

The purpose of this help file is to make sure your images print as well as possible, both for your personal pleasure and also for your public audience if you win!

Remember that the most important part of your photography is capturing a scene that has real meaning and emotion; the technical aspects should never get in the way of this but rather help you get the most from the shot. Technically correct but boring images will not win competitions, technically correct and compelling images will!

Advice: Shoot RAWS or Jpegs?

Short answer – shoot RAW if you can!

Depending on which camera you have you may have the option to shoot in one of two formats either RAW or Jpeg. Some cameras can shoot in both simultaneously producing a RAW file and Jpeg of each picture you take.

Which is the best format to shoot in? Well if your camera only has a Jpeg (JPG) facility the choice is easy – it has to be Jpeg see the section *Getting the most from Jpeg only cameras* on the last page

If your camera has a RAW file facility then this is the best setting to use. Why is this? Well, there are a few reasons and its best to explain the differences between the formats in order to understand them.

A RAW file is just that, raw data from the cameras sensor. All digital cameras have an array of tiny sensors that record how much light falls onto them when the shutter is opened. Think of them as like millions of light meters that generate a tiny electrical current, the more light each sensor receives the stronger the current.

During the exposure the sensors current is converted into a digital value (the more current the higher the number). If the camera is set to RAW these digital values are recorded to a file. This RAW file records only the brightness of the light - digital cameras take monochrome pictures! The colour is calculated when the RAW file is processed in a RAW convertor on your computer, the RAW converter knows which sensors have either a red, green or blue filter in front of them and can calculate the “likely” colour value of each pixel.

If you were to shoot in the Jpeg format the camera would have to make these colour calculations “in camera” and in doing so “bakes” into the image the white balance, exposure and sharpness before making a lossy compression of this data and writing it into a Jpg file.

If your exposure is correct and **if** your white balance is accurately set and **if** you set low compression/high quality Jpeg the image will be ok. However, that is a lot of ifs! The truth of the matter is that shooting RAW will give you much better control over brightness, contrast and colour and this is especially true if the exposure is over or under and white balance wasn't set correctly.

The blunt fact is that the RAW file conversion process gives you finer control over how your images look and will result in better prints or better repro in magazines and books.

Let's look at the pros and cons of each format in detail:

Advantages of Jpeg:

- Smaller files - more images per card
- Files generally have contrast and sharpening applied in camera so they look good and are ready for immediate use.
- Simple workflow on the computer

Disadvantages of Jpegs:

- "Blocky effects" especially around edges when low quality set
- Less detail in the very dark and very light areas
- Less ability to improve colours in poor or unusual lighting conditions when the white balance wasn't set correctly.
- Posterisation, poor tones and exaggerated blocky artefacts when you try to correct for an image being too light (over exposure) or too dark (under exposure).

Advantages of RAWs

- More tonal information in the file – better details in the very dark and very light areas
- More adjustable – there is more headroom to correct for poor exposure and still get a good result.
- Better, more controllable colour
- Because no sharpening has been applied to the RAW file you have greater control over how to sharpen files created from the RAW which is ideal for getting the best results in different sized prints

Disadvantages of RAWs

- Take up 2x – 3x more room on your cameras card than the equivalent Jpeg and so less images per card
- More involved workflow before you can print or send images to other people.
Initially the RAWs will seem to have lower contrast, less saturation and not look as sharp as Jpeg files (This is where adjustments in the RAW processor really pay off – see the section *RAW workflow*.)

In the professional world, photojournalists working for daily papers and sports photographers tend to shoot Jpeg because of the speed of handling, all other professional photographers tend to shoot RAW because they know that it is the only way to get the most from their cameras in terms of technical quality with the result of better looking repro.

If you have always shot Jpeg and are a bit sceptical of shooting RAW then please give shooting RAW a go, shoot simultaneous RAW and Jpeg if you want until you see for yourself the true benefits of RAW, you will not want to go back.

RAW / Jpeg comparison

Illustration of differences between RAW and Jpeg



Here is the original scene photographed with a Canon 1ds in simultaneous RAW+Jpeg



These enlarged sections from the areas marked with red boxes show loss of highlight detail (left) and Jpeg artefacts – the strange blocky patterns evident in the radiator valve (right)

RAW workflow

RAW files are read only, this means that you cannot make changes to them and then write back over them, you always have to save the images into a new file. This is actually a real advantage as your read only RAW file becomes like a valuable negative that you can store carefully and return to if you need to in the future.

To turn a RAW file into a file for printing or emailing you will need to use either the raw converter software that came with your camera or one of the main photo applications that support your camera such as Photoshop Elements or paint shop pro.

All major raw software packages allow you to make adjustments to exposure and white balance as well as brightness, contrast and saturation.

When you are happy with the adjustments you have made I recommend you save the file as a tiff in the Adobe 1998 colour space with no sharpening applied. This can then be retouched to remove any camera dust spots and saved into a Master Images folder.

From these Master tiffs you can produce other files such as a sharpend version for printing on your inkjet printer or a smaller version in the Jpeg format for sending in an email or putting up on a web page.

Getting the most from Jpeg only cameras

If all of this has convinced you that you should shoot RAW but have a camera that only allows you to shoot Jpegs then all is not lost!

The key to getting the most quality out of your shots is to avoid the situations that show up the less good aspects of shooting Jpeg, specifically:

1. Set the Jpeg quality to "High" or "Highest" quality setting. Sometimes this is defined as "Low" compression or Jpeg setting numbers – always choose the highest number (usually 10 or 12)
2. Set the largest image size on your camera, sometimes a camera allows you to make images smaller than its native megapixel count, if you have a 6mp camera make sure you're shooting at the 6mp size (check your instruction book).
3. Be careful to expose correctly, if the image looks too dark or too light on the camera screen try again by adjusting the exposure or other camera controls such as the backlight button
4. Be sure to set the correct white balance, don't leave your camera on "tungsten" setting after an indoor party or your outdoor images will turn out blue, if in doubt use "Auto White Balance" or "daylight" in daylight conditions. Be aware that Auto white balance can be fooled into correcting coloured light resulting in for instance sunsets loosing their colour, in cases like this where you want to retain the warmth (or coldness) of the light set the camera to "daylight" colour balance.
5. If you or your children have a very cheap digital camera with no controls at all then don't worry about anything! Sometimes the very bad quality of these cameras make for interesting images. As with anything its mediocrity that you need to avoid, the very good and the very bad can both be interesting.