

# A beginners guide to Canon's Digital Photo Professional 4 and RAW workflow

A simple, modern and non-technical approach to using Canon's great Digital Photo Professional software supplied with your EOS camera to sort and process your RAW images

2019 revision Version 4.10.0.0



Written by Nina Bailey

Especially written for Canon EOS users



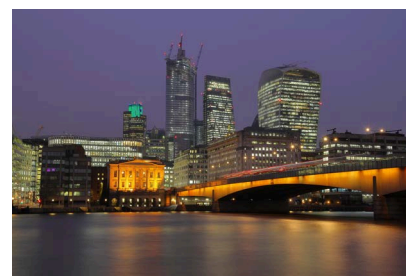
## About the cover image

Many photographers are actually a lot better at taking images than they realise. I am a firm believer in getting the image as close as possible to what you want at the time of shooting. However, there are limits, and the camera does not have all the controls that are available to you within the postproduction process.

The large image here has only had a few simple adjustments made and yet it has transformed the image. When I took the image I deliberately kept the exposure just slightly on the dark side to prevent burnout in the highlight areas of the picture. The image was taken on the AWB setting, which generally gives the best colour for night images. It was a very cloudy night with quite low cloud and so the sky colour deteriorated because of light pollution. This image is taken at what is called the blue hour. In January when this was taken the blue hour, despite its name only really gives 15 to 20 minutes of this classic blue sky type lighting, so working quickly is essential. The original image is shown on the bottom row on the left-hand side.

The first adjustment that was made was using the highlight and shadow controls within the program. These are not available on the camera and effectively these darken the highlights, whilst making the shadow areas lighter. The result of this is shown on the centre image on the bottom row.

The next adjustment was to fine tune colour of the image. This was done using the colour temperature, which was taken down to 3600K to give a bluer sky. The result of this is shown on the bottom image on



the far right. Finally I've used the colour adjustment option, on the blues to change the hue of the sky, I increased saturation on the blues as well as darkening the blue parts of the image very slightly.

How long did all that take, Just a couple of minutes including exporting the images above. The result of this final adjustment is shown in the large image above.

PREVIEW  
EDITION



## About the DPP version

This book has been written based on the 2019 version (4.10.0.0) of the Digital Photo Professional 4 program. This contains a few updated sections to keep up with slight changes on the program and also the introduction of the new C RAW format on the mirrorless models. I have also updated the Lens Optimizer section for those with EOS R models as this is changing slightly how it can be used.

A new section has been added to cover the Depth compositing options, launched to work with the focus bracketing feature, which is new on the EOS RP. In addition to working with the automated feature on the RP model it will also work with images manually shot using focus stacking techniques on the EOS 5D Mark IV and EOS R models. The image to the right was manually shot on the EOS R and put together in DPP.

The software is now compatible with just about all digital EOS models as listed: EOS D2000, EOS D6000, EOS D30, EOS D60, EOS 1000D, EOS 100D, EOS 200D, EOS 1100D, EOS 1200D, EOS 1300D, EOS 2000D, EOS 4000D, EOS 10D, 20D, EOS 20Da, EOS 30D, EOS 300D, EOS 350D, EOS 400D, EOS 40D, EOS 450D, EOS 500D, EOS 50D, EOS 550D, EOS 5D, EOS 5D Mark II, EOS 5D Mark III, EOS 5D Mark IV, EOS 5DS, EOS 5DSR, EOS-1D C, EOS-1D Mark II, EOS-1D Mark II N, EOS-1D Mark III, EOS-1D Mark IV, EOS-1D X, EOS-1D X Mark II, EOS-1Ds Mark II, EOS 600D, EOS 60D, EOS 60Da, EOS 650D, EOS 6D, EOS 6D Mark II, EOS 700D, EOS 70D, EOS 77D, EOS 750D, EOS 760D, EOS 7D, EOS 7D Mark II, EOS 800D, EOS 80D, EOS M, EOS M10, EOS M2, EOS M3, EOS M6, EOS M5, EOS M50, EOS R, EOS RP as well as a



lot of the Powershot models and of course anything launched since the book was written in February 2019.

The software can be easily downloaded from the Canon website, look for support and then go to the software section. Make sure you have your camera's serial number to hand as you will need to enter it to download the free software. There is a minimum screen resolution for this program which is: XGA (1,024 x 768) or more (1,600 x 1,200 or more recommended). Most computers will easily fulfill this but be aware that some netbooks and ultra small screen laptops may be too low and if so, the program will not load.

It does not matter what operating system you

use, as Digital Photo Professional looks and works identically on both PC and Mac. I use a Mac and so the screen grabs are from a Mac system. If there are differences, for example when the keyboard shortcuts are different, I will explain this in the book.

The version of Digital Photo Professional I have used for the book is 4.10.00.0. If yours is not the latest version, it can easily be updated for free from the Canon website.

For those that have had several versions of the book (each time I update the DPP 4 book you get an invitation to update to the latest version for free providing you are on our email mailing list) the main changes are on pages 5-18, 22, 39-40, 51, 54, 58, 146-147, 151, 181-188 and 200.

PREVIEW  
EDITION

## About the author

PREVIEW  
EDITION



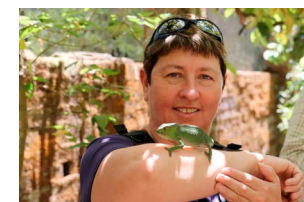
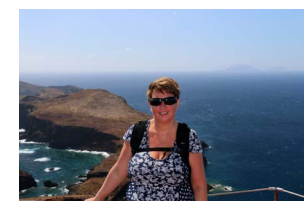
Nina started her career in the retail sector of the photographic industry and then moved to Canon UK where she had a successful nine years looking after training, exhibitions and marketing both in the UK and also within Europe. This gave Nina an unrivalled knowledge of not only the Canon EOS system but also how to develop and enhance the skills of photographers of all ability levels. Whilst working at Canon Nina worked on the very first digital camera models, both compact and D-SLR, to enter the market and this has given here a unique insight about the workflow and processing for digital images.

Nina started her own business in 1999, concentrating on training for amateur photographers. She is also at the forefront in developing and producing the new Online EOS Training Academy. As well as developing the online training academy and direct training of photographers, Nina is a prolific professional photographer producing images not only for the EOS Training Academy but for a variety of outside organisations.

In 2014 Nina started producing her own range of ebooks to bring photography training to an ever wider audience. Nina writes, shoots, produces all graphics and designs all the layouts of the books herself and this gives her a very good in-depth understanding of all the processes involved in producing digital images and how they are used.

In Summer 2015 Nina was appointed as Technical Editor of EOS Magazine, a role that she is doing in addition to her active role as the principal lecturer for the EOS training Academy and writing her ebooks.

Nina started taking images when she was very young and is still a very keen photographer both professionally and personally. Nina loves travel, landscape and wildlife photography and still occasionally shoots commercially within the travel photography market. However, most of the images she now shoots are for her own picture library for use in the books and articles that she writes.



Written, designed and images by Nina Bailey [www.ninabailey.co.uk](http://www.ninabailey.co.uk)

Produced by Nina Bailey © 2019. All rights reserved. Unauthorised copying, reproduction, hiring, lending prohibited. E&OE.

*Above: Some of the locations that my quest for images have taken me to along with some of the encounters with the local wildlife along the way.*



Digital Photo Professional (called DPP for short) is a software program that is supplied free with the latest Canon cameras. Digital Photo Professional version 4 is compatible with almost all digital EOS models that are likely to still be in use. DPP 3 still exists and can live quite happily side by side, though it now cannot do a lot of the things offered by this latest version of DPP 4.10.00.0. This book is compatible with PC's and Mac's as the software looks and works the same on both systems.

The sad thing about Canon's Digital Photo Professional program is that it gets ignored by many photographers because it is free. Strangely, Canon design and supply it free with the camera because they want you to have software that can handle both RAW and JPEG files which brings out the full potential of the camera and it makes it easy to convert and adjust your RAW images.

I was asked if I am going to write a book on DPP 4 almost since I started writing my ebooks back in 2013. However, it took until 2015 to get around to actually writing one, though this is now the third update of that original book.

Why? Well, although I shoot some images in the RAW format and use Digital Photo Professional software exclusively to process the RAW files, something I do a lot of for the books, still the vast majority of my images are shot as JPEG files. I still use Digital Photo Professional to sort them and perform tasks such as renaming and resizing them, but most of the images I shoot have little or no post production work done to them. However, that

said, I have now taken photographs for well over 40 years, and getting them correct in camera is very easy for me. Having worked in photographic retail, photo processing, technical support and training areas of the photographic industry and with graphic design skills as well, I understand in depth all areas of modern day imaging. Therefore, shooting JPEG images works for me as I need to do very little post production work.

For many photographers, it's all new and having been involved in digital photography since its inception, I know that it's a very steep learning curve for those that have only recently become interested in digital photography.

When learning, shooting RAW makes more sense as it allows you to experiment and reprocess to produce different variations of the same RAW image.

The ability to adjust and be creative with the images you shoot and if necessary correct for any shooting problems, still means it is always best to get the image as correct as possible at the time of shooting.

Digital Photo Professional is the ideal tool to allow you to produce the images you want and this book sets out to show you how simple it can be to use.

This fourth revision of the book incorporates a few naming changes to the controls but mainly to incorporate some of the changes that we are starting to see with the introduction of the Mirrorless camera ranges. This includes the change to the CR3 file type that we are seeing on most new models. This in itself is simply a newer type of RAW file that will gradually become the

normal on most EOS models. This image to be saved as a normal RAW, compression being applied or to save in a format that has some lossy compression.

The C RAW is replacing the M and S RAW options that have appeared in the last few years. Essentially, a smaller RAW format, saving about 40% in storage space, making it easier to handle and store but still offering powerful RAW processing without any real noticeable loss in image quality.

The new C RAW option CR3 files are compatible with this version of the program, though there is also a new App designed for use on iPads called DPP Express which takes advantage of the smaller format which can be downloaded by Wi-Fi quicker and easier and allows you to process images on the go without the need for a laptop. There will be an ebook available for the new app later in 2019.

CR3 and CRAW are actually two separate things, though if researching it on the internet you could be forgiven if you thought they are the same. CR3 is a new version of the CR2 option. C RAW is a new format that reduces the saved size of the file and is still saved as a CR3 format. Actually one of the problems is telling the normal and C RAW files apart on the computer other than simply looking at their saved size as they both show up as just .CR3 at the end of the file name.



<b>About digital images</b>	<b>8</b>		
Introduction	9		
New C RAW format	11		
How C RAW works	12		
C RAW Testing	13		
How to tell RAW and C RAW apart	16		
File formats - RAW	17		
File formats - JPEG	19		
Postproduction and JPEG images	23		
RAW vs JPEG - what is best	24		
Benefits of using DPP	25		
Other file formats	26		
Summery	27		
<b>Understanding RAW workflow</b>	<b>28</b>		
What is workflow	29		
Filing your images	30		
Backing up your images	31		
Workflow summary	32		
<b>Getting familiar with DPP</b>	<b>33</b>		
Getting familiar with DPP	34		
Finding and displaying your images	35		
About the multi layout window tool bar	36		
Additional options to be aware of	37		
About the thumbnails control panel	38		
About the Multi layout window	44		
About the Multi layout window - image comparison	45		
About the Multi layout window - multiple images	46		
About the Multi layout window - grid	47		
About the Multi layout window - AF point display	48		
About the Multi layout window - Highlight/shadow alert	49		
About the Multi layout window - Information	50		
About EXIF information	51		
Moving and filing images	52		
A brief look at the menus	53		
Sorting images using the quick check tool	60		
Assignment - Sort some images using the quick check tool	63		
		The edit window	
		Basic adjustment of an image	
		Basic saving of finished images	
		Transfer to Photoshop option	
		<b>Basic adjustments</b>	
		Why we do adjustments	71
		Advantages of RAW adjustments	72
		Why DPP?	73
		Understanding the tool bar	74
		Docking and collapsing palettes	75
		Correct order of corrections	76
		Seeing the correct colours	77
		What we see vs what can be printed	77
		Ways of doing adjustments	78
		Brightness adjustment	79
		What is possible with brightness adjustments	80
		White balance adjustment	82
		Additional Auto white balance options on latest models	84
		Colour temperature scale	85
		About the fine tune control	86
		About the click white balance	87
		Registering white balance	88
		Accuracy with white balance	89
		Creativity with white balance	90
		Auto lighting optimizer	91
		Picture style adjustments	92
		Standard picture styles	93
		New picture style option - Fine detail	94
		Additional picture styles	95
		Picture style options - Gamma Adjustment	97
		Picture style options - linear option	100
		Saving additional RAW files	101
		Advanced picture style options	102
		Picture style options - Contrast	103
		Picture style options - Shadow	104
		Picture style options - Highlight	105



Picture style options - Colour tone	106	Settings tool palette	
Picture style options - Colour saturation	107	Dual pixel RAW shooting	
Combining adjustments	108	About Dual Pixel RAW	
Why is sharpening important on images?	110	Setting Dual Pixel RAW options	
Picture style options - Sharpening	111	Dual Pixel RAW - Image Microadjustment	
Picture style options - Unsharp mask	113	Dual Pixel RAW - Bokeh Shift	165
Picture style options sharpening summary	115	Dual Pixel RAW - Ghosting correction	166
Assignment - Basic adjustments	116	<b>Other DPP options</b>	<b>167</b>
Monochrome picture style options	117	About the other options	168
Saving options	121	Creating a collection	169
Understanding the convert and save window	122	How to right click on an Apple Mac computer	170
Understanding the batch process window	123	Recipes	171
Assignment - Try some more advanced techniques	124	About using recipes	172
Basic adjustment summary	125	New recipe options in DPP 4	173
<b>Advanced adjustments</b>	<b>126</b>	Compositing tool	174
The other tool palettes	127	Compositing tool applications	177
Trimming / angle tool palette	128	HDR compositing tool	178
Stamp / dust delete date tool palette	129	Depth compositing	181
Stamp tool	130	EOS RP focus bracketing	182
Partial area adjustment tool	131	Depth compositing compatibility	183
The tone adjustment tool palette	134	How to use depth compositing	184
The colour adjustment tool palette	136	The depth compositing editing tool	187
RAW images and noise displaying	140	Depth compositing summary	188
RAW noise reduction	141	Rename tool	189
Is DPP better at noise reduction than other programs?	144	Printing from DPP	190
Lens tab	145	<b>Remote controlling the camera</b>	<b>191</b>
In camera Digital Lens Optimizer options	146	Remote controlled shooting with DPP	192
In camera Digital Lens Optimizer example	147	<b>Movie options</b>	<b>194</b>
Digital lens optimizer - Pre Late 2018 models	148	Movie options with DPP	195
Digital lens optimizer summary	151	EOS Movie utility	196
Lens aberration correction	152	<b>Round up and other products</b>	<b>198</b>
Fisheye lens correction options	154	Round up about DPP 4	199
About diffraction correction	155	Other Canon software and apps	200
About chromatic aberration correction	156	Other services and eBooks	201
About peripheral illumination correction	157		
About distortion correction	158		



PREVIEW  
EDITION



About digital images



# Introduction

PREVIEW  
EDITION

The advent of digital images has seen a lot of controls added to the cameras that simply did not exist in the days when we shot film. Therefore the cameras are more complex to use. However, we have the advantage of being able to see the image we have taken immediately after we have taken it and so we can check the basic settings such as the exposure and the colours and adjust these if necessary and take another image.

We have the choice of capturing the image in its RAW state or as a file that is a lot more finished and needs less to be done to it, that's a JPEG file format.

You need to make a lot of decisions about what you want to do with the image, how you want to handle it and how you are going to adjust it, before you shoot any images. This choice of options can seem overwhelming if you are new to digital imaging.

One of the biggest differences between shooting digital images and how we worked when we shot film is in who has the responsibility for making the image look good. The image to the right shows the difference that can be made using a couple of very quick corrections that take just seconds to apply.

In the days of film it was down to the photofinisher or lab to adjust the images being printed to look good. This was a skilled job, but if you took your films to a good lab, you would get some very good images back, with most images looking correct. What is often not understood is how much could and was done to the image at the printing stage.

If you shot on colour negative film, it had a latitude



(how much you could get the exposure wrong) of 3 stops over or under and the negatives would still produce a good print, providing it was printed by someone who was an experienced printer. Even if the colour was wrong it could be corrected in the printing stage. Once digital processing machines appeared in the printing market other corrections such as contrast and saturation corrections could be done to the image for you. Of course if you shot slide film you did not get this latitude and needed to get the exposure spot on.

Digital is very different to shooting colour negatives, as firstly it does not really have much latitude. If shooting JPEG about a stop at most and if shooting RAW then you can recover images up to about 2 stops out. So shooting digital images is very like shooting colour slide film.

But the more significant thing is that the photographer is responsible for all of the processing. They need to get the exposure, colour, contrast and saturation all correct for the image, as even if going



# Introduction

PREVIEW  
EDITION

to a commercial lab it's not going to be done for you.

So that's going to be a steep learning curve for most photographers. I remember back to the very earliest days of digital when I worked at Canon and we launched the very first digital cameras, used the first digital images in catalogues, printed the first digital images on the first home colour printers and I have every sympathy with people learning to do all these things. From the outset of digital I made just about every mistake and came across every problem that you could find, as they say "been there, done that and got a lot of T shirts!"

One advantage I had when I started handling digital images was that I already had a good understanding of computers, imaging programs and producing documents for printing. For many photographers that is simply not going to be the case, so in this book I am including a couple of short chapters that will bring those that also have only a very basic understanding of computers up to speed with the things that you need to understand to handle RAW images effectively.

One thing to be aware of is that when performing adjustments and corrections on images it is possible to perform very subtle adjustments as in the top pair of images or adjustments that are far more drastic as in the examples at the bottom of the page.

How much or little you do is down to you, and how you choose to visualise and produce the images that you have taken.



*Before correction*



*After correction*



*Before correction*



*After correction*

# New C RAW format

Name	Date Modified	Size	Kind
093A0200.CR3	10 Jan 2019 at 11:23	28.6 MB	Canon CR3 raw image
093A0201.CR3	10 Jan 2019 at 11:25	21.3 MB	Canon CR3 raw image
093A0202.CR3	10 Jan 2019 at 11:26	22.8 MB	Canon CR3 raw image
093A0203.CR3	10 Jan 2019 at 11:26	14.2 MB	Canon CR3 raw image
093A0204.CR3	10 Jan 2019 at 11:26	18.5 MB	Canon CR3 raw image
093A0205.CR3	10 Jan 2019 at 11:26	26.2 MB	Canon CR3 raw image
093A0206.CR3	10 Jan 2019 at 11:26	28.6 MB	Canon CR3 raw image
093A0207.CR3	10 Jan 2019 at 11:26	24.8 MB	Canon CR3 raw image
093A0208.CR3	10 Jan 2019 at 11:26	16.5 MB	Canon CR3 raw image
093A0209.CR3	10 Jan 2019 at 11:26	20.7 MB	Canon CR3 raw image
093A0210.CR3	10 Jan 2019 at 11:26	28.1 MB	Canon CR3 raw image

The main thing about this new version of the program is its ability to handle the new C RAW file format. This is very new on the market. At the time of writing is only available on a handful of models, including the EOS R, RP, 250D the EOS M50 and is starting to appear on the odd Powershot models that features the DIGIC 8 processor.

The reality is that the new C RAW format is that it will start to appear on most models that we see launched from this point on. The C RAW format also only saves as the new .CR3 RAW format which is going to gradually replace the .CR2 files that we have been used to for a number of years.

Although we set it on the camera as C RAW, Once we have taken the images they actually appear on the computer as the new CR3 format and look exactly the same as the standard RAW format the camera can also produce. The screen grab above shows C RAW images actually on the computer. You can see here that the file size varies between 30 MB and 14 MB depending on the complexity of the image. The same images taken in CR2/CR3 normal RAW will be

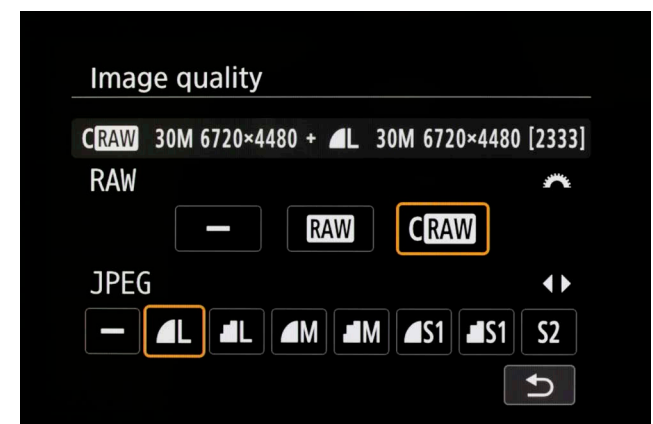
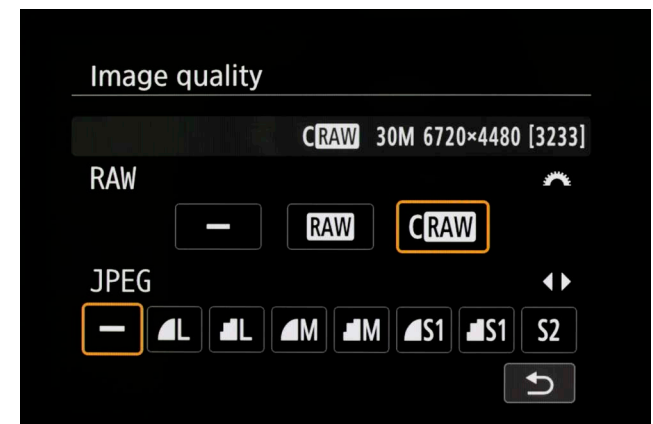
between 50 MB and 35 MB in size. So you can see it is quite a significant saving in space.

The C RAW format is not replacing the normal RAW option. It is simply offering users a smaller RAW format that still affords the flexibility of all processing but with significantly smaller file sizes. It's easy for many photographers with lots of experience and high spec computers to claim that space saving is irrelevant these days, however for those with more modest equipment a 40% space saving with no significant drawbacks has to be a great advantage.

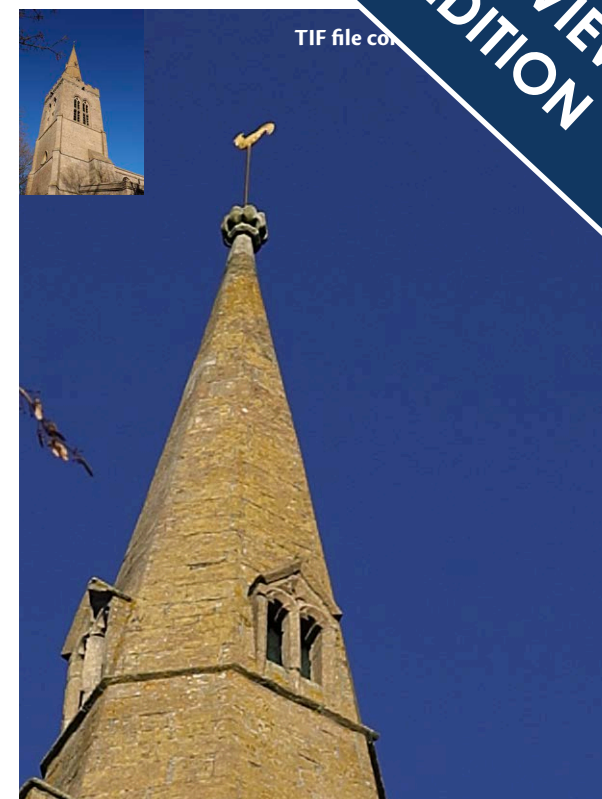
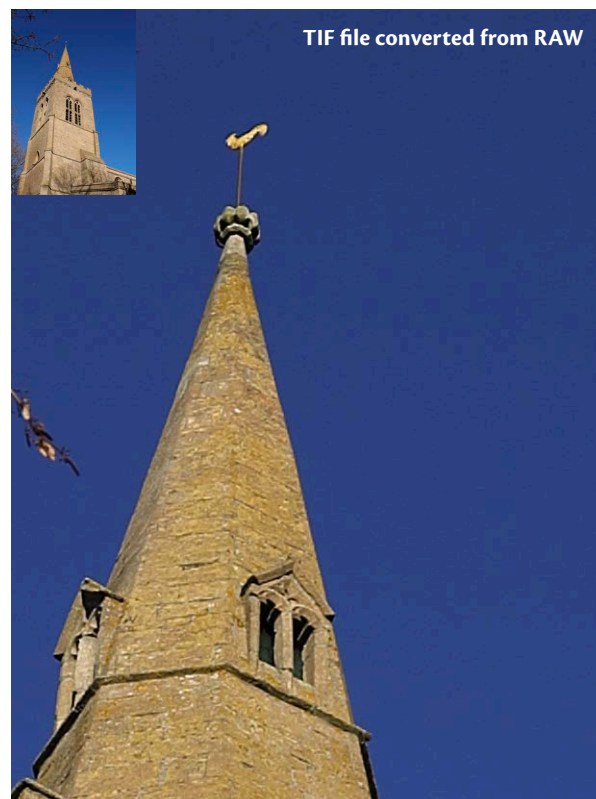
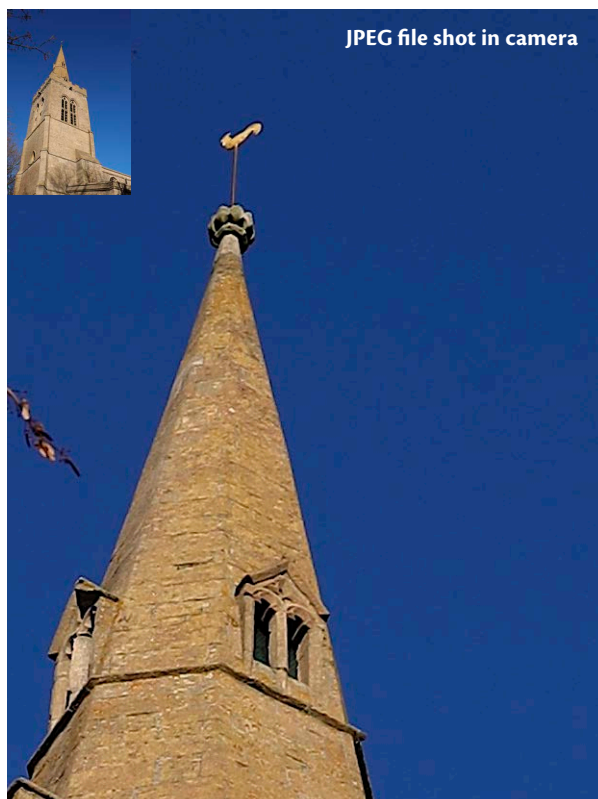
What the new C RAW format is replacing are the S RAW and M RAW options that existed on the cameras for a while. These were RAW files with a smaller pixel count to reduce the size of the file. However, with less pixels the reality was that the JPEG often gave a better quality than the smaller RAW file.

The screen images to the right show where the C RAW option is set. It is not possible to shoot both the RAW and a C RAW image together. However, it is possible to shoot the C RAW combined with any of the normal JPEG options.

PREVIEW  
EDITION







So how much space do you save? Generally a C RAW File will be 30 to 40% smaller than standard RAW format. That's quite a big saving on space both on the capture cards and of course on to whatever device you're downloading onto.

So how is the space-saving achieved? A normal RAW format file uses what is known as a lossless compression. The new C RAW format uses a lossy compression. A lossy compression is also used on JPEG files to make them smaller, it's fair to say it doesn't have the greatest reputation. However, that is been unfair to what is actually being done.

A lossy file is basically discarding some of the colour data within your image. It is this that make some photographers panic, needlessly so.

If this is the first time of reading this book, you might want to skip ahead a few pages to where I describe how JPEG images actually work. As I show you how lossy files can be variable in size. The more you compress the lower the quality will get. However, it is quite surprising how much compression you can have without seeing any viable difference between the files.

One of the reasons for this is although we can quote

many numbers about the benefits of shooting in RAW and maintaining the 16 bit colour space, the reality is that very few images need the extra colour space and therefore can be made quite a lot smaller without any real loss of quality.

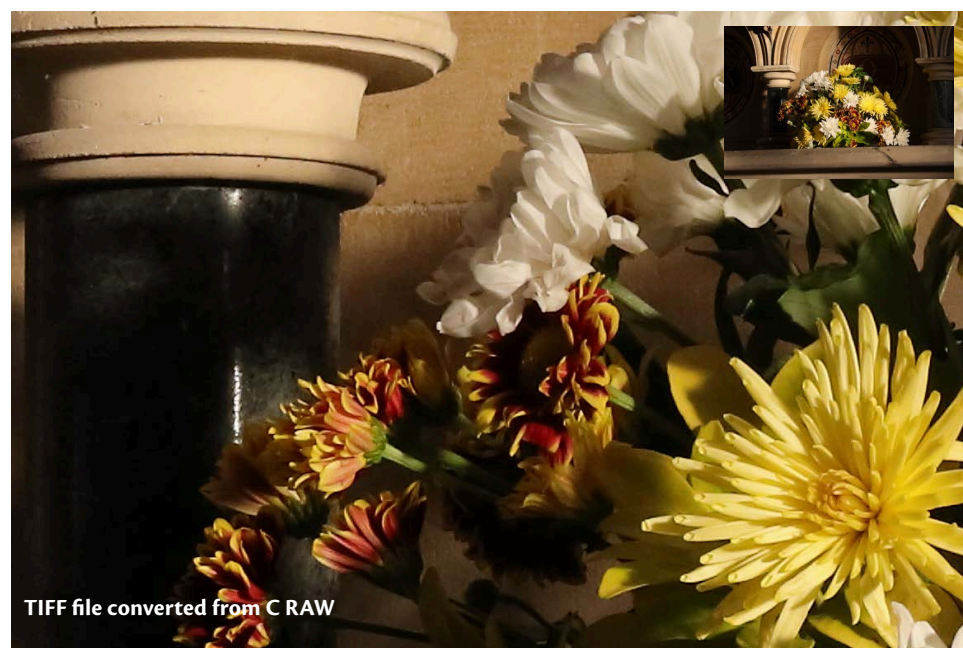
You may be wondering if it uses the same compression as a JPEG file if there's any benefit in still shooting RAW. It's a reasonable question to ask. However, the reality is that C RAW is still giving you a file that contains a 16 bit colour space. That means there is more data available and therefore more flexibility within the postprocessing process.



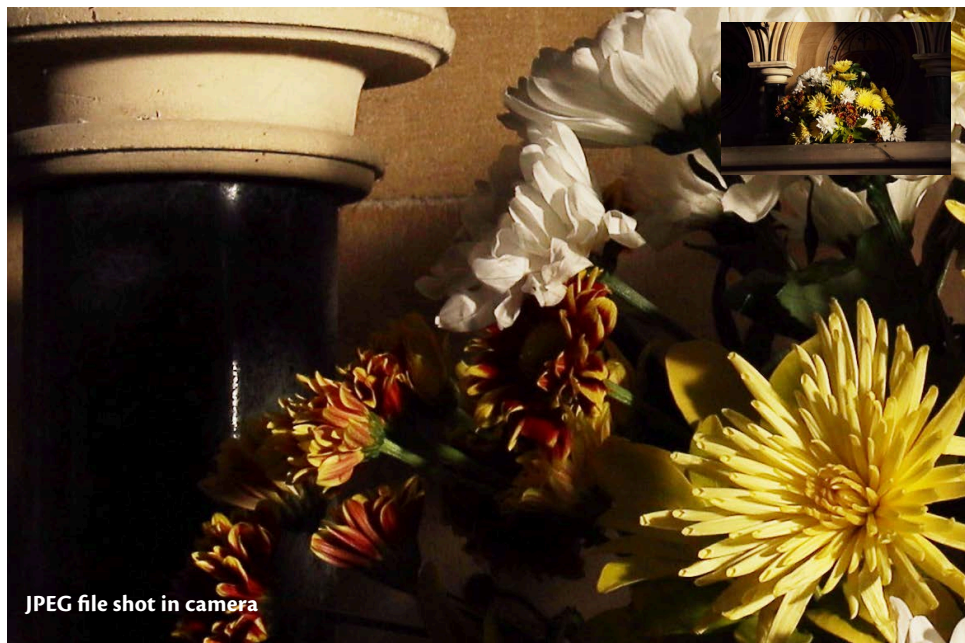
When the format first came out I decided to do some testing to see how much difference it made shooting in RAW or using the new smaller C RAW format. When a new format like this appears, the main way that you're going to know whether it's right for you is to do some tests.

The obvious one I started with is to take a picture on reasonable day in good lighting at 100 ISO, making sure I got the exposure correct. The test images all taken at f11 using the RF 24-105mm f4 L IS USM lens with the camera fitted to a sturdy tripod to avoid any movement. These images are shown on the previous page together with a comparison to a JPEG file shot at the same time. In these conditions it is virtually impossible to tell any difference between the images. These images had no postproduction done other than converting from the RAW formats into a TIFF file. I am using a tiff file to avoid any deterioration from the JPEG file format.

The next obvious thing to test was to see if a higher ISO made any difference on a correctly exposed image. The images on this page were taken correctly exposed at 1600 ISO and again there is very little difference between them.



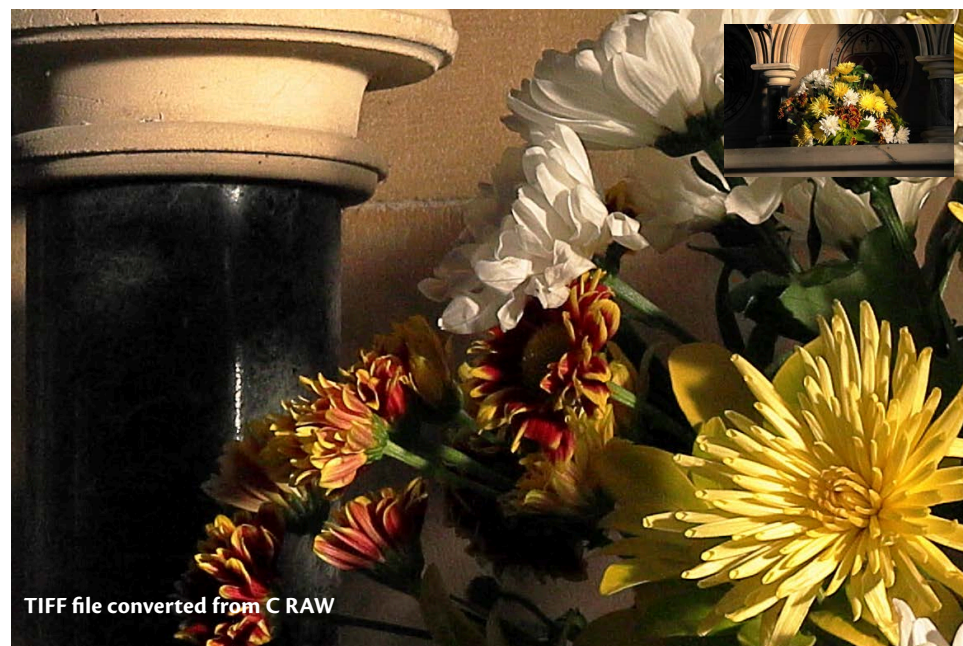




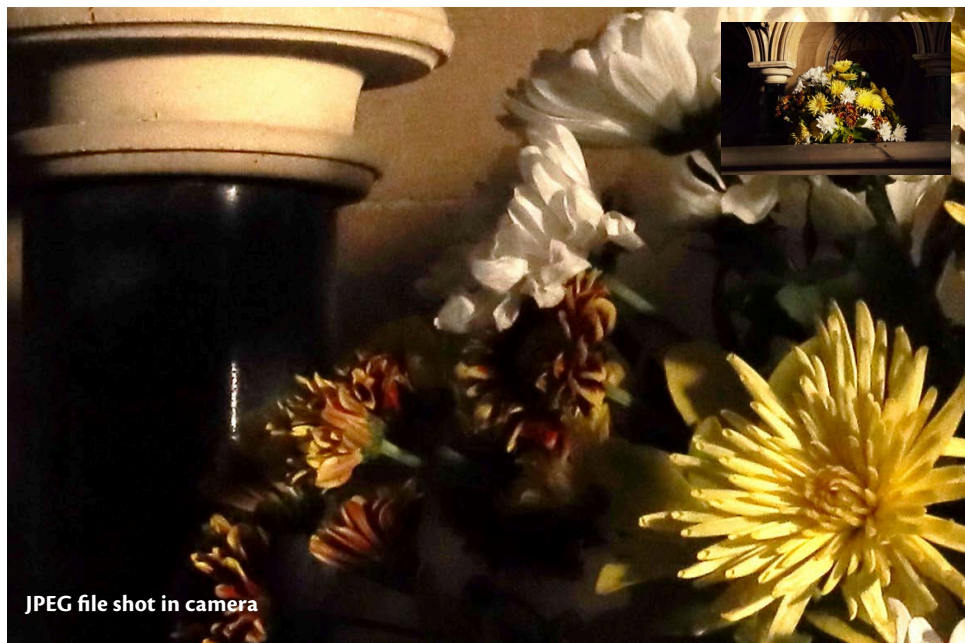
The images on this page were taken at -3, so three stops underexposed. The unadjusted image is shown immediately left and then the images were adjusted to match the correctly exposed images as closely as possible.

Correcting for under and over exposure is one of the most commonly cited reasons for shooting RAW, though your images should never really be this underexposed. The JPEG file above is now showing the lack of tolerance of this amount of underexposure. A claim often made is that you can adjust the images without any resulting loss in quality, if you compare the images at -3 adjusted on this page with the ones correctly exposed at 1600 ISO on the next page you can actually see this is far from true. What is true is that they do have more latitude than a JPEG at the same amount of under or over exposure.

If you look in the shadow areas there is slightly more noise and grain as a result of using the C RAW file though it is only a very small amount and this is a very extreme test.







The final test was to shoot at 1600 ISO again underexposing by 3 stops to see how much difference this made to the end result. The effects of the -3 underexposure is made much more pronounced the higher the ISO that we shoot at. A good reason why if having to use the higher ISO settings it is very important to get the exposure correct at the time of shooting. It is now possible to see a difference between the RAW and C RAW file, though it has to be said it is a small one if you consider the size that I am having to enlarge the image so that it can be seen.

The conclusion that can be drawn is that if you have loads of space then continuing to use the standard RAW is not going to be a problem. If running out of storage space or handling the image on mobile devices then you may want to switch to the C RAW format knowing you will save up to 40% storage space without any real noticeable loss of quality. If in doubt do your own test along the lines of what I have done here. The key thing when testing is to keep the aperture the same (work on AV mode) and shoot on a sturdy tripod to prevent any blur from camera movement and fire the camera either with a remote control or use the self timer so you are not touching it when it fires.

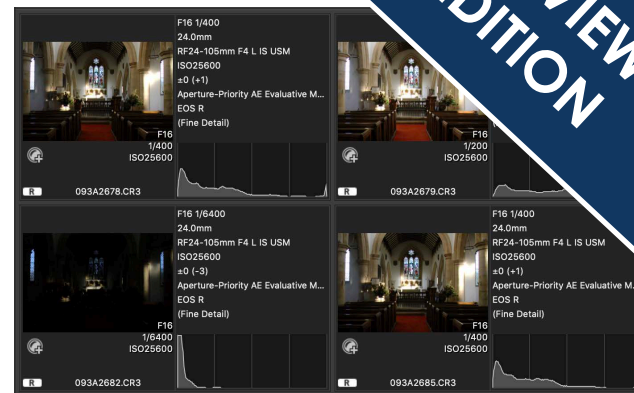




# How to tell RAW and C RAWs apart

PREVIEW  
EDITION

Name	Date Modified	Size	Kind
093A0200.CR3	10 Jan 2019 at 11:23	28.6 MB	Canon CR3 raw image
093A0201.CR3	10 Jan 2019 at 11:25	21.3 MB	Canon CR3 raw image
093A0202.CR3	10 Jan 2019 at 11:26	22.8 MB	Canon CR3 raw image
093A0203.CR3	10 Jan 2019 at 11:26	14.2 MB	Canon CR3 raw image
093A0204.CR3	10 Jan 2019 at 11:26	18.5 MB	Canon CR3 raw image
093A0205.CR3	10 Jan 2019 at 11:26	26.2 MB	Canon CR3 raw image
093A0206.CR3	10 Jan 2019 at 11:26	28.6 MB	Canon CR3 raw image
093A0207.CR3	10 Jan 2019 at 11:26	24.8 MB	Canon CR3 raw image
093A0208.CR3	10 Jan 2019 at 11:26	16.5 MB	Canon CR3 raw image
093A0209.CR3	10 Jan 2019 at 11:26	20.7 MB	Canon CR3 raw image
093A0210.CR3	10 Jan 2019 at 11:26	28.1 MB	Canon CR3 raw image
093A0211.CR3	10 Jan 2019 at 11:26	30 MB	Canon CR3 raw image



One of the problems I discovered when shooting the images for the test was it was difficult to tell which were the RAW and the C RAW images. There is a difference in size, but if using different images it can be hard to know for sure and even when bring up the information it can be hard to see the file type as anything other than a .CR3 file. Of course both the RAW and C RAW files will both be saved as .CR3 format.

The later versions of DPP have the option to display the files as a list as shown to the right which now has the option to display the RAW type. It's been on a couple of versions now but I could not really see the point of the display. It is activated by the button highlighted below.

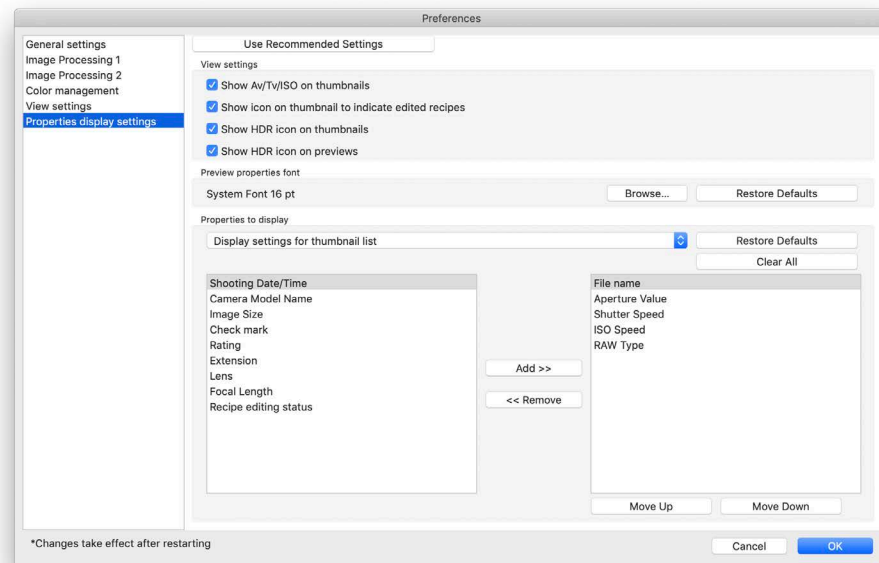


By the side of this there is a drop down arrow which brings up a list of preferences and from here you can choose the items to display by highlighting an item and then clicking the add or remove buttons.

File name	Aperture Value	Shutter Speed	ISO Speed	RAW Type
093A2678.CR3	F16	1/400	ISO25600	RAW
093A2679.CR3	F16	1/200	ISO25600	RAW
093A2682.CR3	F16	1/6400	ISO25600	CRAW
093A2685.CR3	F16	1/400	ISO25600	CRAW

You can see from the screen grab the options that I selected to get the display.

This display has been steadily evolving over the last few releases of the program and so now has more options than I have looked at before.



## File formats - RAW

The file format is the way that the camera takes the image. The camera as it comes out of the box is defaulted to produce a JPEG image. This is to allow the image to be used straight from the camera with no adjustments being done to it.

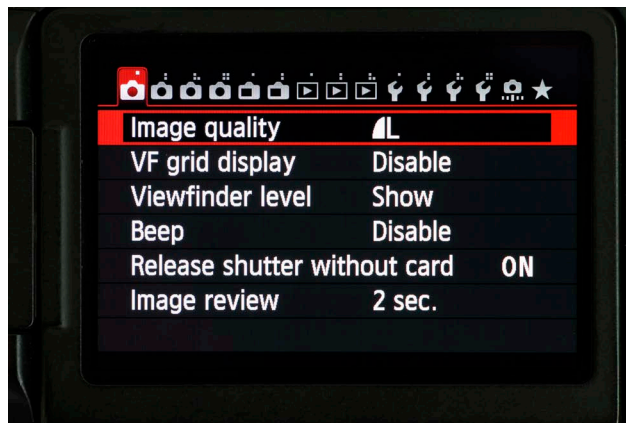
There used to be only the one RAW option, but there are now different sizes of RAW that can be selected.

The file format is selected from the image quality menu and when you enter that menu you will either find a list of the settings available or a display like the one on the right. Which one, will depend on the camera that you have.

You can just select a RAW option or just a JPEG option or a combination of both.

The straight RAW option produces a full size file which is the one that most photographers are going to use. There are options to produce a smaller RAW file on models launched before late 2018. MRAW uses about half the number of pixels that the camera has. On a camera with 20 million pixels, MRAW uses 11 million pixels and the SRAW uses 5 million pixels. The MRAW and SRAW are mainly for sports and press photographers that do not need such a big image but still want to use RAW.

The RAW file is basically what its name says, a RAW file that has not had any processing applied to it in the camera. A RAW file needs to be processed in order to use it. This is done by using RAW conversion software, of which Canon's Digital Photo Professional is one of the options available to do this processing.



There are many other options available but Canon's DPP software is supplied free with the camera. It is simple to use, offers all the options that can be applied on the camera plus other processing options and as it uses all the settings on the camera when it opens the image, it can make the whole process much quicker.

Some of the other programs on the market for handling RAW include, Aperture and Photos which are found only on Mac computers. Adobe offers Lightroom and Photoshop and there are lots of others also out there which can process RAW images for both PC's and Mac's.

For most amateur photographers DPP is likely to allow you to make all the corrections that are needed for your images without spending hundreds of pounds. Unlike other programs it can be updated to stay compatible with the newer models in the camera range, free of charge.

One of the key differences between RAW and JPEG can be seen below, the RAW files (.CR2/.CR3 after the file name) are about 25-50 MB each when downloaded, JPEGs (JPG after the file name) are a lot smaller at about 5-12 MB each depending on the model that you own.

iCloud Drive	7V2C6550.CR2	14 July 2015 14:19	30.3 MB	Canon...image
AirDrop	7V2C6551.CR2	14 July 2015 14:27	25.3 MB	Canon...image
Desktop	7V2C6552.CR2	14 July 2015 14:28	25.3 MB	Canon...image
Applications	7V2C6553.CR2	14 July 2015 14:30	27.7 MB	Canon...image
Documents	7V2C6554.CR2	14 July 2015 14:31	25.3 MB	Canon...image
Downloads	7V2C6555.CR2	14 July 2015 14:31	27 MB	Canon...image
Creative Cloud...	7V2C6417.JPG	14 July 2015 09:32	7.4 MB	JPEG image
Devices	7V2C6418.JPG	14 July 2015 09:32	7.1 MB	JPEG image
Remote Disc	7V2C6419.JPG	14 July 2015 09:32	3.8 MB	JPEG image
LaCie	7V2C6420.JPG	14 July 2015 09:32	4.3 MB	JPEG image
	7V2C6421.JPG	14 July 2015 09:32	5.4 MB	JPEG image
	7V2C6422.JPG	14 July 2015 09:32	7.5 MB	JPEG image
	7V2C6423.JPG	14 July 2015 09:32	7.4 MB	JPEG image



## File formats - RAW

This does mean that they take up a lot more space, both on your memory card at the time of shooting and on your hard drive once you have downloaded the images.

Today with memory cards getting larger all the time and hard drives of several terabytes, both affordable and available, shooting RAW is not the problem that it used to be for the amateur photographer.

The reason why the RAW file is so much larger is two fold. Firstly it is saved using a format that although it does compress the image, does so using a lossless compression (apart from the C RAW format we looked at earlier) which keeps the image at its maximum quality.

Secondly the RAW file is kept at the bit depth that the camera works at, which for most cameras is 14 bit. JPEG images have to be saved as an 8 bit format. This is controlling the amount of colours that the image can have in it. With JPEG images the maximum number of colours can be 16.7 million (16,777,216). When shooting RAW images the image can technically have up to four trillion colours in it. With more colour information being saved the file will naturally be a lot larger. The numbers sound impressive, however in reality most images will only have a fraction of that number of colours and the human eye can only see about 14 million colours at the very most. I will look at where the advantage of having more colours is shortly.

In many ways the RAW file has become a digital negative, something you start with and then you process it to get the image in the way that you want.



An important thing to remember is that RAW files in their own right are very limited. Although you can print a RAW file from Canon's Digital Photo Professional, you cannot print from a RAW file by most other methods. So putting the card into a printer or taking it to a shop as a RAW file will simply not work. This is why the newer models in the Canon EOS range now have an options for RAW processing built into the camera to allow the image to be converted into a more usable JPEG format.



To be able to use your RAW files you do the adjustments that are needed and then normally convert them into either a JPEG or TIFF file. For most photographers the JPEG will be the preferred format as it is smaller and more universally compatible with other programs and ways of using the images.

The images above show the variations that can be made to a RAW file within DPP. Which is correct, is entirely up to personal choice.

PREVIEW  
EDITION





At times I feel that the JPEG format is given a bit of a bad press as most professionals and writers seem to rubbish it. The term JPEG actually stands Joint Photographic Experts Group, yes it's boring but it was the group of experts that designed JPEG to be a file type that was manageable in size, could easily be made smaller, make transmission by the Internet easier and allowed the image to be used for most purposes.

To be fair, they did a good job as over 20 years after the file format was introduced to the market we are

still using it on a daily basis and it has not changed at all in all that time. The only difference today is that we are using much larger images than were used at its inception. There is nothing wrong with JPEG files if they are used correctly, but to use them you do need to understand a few things about them.

JPEGs use a compression that is actually called a lossy compression. This discards data from the image to make it smaller, the main data being discarded is colour data and this can result in banding and artifacting to

the image that has been compressed, which is just about visible in the enlarged images above. What lots of photographers do not realise is that there is not just a straight quality loss, you have to set the size of the compression that is being applied.

The images above are produced from a camera that has 24 million pixels. These are processed in both Photoshop and DPP from an EOS 80D RAW image. The difference in saturation and brightness is simply DPP's better algorithms being applied. Photoshop





and DPP both allow JPEG images of very varied quality to be produced. If you stick to the maximum quality of 12 in Photoshop and 10 in DPP, the image quality is extremely high. Be aware that there is no “compression standard” so interesting the 10 option in DPP produces a larger image than the 12 quality option in Photoshop.

If you take the quality down, the image will become very small but the quality will drop as a result of this.

Photoshop is defaulted to use a quality setting of 8 when is first used, which gives a significant amount of compression, so the first time you use it the quality setting on JPEGs does need be taken up to 12, after that it will remember the settings. The maximum quality image is 13.4 MB in size but the smaller one is only 581KB.

DPP does not allow such harsh compression to be applied to JPEG images and its default is 10 unless

altered by the photographer. The same two images on minimum and maximum setting in DPP end up at 16 MB and 2.7MB and so it retains more quality and this is clearly visible from the examples above.

Interestingly even the 1 compression in DPP produces an image that is perfectly usable without traces of the banding that is so evident of the Photoshop JPEGs.

# eBooks for your EOS photography

You've just read a **free 20-page preview** of this eBook, part of a comprehensive series of Canon EOS camera eBooks that I've produced, based on years of experience training Canon EOS photographers like you. Thanks for downloading it.

There's much, much more – most of my eBooks are around 150 pages long, so you've had just a small taste of what you can learn about your camera. And it won't cost you the earth – prices start **from just £4.95**.

So get the COMPLETE picture – buy the **full version of this eBook** and, in minutes, you'll have the key to unlocking your EOS camera and your potential as a photographer.

*Nina*

10% off  
quote  
**FULL10**

UNLOCK  
THE FULL  
VERSION

visit: [www.eos-magazine.com/ebooks](http://www.eos-magazine.com/ebooks)