
Olympus	.orf
Pentax	.pen
Sony	.srf

Adobe is pushing what they see as a 'standard' .dng (digital negative) but it seems vested interest amongst manufacturers is slowing down the adoption.

In practice, you cannot accidentally overwrite the original raw file as all adjustments made during processing are stored in a small additional file called a sidecar file. This file is produced automatically when you process a raw file, and the new file is given the same name as the raw file but with a different extension, .xmp You can, if you wish, delete a raw file just as you would any other file on your PC. If you do, you should also delete the sidecar file. If you delete the sidecar file and leave the original raw file, then any processing you have done to the raw file is lost and you will need to start from scratch.

If you open a **new** raw file in Camera Raw and then click the [**Cancel**] button, no .xmp file will be created. However, clicking [**Done**] or [**Open Image**] will result in the formation of the sidecar file. If you open a raw file you have **already processed**, the information in the sidecar file will set the sliders appropriately. Clicking [**Cancel**] will leave the sidecar file as it was. Clicking [**Done**] or [**Open Image**] will save any changes you might have made to the image (in the sidecar file).

The .xmp (sidecar) file is saved into the same folder as its parent and must stay there so that when you open the file at a later date, it will open with the settings you made still intact. If you rename the raw file, then you must also rename the sidecar file and if you move the raw file to another location, then you must also move the sidecar file. However, if you are using Adobe Bridge as the file manager, the sidecar file moves or renames automatically.

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October, 2009