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

Written by Nina Bailey

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

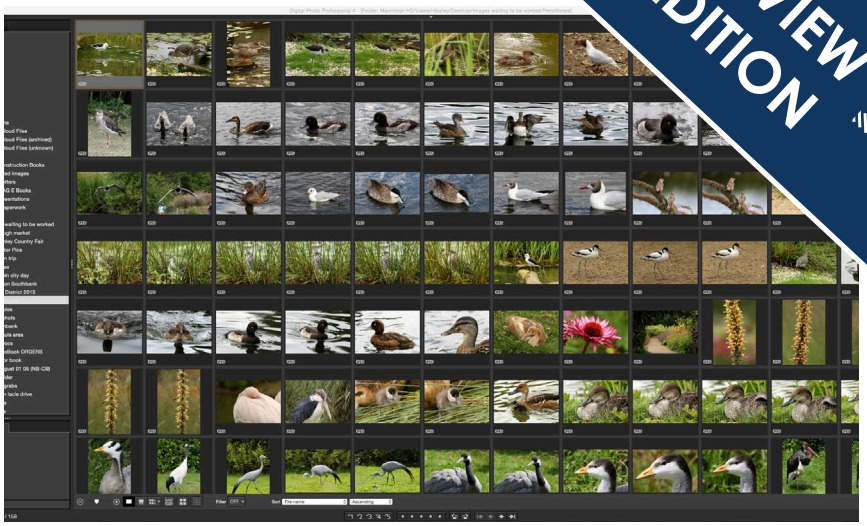
For DPP 4 - New Version for latest models

Especially written for Canon EOS users

About the DPP version

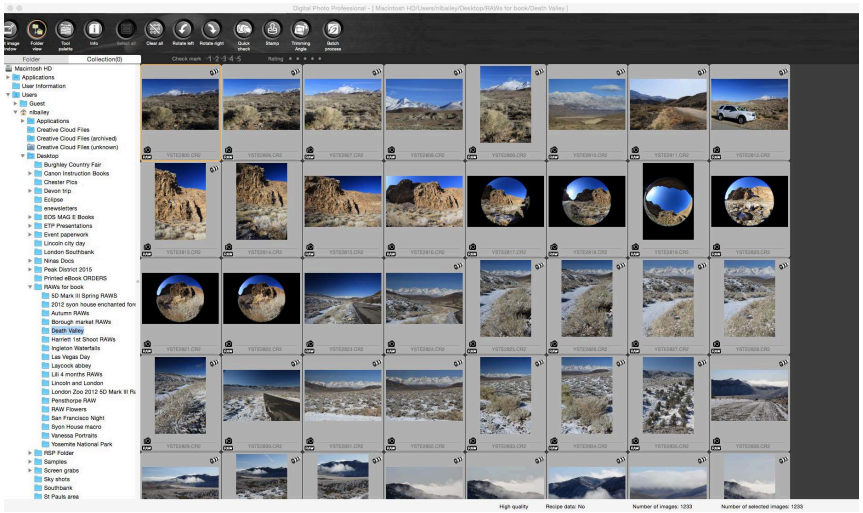
PREVIEW EDITION

This book has been written based on the new version of the Digital Photo Professional programme which is generally referred to as DPP 4.



DPP 4 was launched to go with some of the higher level cameras to provide an interface that was more like some of the other RAW processing software on the market. This is to allow photographers who are familiar with these programmes to benefit from Canon's unique image processing algorithms that are only available when using their own software. The software is now compatible with the following models: EOS-1D X, EOS-1D C, EOS 5DS, EOS 5DS R, EOS 5D Mark III, EOS 5D Mark II, EOS 6D, EOS 7D Mark II, EOS 7D, EOS 60Da, EOS 60D, EOS 70D, EOS-1D Mark IV, EOS 760D, EOS 750D, EOS 700D, EOS 100D, EOS 1200D, EOS M3, EOS M2, EOS M, PowerShot G7 X and PowerShot G1 X Mark II. For most of these models it will not have been supplied on the disc that was supplied with the camera, but it is always preferable to download the very latest version of the software.

So how do you know which version you have? Well the programme icons look quite different, the Icon at the top to the left is DPP version 4 and the bottom one is DPP 3. When the programmes open they also look quite different as the screen grabs to the right show. The top image being from Digital Photo Professional version 4 and the bottom image being from Digital Photo Professional version 3.



The programmes are quite different in operation and so I have already produced a book specifically for DPP 3.

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 as shown below.

If yours is not the latest version it can easily be updated for free from the Canon website. However, all the features that I have looked at in this book are available from version 4.3.0.0 onwards which was available in July 2015.

About the author

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.

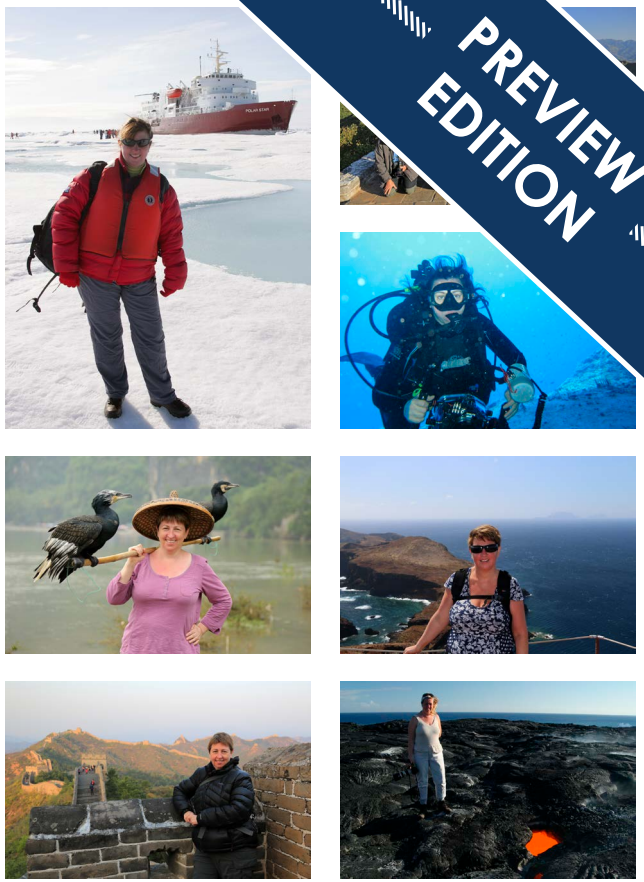
Nina started her own business in 1999, concentrating on training for amateur photographers. She is also at the forefront in developing and producing the new Online EOS Training Academy. As well as developing the online training academy and direct training of photographers, Nina is a prolific professional 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 here a very good in-depth understanding of all the processes involved in producing digital images and how hey 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, many of which are also now available as limited edition print copies (email ninas.booksales@gmail.com if you are interested in the printed copies).

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 shoots commercially within the travel photography market.

Nina also leads photographic trips, the latest ones being to China in conjunction with Wendy Wu tours.



Above: Some of the locations that my quest for images have taken me to.

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About this book

Digital Photo Professional (called DPP for short) is a software programme that is supplied free with the latest Canon cameras. Digital Photo Professional version 4 is compatible with most current EOS models as listed: EOS-1D X, EOS-1D C, EOS 5DS, EOS 5DS R, EOS 5D Mark III, EOS 5D Mark II, EOS 6D, EOS 7D Mark II, EOS 7D, EOS 60Da, EOS 60D, EOS 70D, EOS-1D Mark IV, EOS 760D, EOS 750D, EOS 700D, EOS 100D, EOS 1200D, EOS M3, EOS M2, EOS M, PowerShot G7 X and PowerShot G1 X Mark II

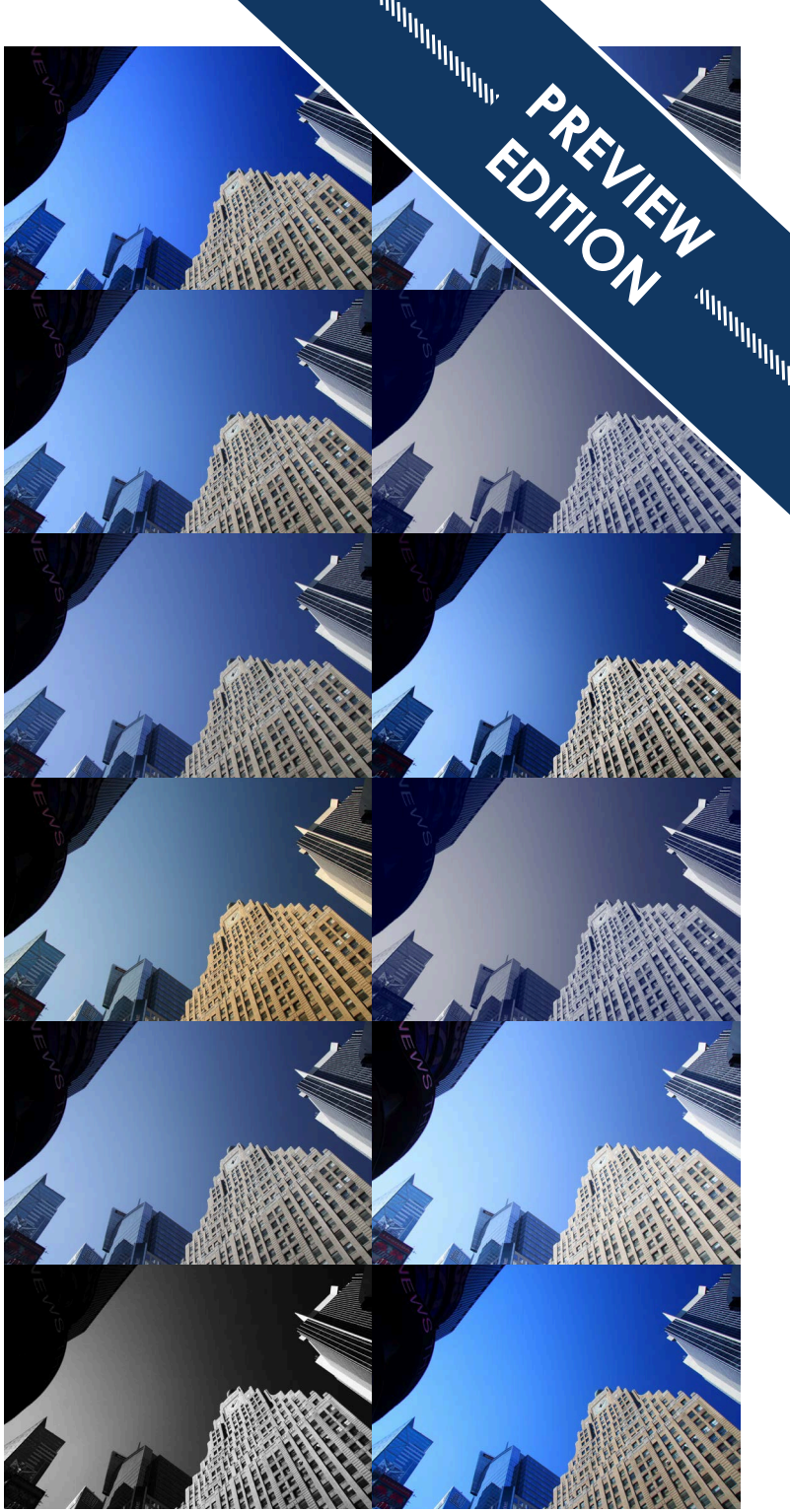
The good news is that you can have both versions on your computer, and they live quite happily side by side. This book is compatible with PC's and Mac's as the software looks and works the same on both systems.

The sad thing about Canon's Digital Photo Professional programme 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 have been asked if I am going to write a book on DPP 4 almost since I started writing my ebooks. However, its taken until now to get around to actually writing one. 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, which is what I have done to produce the images to the right. Many could be considered to be correct, but they are all also very different and that is what shooting RAW images is all about. 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.



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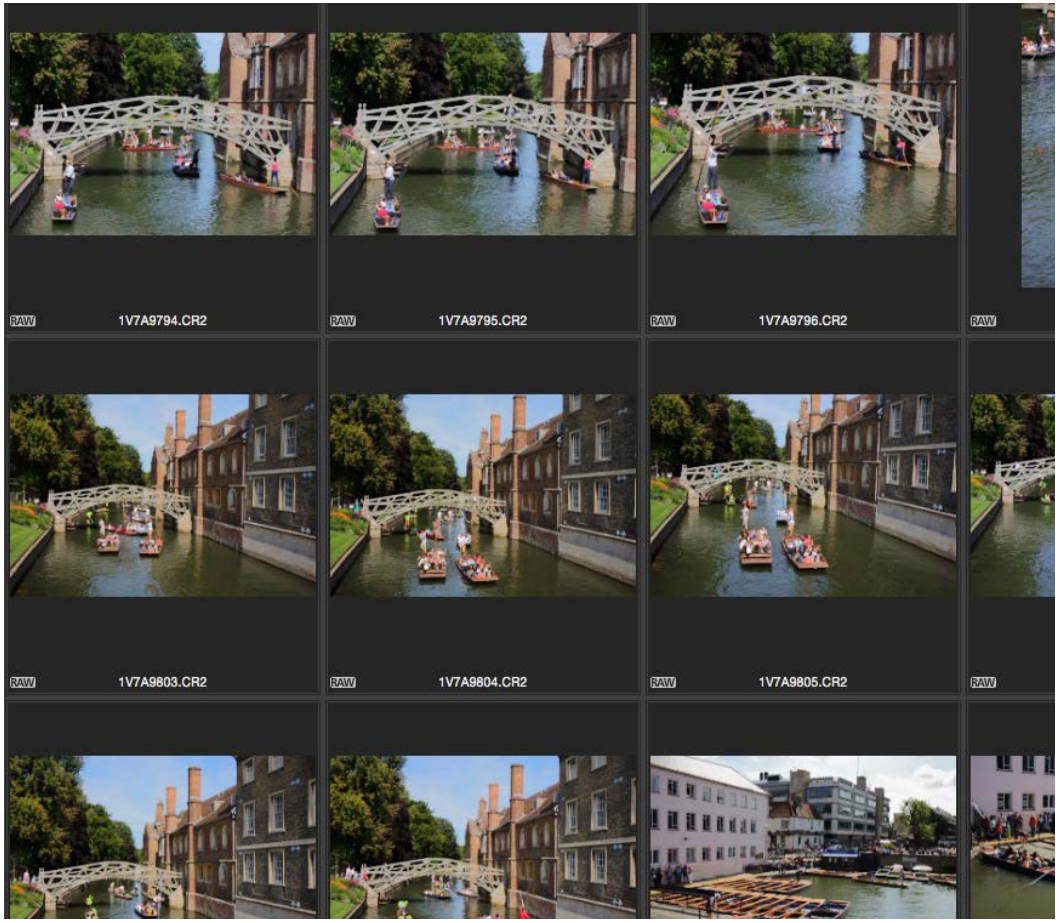

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About digital images

Introduction

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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

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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 programmes 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

What's new in DPP 4

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Adjusted using Digital Photo Professional version 3


Adjusted using Digital Photo Professional version 4

The main thing that is different in DPP 4 if you have been used to DPP 3 is the navigation. Canon say that the navigation has been made easier, though I have to be honest and say that the easier navigation is really for those very familiar with image processing and not for the novice photographer.

The programme now has 64 bit compatibility, which makes it run faster with machines working on 64 bit processing. There are also a few tweaks to make the workflow with RAW images a bit smoother.

The main benefit is the programme's ability to recover shadow and highlight detail better and it offers a much wider range of colour adjustments for the more advanced users.

Once you get used to it the interface works well and is very smooth in use. The key to the programme is to learn the layout of the multi layout windows thoroughly and what the symbols on the various buttons do - that then make it much easier to move around and perform your adjustments.

For those who have used DPP 3, you will find that there is little left of the look of the older version, though there are still many commands and feature that will be very familiar.

The big reason that many, including myself had stayed with DPP 3 was the lack of the HDR tool and the Compositing Tool, which has now finally been put into DPP 4 with the July 2015 release of the programme. If you have an older copy then visit the Canon website for the update.


Original image

The images here are showing you the extra range available for recovery of images in the new version of the programme.

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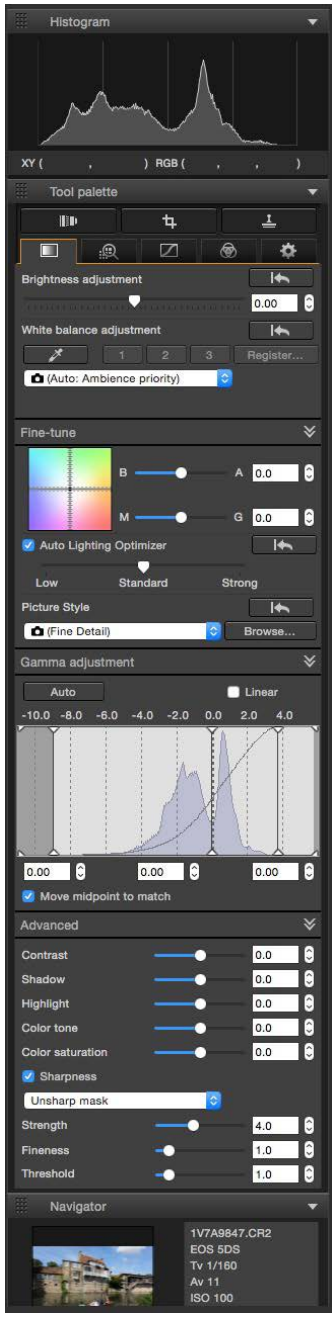

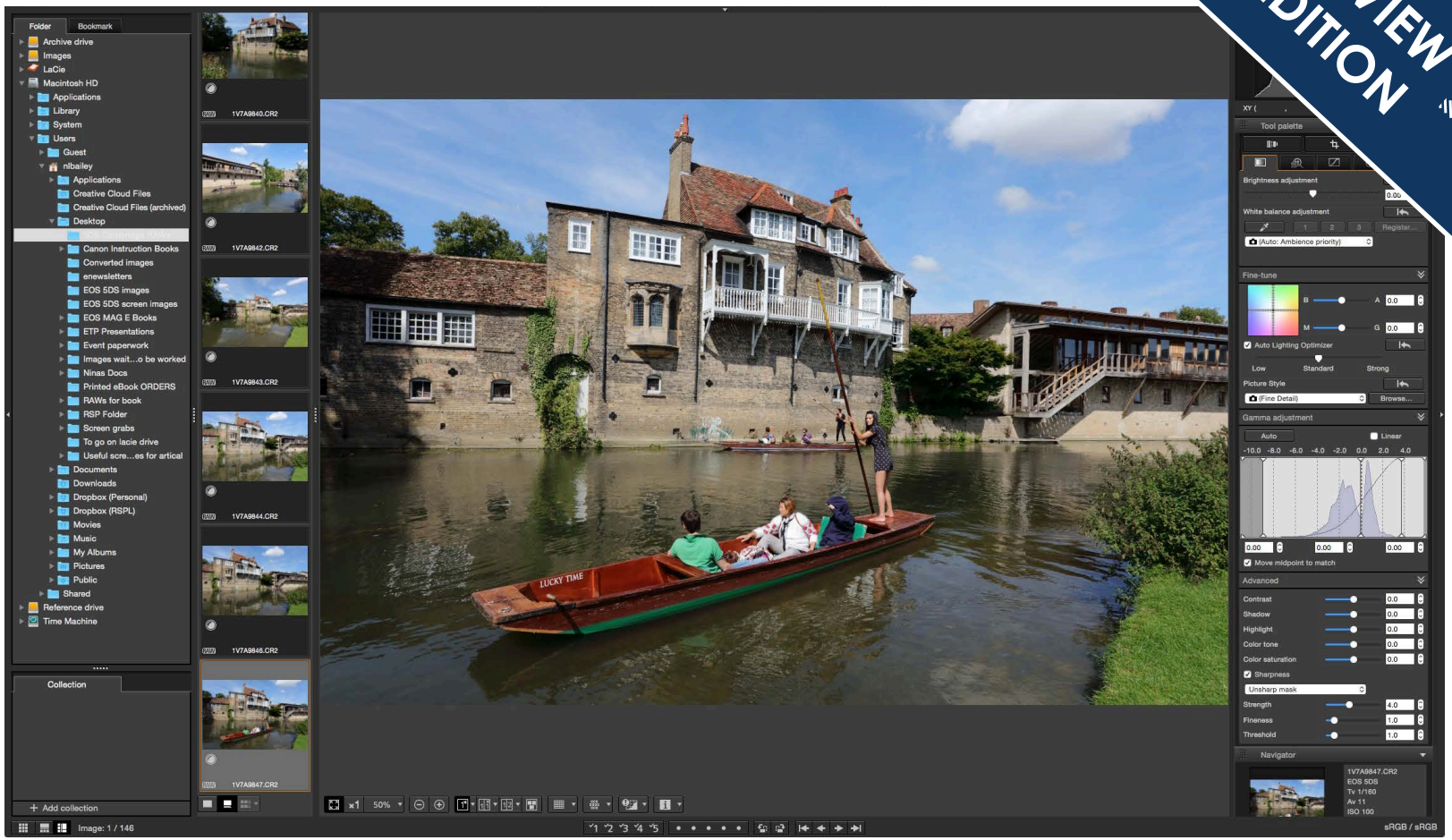

You can see from the above screen grabs how different the programme now looks when it is in use. Though if you have been used to DPP 3, there are definitely some similarities in the tool palette. The corrections are as normal laid out more or less in the order that they should be performed and you have the choice to have the tool palette docked to the side of the window or floating. The new darker grey in the background is a good addition as it makes it easier to see the images and corrections being done to them.

Another addition is that you can now create up to 20 collections of images which now makes this facility much more usable.

Most of the navigation around the screen is now done by the buttons along the bottom of the window rather than by the buttons that used to exist at the top of the screen.

The key to using this programme successfully is as with most programmes learning the controls thoroughly. However, before I take a look at the programme I am going to take a look at the key file formats and terms used within digital imaging.

File formats - RAW

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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, however there are now different sizes of RAW that 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. MRAW uses about half the number of pixels that the camera has, on a camera with 20 million pixels, MRAW using 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 may 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 programmes 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 programmes 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 after the file name) are about 25-30 MB each when downloaded, JPEGs (JPG after the file name) are a lot smaller at about 5-7 MB each.

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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 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 programmes 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, it is entirely up to personal choice.

File formats - JPEG

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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 its 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.

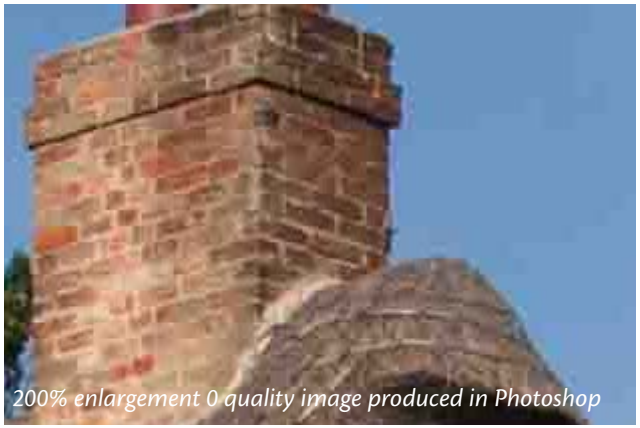
JPEGs use a compression that is actually called a lossy compression. This discards data from the image to make it smaller, the main data being discarded is colour data and this can result in banding and artifacting to the image that has been compressed, which is just about visible in the enlarged images to the right. 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 to the right are produced from a camera that only has 6 million pixels, the later models are difficult to get it to show up. These are processed in Photoshop from an EOS 10D RAW image. Photoshop allows JPEG images of very varied quality to be produced. If you stick to the maximum quality of 12, the image quality is extremely high. 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, 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 4.7 MB in size but the smaller one is only 268KB.

Full size 12 quality image produced in Photoshop

Full size 0 quality image produced in Photoshop

200% enlargement 12 quality image produced in Photoshop



200% enlargement 0 quality image produced in Photoshop

DPP does not allow such harsh compression to be applied to JPEG images. The same two images on minimum and maximum setting in DPP end up at 5.8 MB and 1.2MB and so it retains more quality.

On EOS cameras there are two quality settings for JPEG images as shown below. There is a large and a normal option for each of the JPEG sizes.

The smooth edge quarter circle indicates the large option or the high quality and the jagged option is the normal, or better described as low quality. Which one you choose controls how small the image will become.

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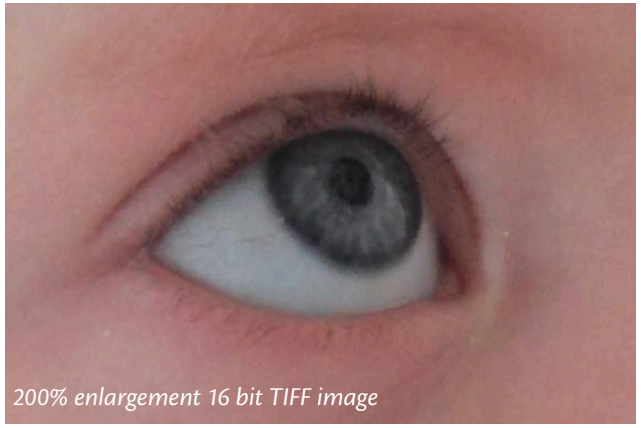
Full size 16 bit TIFF image


Full size 10 quality JPEG image


Full size 1 quality JPEG image


200% enlargement 16 bit TIFF image


200% enlargement 10 quality JPEG image


200% enlargement 1 quality JPEG image

The images above have been converted using Canon Digital Photo Professional from an image shot on an EOS 5D Mark II. What is interesting to compare is how little difference there is between all three images in appearance. In size the 16 bit TIFF file is 123.6 MB, the 10 quality image is 11 MB and the 1 quality image is 1.2mb. Notice that DPP gives a much better JPEG even on a very low quality image than Photoshop did on the previous page.

So JPEG images do give very good quality, but the problems set in if you have an image that is significantly too light or too dark as the range of corrections that you can do is more limited than with a RAW image. That is because they have a far more limited colour range, as we looked at earlier, 16.7 million colours as opposed to about 4 trillion colours.

One of the myths that persists about a JPEG file is that if you open it and then close it you will lose quality which is not true, the compression is applied when you save a file not simply open and close it. Even if you did a "save as", providing you keep to the programmes maximum quality setting you will not lose any visible quality unless you did it dozens of times. If you open it and change things and then do a "save as" then the image quality will have changed but that's as much due to what you have done, as the fact that you have done a "save as".

JPEG as a format works well if you are a good photographer that gets most images right but who is not very good with computers.

Postproduction and JPEG images

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There are a lot of myths about JPEGs and what you can and cannot do. There is a general assumption that you cannot adjust a JPEG image, but this is simply not true.

The images to the right were shot as JPEG files and had a slight error that had occurred at the time of taking the image. In both of the examples here the corrections were performed in Photoshop, however for the small amount of corrections that were needed these adjustments could have easily been done within DPP.

The top image is slightly underexposed and this has been brightened up. It is incorrect to say that you cannot adjust a JPEG image, however what is fair to say is that there is a limit as to what can be achieved. The exposure errors here are only small and adjusted easily in any programme that can adjust images.

The images at the bottom show the limitations of a JPEG file. The left shot is an image that is two stops over exposed, which is unusual but not impossible to get and the right hand shot shows the best it would look after correction on a JPEG file. If it had been shot as a RAW file the correction available would have been greater and although it would not have been as good as getting the image right in camera, there would have been a lot more detail in the white parts of the image.

If you do shoot JPEG it is important to get the image as correct as possible at the time of shooting and avoid over exposure errors such as the images at the bottom.

Before correction

After correction

Before correction

After correction

RAW vs JPEG - What is best

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There are good reasons for shooting either of these two formats. I get annoyed when I hear people suggesting that you have to shoot RAW to be a "proper photographer", especially to photographers who are struggling with the computer side of shooting digital images.

I know this is a book on how to handle RAW images, but I know from practical experience in the market that there will be people who are reading this that at the moment simply do not have the computer skills to cope with processing large quantities of RAW images.

I shoot a lot of JPEG images, some weeks I can shoot several thousand images and even knowing DPP as well as I do, it takes me significantly longer to handle RAW images. I like to have all the images I keep, ready to use, rather than needing to find the RAW version and then perform the adjustments before I can place the image. With each book I write having up to 500 images, that would double the length of time it takes me to write each one.

It's a personal choice what you shoot. Yes there are arguments that RAW can give a better image if you have to adjust the images a lot, but hopefully the images on the previous page show how close the quality really is. You can quote lots of numbers and make RAW sound so much better, but I prefer to test the quality by taking images and looking at them, after all that's what photography is actually about.

Almost all the images in this book are actually produced from RAW images, but it's the exception in my book range, the others are at least 80% shot as JPEG images.

Shooting RAW works if

- You are good working on computers
- You have a fast modern computer
- You have plenty of space to store images
- You are happy to add drives to add space to your system
- You have lots of time to work up images
- You shoot in a studio and you have consistency between the images you shoot
- You are new to photography and want the flexibility of RAW to correct for errors in shooting
- You like the idea of the creativity that RAW can give
- You shoot subjects that the reduction in shooting speed that RAW gives is not a problem
- You enjoy adjusting and "playing with images"

Shooting JPEG works if

- You want to produced an image that is as finished as possible in camera
- You shoot action and need to produce long bursts of images
- You struggle with the computer side of digital imaging
- You have the photographic skills to get the image right at the time of shooting
- You need to have a very fast workflow
- You need to be able to use images direct from the camera
- You do not like having to adjust images
- You prefer the image without the need to use a computer to process it
- You use an older computer system
- You want to be able to direct print images on your printer

Other file formats

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JPEG image


8 bit TIFF image


16 bit TIFF image

There is another file format you will come across within DPP and this is a TIFF file format.

This will crop up when you have done all the adjustments and want to convert and save your images as a usable format.

TIFF stands for Tagged Image File Format, and it is one of the earlier types of files that was used at the start of digital imaging. TIFF files can be saved as either a 8 bit file or a 16 bit file. The bit depth is the amount of colours that are saved within the image. So a 16 bit image saves more colours than a 8 bit.

A TIFF image is saved with no compression, so with it is closed it takes up exactly the same amount of space as when it is open. The plus side is that there can be no chance of any quality loss, however, that also means that you will run out of hard drive space very fast.

An 16 bit TIFF is twice the size of an 8 bit tiff. So an image from a camera with about 20 million pixels is about 53.9MB when open. If it has been saved as a JPEG file but once closed it becomes just 10.9MB. Saved as an 8 bit TIFF it will be 53.9 MB regardless of open or closed and if saved as a 16 bit TIFF it will be 107.6 MB regardless of being open or closed.

In the images above, there is no visual difference between any of the three files, technically the 16 bit TIFF has the best range of colours and if you want to go on to do further post production it would be the one to choose, providing your image adjustment software supports 16 bit images. Most do these days but there are still some where the image needs to be 8 bit to get the programme to work.

For most photographers shooting RAW it makes sense to output to a JPEG file as it's more manageable, especially as most photographers who shoot RAW will keep the original RAW image in case they want to reprocess the image into a different variation.

It can be tempting to try and aim for the ultimate quality, it's a worthwhile aim, but it can be a very expensive endeavour, as the computer and storage required becomes much higher to cope with the size of the files. My belief is to always look at the images and see if you can see the difference when the image is being viewed normally. (Zooming into 400% and looking from a few centimetres away is not normal viewing). If you can, then the extra size and hassle is worthwhile, if not then opt for the file type that's easiest to handle.

If you want to get images commercially printed you will normally have to use a JPEG file.

As always it comes down to personal choice, TIFF keeps the very best quality, but is more complex and time consuming to handle.

As camera sensors get more pixels on them, such as the new 5Ds models, the file sizes can be massive and beyond the capability of all but the most recent computers and storage systems.

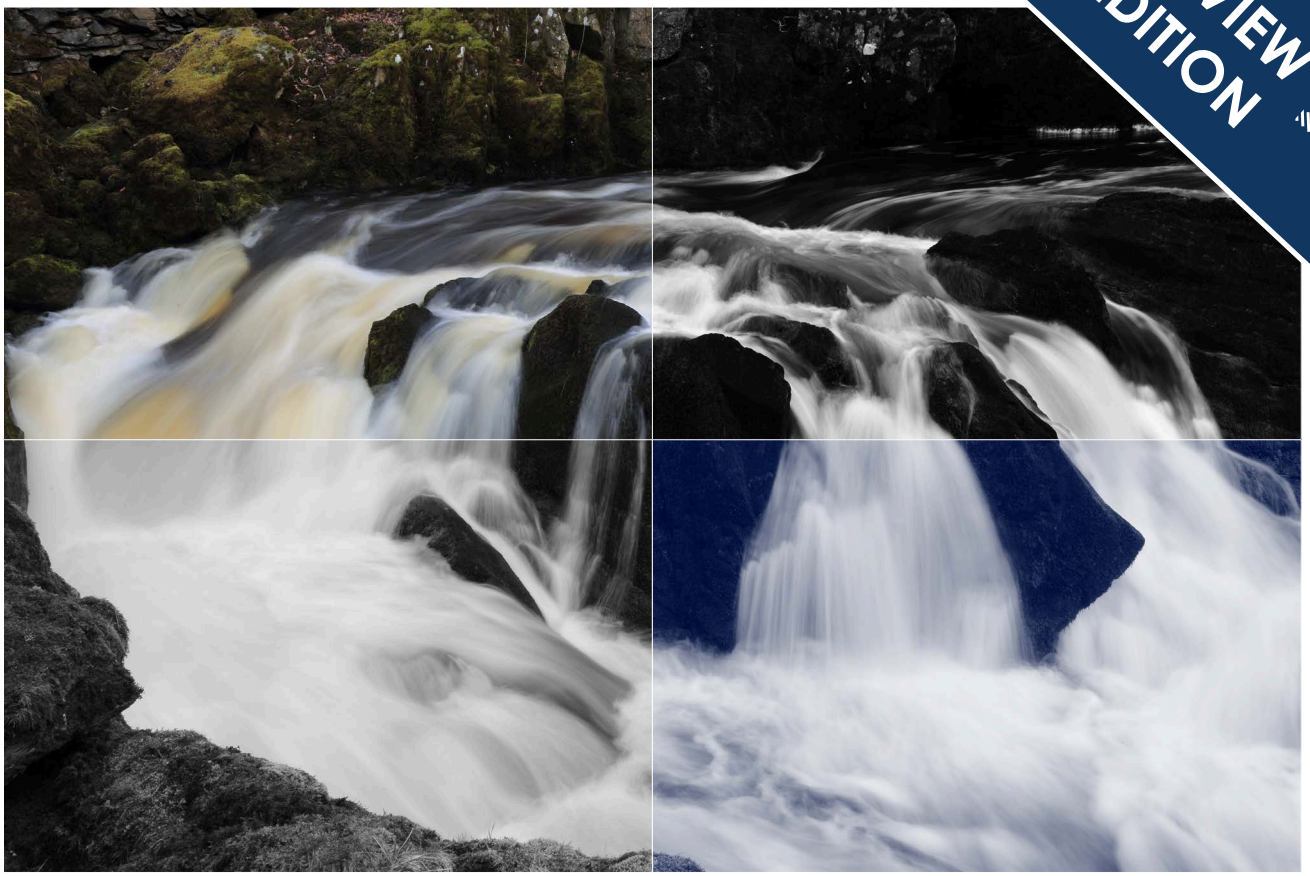
Summary

PREVIEW EDITION

It's up to each individual photographer to work out what shooting format and workflow is going to be best for them. I have tried to present both side of the story as for some photographers RAW adds a complication that makes it difficult for them to enjoy their photography.

For someone experienced in using computers RAW can be a fascinating way to shoot, allowing you to produce lots of variation from the same image. The image to the right has 4 different variations applied to the same image, showing how different the image can be made to look. That said there is nothing on the image to the right that could not have been achieved by using the options provided on the camera and shooting as a JPEG file. But it does mean that you have to understand the camera options and have the imagination to see the potential in the image at the time of shooting.

If you struggle with your camera settings then RAW has obvious advantages as the images below demonstrate. From an image that was 2 stops overexposed the RAW has still given a very good end result.



Original RAW file converted without correction

JPEG corrected

RAW corrected

PREVIEW EDITION

Understanding RAW workflow

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.

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Nina

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