



Understanding DPP

A comprehensive guide to processing Raw files
with Canon's Digital Photo Professional software

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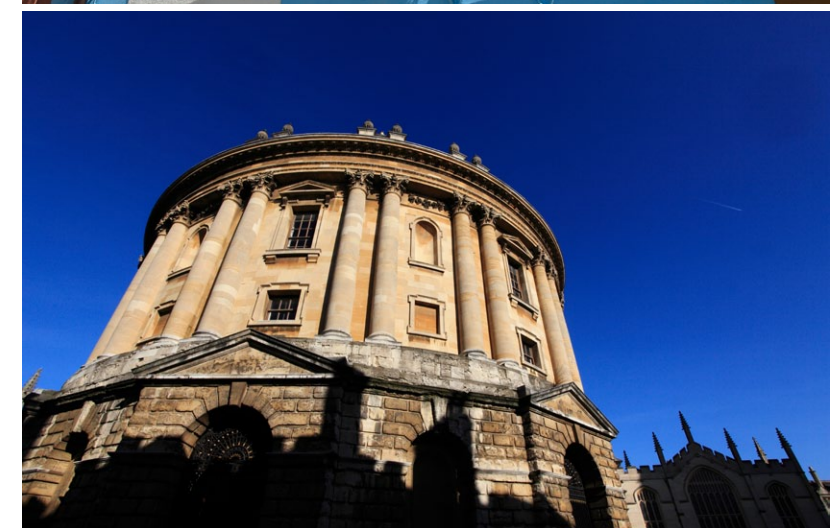
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Introduction

Since the early days of digital photography there has been a debate about the point at which the image quality from digital cameras surpasses the image quality of film cameras. It's not an easy question to answer precisely, because it depends on factors like lens quality, film speed and photographic technique as well as how many megapixels your camera has – but according to Canon a ten megapixel EOS camera (such as the EOS 40D) matches the image quality of 35mm film.

What is certain is that any recent EOS camera is capable of creating images that match or surpass the quality of film. Which brings us to what is probably the most fundamental change in photography caused by digital photography – the move from processing film and creating prints in a darkroom or laboratory to processing digital photo files on a computer and printing with inkjet printers.

This means that there are new skills to learn, something that may be daunting for photographers who are not comfortable with computers or who are new to using programs like Adobe Photoshop or Canon's Digital Photo Professional. The learning curve is surprisingly steep. Computers do not necessarily make processing photo files easy, not at first anyway. Learning to print in a darkroom, especially black and white, takes years to achieve a high level of competence. It is the same with digital photography.

This last statement is not intended to be discouraging. Learning becomes much easier if you're having fun and getting encouraging results from the start. This eBook aims to help you do that by showing you how to process Raw files with Canon's Digital Photo Professional – the free software that comes bundled with your EOS camera.

Auckland lantern festival

EOS 5D Mark II, EF 85mm f1.8 lens, 1/180 second at f2, ISO 400

DPP Brightness 0, white balance 2700K, Picture Style standard, contrast 1, highlight 0, shadow -1, colour tone -1, colour saturation 1, sharpness 3



The Raw format

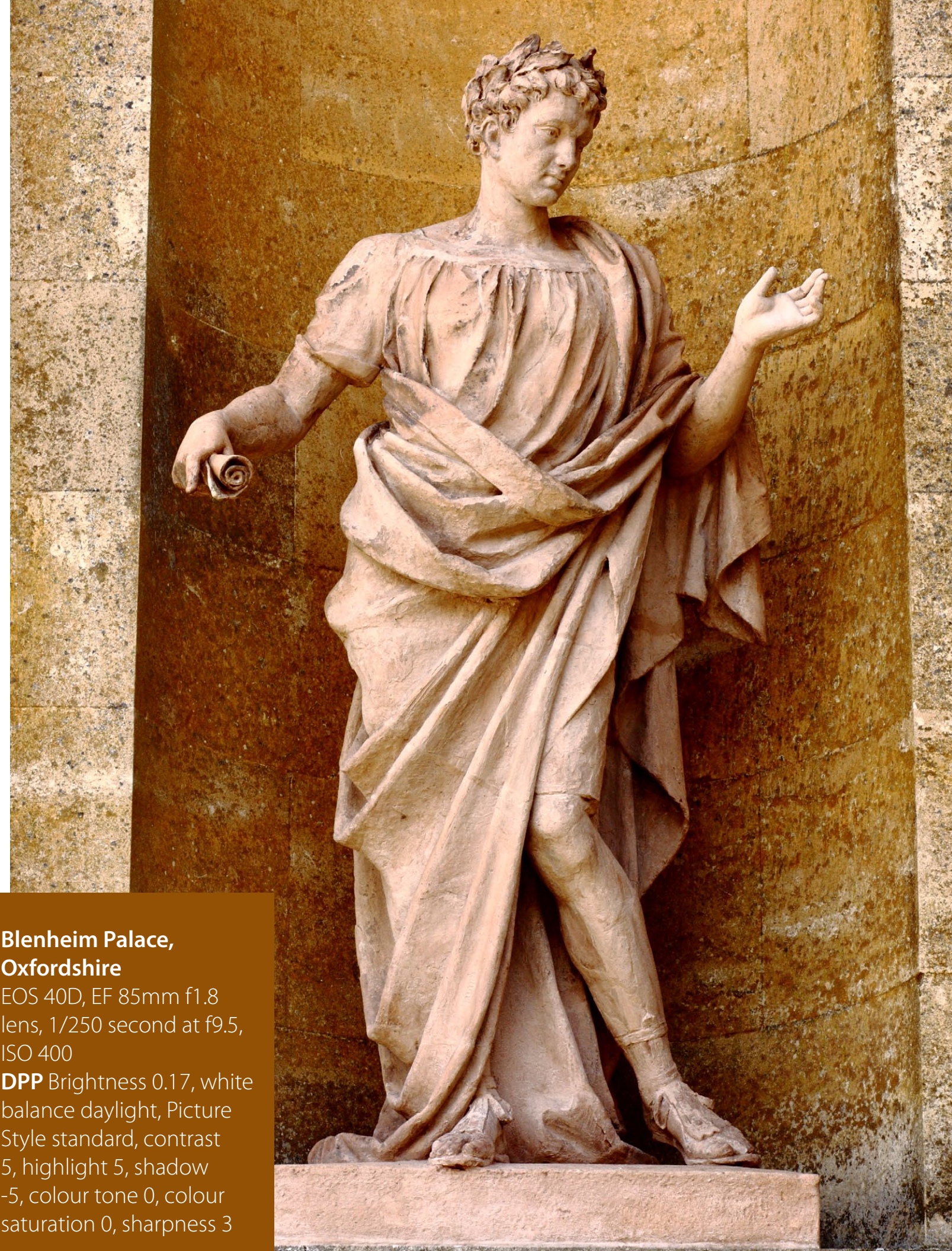
To get the most out of the image quality that your EOS camera is capable of producing, you need to use the Raw format. Raw is simply a capture of all the information recorded by the sensor at the moment of exposure. It is not actually a photo file, but a file containing the unprocessed data captured by the sensor. The Raw file needs to be 'processed' by Raw conversion software which outputs a photo in either JPEG or TIFF format which you can then save, print, upload to the internet or edit further in software like Adobe Photoshop CS or Photoshop Elements (you can also print directly from DPP without converting the Raw file to a TIFF or JPEG).

Raw and DPP

There are a lot of Raw converters on the market, including Adobe Camera Raw (used in Adobe's Photoshop CS, Photoshop Elements and Lightroom), Apple's Aperture and Phase One's Capture One Pro 6. These are all excellent Raw conversion programs. But they can be quite complex to use, especially for newcomers.

That is where Canon's Digital Photo Professional (DPP) comes in. It is free – supplied on the CD that comes with your camera. Updates are also free, so you benefit from advances in the software. Another benefit is that the controls offer the same functionality as the image settings within the camera menu. For example, DPP uses the same Picture Styles as your camera, something other Raw converters do not do.

DPP does not have the advanced features of the alternative Raw conversion software mentioned above. This can be a good thing when you are starting off as there are less sliders and options to master. You always have the option of purchasing a more advanced Raw conversion program as your expertise improves.



Blenheim Palace, Oxfordshire

EOS 40D, EF 85mm f1.8
lens, 1/250 second at f9.5,
ISO 400

DPP Brightness 0.17, white
balance daylight, Picture
Style standard, contrast
5, highlight 5, shadow
-5, colour tone 0, colour
saturation 0, sharpness 3

Raw vs JPEG

Your EOS camera offers two formats for recording photos, Raw and JPEG. Both have their benefits, and are useful in different situations, which is why both formats are available. So what are the differences between them?

The main difference is that a JPEG file is an interpretation of the raw data from the sensor after it has been processed and saved in a JPEG file by the software inside your camera. The Raw conversion is carried out by your camera according to settings such as white balance and Picture Style.

The JPEG format is what you would use if you did not want to do any post-processing. You can connect the camera directly to a Pictbridge compatible printer and make prints right away, bypassing a computer. You could also take the memory card to a photo lab.

The JPEG format is also used by professional photographers that need to process a large amount of photos at high speed. Wedding photographers may shoot thousands of photos at a wedding and save themselves time by using the JPEG format. For a photographer who has to edit, process and print thousands of photos taken at a wedding, the cost of any time spent at the computer is passed on to the customer.

Photojournalists may also use the JPEG format. Sports photographers in particular take high volumes of photos, especially at major sporting events like tennis grand slams and World cup or European Cup football. The major newspapers and photo agencies are competing with each other to see who can get their photos of major sporting events to the market first. Using the JPEG format is a commercial necessity because it enables photographers to transmit photos using the internet to their agency offices, where they can be rapidly edited and distributed.

If the JPEG format is so quick and convenient, then why use Raw? Most photographers (especially hobbyists) don't shoot as many photos as wedding photographers, and

Longhua Temple, Shanghai

EOS 5D Mark II, EF 85mm f1.8 lens, 1/250 second at f2.8, ISO 200

DPP Brightness 0.17, white balance 9100K, Picture Style nostalgia, contrast 0, highlight 0, shadow 0, colour tone -4, colour saturation -4, sharpness 23



most photographers don't have the tight deadlines of sports photographers. The main advantage of the Raw format is that you get to do the Raw conversion yourself.

The Raw file is like a negative – it is a starting point. A good black and white negative can be interpreted by a skilled printer in more than one way. A Raw file is the same. You can impose your own interpretation on the photo, using your computer as a digital darkroom. You may even make more than one image from a Raw file – such as a colour photo and a black and white version.

White balance

There are some things that you cannot change in Photoshop if you used the JPEG format. One of the most important is white balance – you can change the colour balance, but it doesn't give you the same level of flexibility. The ability to change white balance to suit the mood you want to create in the photo after you have taken it is one of the biggest advantages that Raw has. Choosing the optimum white balance in the field is very difficult and time-consuming and often results in a compromise.

Raw power

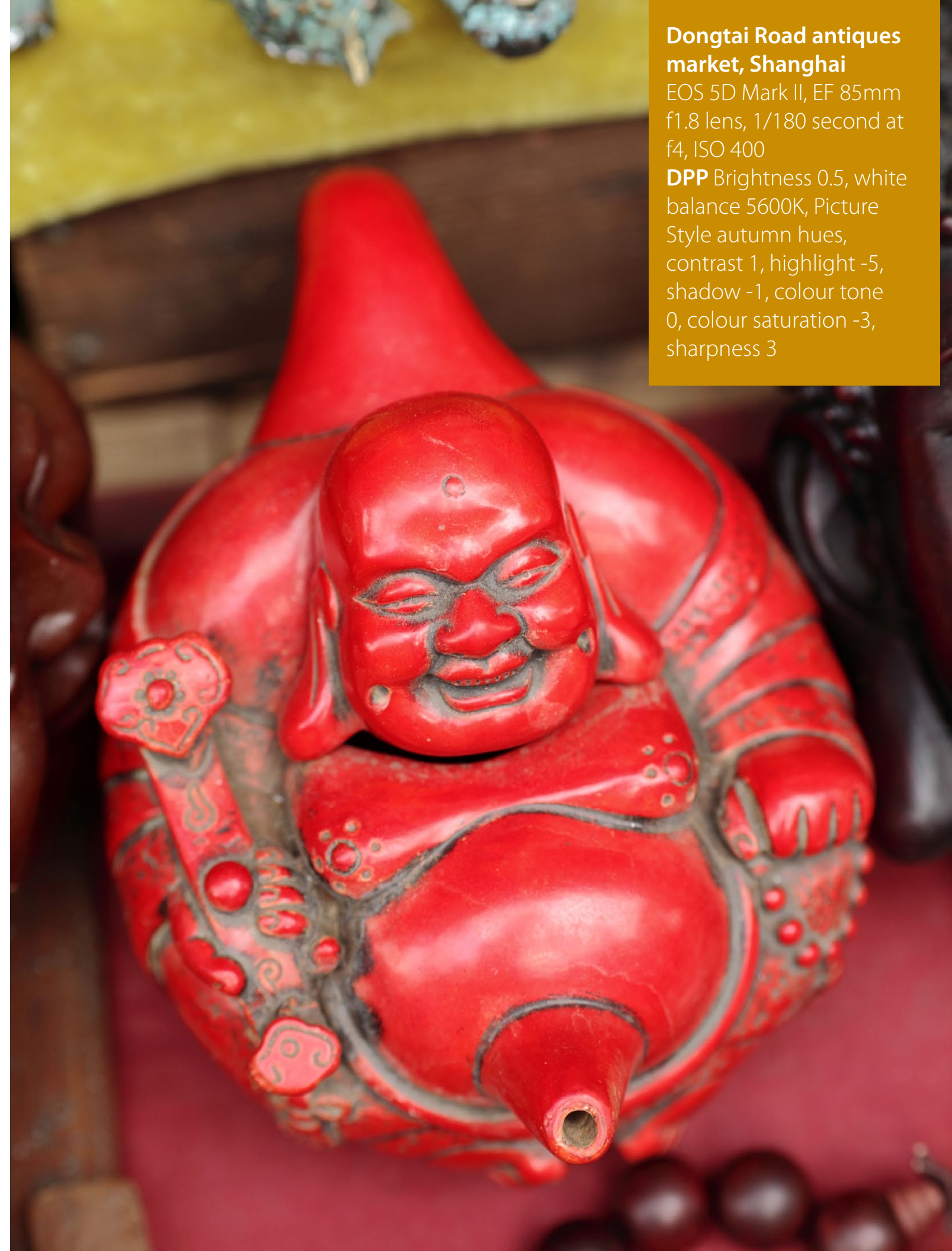
The main advantage of the Raw format is the amount of information it contains. A JPEG file contains eight bits of information in three colour channels (red, blue and green). That means each pixel has 256 possible levels of brightness in each channel. This equates to a total of 16,777,216 possible colours (referred to as colour values as the human eye can't detect 16 million plus colours – our vision is limited, according to the experts, to around 14 million colours). This sounds quite impressive, until you realise how much information was captured by the sensor in the first place.

Your EOS camera, depending on which model you have, is capable of capturing images with a bit depth of either 12 bits or 14 bits. In a 12 bit image, each pixel has a brightness range of 4,096 possible values per channel. In a 14 bit image, that leaps to 16,284 possible values, and a total of over four trillion colour values. All of this extra information is contained in the Raw file, ready for you to extract with DPP. If you use

Dongtai Road antiques market, Shanghai

EOS 5D Mark II, EF 85mm f1.8 lens, 1/180 second at f4, ISO 400

DPP Brightness 0.5, white balance 5600K, Picture Style autumn hues, contrast 1, highlight -5, shadow -1, colour tone 0, colour saturation -3, sharpness 3



the JPEG format when you take photos, the camera converts the information gathered by the sensor into an eight bit JPEG file, discarding all the extra information. And once it is gone, you cannot get it back.

What does it mean?

So what do these numbers mean to you, in practice? Firstly, it means that the Raw file contains a lot of highlight and shadow detail that would be lost if you had used the JPEG format. It also means that you have more leeway when altering brightness and contrast levels.

If you are editing an eight bit photo (ie one saved in the JPEG format) that contains a large area of continuous tone, such as a blue sky, and you darken the image or increase the contrast in a program like Photoshop or DPP, the sky can break up, creating a banding effect called posterisation. This is because each pixel is limited to a brightness range of 256 values per channel. This is not enough to give a smooth transition from dark tones to light tones once you start altering brightness or contrast.

But if you had used the Raw format, each pixel would have either 4,096 (12 bit) or 16,284 (14 bit) possible values per channel – enough for a smooth transition across areas of continuous tone even once you start altering brightness or contrast. Fourteen bit images give a better quality transition than 12 bit images.

What is Raw?

You can think of a Raw file as being like a traditional film negative. The information that it contains can be interpreted in a variety of ways in post-processing, in the same way that different types of prints can be produced from a single negative.

If you save your image as a JPEG, the white balance, colour saturation, contrast and sharpness are adjusted in-camera (incidentally, the last three settings are controlled by Canon's Picture Style). The file is also converted from 12 bit or 14 bits to eight bits, and it is compressed so that it takes up less space.



Burano, Italy

EOS 40D, EF 17-40mm
f4L lens @ 40mm, 1/160
second at f6.3, ISO 200

DPP Brightness -0.33 white
balance daylight, Picture
Style landscape, contrast
2, highlight -4, shadow
0, colour tone 0, colour
saturation 0, sharpness 4

If the photo is saved in Raw format, the unprocessed image information is recorded along with a header file containing all the camera's settings, including contrast, colour saturation, white balance and sharpening. The settings are tagged onto the Raw image data and do not actually alter the image – you can change and override the settings if you wish. The Raw file needs to be processed with software, such as Canon's Digital Photo Pro, in order to create a JPEG or TIFF file that is ready for printing or viewing.

The advantages of Raw are that it preserves the maximum amount of original image data, giving you full creative control after the exposure and enabling the highest possible image quality to be obtained from each file. The software works on a copy of the Raw file, so that the original data is untouched. You can keep going back to the Raw file and experimenting with different settings to obtain different results.

The diagram below shows the difference between using the Raw and JPEG formats.

JPEG

The sensor records 12 or 14 bits of brightness levels at the moment of exposure

The camera converts the raw data to an 8 bit JPEG file, discarding any unused data

The camera saves the JPEG file to the memory card

Raw

The sensor records 12 or 14 bits of brightness levels at the moment of exposure

The camera saves a 12 or 14 bit Raw file to the memory card

The photographer converts the Raw file to JPEG or TIFF format in Raw conversion software

Kaipara Coast Sculpture Gardens, New Zealand

EOS 5D Mark II, EF 85mm f1.8 lens, 500D close-up lens, 1/180 second at f1.8, ISO 100

DPP Brightness 0.33, white balance 5600K, Picture Style standard, contrast 3, highlight -5, shadow -5, colour tone 0, colour saturation 0, sharpness 3



DPP

Why DPP?

If you're new to image editing you may well be confused by the amount of software that is available. In this section I am going to take a look at where DPP fits into the range of available software, and exactly what it can and cannot do.

Raw conversion vs photo editing software

There are two types of editing software available, and it is important to understand the differences between the two.

The first type is Raw conversion software. This type of program is designed to convert a Raw file to the JPEG or TIFF format, and usually has minimal editing facilities for JPEG or TIFF files. DPP is Raw conversion software, and so are Adobe Lightroom and Apple's Aperture.

Image editing software is designed to work with JPEG or TIFF files. The most powerful is Adobe Photoshop CS. You can do almost anything to an image with this program. Photoshop CS is the industry standard and consequently an expensive program to buy. Adobe also make Photoshop Elements 10, which is not as advanced, but still powerful. Like Photoshop CS, it is designed for editing JPEG and TIFF files.

Both Photoshop CS and Photoshop Elements come with Adobe Camera Raw (ACR for short), Adobe's Raw conversion software (ACR is also used in Adobe Lightroom). This means that both of these programs are also Raw converters as well as photo editing programs. You could own either one and never feel the need to use DPP or another Raw conversion program.



Humahuaca, Argentina

EOS 350D, EF-S 18-55mm lens, 1/80 second at f5, ISO 400

DPP Brightness 0.33, white balance cloudy, Picture Style standard, contrast 5, highlight 5, shadow -4, colour tone 0, colour saturation 0, sharpness 3

Raw benefits

Another benefit of shooting in Raw is that Canon will continue to update its Digital Photo Professional software in the coming years. Future versions will almost definitely include many better tools for Raw conversions than are available now, and you will then be able to use them with your older Raw files. You can think of DPP as a toolbox with a supply of tools that Canon keeps adding to. You never know when a future tool will come in useful.

The role of DPP

So where does DPP fit into this range of software? It is not an image editing program – if you want to edit JPEG or TIFF files then you will need Adobe Photoshop CS, Photoshop Elements or another photo editing program made by a different company.

DPP is a powerful Raw converter program. It works in harmony with your EOS camera to give you control over the Raw conversion. If all you want to do is convert Raw files to the JPEG or TIFF format, and are not interested in the advanced photo editing features offered by programs like Photoshop, then DPP could be the only software you will ever need.

DPP is powerful but it is not as advanced as the latest versions of Adobe Camera Raw, Capture One Pro 6 or Aperture. These Raw conversion programs give you far greater control over options like white balance, sharpening, lens aberration correction, and black and white conversions.

Most other Raw processors also give you localised control. This means that you can apply any adjustments you make to just part of the image. In DPP, any adjustments are made to the entire image.

The role of DPP is probably best seen as an entry level Raw converter. If you are new to image editing then it is a great starting point and a very powerful Raw converter in its own right, good enough to be used by advanced photographers.

However, at some point you may grow out of it and feel the need to upgrade to a more sophisticated program. The good thing is that whichever Raw converter program you use, the basic principles are still the same. The lessons outlined in this eBook are applicable to all Raw conversion programs, not just DPP.



Monitor calibration

You may think of monitor calibration as an advanced topic but in reality it is easy to do and an absolutely essential part of the photo editing process. Uncalibrated monitors have a strong blue colour cast, which means that you will not see any of the photos in this eBook (or anyone else's for that matter) how they are intended to be seen. The black-and-white photo above, for example, will appear to have a blue tone on an uncalibrated monitor– but in reality the tones are neutral. Many of the differences between the comparison photos in this eBook are quite subtle, and are lost on an uncalibrated monitor.

Our easy to follow guide to calibrating your monitor is on page 77.

San Antonio de Lipez, Bolivia

EOS 350D, EF 18-55mm lens, 1.6 seconds at f7.1, ISO 100

DPP Brightness 1.0, white balance 9000K, Picture Style landscape, contrast 3, highlight 5, shadow -4, colour tone 0, colour saturation 3, sharpness 4



Workflow

Before we start, let's look at where DPP fits into a typical workflow. The system outlined here is based on the one that I use. Every photographer develops their own workflow, but this is a good place to start if you're new to digital processing. You can then adapt it to your own preferences and needs.

Start by setting your camera to use the Raw format. After a shoot, copy the photos you took to your computer's hard drive (or an external drive). This is a good stage to make a backup of the Raw files to another external hard drive. That way if you suffer from hard drive failure or another disaster, you have a backup copy of your photos.

Then you can edit your Raw images in DPP. Once your editing is complete, you can batch process your chosen files and save them in a new folder in either the JPEG or TIFF formats.

If you wish, you can then edit the new files in Photoshop CS or Photoshop Elements. You should also consider backing up the new files.

Photo storage

I prefer to save my Raw files on an external hard drive. It is easy to back up and means that I am not going to fill up my computer's hard drive. Keeping space free on my computer's hard drive also helps my computer run efficiently.

Dongtai Road antiques market, Shanghai

EOS 5D Mark II, EF 85mm f1.8 lens, 500D close-up lens, 1/250 second at f8, ISO 400

DPP Brightness 1.33, white balance 5500K, Picture Style standard, contrast 0, highlight -5, shadow -1, colour tone 0, colour saturation -2, sharpness 3



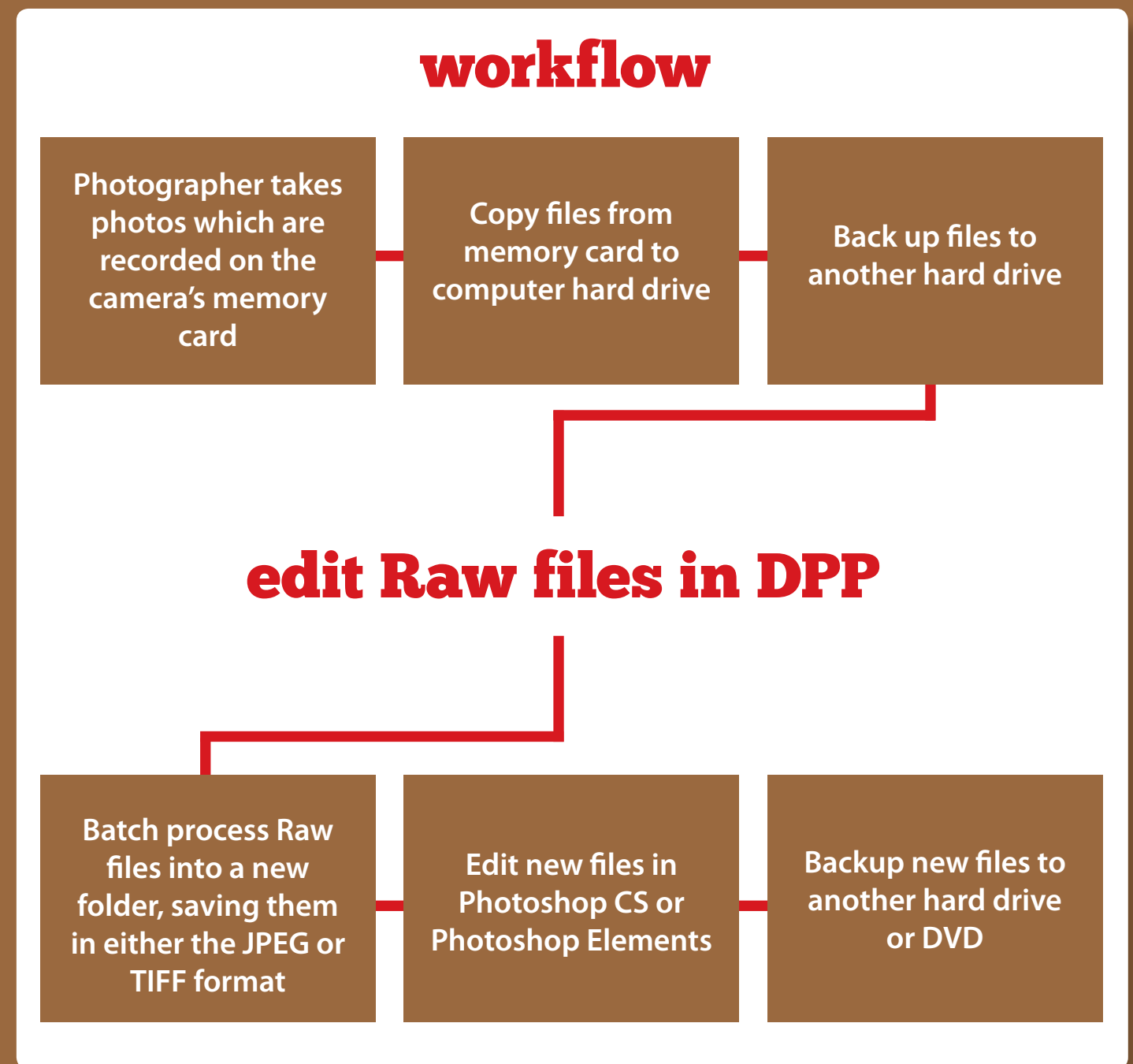
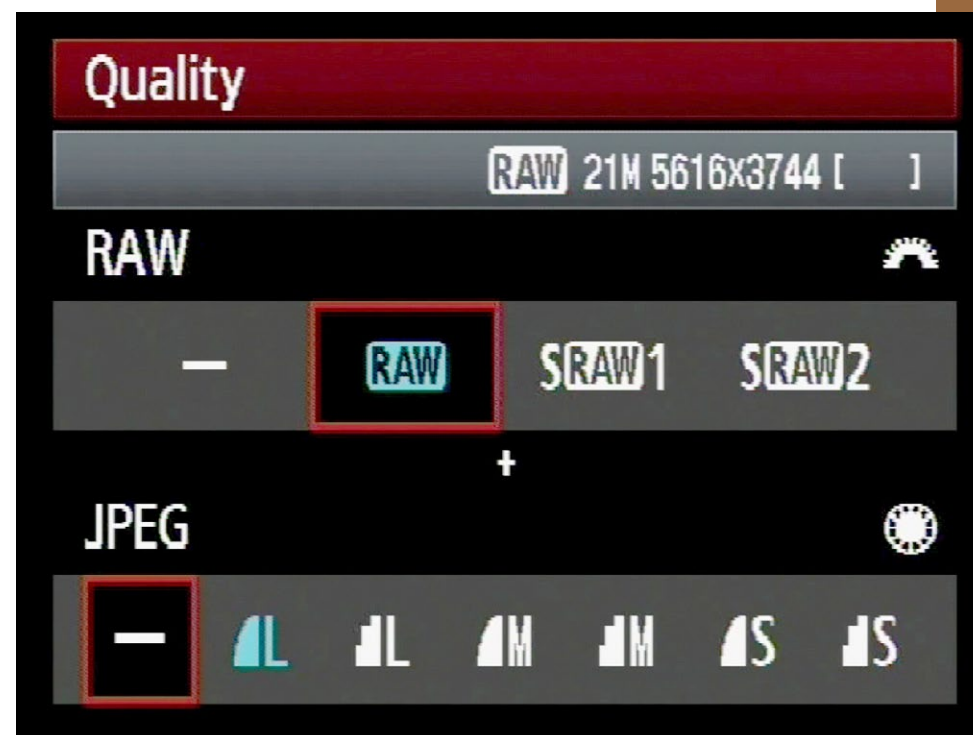
I store my Raw files on an external 500GB hard drive. There are no other files on that hard drive, which makes it very easy to back up the contents onto two more hard drives (one is kept away from home in case of theft or fire). I may change the system as my photo collection grows, but for now it's working fine.

File structure

This is also the time to think about the folder structure that you use to store your files. It's important to get organised as early as possible, as it makes it much easier to find photos and manage backups.

I use the following structure to store my photos. I create folders for each year (2009, 2010, 2011 and so on). Each folder has 12 more folders inside, one for each month. Each monthly folder has a folder for each set of photos taken in that month, named according to subject. This makes it easy to find the Raw files that I need. I only store Raw files in these folders – the photos that I produce from them are stored on a separate external hard drive.

I also make sure that after I have downloaded Raw files from my memory card to an external hard drive, that I do not erase them from the memory card until the Raw files are backed up onto a second hard drive. That way, if something goes wrong with the first hard drive, I have copies.



Left: Selecting the Raw format on an EOS 5D Mark II. To set Raw on your camera, look for the Quality setting in your camera menu.

Above: A typical photographer's workflow. Yours may differ – for instance, not all photographers will want to edit their photos in Photoshop after processing them in DPP.

Getting started

When you open DPP it goes to the **Main window**, where you will see, depending on what view options you selected the last time you used DPP, a display something like the one on the right.

Toolbar

The Toolbar contains the buttons that you press to access some of DPP's most important functions. It can be turned on and off in the View menu. The functions not labelled in the diagram are explained in detail on the following pages.

Collections

You can add a photo to your collection at any time by going to **File > Add to collection**. The collection gives you quick access to any of the photos inside it, regardless of where they are stored on your computer.

Folders

A list of the folders on your computer's hard drive. The photos inside the highlighted folder are displayed in the main part of the screen.

Photos

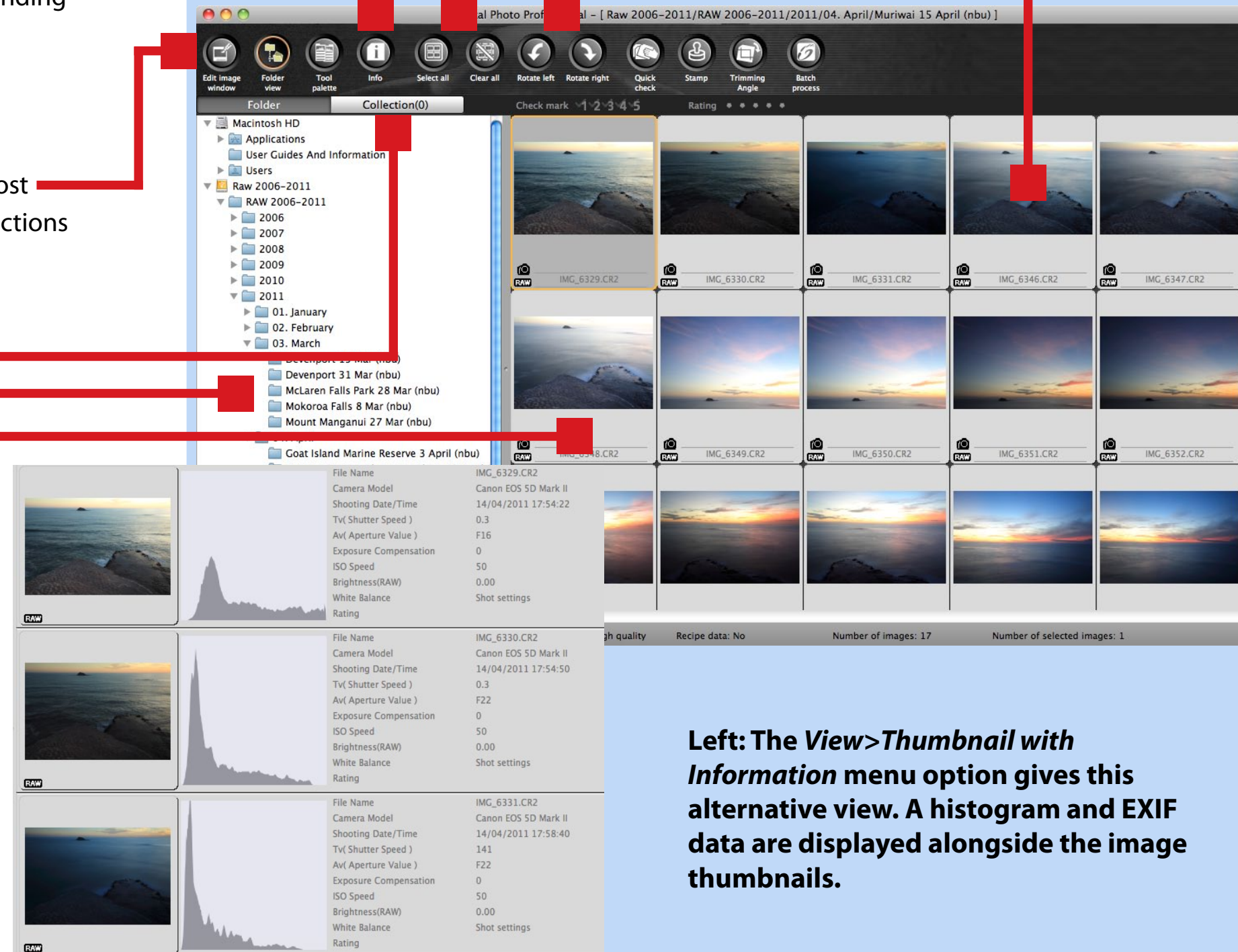
Thumbnail images of the photos inside the selected folder. You can change this view by going to the **View** menu and selecting from three thumbnail sizes (large, medium and small) or **Thumbnail with information**, which shows a thumbnail of each photo along with a histogram and the shooting information.

The Info button brings up a window containing the EXIF data of the selected image.

Use the Select all and Clear all buttons to select or unselect all the images in a folder.

The rotate buttons turn the thumbnails 90 degrees clockwise or anti-clockwise.

You can vlick and drag thumbnails with the mouse to rearrange them



Left: The **View > Thumbnail with Information** menu option gives this alternative view. A histogram and EXIF data are displayed alongside the image thumbnails.

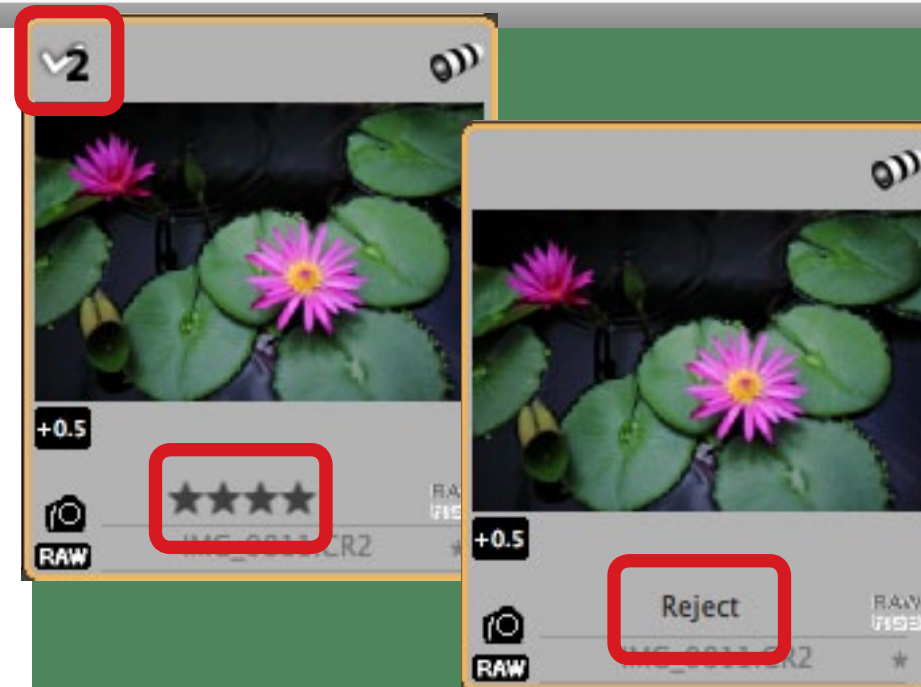
Quick Check

Editing your photos is an important part of the photographer's workflow. DPP has a tool to help you select the best photos in a folder. It is called the **Quick check tool** and lets you look at each photo at full size on your computer screen, and assign Check marks and Ratings to assist you in categorising your images.

Start the Quick check tool by selecting the photos you want to look at closely (use the **Select all** button to select every image in the folder) by going to **Tools > Start Quick check tool** in the menu. Use the **Previous** and **Next** buttons to scroll through the photos. You can click on the **50% view** or **Full screen** buttons to get a 50 percent or 100 percent view. This allows you to zoom right into your photo to check for fine detail, focusing accuracy and so on. You can tick the **AF point** box to see the active autofocus (AF) point when you took the photo, and the **Image Information** button to bring up a window with the shooting information. You can also use the **Rotate left** and **Rotate right** buttons to rotate the image, if needed.

Check marks and Rating

You can use the **Check mark** and **Rating** functions in any way you like to help you organise your photos. For instance, you could assign a five star rating to the best photos in the folder, and use the **Reject** button to mark any photos you don't intend to process. Go to **View > Sort** at any time in the **Main window** to rearrange the thumbnails according to the assigned Check mark or Rating (as well as name, shooting date or Raw priority – in name order but with Raw files first, then JPEGs then TIFFs). You can also access Check marks and Ratings from the **Label** menu or the icons below the Toolbar in the **Main window**.



The Rating or Check mark that you assign to an image is displayed in the Edit image window next to the thumbnail. Rejected images are also marked.

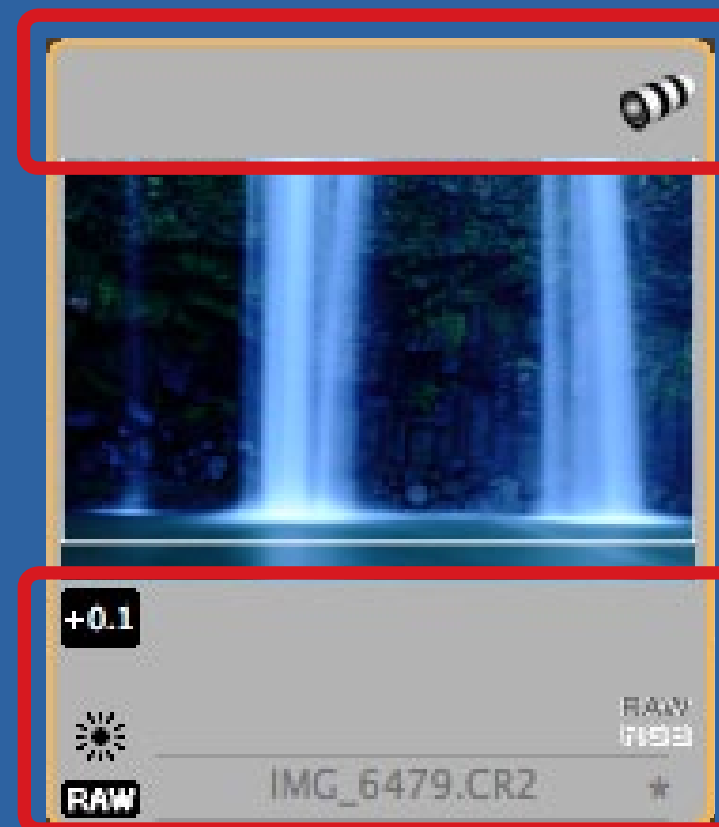
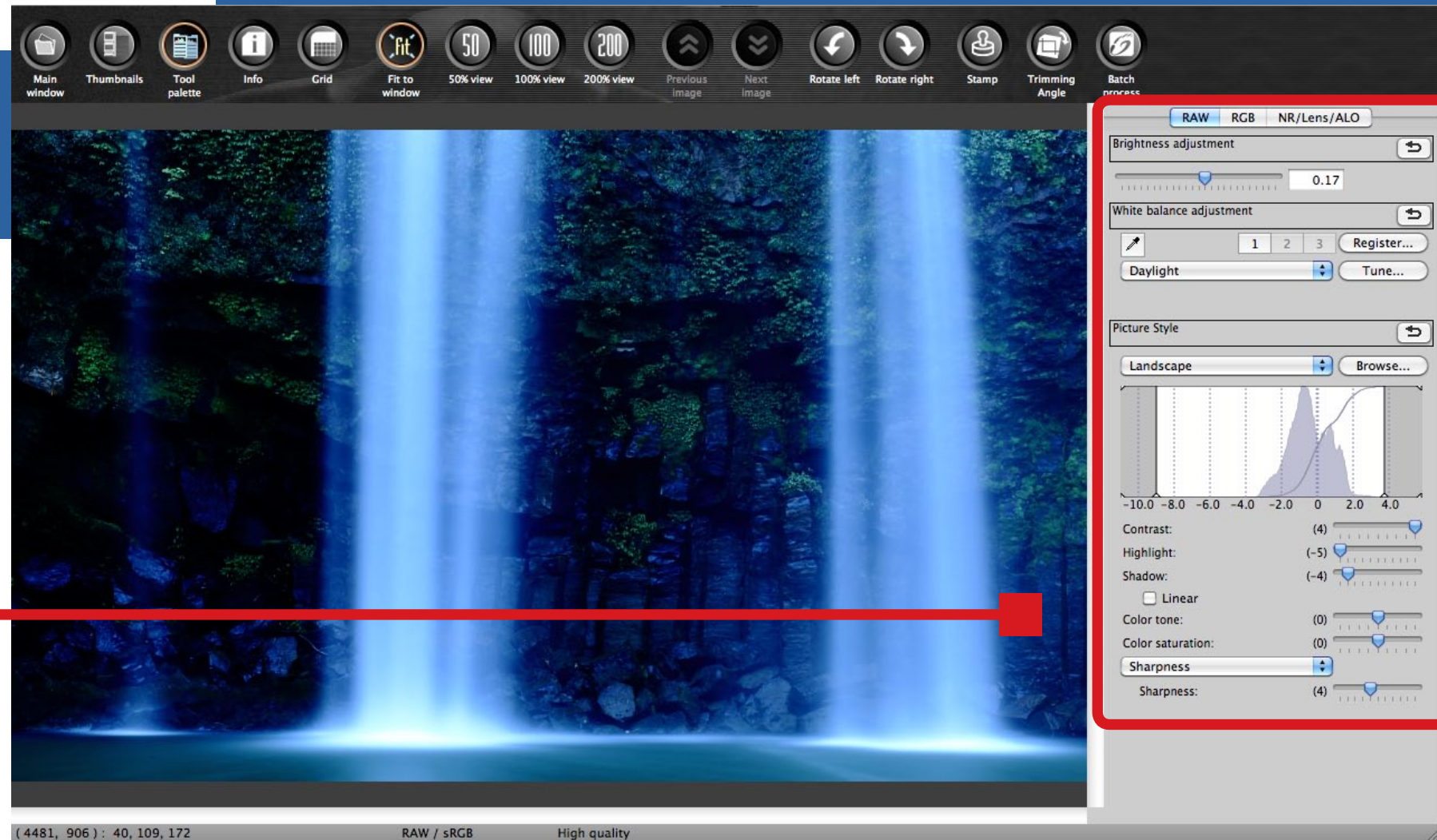
Edit window

In the **Main window**, click on an image to select it and click the **Edit image window** button. The **Edit image window** is where you edit the Raw file (the editing process is covered in the next section of the eBook). Editing is carried out using the tools in the **Raw, RGB** and **NR/Lens/ALO** tabs in the Tool palette on the right hand side of the screen. If you cannot see them, click the **Tool** button in the toolbar to bring them up.

In the **Main window**, each photo is appended with information about the image. Some of it is fairly obvious – the the word Raw is used in the bottom left to indicate the file type. The lens symbol in the top right indicates that there are lens corrections applied to the image. The word Raw at the bottom right indicates that the image has been edited under the Raw tab – and the initials RGB are greyed out to show no changes were made under the RGB tab. A brightness adjustment is indicated by the +0.1 on the left, and the white balance setting by the daylight icon. The asterisk indicates that there are unsaved editing changes – these are saved when you exit DPP (or by going to **File > Save**).

Multiple images

You can edit multiple images by selecting more than one photo in the Main window then clicking the Edit image window button. Click the Thumbnails button to see thumbnails of the selected images in a pane on the left-hand side of the Edit image window.



TIP: If your images take a long time to render in the Edit image window, go to the **General settings** tab in **Preferences** and untick the **View images at high speed (moire reduction off)** box. You can speed up DPP even further by selecting the **High Speed** setting – although you won't be able to use the noise reduction palette if you do.

The tool palette

Most Raw editing is carried out using the tools under the **Raw**, **RGB** and **NR/Lens/ALO** tabs in the **Tool palette**.

Most of the time you will use the **Raw** and **NR/Lens/ALO** tabs. The **RGB** tab is meant for editing TIFF and JPEG files, but does have a couple of features that may come in useful for editing Raw files too.

On these two pages I've highlighted the most important tools in the **Tools palette**, with a brief explanation of what they do and a page reference where the tool is discussed in detail.

Raw tab

1. Brightness

Use the brightness slider to adjust the brightness of the image or to compensate for over or underexposure (p. 24)

2. White balance adjustment

Lets you take control of the colour balance of your image by setting the colour temperature. (p. 26)

3. Picture Style

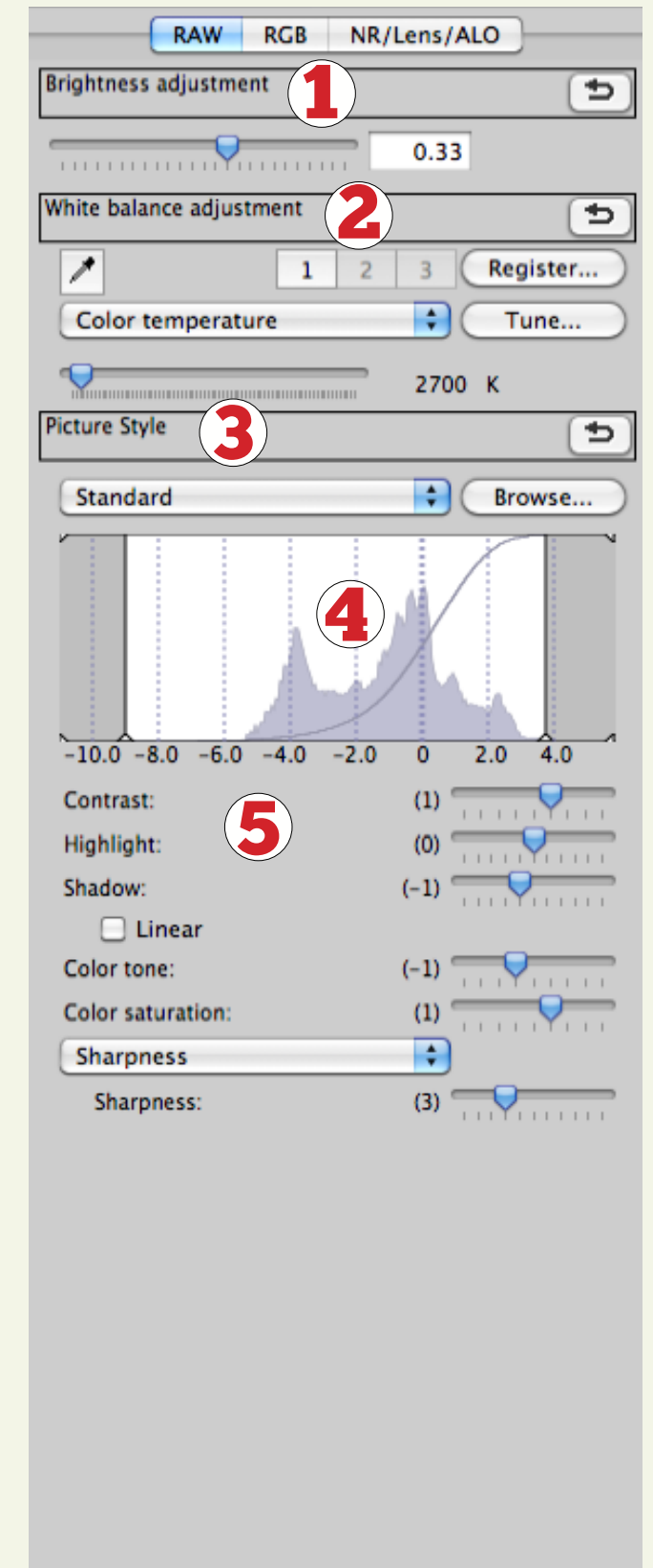
Alters the look of your image. You can use the same Picture Styles that your camera has, download more from the Canon website or create your own. (p. 20)

4. Histogram

Helps you visualise the tonal distribution and dynamic range of your image. (p. 20)

5. Contrast, exposure and colour sliders

This is where you make fine adjustments to the contrast, highlight or shadow detail, colour and sharpness.(p. 33)



NR/Lens/ALO tab

1. Auto Lighting Optimizer

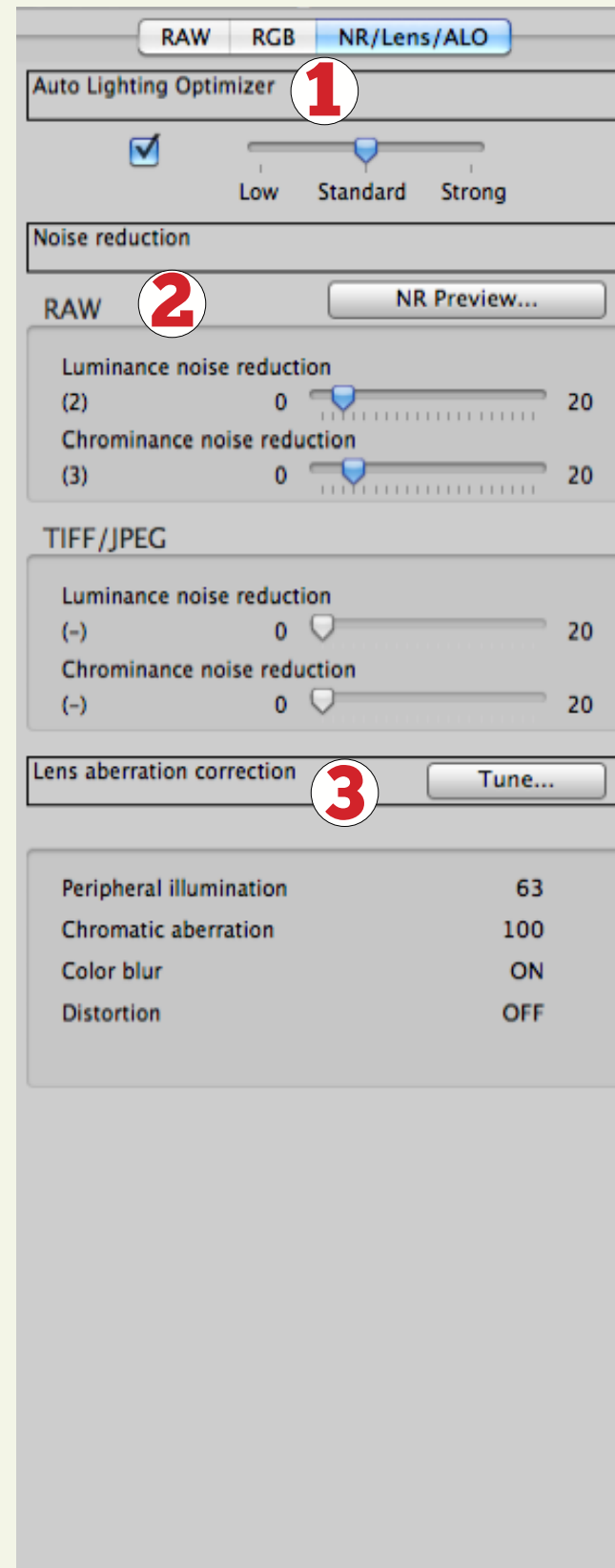
The Auto Lighting Optimizer helps compensate for backlit subjects. If the camera used to take the photo doesn't support the ALO option, this option will be greyed out in DPP. (p. 52)

2. Noise reduction

Remove noise from your photos, or at least reduce it. (p. 49)

3. Lens aberration correction

Correct vignetting, chromatic aberration and other lens distortion. Every lens suffers from distortion or aberration of some sort (although it is minimal on high quality lenses). DPP lets you correct them. (p. 41)



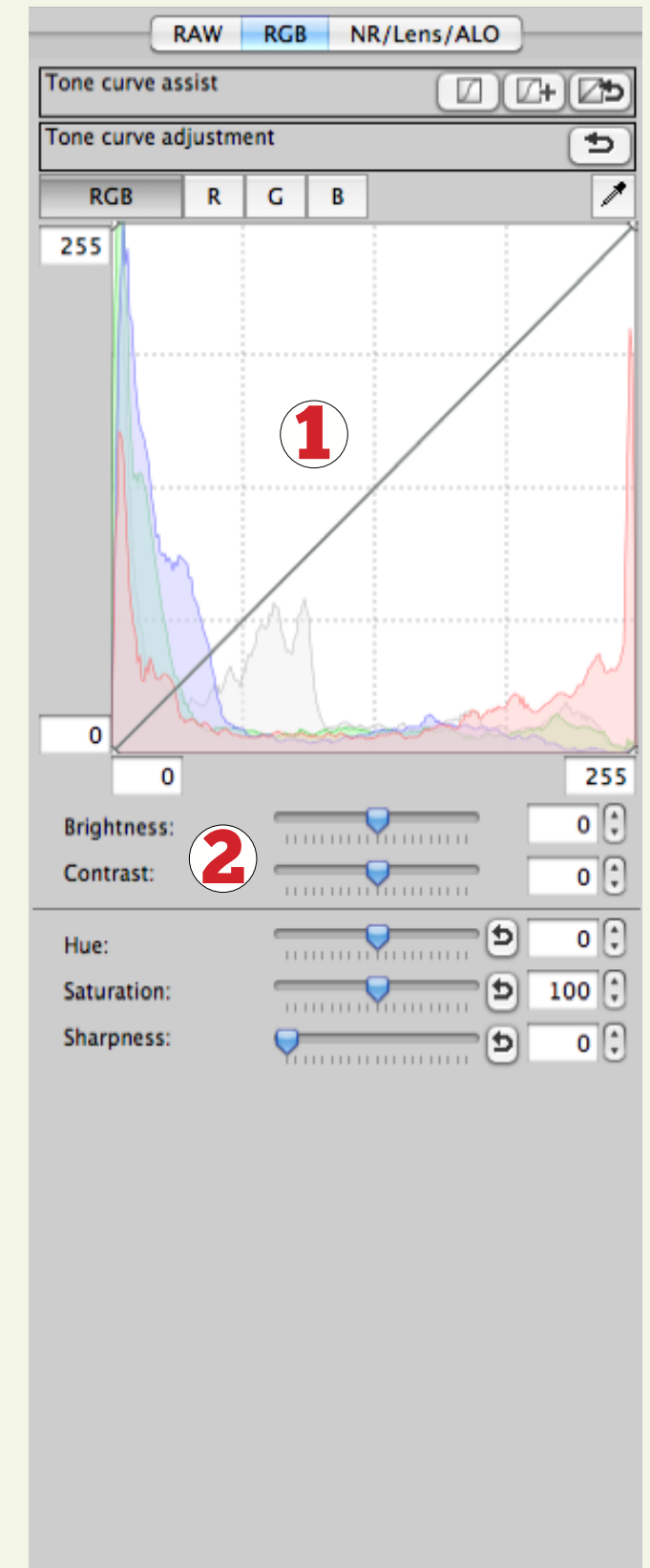
RGB tab

1. Curves

Tone black and white photos (p. 62)

2. Contrast, exposure & colour sliders

These are for altering the brightness, contrast and colour of TIFF and JPEG files – although you can also use them with Raw files.



DPP workflow

If you are using the Raw format it is quite possible that your photos will look somewhat disappointing when you view them as shot. But don't worry, you haven't done anything wrong – it's just because you haven't done any processing work yet. It takes a little work to bring the best out of your Raw files, but once you've mastered the process you will see that it doesn't take much effort to dramatically improve your images. Take a look at the example on the right to see the potential difference you can make with DPP.

We've already taken a look at workflow – an important concept in digital photography and one that also applies within DPP. One of the biggest advantages of processing Raw files with DPP is that the changes you make are non-destructive. This means that the original data captured in the Raw file is unchanged, even after you save your edits. It also means that you can undo any changes you have made, or even reprocess the image again in the future.

What can be confusing is deciding on the appropriate order for using DPP's sliders and controls. The following pages outline the order that I use them in. It's a good place to start until you become comfortable enough with DPP's functions to decide for yourself the best order to use.



Starting image

This is the output from original Raw file, without any alterations.



1. Picture Style

The Picture Style you choose affects the contrast, colour saturation, colour tone and sharpness of the photo. This photo of Venice was taken using the standard Picture Style and I changed it to the landscape Picture Style. The landscape Picture Style emphasises green and blue tones and lifts contrast to make distant objects clearer. Picture Styles are covered in more detail on page 22.



2. Brightness adjustment

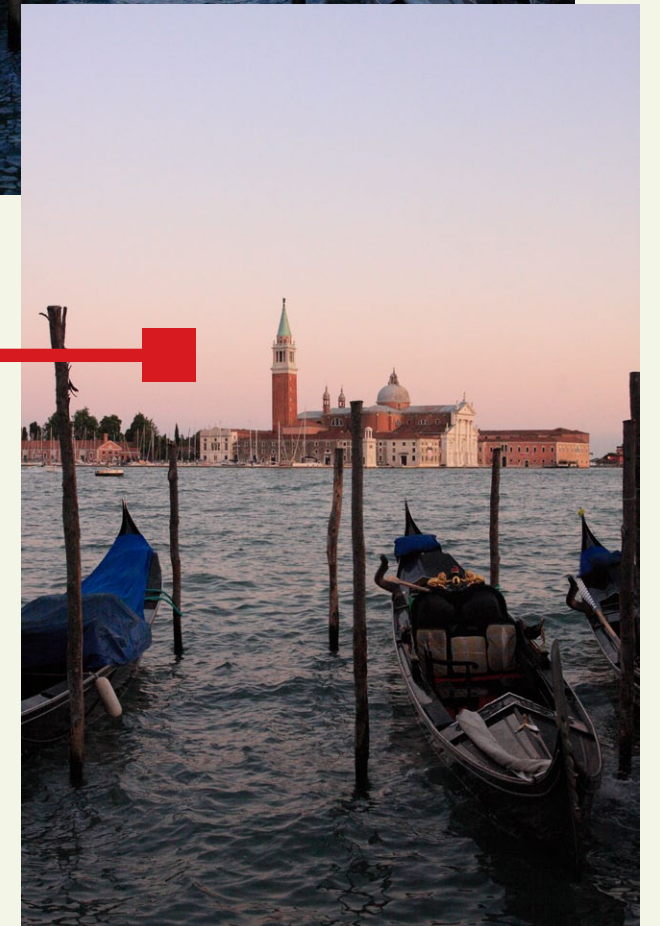
The photo looks a little dull because it is underexposed. In a perfect world the photographer would have exposed more accurately in the first place. But I did not, so I can easily adjust that with the Brightness adjustment slider (more details on page 26).

It is worth thinking about the effect you want to achieve with your photos here. Are you looking for a bright airy feel, or a darker, more sombre one, or somewhere in-between? This photo was taken at twilight and I wanted it to reflect that. So I brightened it, but not by too much.



3. White balance

This is where you can make a real difference to the photo by setting a white balance that reflects the mood you were trying to capture. Here I set the white balance to give the photo a warm colour cast that enhances the colours of the sunset. White balance is covered fully on page 28.



4. Tweaking the image

There are six sliders underneath the histogram that control contrast, highlight detail, shadow detail, colour tone, colour saturation and sharpness. They are initially set to match the Picture Style that you have chosen, and you can use them to fine tune the appearance of the photo.

Here I adjusted the highlight slider to brighten the sky, the shadows slider to darken the shadows underneath the gondolas, and the colour saturation slider to deepen the warm colours. This is covered in detail on page 35.



5. NR/Lens/ALO tab

Now we move to the **NR/Lens/ALO** tab. The photo was taken with a Canon EF 17-40mm f4 L lens. The combination of low contrast lighting and an L series lens means that there is hardly any chromatic aberration in the photo. However, there is still a little around the edges of the wooden poles on the right and left and sides of the image. I used the **Lens aberration correction** function (activated by clicking the **Tune** button) to correct the chromatic aberrations and to eliminate the vignetting (darkening at the edges of the frame) that is a natural characteristic of wide angle lenses.

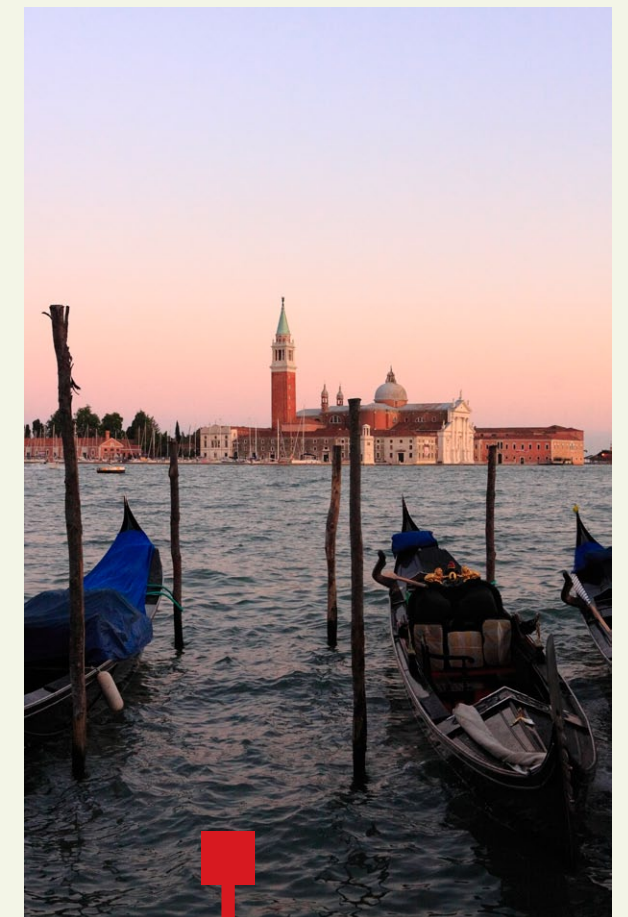
Then I used the **Noise reduction** function to reduce the chrominance noise in the photo. The photo was taken at ISO 1600 so the noise levels were a little high, but DPP eliminated most of it. The **NR/Lens/ALO** tab is covered on page 43.

6. Trimming tool

Finally I used the **Trimming tool** to crop the posts on the right of the photo. The Trimming tool has several uses and is covered on page 55.

Before...

After...



Picture Styles

The Picture Style options in DPP match the Picture Styles on your EOS camera (see page 25 for a list of EOS cameras that support Picture Styles). If you have an older EOS camera that doesn't support Picture Styles, you can apply Picture Styles in DPP as long as you use the Raw format.

What is a Picture Style? In the days of film, you could buy different types of film to suit the subject you were shooting. So you might buy Fuji Velvia, a slide film with high contrast and saturated colours, for landscape photography, or Kodak Portra, a colour negative film designed to give warm, flattering skin tones, for portraits.

Now, instead of buying film, you set a Picture Style that corresponds to the subject that you are shooting. The landscape Picture Style, for example, boosts contrast and sharpness and emphasises blue and green tones. The portrait Picture Style gives soft, natural looking skin tones making it ideal for shooting portraits. There is also a monochrome Picture Style for shooting in black and white.

If you select the JPEG format when you take a photo you are stuck with the Picture Style that you set on the camera. You can make some changes afterwards in a program like Photoshop but it is not as convenient as the Raw format. By using Raw you can change the Picture Style in DPP. This is useful because you can decide which Picture Style is appropriate when you are editing your images, rather than having to guess which one would be best before you take the photo.

For instance, you may set landscape Picture Style because you are taking landscape photos – a logical choice. But for some landscapes the landscape Picture Style can be a little strong, and the standard Picture Style is more suitable. With Raw you can change the Picture Style in DPP, with JPEG you can't.

Landscape Picture Style



Standard Picture Style



The same photo, but one version is processed with the standard Picture Style (right) and the other with the landscape Picture Style (above). The landscape Picture Style increases colour saturation in the blue tones, bringing the best out of the deep blue mediterranean sky and the blue painted house. The difference is subtle – it is clearest in the top left hand corner of the photo.

Picture Style Guide

There are six Picture Styles in DPP (matching the six built-in to EOS cameras). Of those, these are the four Picture Styles that you will use the most:

Standard

The standard Picture Style is designed for general use. It increases colour saturation and sharpness slightly to create a pleasing result.

Portrait

Skin tones can be difficult to manage as the slightest colour cast is obvious even to the untrained eye. The portrait Picture Style overcomes this by adding brightness and adjusting the colour to give a light pink skin tone.

Landscape

Increases saturation in green and blue colours. The image is sharpened a little more to bring out more detail in distant objects like trees, buildings and mountains.

Monochrome

Use this Picture Style to convert your photo to black and white (black and white conversions are covered in more detail on page 62).

Portrait Picture Styles

The top two photos on the right show the difference between the standard and portrait Picture Styles. The portrait Picture Style is designed to give bright, accurate skin tones for flattering portraits. There are a further two portrait Picture Styles available from the Canon Japan website (see page 25) – portrait studio and portrait snapshot, illustrated by the bottom two photos. The difference between these two Picture Styles is very subtle – you will have to look hard to see it.

Portrait Picture Style



Standard Picture Style



Portrait snapshot Picture Style



Portrait studio Picture Style



The next two Picture Styles are unlikely to be used much. They are designed to be used in-camera to produce JPEG files that will be worked on in Photoshop:

Faithful

The Faithful Picture Style replicates the way the human eye sees colours, resulting in accurate, true-to-life colours in all lighting conditions. It accurately captures both vivid and soft colour tones and is useful for product photography and copying photos and documents where colour accuracy is important.

Neutral

The Neutral Picture Style decreases contrast and colour saturation in order to retain highlight detail. If you are photographing a vividly coloured object like a red car, the standard Picture Style can oversaturate the colours, resulting in a loss of subtle tonal variation. The neutral Picture Style captures more details in vivid colours and bright highlights.

Nostalgia Picture Style

If you like photographing old things then I recommend that you download the nostalgia Picture Style from the Canon Japan website (see next page). It creates a unique look that suits the colours and textures of old things. You can vary the look by playing around with the colour saturation and contrast sliders, and warming up the image using the white balance setting (white balance is explained further on page 28).



Standard Picture Style

Nostalgia Picture Style



You can download seven more Picture Styles from the Canon Japan website at www.canon.co.jp/imaging/picturestyle/index.html and use them with DPP – or upload them to any EOS camera that supports user defined Picture Styles:

Twilight

An artistic style that enhances the soft purple hues of an image taken shortly after sunrise or before sunset.

Nostalgia

The Nostalgia Picture Style imitates the appearance of an old photograph by setting an amber colour tone and reducing green and blue colour saturation.

Clear

The clear Picture Style increases contrast to make the subject clearer. Use it in hazy conditions or for shooting a subject behind glass.

Emerald

This Picture Style enhances green tones – use it for bringing out the best in subjects like green trees and tropical seas.

Autumn Hues

Enhances the red and yellow shades typical of an autumn scene.

Studio Portrait

The studio portrait Picture Style has less sharpness and contrast than the portrait Picture Style. It is suitable for wedding or fashion shoots where it is important to retain the texture and detail of fabric or jewellery.

Snapshot Portrait

The snapshot portrait Picture Style has higher contrast and gives skin a translucent appearance that suits casual portraits and snapshots.

Picture Style directory

The following cameras have Picture Styles built-in:

EOS 400D, 450D, 500D, 550D, 600D, 1000D, 1100D, 30D, 40D, 50D, 60D, 7D, 5D, 5D Mark II, 1D Mark II N, 1D Mark III, 1D Mark IV, 1Ds Mark III, 1D X

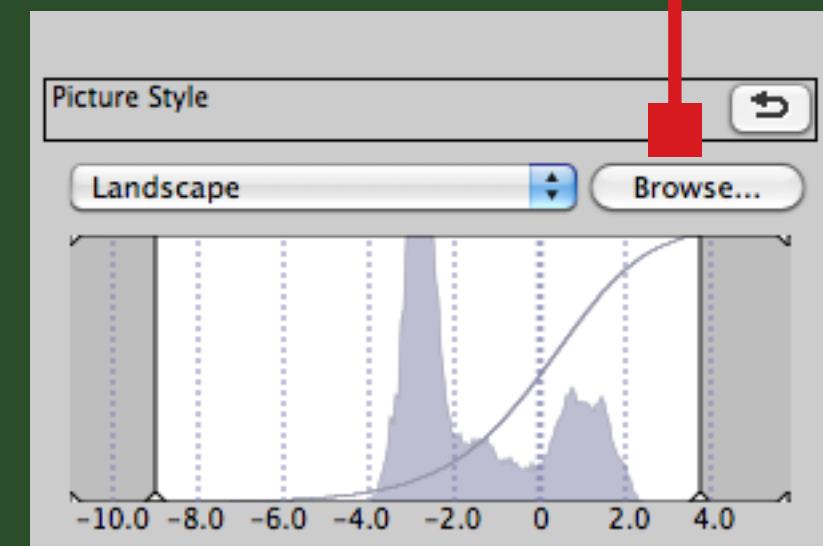
The following Picture Styles are built-in to EOS cameras:

- Standard
- Portrait
- Landscape
- Neutral
- Faithful
- Monochrome
- User defined (3 sets)

To use a Picture Style that you downloaded from the Canon Japan website, click the browse button next to the Picture Style drop down menu, navigate to the folder where you saved it and select it. You can then adjust the contrast, highlights and shadows, colour tone, colour saturation and sharpness just like you can with the built-in Picture Styles.

The following Picture Styles are currently available for download from www.canon.co.jp/imaging/picturestyle/index.html

- Studio Portrait
- Snapshot Portrait
- Nostalgia
- Twilight
- Autumn Hues
- Clear
- Emerald

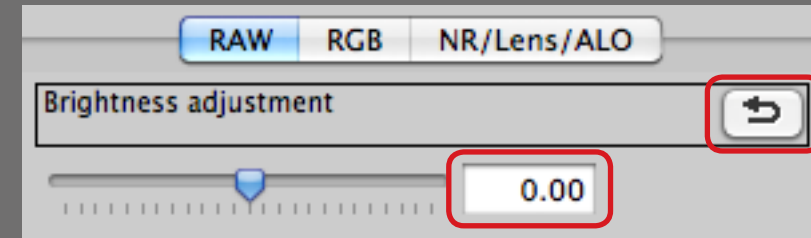


Brightness

The Brightness adjustment slider lets you adjust the brightness of the image the equivalent of up to two stops brighter or darker. While this can help rescue images where you didn't get the exposure right in the first place, you should really think of the Brightness adjustment slider as a tool to help you fine tune the brightness of the image. There are very few images where the brightness is spot on when you first look at them in DPP – most photos benefit from at least in small adjustment in one direction or the other.

The Brightness adjustment slider is marked in stops, and differs from something like the Levels tool in Photoshop because you are working with a Raw file rather than an eight bit JPEG file. The Raw file contains all the information captured by the sensor at the point of exposure, and DPP uses this to maximise detail in the highlights and shadows, and to minimise noise if you are brightening an underexposed image. DPP can't put back in highlight or shadow detail that wasn't captured by the sensor in the first place, but it will give you a better result than you would get if you had used the JPEG format.

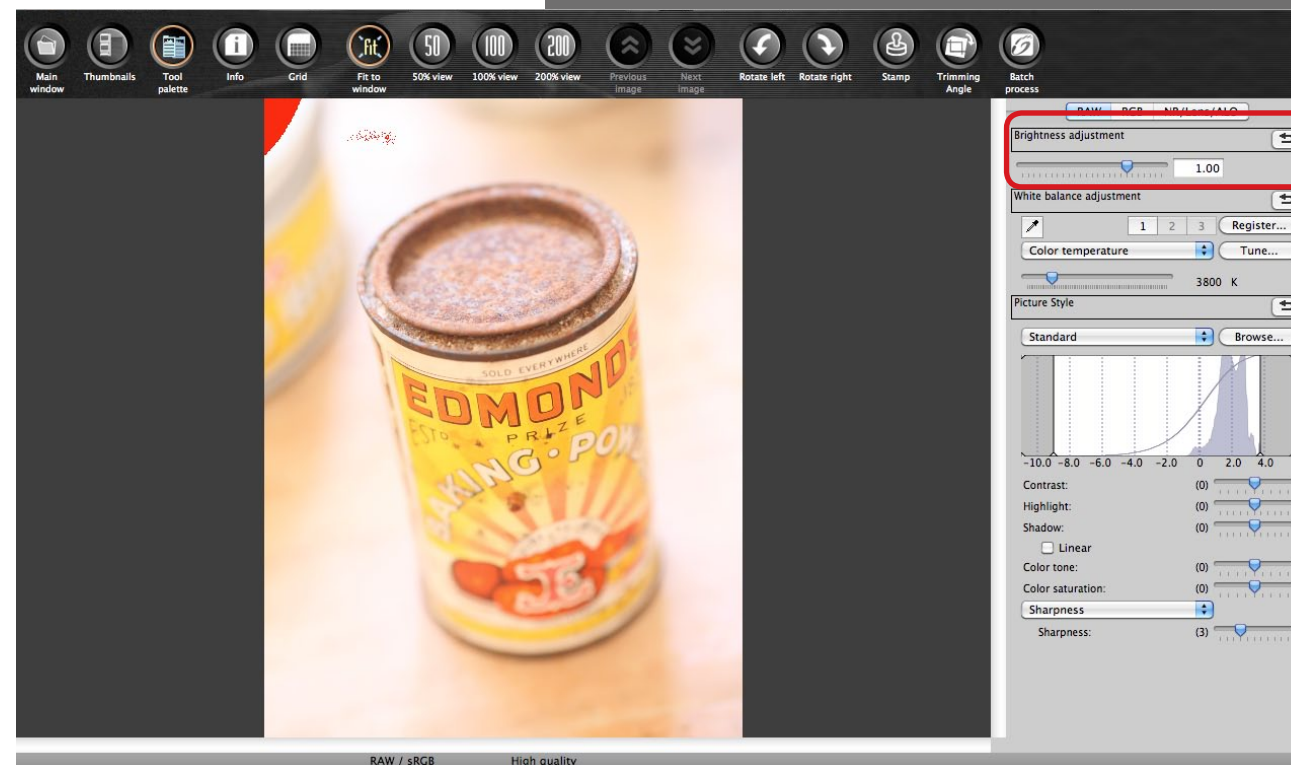
The Brightness adjustment slider is a key tool for processing your photos – you should use it before you touch the Contrast, Highlight and Shadow sliders (see page 35) to set the overall brightness of the image. You can always tweak the setting afterwards if you need to as you adjust the other sliders.



The Brightness adjustment slider always starts off at zero and you can set it anywhere between -2.0 and +2.0 stops (illustrated above – you won't need to go anywhere near those two extremes if your exposure was accurate).

If you drag the slider with the mouse it moves in increments of 0.17 stops at a time. If you need a finer adjustment than this, you can achieve it by entering the figure in the field to the right of the slider. You can also return to the original zeroed setting at any time by clicking the button with the curved arrow icon.

Another potential use of the Brightness adjustment slider is to create three different images to use as the base for creating a High Dynamic Range (HDR) image. You do this by creating three different versions of the same photo – one with Brightness adjustment set to -2.0, another with it set to zero, and the third with it set to +2.0. You can then combine the three images using a program like Photoshop CS or Photomatix.



The histogram

The histogram displayed in DPP shows the dynamic range of the tones recorded by the camera's sensor. It can be confusing at first because it doesn't match the histogram on the back of your camera (the histogram under the RGB tab is closer to that).

The zero setting on the histogram is equivalent to a mid-tone. Bright tones have a positive value, and darker tones a negative value. The histogram extends to nearly +4.0 stops on the right and -9.0 steps on the left. This is a vast range and in practise the graph won't fill the whole scale.

The image's curve is also displayed, superimposed above the histogram. The curve changes when you make adjustments to the Contrast, Highlight or Shadow sliders. It doesn't change when you adjust brightness – instead you'll see the histogram shift to the right or to the left.

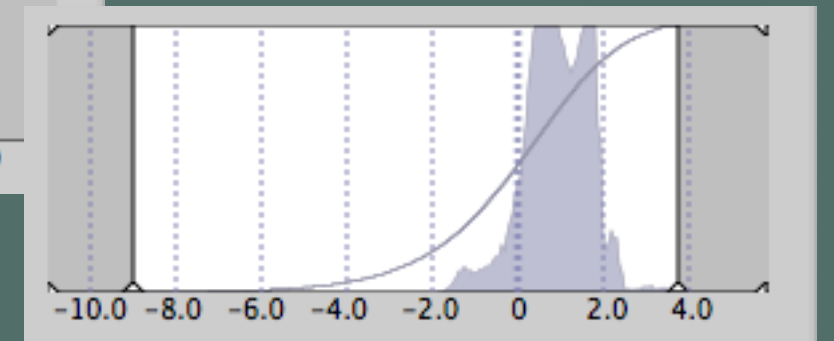
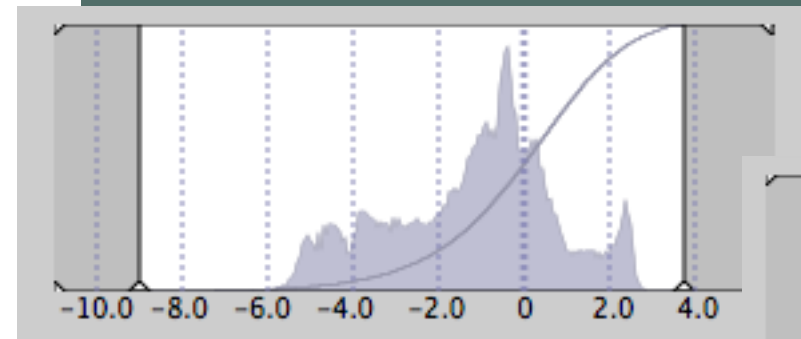
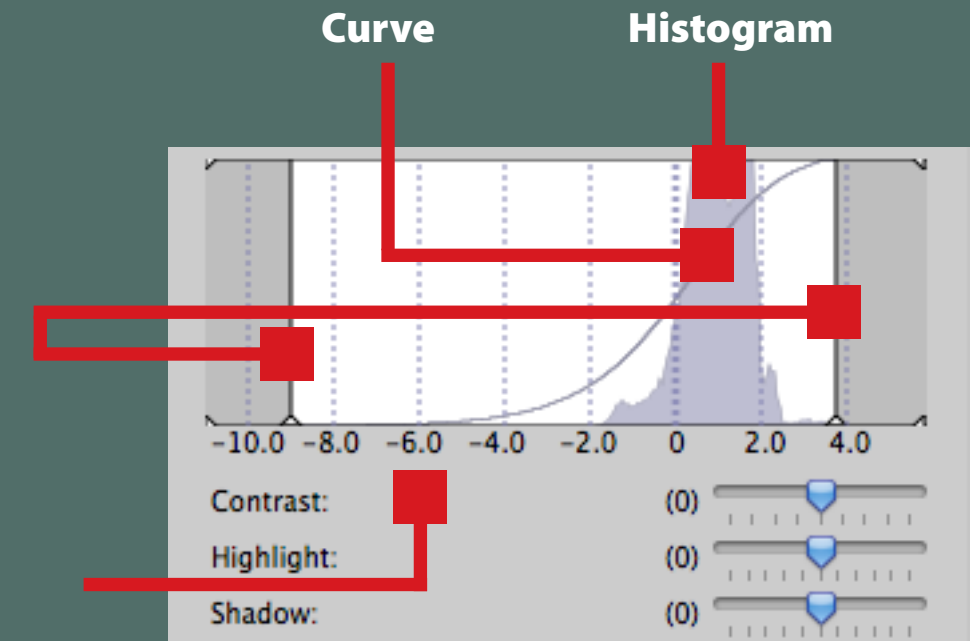
You can reduce the dynamic range of the image by moving the lines that mark the left and rightmost limits. You need to be careful of clipping in the highlights and shadows. I don't see them often as it's easier to make changes using the Contrast, Highlight and Shadow sliders.

You can also move the lines at the top and bottom of the histogram up and down to change what Canon refer to as the output values of the image – but you will never need to do this.



The left and right sides of the histogram – you can reduce the image's dynamic range by moving these inwards.

The dynamic range of the image, indicated in stops.



The dynamic range of an image is dependent upon the brightness range of the light reflected from the subject of the photo. Here are two histograms from two different images. The tones within the graph in the histogram on the left cover a much wider range than the tones in the histogram on the right. The image that this histogram was generated from (shown on the left) has a lot more contrast than the image that generated the other histogram (you can see the image on page 26). The Contrast, Highlight and Shadow sliders let you increase the contrast within flat images.

White balance

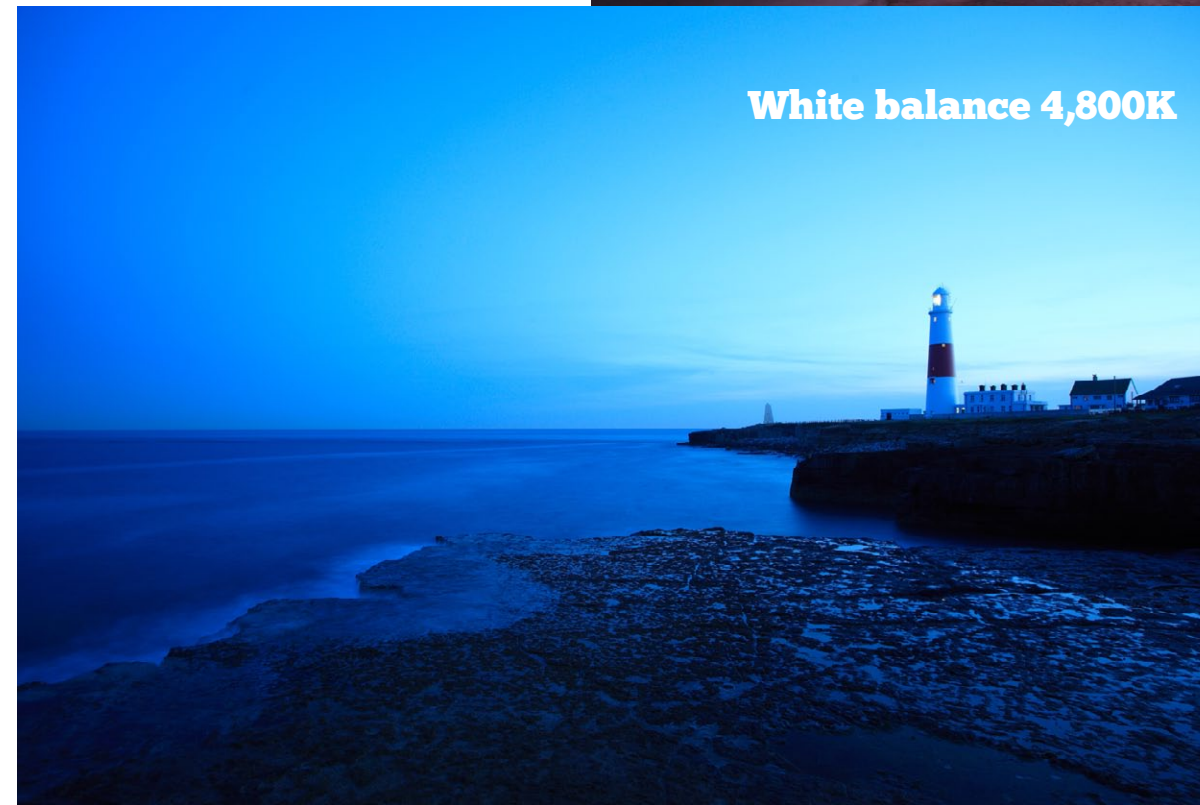
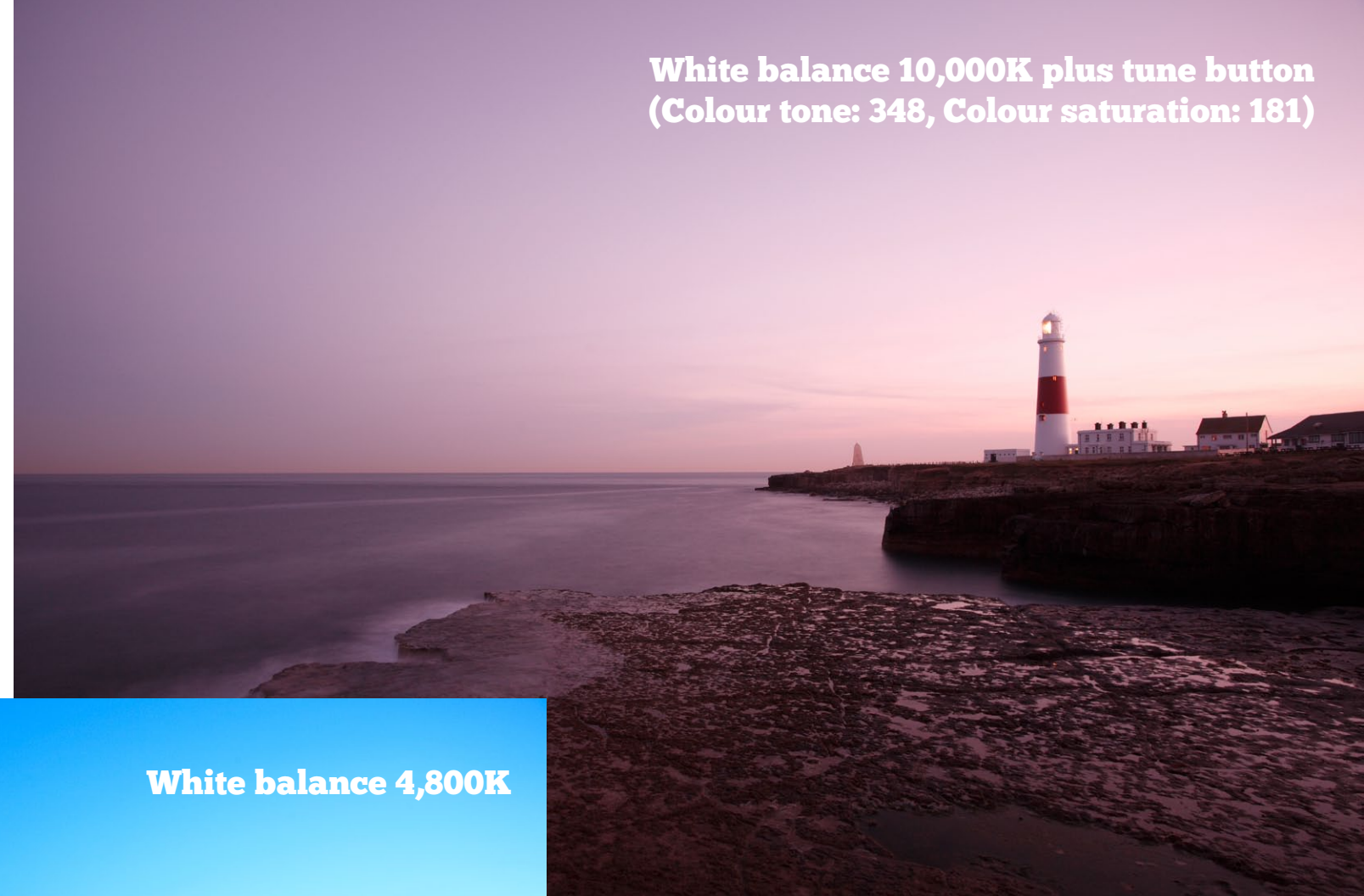
If you use the JPEG format, you have to get the white balance right at the time you take the photo. While you can adjust colour balance in Photoshop, you cannot actually adjust the white balance itself. The difference is important because the ability to adjust white balance gives you more freedom in interpreting the image. You can also adjust white balance without degrading the image in any way because of the non-destructive nature of Raw processing.

White balance is related to colour temperature. The colour of light changes according to the weather conditions and time of day. On a cloudy day, or at dusk after the sun has set, the light is blue. At sunrise or sunset it is orange. It is more likely to have a neutral colour in the middle of the day. Artificial lights create their own colour casts.

The aim of the Auto white balance feature on your camera is to produce a photo with a neutral colour cast. The camera will attempt to compensate for any colour cast created by the light.

Is this a good thing? It certainly can be – but only if you want to create neutral photos. I don't use it – I prefer to adjust the white balance myself. I rarely go for a neutral colour balance, instead I prefer to go for either a cool or a warm colour balance, depending on the mood that I'm trying to create. The only question is how cool, or how warm, the image should be. White balance is a key creative decision and setting white balance is part of the process of deciding how to interpret a Raw file when you process it.

**White balance 10,000K plus tune button
(Colour tone: 348, Colour saturation: 181)**



White balance is one of the best tools that you have for creating mood in colour photography. Using the Raw format gives you the opportunity to fine tune white balance in DPP in a way that would be impossible with a JPEG file. Furthermore, you can also interpret the same Raw file two different ways, as in this example. It is the same photo, and the only difference is in the white balance. The result is one image with cold blue tones that captures the atmosphere of the scene as night falls, and another that replicates the warm tones of sunset.

White balance in action

The white balance function is located under the Raw tab in DPP. Clicking on the drop down menu brings up a list of ten settings. For simplicity they can be divided into three groups. The first group is general purpose settings that you will use most often:

Shot settings

Matches the white balance setting that you set on the camera when the photo was taken.

Auto

DPP calculates the white balance it thinks should be applied to the photo. This is a good option to select to see what happens, but do not be surprised if it does not get it right. Furthermore, the Auto setting is designed to calculate a neutral white balance – you may wish to make the image warmer or cooler.

Daylight

Sets the white balance to 5200K. This is designed to give neutral colours at noon on a sunny day. This is like using a daylight balanced film. Photos taken by the light of the setting sun or a tungsten bulb have a warm colour cast at this setting, and photos taken in the shade or on a cloudy day have a cool colour cast.

Cloudy

Use this setting if you took the photo on a cloudy day. It gives a warmer colour cast than the daylight setting.

Shade

This setting gives a stronger warm colour cast than cloudy. It is designed for taking photos in the shade on a sunny day. Photos taken in these lighting conditions have a strong blue cast.

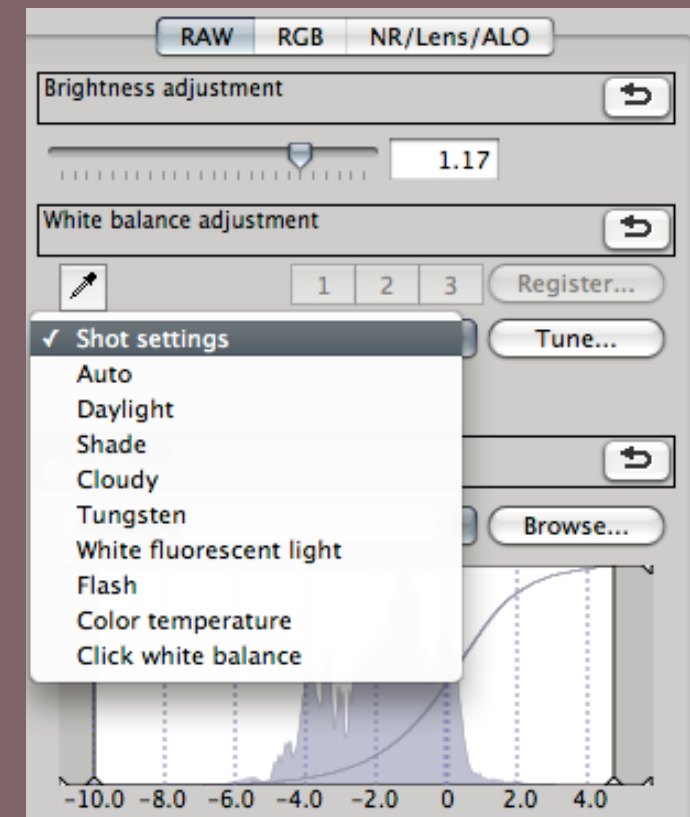
What is colour temperature?

Colour temperature is measured on the Kelvin (K) scale. It is the standard against which the light emitted by different sources is measured.

The colour temperature scale is determined by the colours that a standard black body (a physics term meaning a non-reflective perfectly black piece of metal) glows when it is heated to a certain temperature. Low temperatures glow orange or red and high temperatures glow blue.

The aim of the white balance function in DPP (and on your camera) is to compensate for the colour temperature of the light illuminating the subject. For example, if your subject is lit by tungsten light, which has a strong orange cast, you need to make the image more blue to correct the orange cast (this is the equivalent of using a blue tungsten filter with daylight balanced film).

The table on the page 33 shows the Kelvin scale in action, the point at which different light sources come on it, and the corresponding settings in DPP (shown in the white balance drop down menu on the right).



These three settings are for specific lighting conditions:

Tungsten

Light cast by tungsten light bulbs has a very warm colour cast. The tungsten setting is designed to give a neutral colour cast under this light. It is really intended for photographers who are using tungsten studio lights as a continuous light source but require neutral colours.

If you were taking photos by the light of a household bulb, you may want to retain the warm colours for creative reasons, in which case you would set the white balance to daylight.

White fluorescent light

Use this setting for taking photos lit by fluorescent lights. It is best to avoid shooting under fluorescent light whenever you can, especially if your light sources are mixed (ie fluorescent and daylight) as you cannot set a white balance that suits both types of lighting.

Flash

Intended for use in-camera. It tells the camera to communicate with the Speedlite flash to measure the colour temperature of the light output by the flash, which can vary slightly from unit to unit. Not much use in DPP.

The last two settings are more precise tools to help you arrive at the correct white balance setting:

Colour temperature

A slider appears when you click this option that lets you adjust the colour temperature manually on a scale of 2500K to 10000K. The default is 5200K, moving the slider left cools the photo down, moving it right warms it up.



Which of these two photos do you prefer? Auto white balance gives you the result on the right. Change it to cloudy and you get the warm toned version above. The warm white balance enhances the knight's red regalia and the umber hues in the background.

Click white balance

A tool to help you obtain a neutral white balance. All you do is click on the eyedropper icon, then on a pure white or mid-grey tone in the photo. DPP then calculates the white balance required to render the white or grey tone you clicked on a neutral tone.

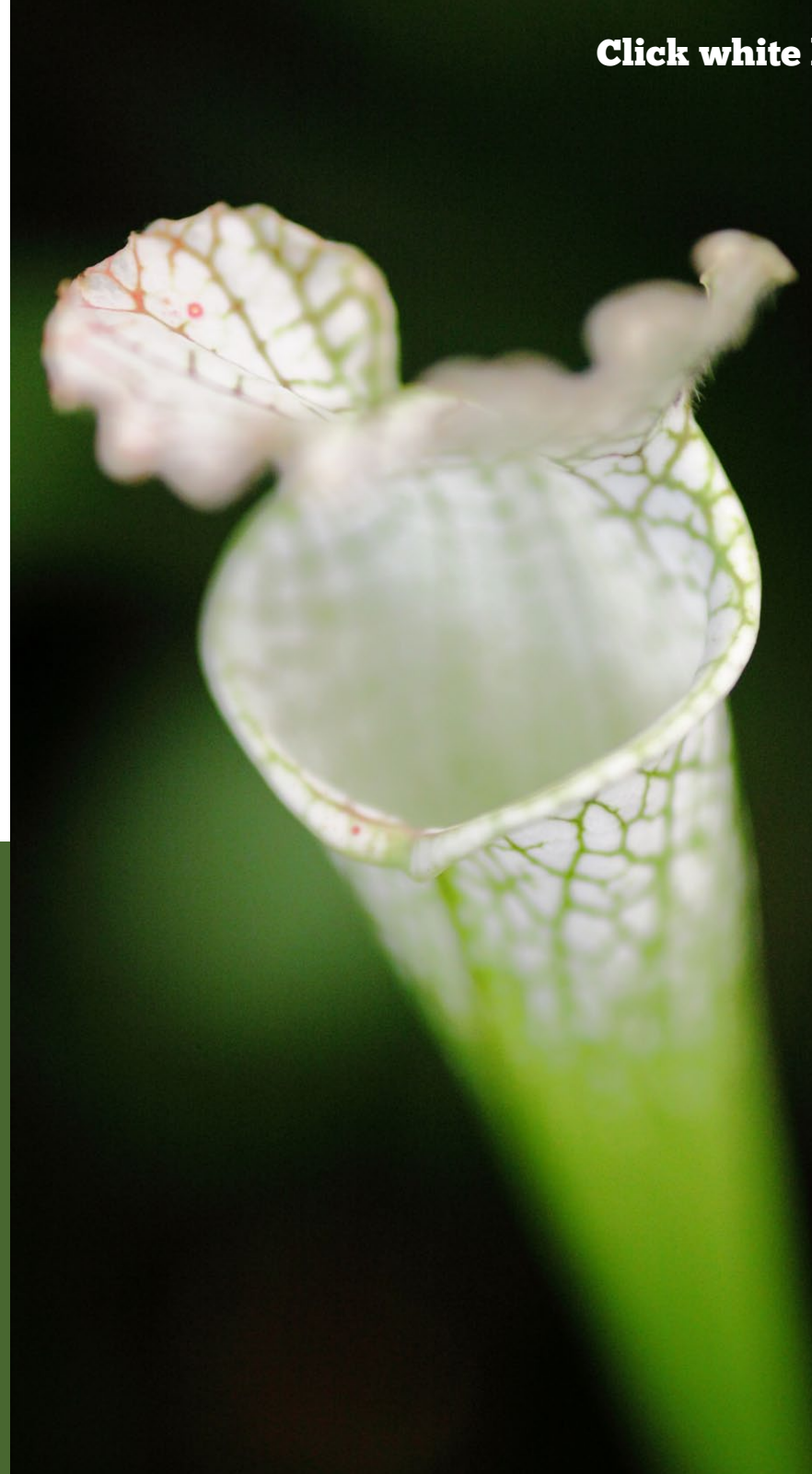
Registering white balance settings

DPP has three personal white balance settings. To use them, click the **Register** button and select a custom setting in the **Register personal white balance** window (Custom1, Custom2 or Custom3) and click **OK**. This stores the current white balance settings so that you can recall them to use with other images.

While I like to play around with making photos warmer or cooler for creative effect, there are times when a colour cast just looks unnatural. This can happen when there is a dominant white tone in the photo, like the images of a white flower on the right. To me, the photo created from the daylight white balance setting has a warm cast and looks unnatural. It's not really visible in the green tones but it is fairly obvious in the white part of the flower. The photo on the left has neutral whites and looks much better. I arrived at this white balance setting quite easily by using click white balance. All I had to do was click with the eyedropper on a white part of the image, and DPP calculated the white balance setting required to remove the colour cast. This also works with grey tones.

A practical application of the click white balance function is that, when correct colour is critical, you can take a test photo that includes an 18 percent grey card. Use click white balance and the eyedropper to click on the grey card and set the correct colour temperature. You can then save it in one of the personal white balance settings and apply it to photos taken without a grey card. As long as the lighting conditions are the same, it will work.

Click white balance



Daylight white balance

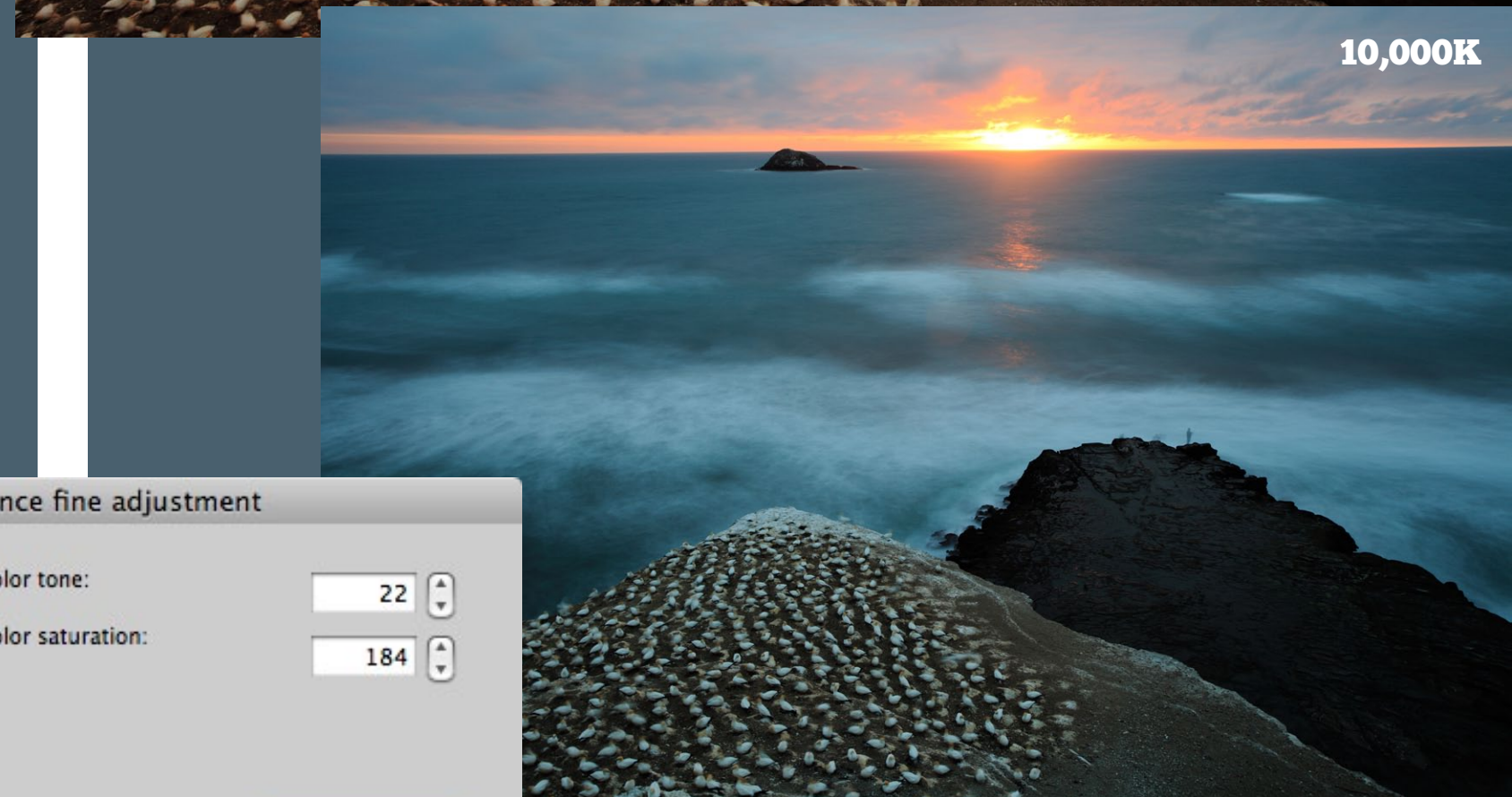


The Tune button

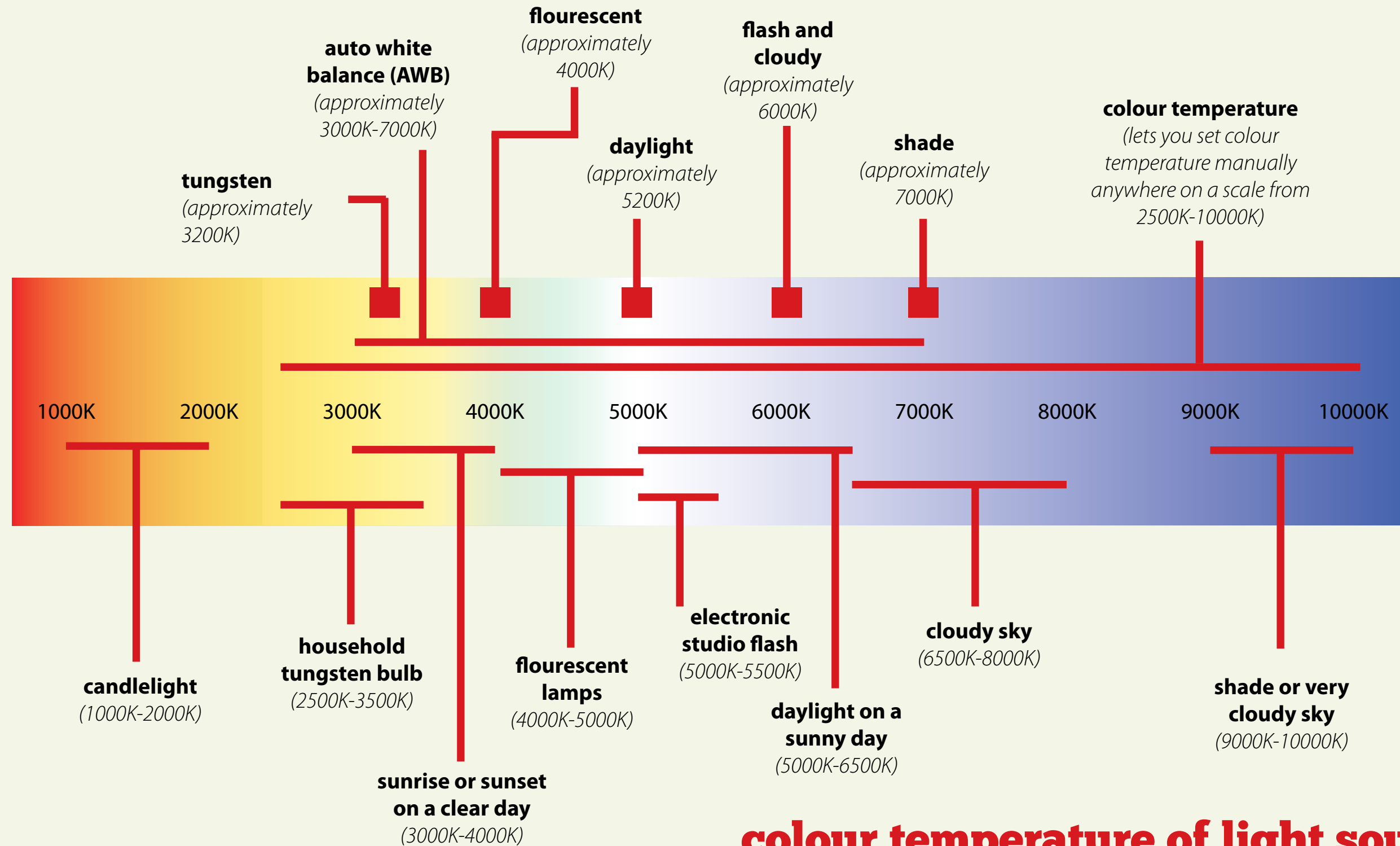
DPP has a further white balance tool to help you alter the white balance of your photo with precision. Once you have set your white balance using any of the settings listed above, click on the **Tune** button. The **White balance fine adjustment** window appears. Drag the small square in the centre of the colour wheel towards any of the colours to fine tune the white balance (or change it quite dramatically if you want). The further you move towards the outer edge of the circle, the stronger the colour saturation. The tone and saturation are also given in numerical values so that you can make a note of the settings you used.

Why would you want to use the White balance fine adjustment window? The colour temperature slider works by making your image more orange, or more blue (warmer or cooler). But there are times when you may need to shift the colour balance in another direction. A good example is if you took a photo under fluorescent light, which may have a green colour cast. To counter the green cast you need to increase the amount of magenta in the image, and you do this with the Tune button (other Raw converters have a green/magenta slider along with the blue/orange slider in the white balance settings for this purpose).

Take a look at the photo on the bottom right. I moved the colour temperature slider to 10,000K – the highest it will go. But even so, the colours in the image are not that warm. So I used the Tune button, and added red to the image to create the photo at top right. The White balance fine adjustment window permitted me to push the colours beyond the settings provided by the colour temperature slider.



white balance settings in DPP



colour temperature of light sources

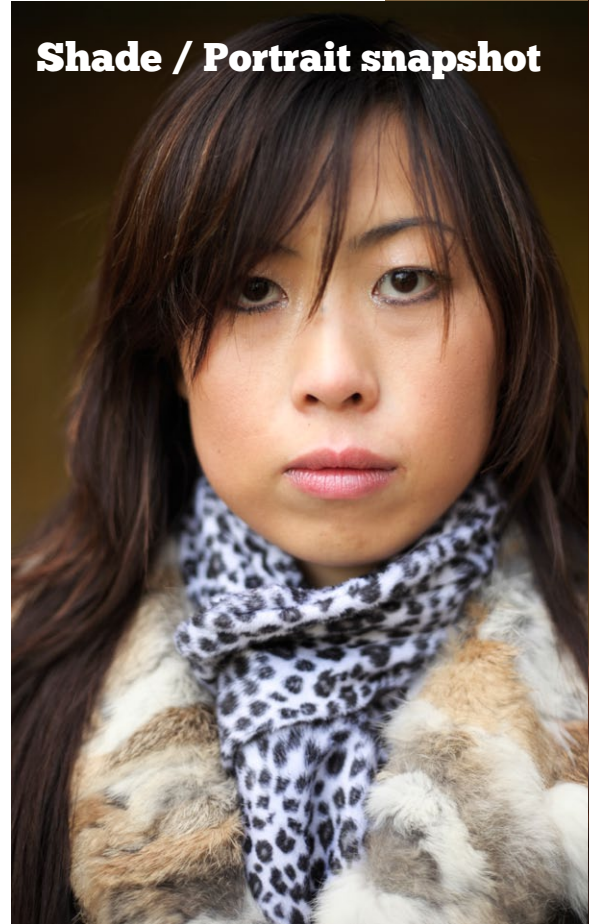
The Picture Style and white balance settings should work together in harmony. Once you have chosen your Picture Style, you can adjust the white balance to bring the best out of your photo. Do not be afraid to go back and change the Picture Style though. Experimentation – and playing – are the keys to learning.

With this photo, I had the choice between three Picture Styles – portrait, portrait studio and portrait snapshot, and three white balance settings – auto, cloudy and shade.

The differences between the three portrait Picture Styles are quite subtle; you may have to look closely to see them. The choice of which Picture Style and white balance to use should be led by the effect you are trying to achieve. In this case I wanted a warm toned portrait and selected the appropriate settings to achieve that. I set the Picture Style to portrait and the white balance to shade because it gave the warmest portrait.

The other settings are not necessarily wrong – it is all down to personal taste and how you want the photo to look.

Shade / Portrait snapshot



Shade / Portrait studio



Shade / Portrait



Auto / Portrait



Cloudy / Portrait



Your sitters will thank you if you can make their portraits flattering. One way to do this is to use the cloudy or shade white balance settings. Either will probably work out fine – shade is the warmer of the two. Set the white balance to auto though and it is a different story. The photo may be more neutral, but not as flattering.

Contrast sliders

The six sliders underneath the histogram are for making adjustments to the Raw image. You should only use them after you have already set the brightness adjustment, Picture Style and white balance. Any changes you make with these sliders are linked to the selected Picture Style. For instance, if you are using the standard Picture Style and increase the contrast to +2, the contrast will revert back to the default (0) if you switch to another Picture Style.

Contrast

This slider does exactly what the name suggests – it alters the contrast of the image. You can lower the contrast by moving the slider left or increase it by moving it right. Try playing around with the slider to see the effect. You'll see that highlights get brighter (and may burn out) and that the shadows get darker (you may lose detail here too) when you increase contrast, and the opposite happens when you decrease it. The image curve in the histogram also changes. You can use the highlight and shadow alerts to warn you when you are losing highlight or shadow detail – their use is explained on page 37.

Highlight

Move the highlight slider right to brighten the highlights and left to darken them. Most of the time you will want to set the highlights so that they are bright but not clipped (the highlight alert will help you find this level).

Another use of the highlight slider is for retrieving detail from clipped highlights. If you use the highlight alert feature on your camera you will be used to seeing flashing black patches on the LCD screen when you playback your images that indicate clipped highlights. However, the image on the LCD screen is generated from a JPEG file created when the photo was taken. If you're using the Raw format, a Raw file contains more



**brightness 0, contrast 0,
highlight 0, shadow 0**

The brightness, contrast, highlight and shadow are all set to zero.

Setting highlight to -5 brings out more detail in the white petal without affecting the rest of the photo.



**brightness 0, contrast 0,
highlight -5, shadow 0**

Setting highlight to +5 brightens the white petal without affecting the background. Compare it with the previous two images to see how much detail has been lost.



**brightness 0, contrast 0,
highlight +5, shadow 0**

information than a JPEG file thanks to the extra bit depth (12 or 14 bits compared to eight bits). This means that there is at least a little detail in clipped highlights – and you can bring this out in DPP.

Part of the work is done with the brightness adjustment and contrast sliders. Moving the brightness adjustment slider left darkens the image and brings out highlight detail at the same time. Lowering the contrast also helps bring out highlight detail. The important thing to remember about the brightness adjustment and contrast sliders is that they affect the entire image – you can't darken the highlights without darkening the rest of the image.

The highlights slider on the other hand just affects the highlights – you can move it left to darken the highlights and bring back apparently lost detail without darkening the rest of the image.

Shadow

The shadow slider works the same way as the highlight slider except that it affects the shadow areas only, not mid-tones or highlights. Use it to darken or lighten the darkest areas of the photo.

Working together

While I recommend that you set the brightness adjustment before you use the contrast, highlight and shadow sliders, once you start altering contrast, highlight and shadow settings you can also alter brightness adjustment if you need too. The four sliders work together. Just remember that brightness adjustments sets the overall exposure level, the contrast slider sets the overall contrast, the highlight slider affects highlights only and the shadows slider only affects shadow detail. The examples on the right of these two pages show how it works.



**brightness -0.83, contrast 0,
highlight +5, shadow 0**

Here I set highlight to +5 and then darkened the entire image using the brightness adjustment slider. This brought back the detail in the petal but darkened the rest of the image as well.

For this photo I kept the brightness adjustment and highlight at zero, and darkened the background by setting shadow to -5.



**brightness 0, contrast 0,
highlight 0, shadow -5**



**brightness 0, contrast +4,
highlight -5, shadow -5**

In this extreme example I set contrast to +4, then highlight to -5 to bring back the highlight detail in the petal, and shadow to -5 to darken the background. The contrast of the image is too high for it to print or reproduce well, but it shows what can be done.

The alerts

The highlight and shadow alerts are provided by DPP to let you know if there is clipping in the highlight or shadow areas of your image. They are useful at all stages of the editing process, but especially so when you are adjusting the brightness or using the contrast, highlight or shadow sliders.

What is clipping? A clipped highlight is part of the photo that has reached its maximum brightness level. You cannot brighten it any further, and it also has no textural detail. It may be caused by overexposure when you took the photo, but it is also caused by brightening the photo or increasing contrast in DPP.

A clipped shadow is part of the photo that is approaching the maximum dark level. You cannot darken it any further and it has lost all detail.

Many photos have at least some clipped shadows, and some may also have clipped highlights. Generally speaking, clipped shadows look natural (as long as there are not too many) but it's best to avoid clipped highlights, as they look unnatural. This is particularly true if the highlight detail is present in the Raw file – the reason that DPP has a highlight slider is to give you a tool to retain highlight detail even if you increase the brightness or contrast. Sometimes, clipped highlights are unavoidable, usually due to overexposure at the point the photo was taken. This could happen when taking backlit photos, for example, as the contrast range of the scene exceeds what the camera's sensor can record.

Activate the alerts by going to **View > Highlight Alert** or **View > Shadow Alert**. Clipped highlights show in red and clipped shadows in blue. You can turn the alerts on or off as needed.



Colour tone

The colour tone slider is intended to be used to correct colour casts on skin. It works very simply – just move the slider to the right to make skin tones more yellow, or to the left to make them redder. The scale runs from -4 (redder) to +4 (more yellow). The differences between each step are subtle.

Our eyes are very sensitive to skin that is off-colour – it just looks wrong even if we are not sure why. The colour tone slider allows you to change the overall colour tone of the photo. It should be used after you have set the white balance and Picture Style. It should not be used because you have not set the white balance or Picture Style correctly – it is a tool you that you can use to fine tune the colour tone, not to get it right in the first place. If the white balance and Picture Style settings have been set correctly, most of the time you will not have to touch the colour tone slider. The examples on the right show the effect – I've used the extreme settings to show the effect, in reality these are too strong and you are more likely to use the intermediate settings.

You can also use the colour tone slider with subjects other than portraits. Again, you should use it to fine-tune your photos after you have already set the white balance and Picture Style.



colour tone 0



colour tone -4 (red)



The use of the Color tone slider is not limited to portraits. In this example increasing moving the slider to the right to increase the yellow tones has enhanced the green colours of the seed head. Which do you prefer?



Colour saturation

You can alter the intensity of the colour in your photos with the colour saturation slider. You should only touch this slider after adjusting the Picture Style and white balance – if your photos appear to be lacking colour saturation the first thing to check is the Picture Style. The standard, landscape and portrait Picture Styles have the most intense saturation, and the neutral and faithful Picture Styles the least. The colour saturation slider is for fine tuning the colour saturation set by the Picture Style settings. There is a scale of -4 to +4, where zero is the default setting, -4 is least saturated and +4 is the greatest amount of saturation.

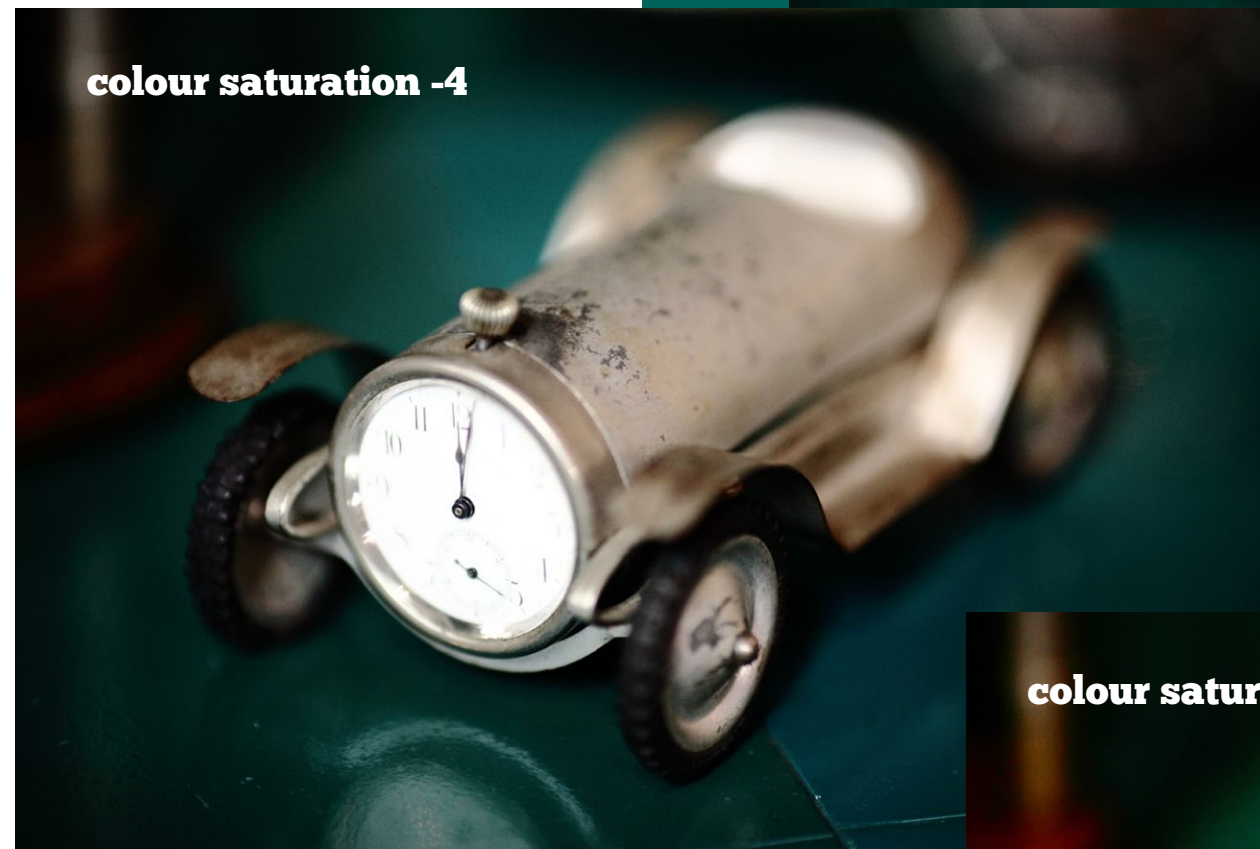
Why would you adjust colour saturation? For most of your photos you will not need to. It may be tempting to increase the colour saturation for more intense colours, but be wary of doing this as the results often look unnatural.

Photographers sometimes de-saturate colours for creative effect. They are trying to create a certain nostalgic look, or to make the colours more subtle. Colour is a very powerful visual element – it is one of the dominant compositional elements of an image. But sometimes it is too dominant – and by de-saturating the image you are letting other compositional elements such as the use of lines and tones, become more prominent. De-saturation suits certain subjects, such as portraits, nude studies and still lifes, although you are free to experiment with de-saturating any of your photos.

colour saturation 0



colour saturation -4



colour saturation +4



Sharpening

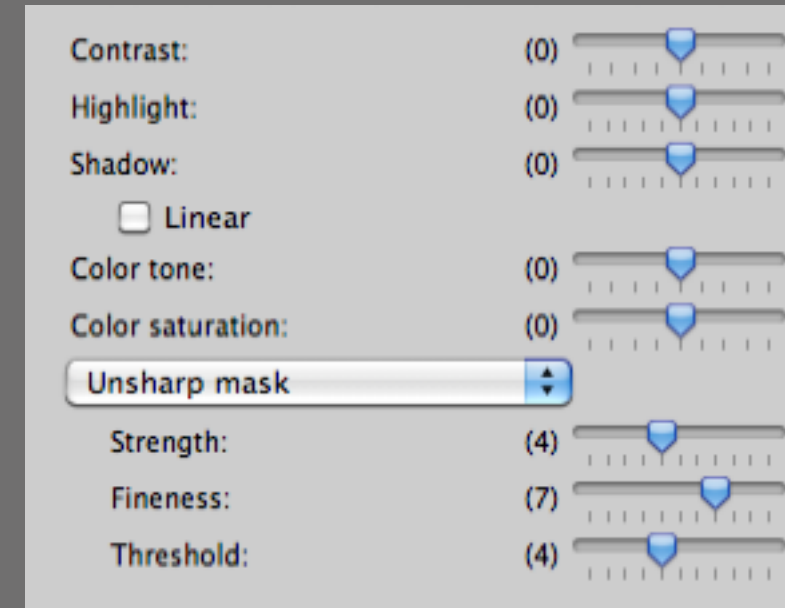
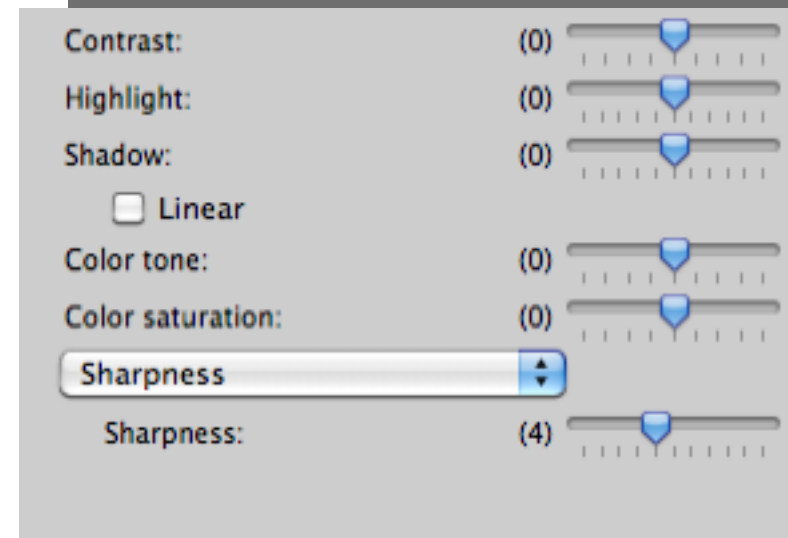
Your photos – as they are taken by the camera – are not sharp. The reason for this is that EOS digital cameras have an anti-aliasing filter positioned in front of the sensor. The purpose of this filter is to prevent moire patterns and smooth out diagonal lines in the captured image. However, in doing so it also softens the image. This means all your digital photographs need sharpening at some point.

Most resources recommend that sharpening should be left until the last step in post-processing. This is because the amount of sharpening you need to apply varies depending on what you are going to use the photo for. For instance, a photo intended for viewing on a website requires a different level of sharpening to a photo that is going to be printed on an inkjet printer. If you intend to submit the photo to a magazine or book publisher, they will ask that you don't sharpen the image, as they will sharpen it themselves to a level that suits the printing process.

However, because editing in DPP is a non-destructive process, you can re-adjust the sharpening levels at any time if required. Therefore it is not important to leave it until last. As it is grouped with the contrast, highlight, shadow and colour control sliders, this is the logical place to write about it. Just remember that you may need to alter the sharpness settings when you convert the Raw file to a JPEG or TIFF, depending on the purpose that you have in mind for it.

If you use the JPEG format, sharpening is applied to your photos when they are processed by the camera. The amount of sharpening depends on which Picture Style you have set. You cannot undo sharpening at the post-processing stage – although you can always add more if required.

If you use the Raw format, the sharpening level is set when you select the Picture



Sharpening in DPP

DPP offers two sharpening settings – Sharpness and Unsharp mask. The Sharpness setting works on a scale from one to ten, and the numbers correspond with sharpness settings that you can alter under the Picture Style settings on your camera (where the range is one to seven).

This was the only sharpness setting available until recently, when Canon introduced the Unsharp mask (if you don't see this option you need to update to the latest version of DPP – see page 76 for details on how to do this).

The Unsharp mask offers a finer control over the sharpness settings. It has three sliders. Strength lets you set the sharpening level on a scale of one to ten. Move the Fineness slider left to retain fine detail, or right to increase sharpness but at the expense of fine detail. Threshold refers to the difference in contrast between edges. The higher the threshold, the greater the difference in contrast needs to be at an edge before DPP sharpens it. Increasing the threshold reduces the area of the photo that is sharpened.

Style. You can then use the sharpness slider to increase or decrease the level of sharpening. This is an important difference. If you intend to edit your JPEG photos in Photoshop, any changes to brightness or contrast levels are applied to an already sharpened image. If you are unlucky, this may introduce halos or jagged lines at the edges of objects in your photos.

When you are processing Raw files, sharpening is part of a non-destructive editing process and is only applied when the Raw file is converted to a JPEG or TIFF file. Changes to brightness or contrast levels in DPP will not have any adverse effects on the edges of the subject.

It is important to understand that sharpening doesn't actually sharpen the photo. What it does is increase the appearance of sharpness by increasing contrast at the edges of objects within the photo. Sharpening is not a fix for poor technique – it cannot fix blur caused by camera shake, out-of-focus subjects, subject movement or image softening caused by dirty lenses, lens flare or atmospheric haze.

The purpose of sharpening is to counter the softening effect of the camera's anti-aliasing filter and prepare your images for viewing on a computer screen or in printed form. Over-sharpening an image results in halos or jagged lines along the edges (such as horizons or hair) in the photo. You can look out for this in books and magazines, where you will sometimes spot over-sharpened images.

For most purposes, you will not need to change the sharpening level set by DPP. Canon recommends that you do not increase the sharpening level, as this may create white halos around high contrast areas of the photo.

The advantage of using DPP to process Raw files is that you can come back to the photo and export a different version with a different level of sharpening if you need to. That is why I recommend that you stick with the default sharpening levels – if you find that you need to increase or decrease sharpening, it is easy to do so.



Sharpness 0 (no sharpening)



Sharpness 4 (landscape Picture Style default)



Unsharp mask 4 (landscape Picture Style default)

Canon Picture Styles have a sharpness setting between zero and four (illustrated above). This figure is the same whether you use the Sharpening or Unsharp mask tools. If you are using the Unsharp Mask, Fineness is set to 7 and Threshold to four, regardless of which Picture Style you select. You can then change them to suit the image you are processing.

When looking at the effect of sharpening on your monitor, you can only judge the result with the image enlarged to the 50, 100 or 200 percent views. If you are using the Fit to window view, DPP 'squashes' the image to fit your window size and this can affect the accuracy with which the edges within the image are displayed on the screen.

The default Picture Style sharpness settings are: Standard: 3, Portrait: 2, Landscape: 4, Neutral: 0, Faithful: 0, Monochrome: 3, Nostalgia: 0, Clear: 3, Twilight: 3, Emerald: 3, Portrait Studio: 2, Portrait Snapshot: 2

Lens correction

All camera lenses suffer from some sort of image distortion or aberrations. When it comes to lens quality, there is always a trade-off between price and performance. Distortion and aberrations are minimised on expensive lenses, such as Canon's top of the range L (luxury) series. Prime lenses also tend to give good image quality – it is easier to design a lens to perform well at a single focal length than along the entire focal range of a zoom lens.

The good news is that Canon have built a Lens aberration correction pane into DPP. It gives you the option of correcting lens aberrations in post-processing. It only works with Raw files – if you use JPEG, you are stuck with what the lens gives you. If you have ever had the experience of seeing chromatic aberrations on your images along the edges of highlights, something that can happen with any lens, regardless of quality, you will appreciate this benefit of using Raw files.

DPP cannot give a photo taken with a budget lens the characteristics of a photo taken with an L series lens. But it will improve image quality by correcting the worst elements of barrel distortion, chromatic aberration and vignetting.

DPP corrects lens aberrations by reprocessing the photo using a mixture of information stored in its database and that recorded by the camera when the photo was taken. DPP stores the lens optical data for over 90 lenses. The lens model, focal length and subject-to-focal plane distance are all stored by the camera when the photograph is taken. The software uses all this information to reprocess the image and obtain a better Raw conversion.

DPP corrects four types of lens distortion or aberration – the photo on the next page, taken with a budget kit lens, has them all:

Compatible cameras

Lens aberration corrections can only be made to images shot in the Raw format on the following EOS cameras, fitted with a compatible Canon lens. If you are editing a Raw file taken with a camera not on the list, the Tune... button is greyed out and the Lens aberration correction pane is inaccessible.

There are currently 96 compatible Canon lenses. They are listed in the latest Canon DPP manual, downloadable from the Canon USA website at www.usa.canon.com/cusa/support/consumer. Once on the Canon download page, enter the model of your camera to access the latest instruction manuals for all Canon EOS software.

DPP only has information for Canon lenses. If you use third-party lenses, the Tune button is greyed out and you cannot use the Lens aberration correction window. Most other Raw processors, on the other hand, will work with images taken with any lens. The difference is that they may not have specific information for the lens that you are using – instead, it is up to you to make corrections by eye.



EOS 1000D, 1100D, 400D, 450D, 500D, 550D, 600D
EOS 30D (requires firmware version 1.0.6)
EOS 40D, 50D, 60D, 7D

EOS 5D (requires firmware version 1.1.1)
EOS 5D Mark II

EOS 1D, 1Ds
EOS 1D Mark II, 1Ds Mark II
EOS 1D Mark III, 1Ds Mark III
EOS 1D Mark IV, 1D X

Vignetting

The frame is darker towards the edges than at the centre. While it is not so obvious in this image, it is a feature of most lenses if you use the widest aperture settings. It is also common on wide-angle lenses.

Barrel distortion

Straight lines near the edge of the frame are bent by the lens. You can see it here at the platform edge and along the top of the train carriages. You get this with wide-angle lenses. Good quality lenses have less barrel distortion. You may see the opposite, pincushion distortion, with telephoto lenses. With pincushion distortion, lines near the edge of the frame bend inwards.

Chromatic aberration

Colour fringing (often magenta) near the edge of the frame.

Colour blur

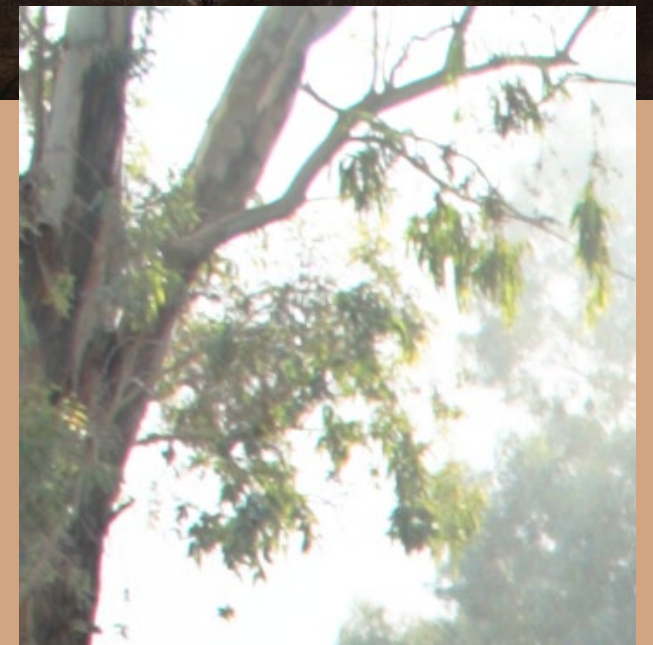
Blue or red colour along the edges of highlights.

Chromatic aberration and colour blur are often a problem with backlit images like this one. You can see both along the edges of the tree if you look closely. Chromatic aberration has always been around (although digital sensors are more prone to magenta fringing than film) – take a look at photos taken with film cameras in old magazines or books and you're bound to see some. You'll also see it on old television shows – you only have to compare the image quality of a television show made in the seventies with a modern one to see the improvement in television camera lenses.

No-one talked much about chromatic aberration in the days of film photography. Now, it is easy to zoom into 100 percent magnification on a computer monitor and see colour fringing up close. We are looking at images more closely than we ever have before and becoming pickier as a result.



There is green and magenta colour fringing around the edges of the tree. Using the Lens aberration correction window will eliminate, or at least minimise, this type of fringing.



The Lens aberration correction window

Go to the **NR/Lens/ALO** tab in DPP and click the **Tune** button to bring up the Lens aberration correction window. The current settings for peripheral illumination, chromatic aberration, colour blur and distortion are displayed.

Shooting distance information

The distance from the sensor plane that the lens was focused on when the photo was taken. DPP uses this information to assist calculating the required amount of lens aberration correction. The shooting distance information is only recorded by the following cameras: EOS 1000D, 1100D, 450D, 500D, 550D, 600D, 40D, 50D, 60D, 7D, 5D Mark II, 1D Mark III, 1D Mark IV, 1Ds Mark III, 1D X.

The shooting distance is set to infinity by the following cameras, regardless of where the lens was focused: EOS 400D, 30D, 5D, 1D, 1D Mark II, 1D Mark IIN, 1Ds, 1Ds Mark II. If the photo was taken with a MP-E 65mm f2.8 1-5x macro or an EF 50mm f2.5 compact macro with the Life Size Converter EF, then the slider changes from shooting distance information to Magnification factor.

Peripheral illumination

Corrects vignetting by lightening the edges of the photo (see page 46)

Distortion

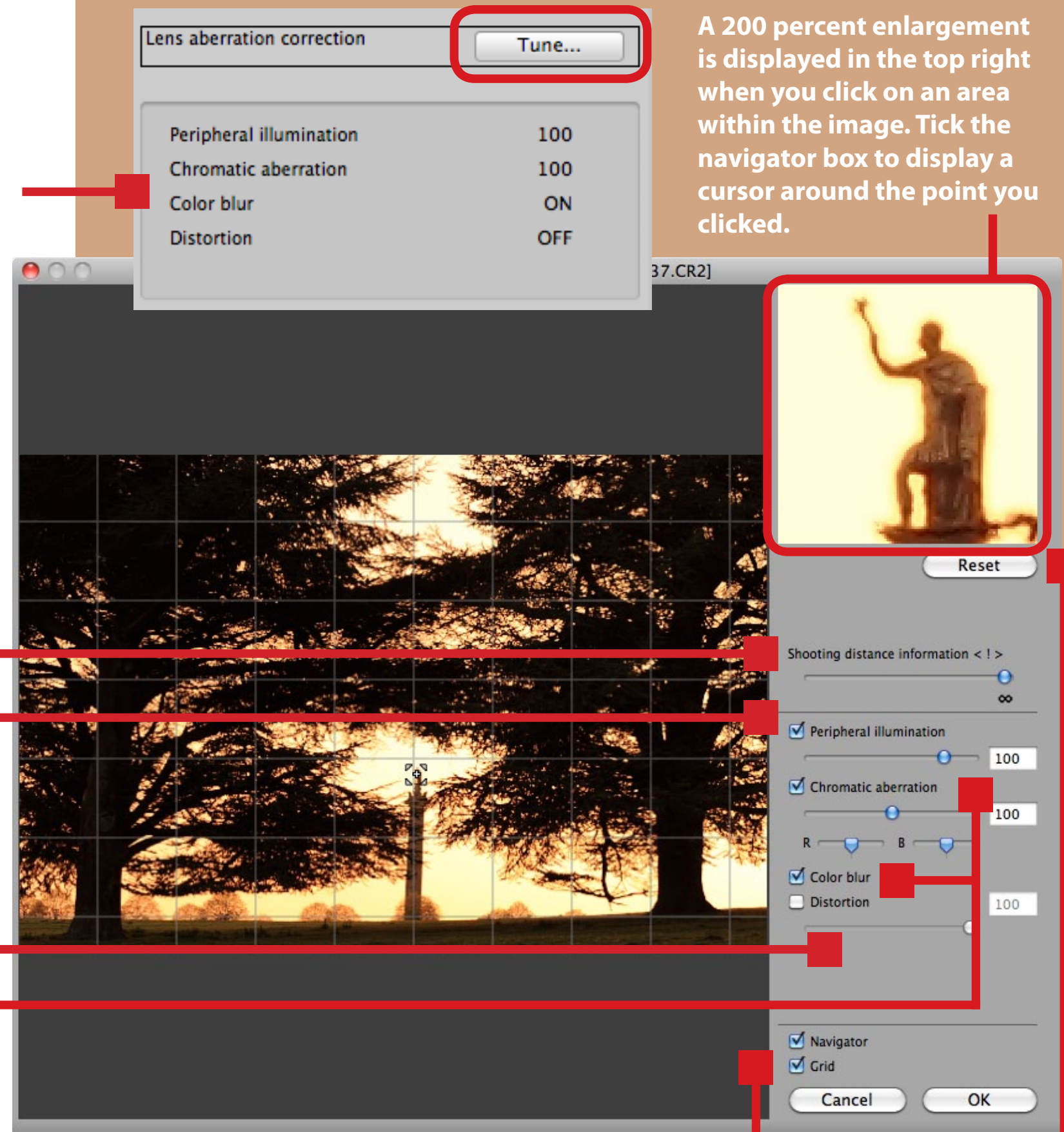
Corrects barrel and pincushion distortion (see page 49).

Chromatic aberration and Colour blur

Correct colour fringing at the edge of the image and colour blur at highlight edges (see page 50)

Reset button

Returns Shooting distance information and PIC back to their original settings, and everything else back to zero.



A 200 percent enlargement is displayed in the top right when you click on an area within the image. Tick the navigator box to display a cursor around the point you clicked.

Tick the Grid box to display a grid of lines over the image. This helps you judge whether any straight lines are actually straight.

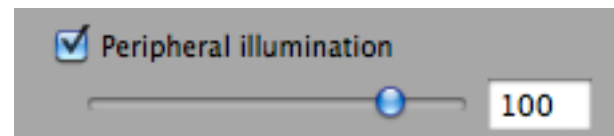
PIC

Peripheral Illumination Correction (PIC) corrects the effects of vignetting by brightening the edges and corners of the image. PIC can only correct vignetting caused by the optical characteristics of the lens that you are using – it cannot fix vignetting caused by using too many filters or the wrong lens hood.

If PIC is enabled on your camera when you take a photo, DPP will use those settings when it opens the Raw file. The program automatically brightens the edges of the photos according to the information held about the lens you had mounted on the camera.

If PIC wasn't enabled on your camera, or you have one of the EOS cameras listed below that doesn't feature PIC, you need to go to the Lens aberration correction window and tick the Peripheral Illumination box. The scale runs from zero to 120 – move the slider to increase or decrease the strength of the effect.

You will see the most dramatic difference with photos taken at the maximum aperture of the lens. There is less vignetting at smaller apertures, and you may not notice much difference when you activate PIC.



with Peripheral Illumination Correction



without Peripheral Illumination Correction



You may not always want to use PIC – there are times when you may wish to darken the edges of the photo to guide the viewer’s eye towards the centre of the composition. My personal preference is to darken the edges of my photos – this technique suits my style and I rarely use PIC. But it is there if you need it, or prefer to process your photos differently than I do.

Other Raw processors let you compensate for vignetting, but they may not hold data for specific lenses. Instead, you use a slider and judge the effect by eye. On these processors, you can actually increase the amount of vignetting for creative effect, if you wish to.

PIC is a fairly new feature and can only be used with Raw photos taken with these cameras:

EOS 400D, 450D, 500D, 550D, 600D, 1000D, 1100D
EOS 30D (firmware version 1.0.6 or higher), 40D, 50D, 60D,
EOS 7D, 5D (firmware version 1.1.1 or higher), 5D Mark II
Any 1 series camera.

without Peripheral Illumination Correction

with Peripheral Illumination Correction

You might struggle to see the difference between the two images on the previous page, so I’ve enlarged the bottom left corner from both images here so you can see the difference that using PIC makes. With this particular image I prefer the uncorrected version, as the vignetting helps guide the viewer’s eye towards the flower at the centre of the photo.

Without Peripheral Illumination Correction



Peripheral Illumination Correction (120)



Peripheral Illumination Correction (66)



Vignetting, and the difference that PIC makes, is probably clearest in photos with blue sky. The image on the top left shows the effect without any correction, and the image at the bottom shows the correction applied by DPP. The program set the slider to 66 as, according to the information it holds about the EF 17-40mm lens used to take the photo, this is the best setting to correct the vignetting. You can move the slider anywhere along the scale you like. The image above shows what happened when I moved applied the maximum amount of correction. The result doesn't look natural because the sky is lighter at the corners than in the centre of the photo.

Lens distortion

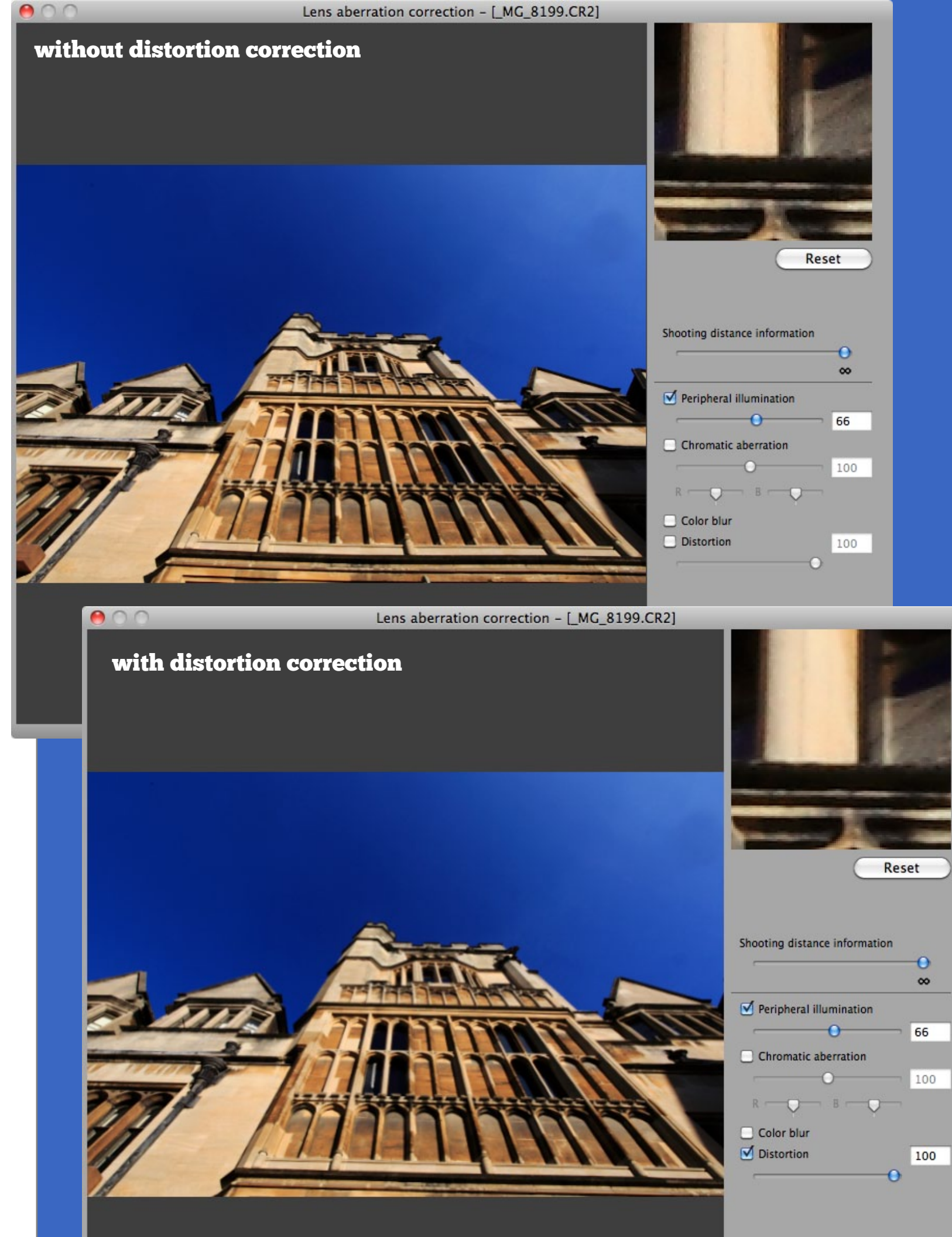
While all wide-angle lenses show at least some degree of distortion, better quality lenses are less likely to suffer from it. The example on this page was taken with Canon's EF 17-40mm f4 L lens. If you compare you will see that there is much less barrel distortion than in the photo of a train on page 44.

Whichever Canon lens you have, the Distortion correction feature in DPP is easy to use and eliminates the worse of any distortion you may see in your photos. All you have to do is tick the Distortion box and DPP automatically applies the correction needed to fix any barrel distortion (or pincushion distortion if you're using a telephoto lens). It may not be a perfect correction every time, but lines will certainly look a lot straighter. There is a slider that operates of a scale of zero to 100 so that you can decrease the amount of correction that DPP applied if necessary.

You can use the grid (tick the grid box if you don't see it) in the Lens aberration correction window to help you see how straight the lines in your photo really are.

Why didn't I use the example with the train, with its higher level of distortions? I would have liked to, but the photo was taken with an EOS 350D and DPP won't correct photos taken with this camera. If you have an older camera like the EOS 350D, it is worth considering buying another Raw processing program if you have images that could benefit from distortion correction (not all Raw processing programs support distortion correction – for instance, I can correct lens distortion in Lightroom 3, but not in the version of Adobe Camera Raw that comes with Photoshop CS 4).

This also shows another benefit of the Raw format – you can't correct distortion in JPEG files. There are ways to correct distortion in Photoshop, if you have it, but they take a little more work. Using Raw simplifies the process.

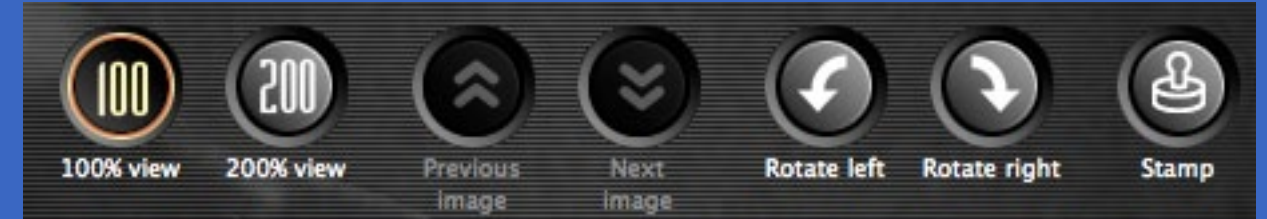
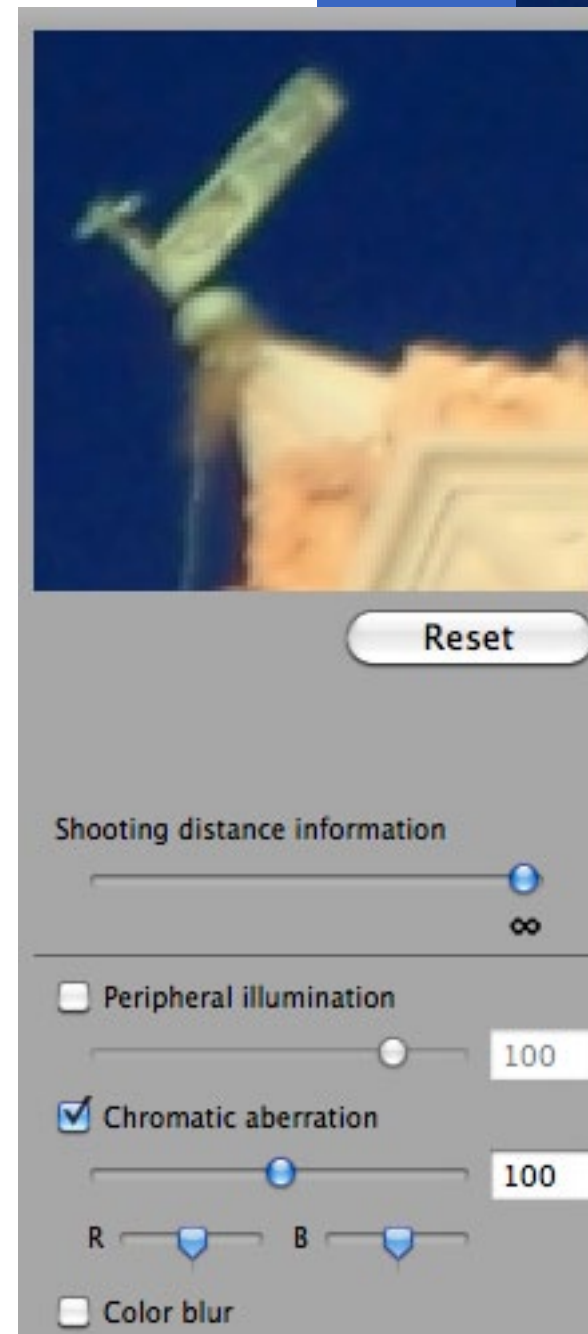


Chromatic aberration

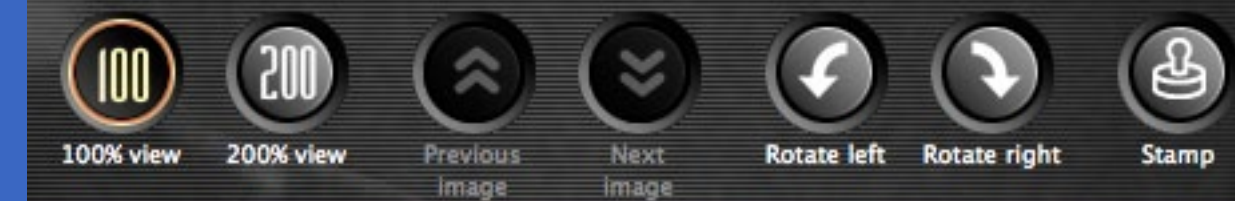
Colour fringing and colour blur tend to occur towards the edges of the frame and around bright highlights and these are the areas of your photo you should look at first to see if there is any fringing. The best way to do so is by using the 100 per cent view option.

DPP has two controls in the Lens correction pane for correcting colour fringing. Start by ticking the **Chromatic aberration** box – this will make an immediate difference. If there is still fringing, try ticking the **Colour blur** box to see if that helps. You can also try using the red (**R**) and blue (**B**) sliders to see if they eliminate it. Be careful though with the sliders though, as even if they work in one part of the photo, they may introduce or worsen colour fringing in other parts of the photo. Correcting colour fringing is sometimes a compromise, you may not be able to eliminate it entirely throughout a photo.

In the example in this page the 100 per cent view reveals red and green colour fringing around the edges of the building. All I had to do to eliminate it was tick the **Chromatic aberration** box, and DPP took care of the rest.



without correction



with correction



Noise reduction

Noise comes in two forms, chrominance noise and luminance noise. Chrominance noise affects image colour (and looks the most unnatural), and luminance noise affects the brightness.

The two principle causes of noise are shooting at a high ISO and underexposure. Unsurprisingly, you'll see the most noise in underexposed photos taken at high ISOs. If you are using a high ISO, it is essential to get the exposure right when you take the photo. I encourage you to experiment with the high ISO settings on your camera. With careful technique, and DPP's noise reduction function, you may be surprised at how good the image quality is.

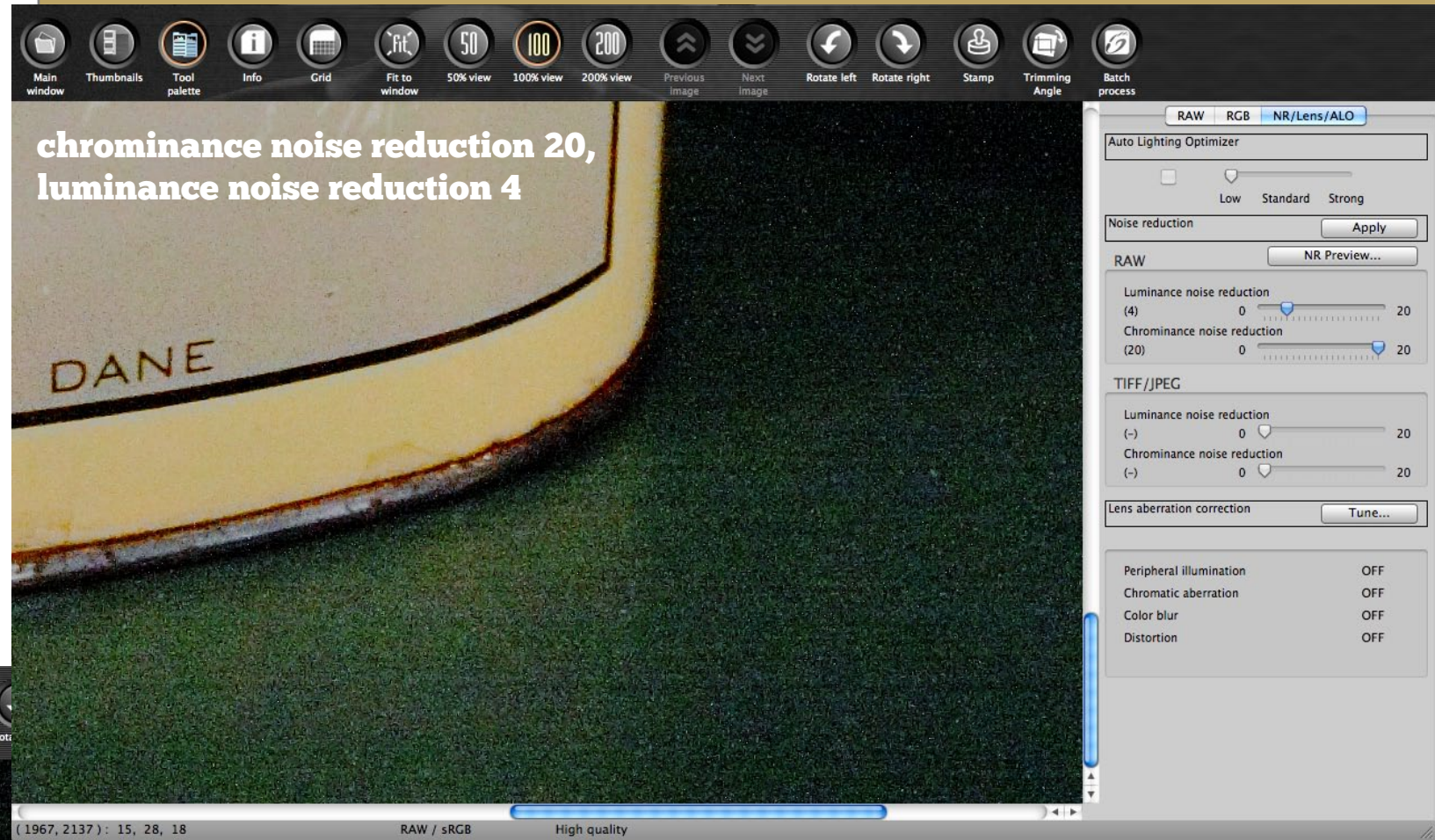
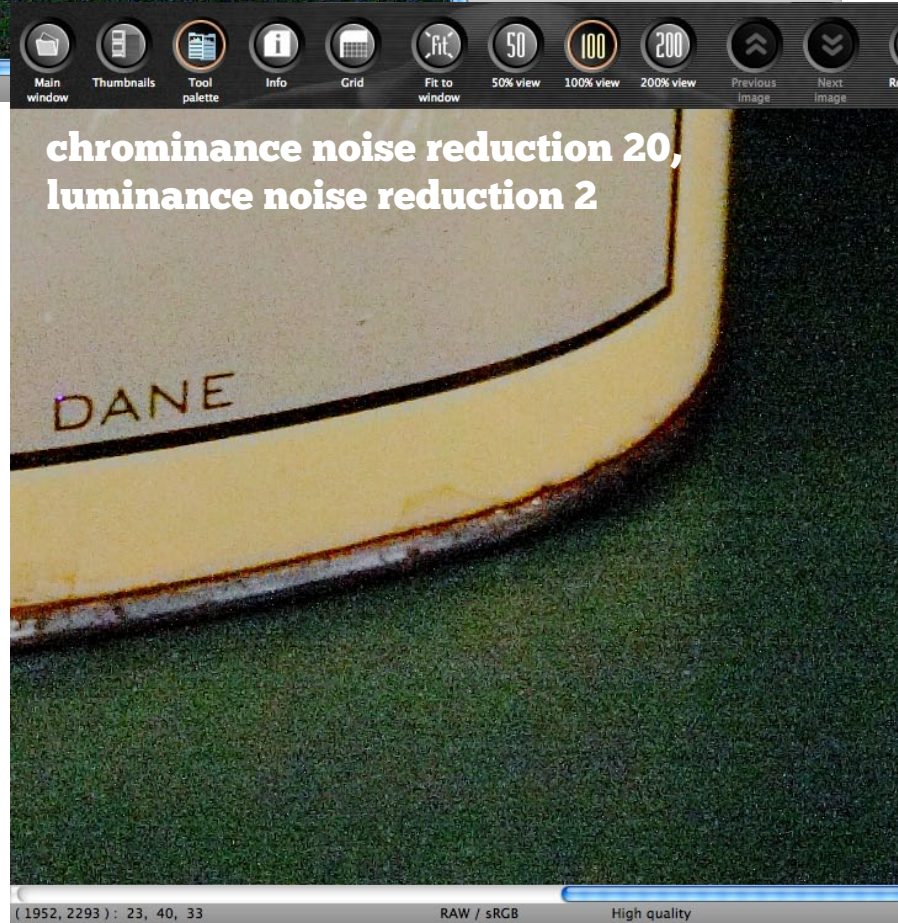
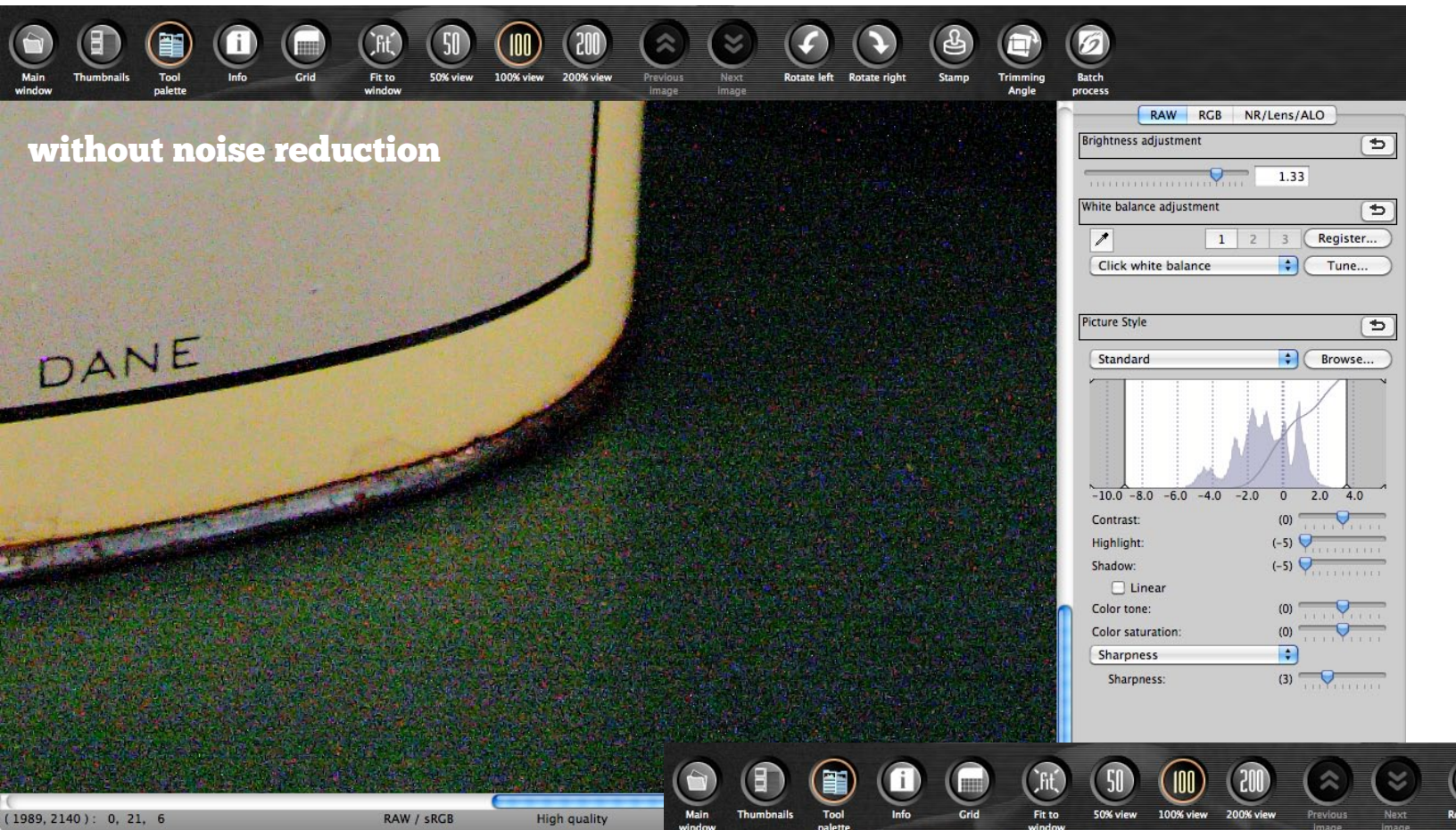
The amount of noise you see in your photos also depends on which camera you have. Because noise is such a problem with digital cameras, Canon has worked hard to improve its noise reduction technology, and each generation of the Digic processors used in its EOS cameras provides better quality images than its predecessor. Sensor size makes a difference too – full frame sensors produce images with less noise than crop sensors. What this means is that while DPP's noise reduction tools are very good, you can't expect to match the quality of an EOS 5D Mark II with images taken by a camera like the EOS 300D.

DPP has two sliders for correcting chrominance and luminance noise. They are adjustable on a scale of zero to 20. The default setting is normally two for luminance noise and zero for chrominance noise, although these may change depending if you enable High ISO noise reduction in-camera.



I took this photo at ISO 3200 on my EOS 40D but made the mistake of underexposing it by a stop. I increased exposure and contrast in DPP but this also increased the noise levels, especially in the darkest areas.

I should also point out that ISO 3200 is an extended ISO on the EOS 40D. Extended ISOs are outside what Canon consider to be the natural working ISO range of the camera and you have to enable them in the custom functions menu. They are included so that you have the option of using them – but downside is that the noise levels and banding are very high. Do not expect to eliminate all the noise from photos taken at these ISO settings in DPP.



The 100 percent enlargements on this spread show how strong the noise is. Moving the Chrominance noise reduction slider to 20 helps reduce the noise, although it can't be eliminated. Increasing luminance noise reduction to four helps a little, but the image starts to lose definition and it probably isn't worth it. This photo shows that DPP's noise reduction can't make up for poor technique.

Chrominance and luminance noise reduction

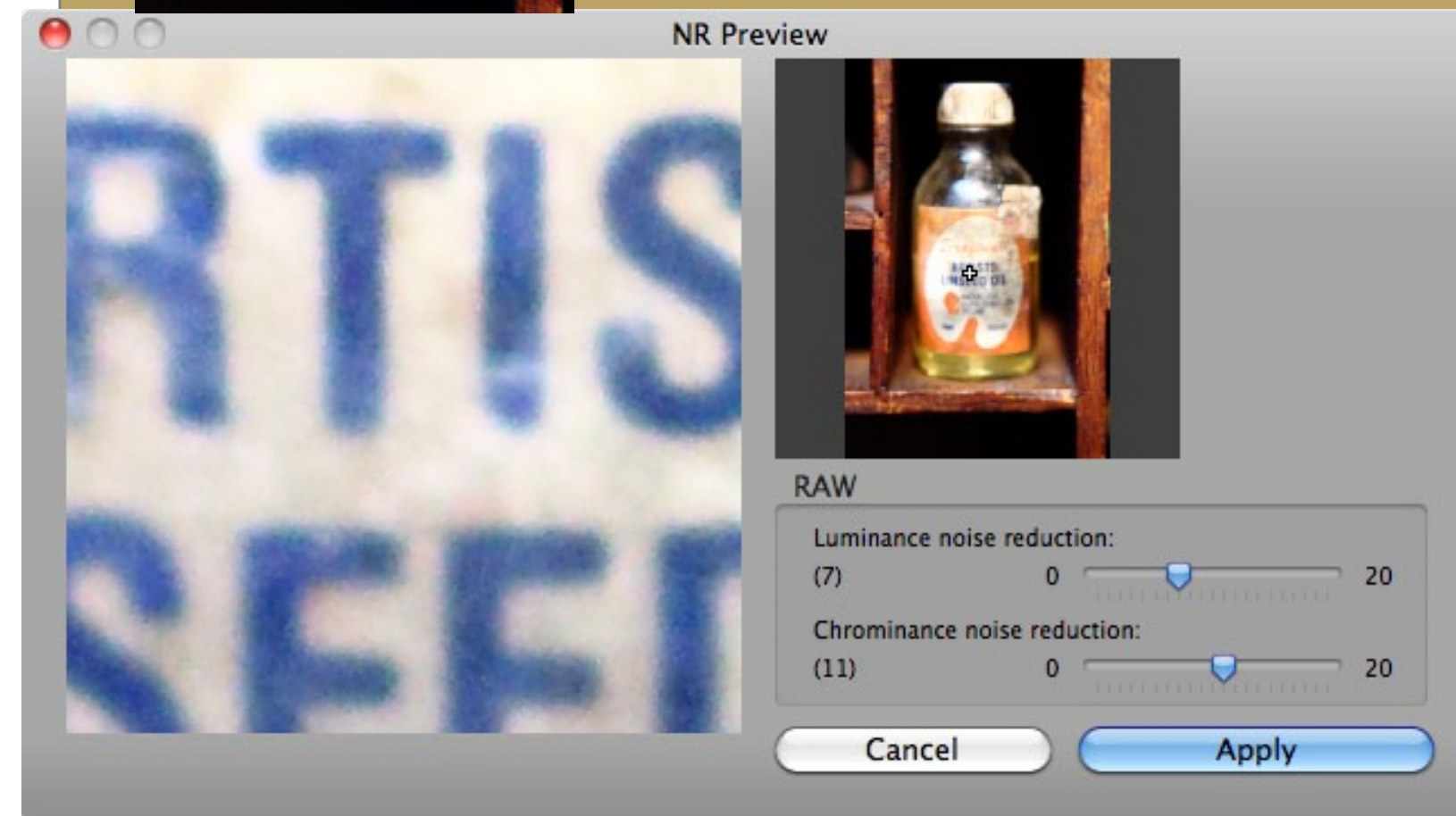
You can change the noise reduction levels by going to the **NR/Lens/ALO** tab and moving the Luminance and Chrominance noise reduction sliders. But if you do it this way you won't see any change as you move the sliders as you have to click the **Apply** button before they take place.

The best way is to click the **NR Preview** button. This brings up the Noise reduction preview window, which has a square showing a 200 percent enlargement of the photo (move the cross around the thumbnail to enlarge a different point within the image). Any changes you make to the sliders will be updated immediately in the preview.

Begin by adjusting the chrominance noise slider. Chrominance noise creates coloured speckles and is most visible in shadow areas. It is what gives digital noise an unpleasant appearance compared to the effect of visible grain you get from using a high ISO film. If you can eliminate chrominance noise you get an effect that is very similar to film grain. The changes made by the slider are gradual, so start by setting the slider to 10 or 15 to see which works best, and making fine adjustments from there. Too much correction can lead to colour smearing and de-saturation.

The Luminance noise reduction slider is, with some exceptions, set to two by default, and in most cases that is where it should stay. The slider is very sensitive and moving it by a factor of even just one makes a visible difference to the photo. Increasing luminance noise reduction has the side effect of softening the image – you have less noise but you also lose detail.

You can use this to your advantage – moving the Luminance noise reduction slider to one or zero has the effect of sharpening the image. You haven't really sharpened it – it's just that the default luminance noise reduction setting had softened the photo slightly, and now you're seeing it without that softness. This works best at low ISOs – otherwise you'll also see an increase in luminance noise that normally isn't worth the gain in sharpness. Click the **Apply** button when you're done to finalise the changes.



The default noise reduction settings for this image, taken at ISO 6400 on an EOS 5D Mark II, were seven on the Luminance noise reduction scale and 11 on the Chrominance noise reduction scale. Seven is too high for luminance noise reduction, so I reduced it to two without adversely affecting the quality of the image.

ALO

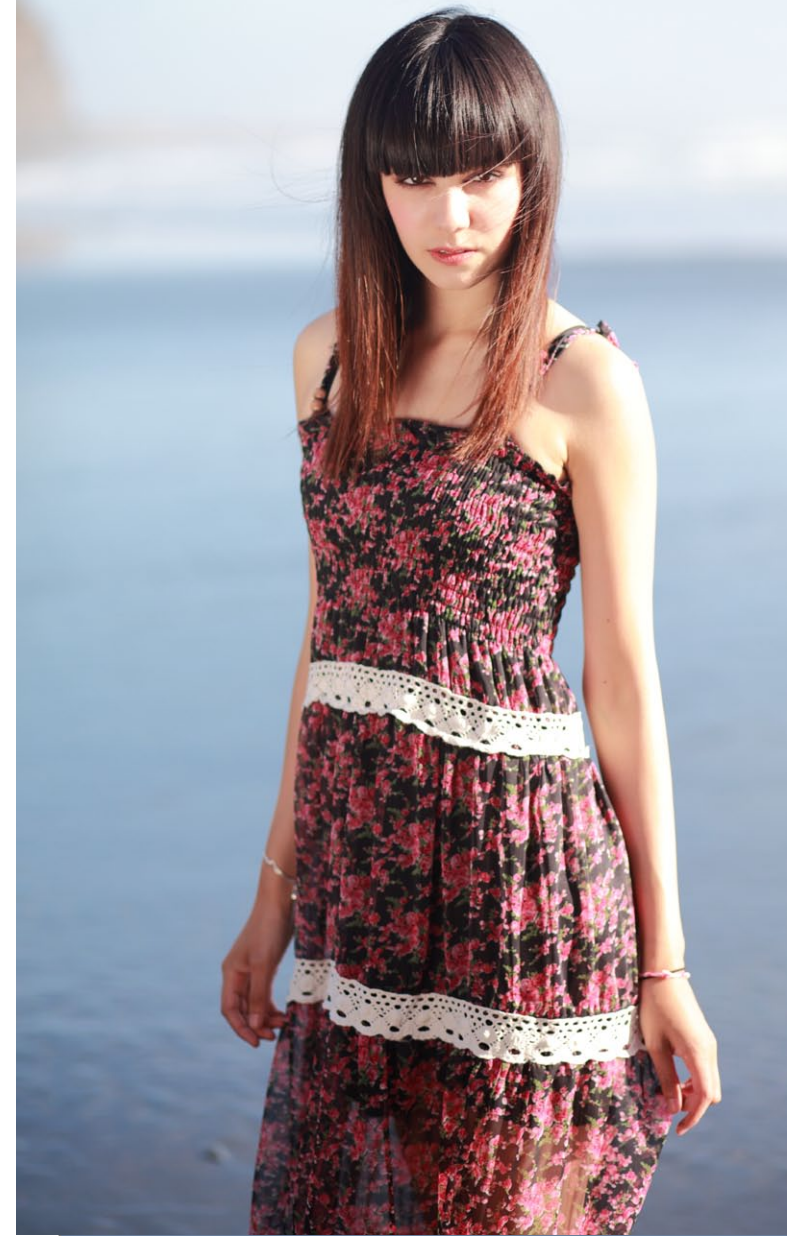
Canon recommends using the Auto Lighting Optimiser (ALO) for subjects like backlit portraits to bring out detail. The difference it makes is normally quite subtle – its main function seems to be to increase exposure and lift contrast, in order to counter underexposure caused by taking backlit photos using an automatic metering mode without exposure compensation. I've also found it useful for giving a lift to images taken in very flat light (for Photoshop users, it's a little like using the auto Levels command).

The ALO feature is aimed at photographers using the JPEG format, to help them get good quality images in-camera. It's not really a useful feature when you use the Raw format, as you can do the same yourself, and with more precision, using the brightness adjustment, contrast, highlight and shadow sliders under the Raw tab in DPP. If you got the exposure right when you took the photo, enabling ALO will make little difference to the final image.

It's included in DPP to give you the option of using it. I don't, but it's always worth trying it to see if it makes a difference. If you have ALO enabled on your camera (see compatible models below) DPP automatically sets the ALO setting to the same level when you open the Raw file. For this reason, you may wish to go the ALO setting first when you open your Raw file to make sure that it's disabled.

The Auto Lighting Optimiser tool is a relatively new feature and can only be used with Raw photos taken with an EOS 500D, 550D, 600D, 1100D, 50D, 60D, 7D, 5D Mark II, 1D Mark IV or 1D X.

with ALO (strong)



without ALO



Enabling ALO didn't make much difference to this image. If you look closely, you'll see that the image with ALO enabled has a little more contrast than the one without. You can see it most clearly at the bottom of the image.

Trimming angle

Click the **Trimming angle** button to bring up the **Trimming/angle adjustment** window. This window lets you trim your images so that you can crop out any unwanted distractions near the edge of the frame. You can also rotate the image before you crop – the main purpose of this is to obtain straight horizons on landscape photos, although you are free to rotate your photos as wildly as you want.

There are good reasons not to crop an image. One is based on the idea that, for maximum image quality, you should avoid cropping as a cropped image needs to be enlarged more to get to a certain size. While this was truer a few years ago when cameras had less megapixels, with today's large megapixel counts it's less of a concern.

Another argument, this time from the creative side, is that you should be able to compose your image perfectly within the viewfinder when you take the photo. Henri Cartier-Bresson, for example, took great care in the composition of his photos and had a reputation for never cropping his images. However, while this is a laudable goal, I know I take photos that can be improved compositionally by cropping, and I'm sure most photographers do too.

There are good reasons for cropping too. I've already mentioned straightening horizons, and I also like to crop to improve composition. Most EOS cameras don't have a 100 percent viewfinder (the only ones that do are the EOS 7D and the professional level 1 series cameras). This means that the area of the photo extends slightly beyond what you can see in the viewfinder, and it is easy to include distracting objects at the edge of your photos that you weren't aware of at the time. Cropping helps you get rid of these.



uncropped original



cropped



1:1 aspect ratio

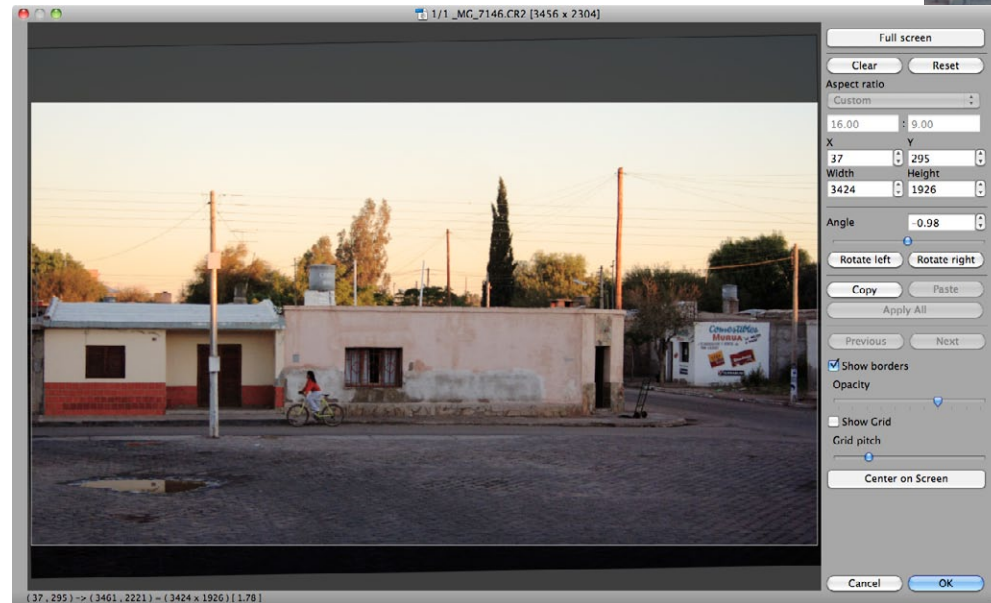
A background object intruded into the top left corner of the original image. It's small, but still a distraction, so I cropped it out in DPP. This image also works well cropped to a square.

Another application is that you can experiment with different aspect ratios. EOS cameras have an aspect ratio of 3:2 – that is, the frame is one and a half times as wide as it is tall (this is for photos taken in the landscape format, turn the camera on its side and the aspect ratio becomes 2:3 – the width is always placed before the height).

Within DPP, you can experiment with cropping to aspect ratios like 5:4 (used by large format cameras), 7:6 (medium format), 4:3 (medium format and micro four-thirds), 1:1 (medium format and toy cameras like Holga) and 16:9 (panoramic format). It's a useful creative exercise to go back through your old images and see if they can be improved by cropping.

The latest version of DPP also lets you crop your images to a circle. While I have no use for this myself, I'm sure that there are photographers somewhere who will find a use for it.

If you have an EOS 60D, 600D, 1D Mark III, 1Ds Mark III, 1Ds Mark IV or 1D X, you can use Live View to shoot images in different aspect ratios. With the 60D and 600D you can choose from 4:3, 1:1 and 16:9 and the 1 series cameras have more options. Select one of these aspect ratios and you'll see lines on the LCD screen that indicate the borders of the image. The aspect ratio information is appended to the Raw file and recognised by DPP, which will open the file with the selected aspect ratio. None of the data captured by the sensor is lost though, you can go to the Trimming/angle adjustment window to change the aspect ratio at any time.



cropped



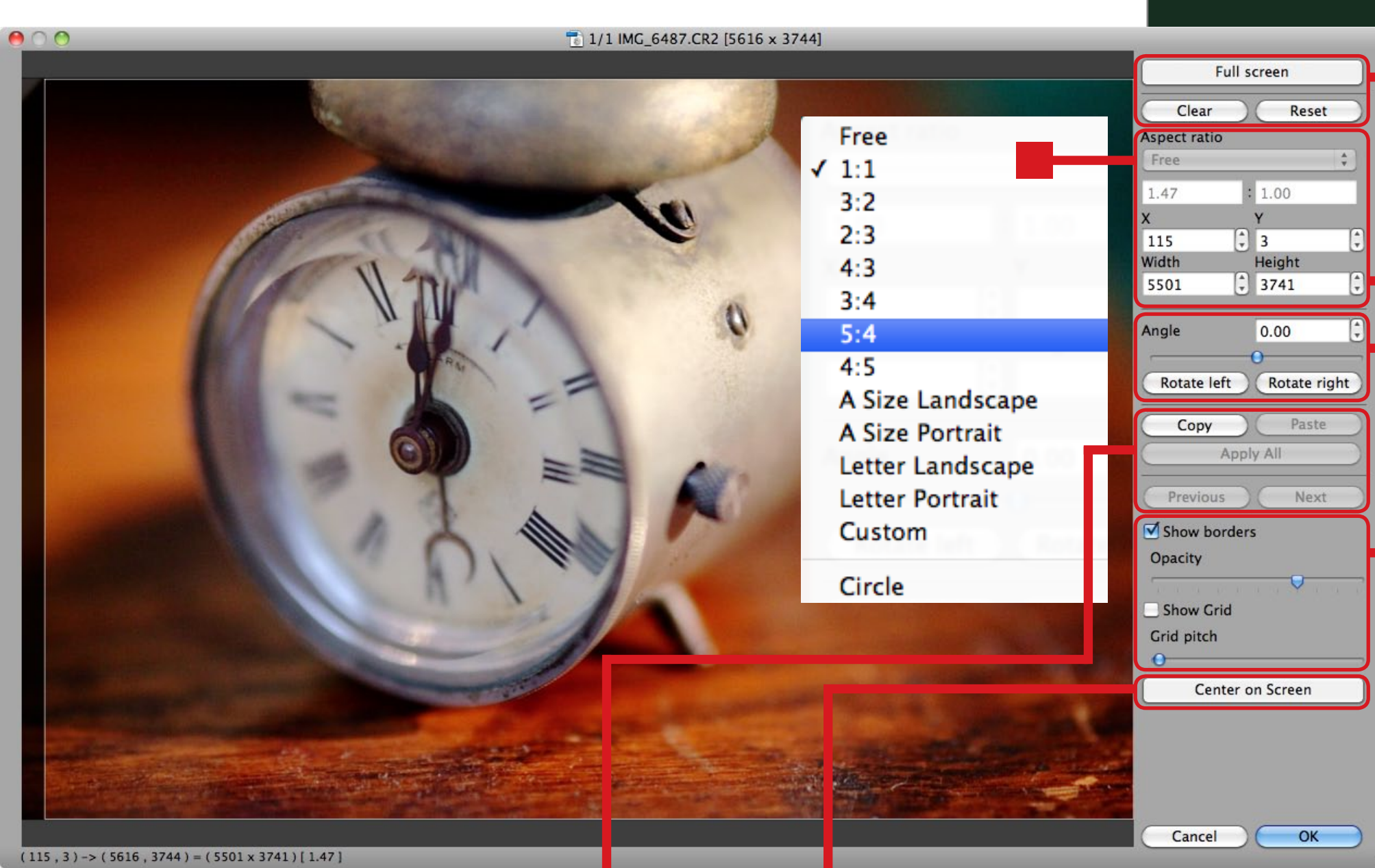
uncropped original



I took this photo from a bus in Argentina. The horizon in the original needed straightening, as it often does when you take photos hand-held. I also created a panoramic version of the photo by cropping to the 16:9 aspect ratio. This aspect ratio isn't part of DPP's options, so I entered the figures as a custom setting.


cropped 16:9 aspect ratio





Click the Full screen button to enter a full screen view, Clear to undo the current crop, and Reset to go back to the photo's original state.

This is where you set the aspect ratio you wish to crop to. Select Free to crop arbitrarily without preserving a particular aspect ratio, for instance if you just need to trim a little off the edges to remove a distraction. If the aspect ratio you want to use doesn't exist, you can select Custom and type it manually in the fields underneath the aspect ratio drop down menu. The fields below that show the ratio between the width of the image (x) and the height (y). If you selected an aspect ratio, they will correspond to that. Below that are the width and height of the current crop in pixels. When you're ready, click and drag across the image with your mouse to crop.

Use the slider to rotate the image arbitrarily or the Rotate left and Rotate right buttons to rotate it 90 degrees at a time (you can also use the mouse to rotate the image by pointing the mouse outside the photo until you see the  icon, then clicking and dragging).

Tick the Show borders box to see a border around the edge of the crop. Use the Opacity slider to grey out the cropped part of the image, making it easier to see how the cropped photo looks. You can tick the Show grid box to place a grid over the image – useful for checking the straightness of horizons and buildings. You can change the size of the grid squares with the Grid pitch slider.

Use the Copy and Paste buttons to copy the crop settings from one photo and paste them to another. Use the Apply All button to paste the crop settings to multiple images – you need to select the images in the Main window first. You can access the Trimming/angle adjustment tool from either the Main or Edit windows, and use the Previous and Next buttons to navigate between the selected images.

When you click the Center on screen button DPP displays the largest possible trimming range at the current cropping angle and aspect ratio as a dashed rectangle. The guide won't be displayed if the trimming angle is set to zero degrees.

Recipes

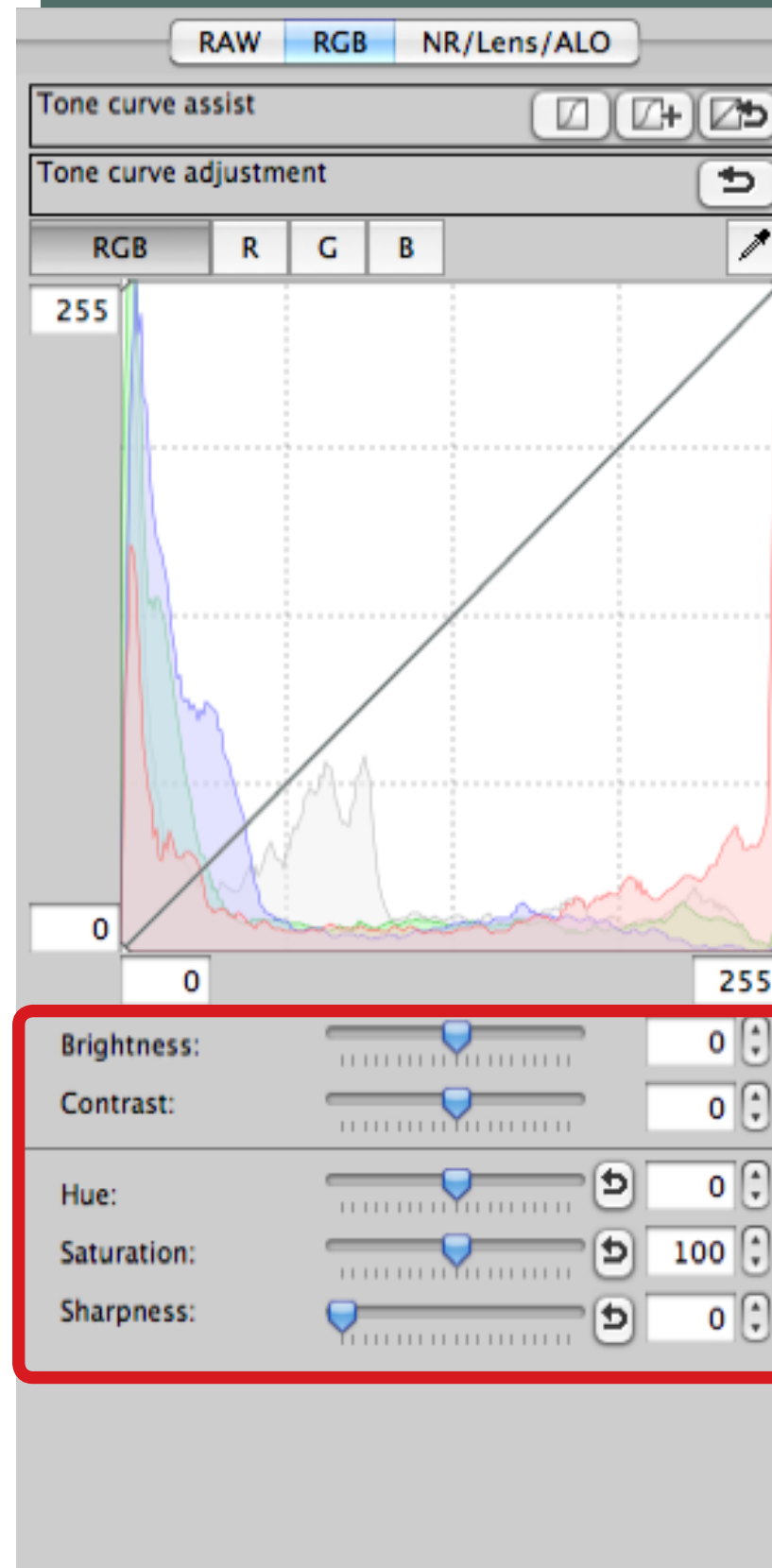
When you edit a Raw file, the changes that you make to it are stored in what DPP calls a recipe. This means that you can go back to the Raw file at any time, and DPP looks at the recipe when you open it to see what changes you have made to the file. The recipe is appended to the Raw file, so the two never get separated. The recipe is the key to the non-destructive nature of editing with DPP – it allows you to make changes to Raw files without overwriting or discarding any of the original data.

Where DPP gets really clever is that it lets you apply the recipe from a single Raw file to other Raw files. The advantage is that if you have a series of photos that are similar (for example a series of landscape photos take of the same subject at the same time of day) you can edit one Raw file, then apply the settings that used to all the other photos in the series. The other photos then need only minor tweaks to finish them off. This can save you a lot of time.

There are two ways to use Recipes. The first is to go to **Edit > Copy recipe to clipboard**. Then, select another photo and go to **Edit > Paste recipe to selected image** (you can select more than one image when you paste). This works in both the Main window and Edit image windows.

The second option is to save the recipe as a file (**Edit > Save recipe in file**). This is the sort of thing you might do if you were taking the same type of photo over and over, such as in a studio. You can open and apply the saved recipe to Raw files at any time by going to the **Edit > Read and paste recipe from file**.

The recipe that you paste to other Raw files contains the adjustments that you have made within the **Raw**, **RGB** and **NR/Lens/ALO** tabs of the **Tool palette**. It doesn't include any changes made with the **Trimming/angle adjustment** or **Stamp** tools.



The RGB tab

Click on the RGB tab and you will see more sliders for adjusting brightness, contrast, hue, saturation and sharpness. This is confusing because these sliders already exist under the Raw tab. So why are they here?

The RGB tab is designed for adjusting JPEG and TIFF files, not Raw. If you were to edit a TIFF or JPEG file, the sliders under the Raw tab would be greyed out and you would have to use the sliders under the RGB tab.

You can still use the RGB sliders with Raw files though, although it is not recommended (the only exception is for some black and white work – see page 64). You should use the Raw tab, and only go to the RGB tab if the effect from the Raw sliders is not strong enough. In practise, this is unlikely.

Transfer images

DPP makes it easy to switch to Photoshop to continue editing the photo that you are working on. Go to **Tools > Transfer to Photoshop** – DPP exports the Raw file and opens it as a 16 bit TIFF file in Photoshop CS. Here you can make further edits and save the file as a new image to your hard drive.

Linear

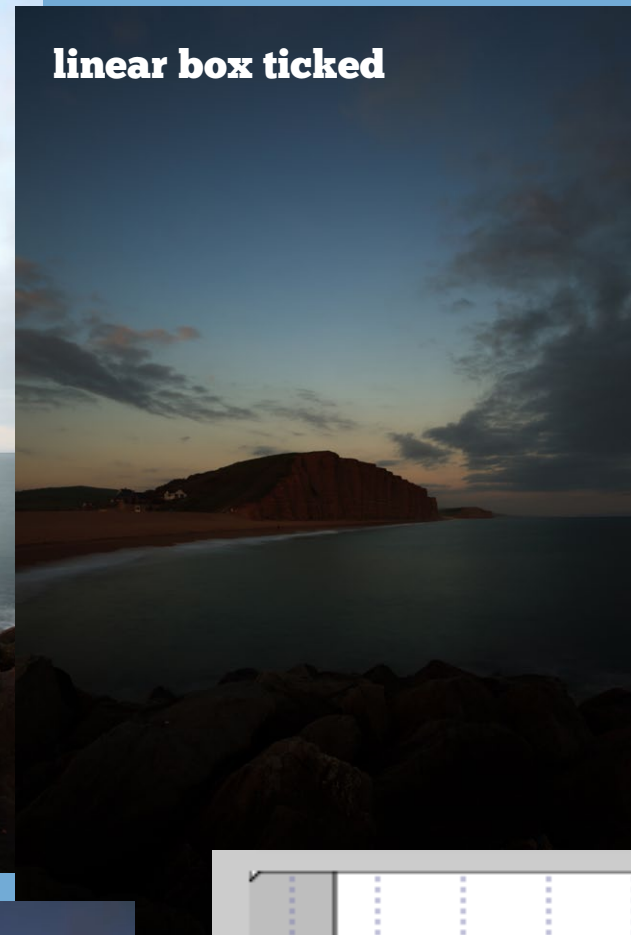
Tucked away under the Shadow slider is a tick box with a function that doesn't seem to make much sense. If you tick the Linear box, the image goes dark and it's not clear what is happening or how it could be useful. What you're actually seeing is version of the image with an adjusted curve that maximises highlight detail. You can transfer it to Photoshop, along with a copy of the photo processed for the mid-tones and shadows, and blend the two together using layer masks. You can also use the image created with the Linear box as part of sequence for creating a High Dynamic Range (HDR) image.

The process is quite easy, especially if you're proficient in Photoshop. Start by exporting a copy of your edited photo to Photoshop. Then tick the Linear box, and export another copy – it opens in a separate window. In Photoshop, copy the second version and paste it over the first. You can then just erase the area of the top layer that you don't need, or better still, make a selection over the area you want to retain, use the **Refine Edge** tool to feather it and turn it into an editable layer mask by clicking the **Add layer mask** icon at the bottom of the **Layers palette**.

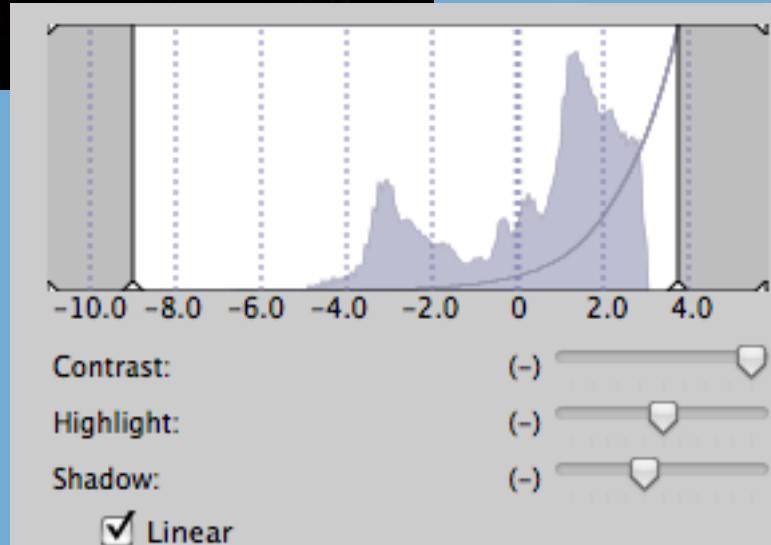
linear box unticked



linear box ticked



blended image



This technique maximises detail in the sky in landscapes like this one. Edit your Raw file and transfer it to Photoshop, then tick the Linear box and transfer this image to Photoshop too. Here I used a layer mask and levels and contrast adjustments to blend the two images to create a natural looking photo.

Black & white

It wasn't that long ago that black and white photography required a darkroom – and the only options were to build one or use someone else's. Thanks to the expense and inconvenience, you had to be quite serious about black and white photography to do this. It also takes a long time, and a lot of practise, to learn to make a good black and white print.

Not any more – digital photography has brought black and white photography to the masses. What's more, if you shoot Raw, thanks to the non-destructive nature of DPP you still get to retain the original image in all its colourful glory should you ever need it. You can also go back through your photo collection and see if any of your images would make good black and white images. Using Raw, and converting your images to black and white in DPP gives you far more control using the monochrome Picture Style and shooting JPEG files.

You'll be surprised at how good DPP is for black and white photography. But don't expect DPP to give you nearly as much flexibility for converting your Raw files to black and white as programs like Lightroom, Photoshop Elements or Photoshop CS. If you are serious about black and white photography, at some stage you will want to purchase a more sophisticated Raw processor or image editing program.

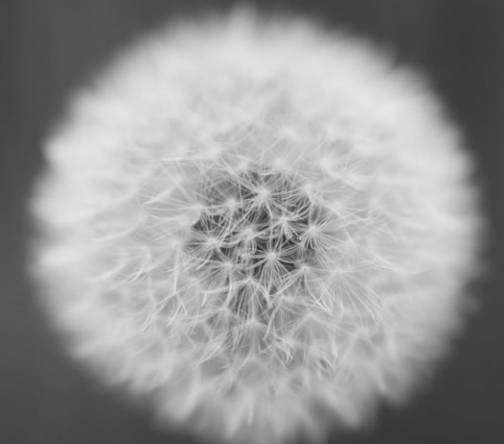
The monochrome Picture Style, on its own, won't give you a great black and white conversion, but you can improve the result by tweaking the Contrast, Highlight and Shadow controls. You will probably find that you need to increase the contrast a lot, as colour images tend to look flat when you convert them to black and white. The photos on the right are a good example. The initial conversion needed a big lift in contrast, but the improvement is dramatic.

monochrome Picture Style
contrast +4, highlight +1, shadow -5



monochrome Picture Style

standard Picture Style



Why mono?

The single dominant element in just about any colour photo is, naturally enough, colour. No matter what the content, you can't seem to get away from the colours within the image. If the photographer did his job well, the colours will be strong, powerful and create an emotional response. Unfortunately, colour also pulls attention away from all the other compositional elements of the image. It's a distraction.

What happens when you strip away colour to make a monochrome image? You are left with the building blocks of photographic composition: such as line, pattern, texture, tonal contrast and the use of light. These are the things that black and white photographers use to create dramatic, eye-catching black and white photos.

If you're new to black and white photography it takes time to see these things and use them wisely in your images. But it's a good skill to practise because the things you learn along the way will ultimately benefit your colour photography too. Black and white photography is also fun – there are new techniques to try. Follow the steps on these pages and you'll be rewarded with some beautiful black and white photos.

One photo, two interpretations – one colour and the other black-and-white. The black-and-white photo draws attention to the structure of the lizard's skin, and the contrast between its head and the background. The colour photo is dominated by the colour green and evokes the lushness of the animal's environment.



Converting to b&w

There is more to converting to black and white than switching to the monochrome Picture Style and increasing contrast. DPP also has four coloured filters that you can use to change the nature of the black and white conversion.

What do coloured filters have to do with black and white photography? DPP has four – red, orange, yellow and green. If you're new to black and white photography you may be surprised to learn that coloured filters are an essential tool for black and white film photographers. The filter is used on the camera lens when the photo is taken to change the tones recorded by black and white film.

Coloured filters lighten some tones and darken others. A red filter, for example, prevents blue lightwaves from entering the lens, giving the photo (if it were taken in colour) a red colour cast. In black and white this has the effect of making blue tones darker (because less blue light waves enter the lens, effectively underexposing blue subjects) and red tones lighter (because more red light waves enter the camera lens, effectively overexposing red subjects).

In practice, this makes blue skies quite go dark, which is one of the reasons that black and white film photographers like red filters. Take a look at the example on the right to see what I mean – the blue sky, already darkened by using a polarising filter, goes very dark when the red filter is applied during the black and white conversion. If the sky is too dark for you, the yellow and orange filters have a similar effect, but aren't as strong and don't darken the sky so much. Green filters lighten green subjects and help in creating tonal contrast in predominantly green subjects (the effect of these filters is shown on the next page – look at the difference in tone of the red wall and dark green shutter on the left to see how the coloured filters change the tones).

landscape Picture Style



monochrome Picture Style
red filter



The colour filters in DPP have the same effect on your black and white conversion as their glass equivalent do on black and white film. The benefit of DPP is that you don't have to think about using coloured filters in the field. You have the luxury of waiting until you process the image to decide which, if any, filters to use. It is always worth running through the coloured filters when you make your conversions, so that you can pick the one with most pleasing effect for you. You can fine tune the effect by going to the Colour temperature setting and moving the Kelvin slider left or right – the tones in your monochrome image change as you alter the colour temperature of the underlying colour photo.

**monochrome Picture Style
orange filter**



**monochrome Picture Style
green filter**



**monochrome Picture Style
yellow filter**



Digital toning

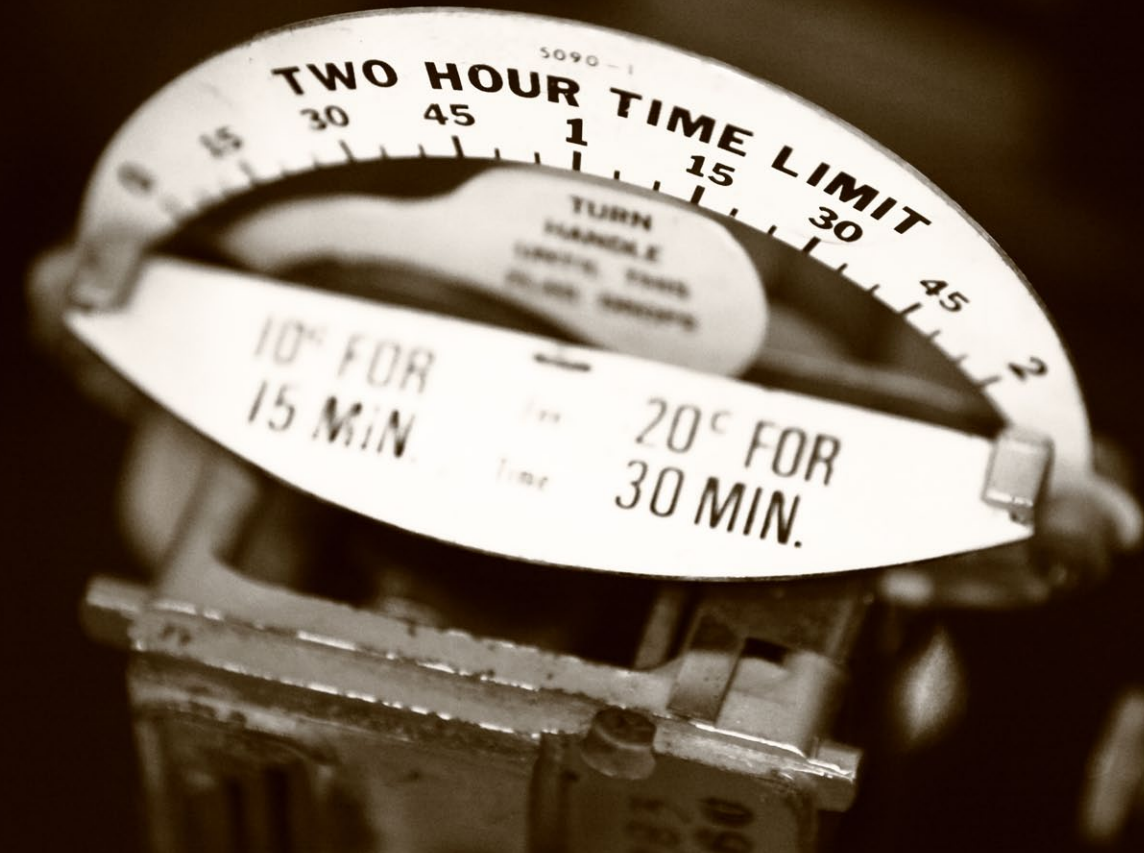
Earlier I talked about colour evoking an emotional response in the viewer. Does that mean that black and white images lack emotion? Not at all – furthermore you can actually add colour back in to black and white photos by toning them. This is not a contradiction in terms – what you are doing is using colour to create a feel for the image. The trick is to do it with subtlety so that the toning effect doesn't overwhelm the other qualities of the black and white image.

Toning originated in the chemical darkroom, where black and white printers used it to increase the life-span of their prints. Sepia, gold and selenium chemical toners extend the life of black and white prints by replacing the silver in the print with another metal that is more resistant to light and other environmental factors that cause fading.

Toning has no archival benefits in the digital darkroom, but you can use it for aesthetic purposes. Sepia toning, for example, add warmth to a black and white image (it's a good way of enhancing black and white portraits). Blue toning does the opposite. It imparts a cold feel to the print – therefore would be a good technique to use if you are taking photos of something cold like a wintery landscape. Not every image benefits from toning, but it's surprising how many do, and I tone most of my black and white images.

There are four present tones in DPP – sepia, blue, purple and green. You may have tried them in the past and been put off by the result – used by themselves they tend to give over-saturated, washed out looking results. The trick is to increase the contrast of the image and reduce the saturation of the toning effect at the same time. You can do this by going to the **RGB tab** and moving the **saturation** slider to the left – setting it to around 50 creates a much more subtle effect, as you can see in these photos on these pages.

monochrome Picture Style
sepia tone saturation 100



monochrome Picture Style
sepia tone saturation 50



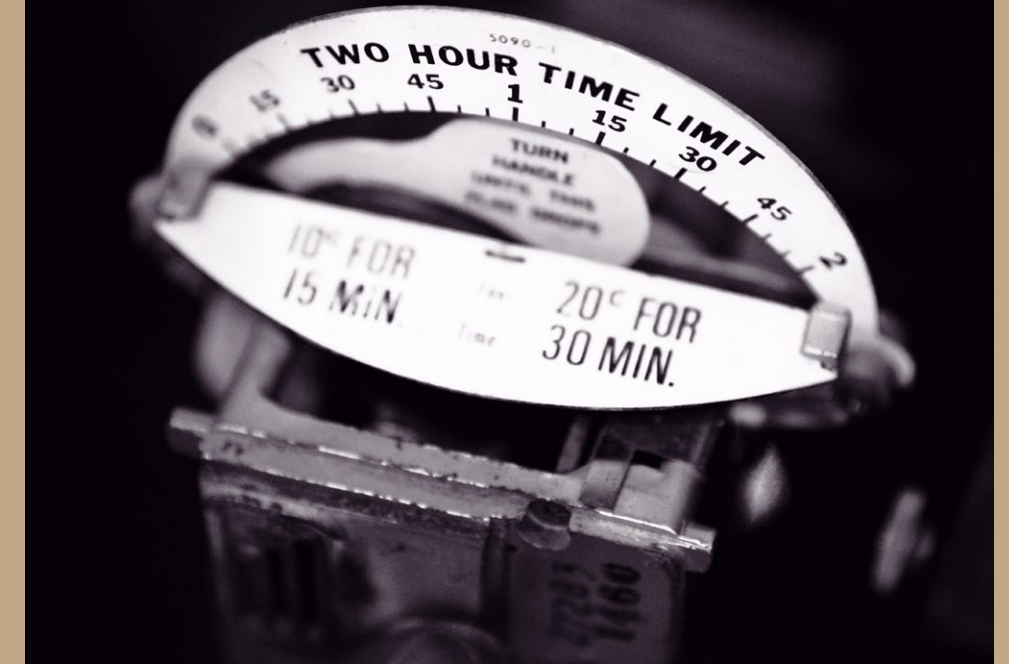
**monochrome Picture Style
green tone saturation 50**



**monochrome Picture Style
blue tone saturation 50**



**monochrome Picture Style
purple tone saturation 50**



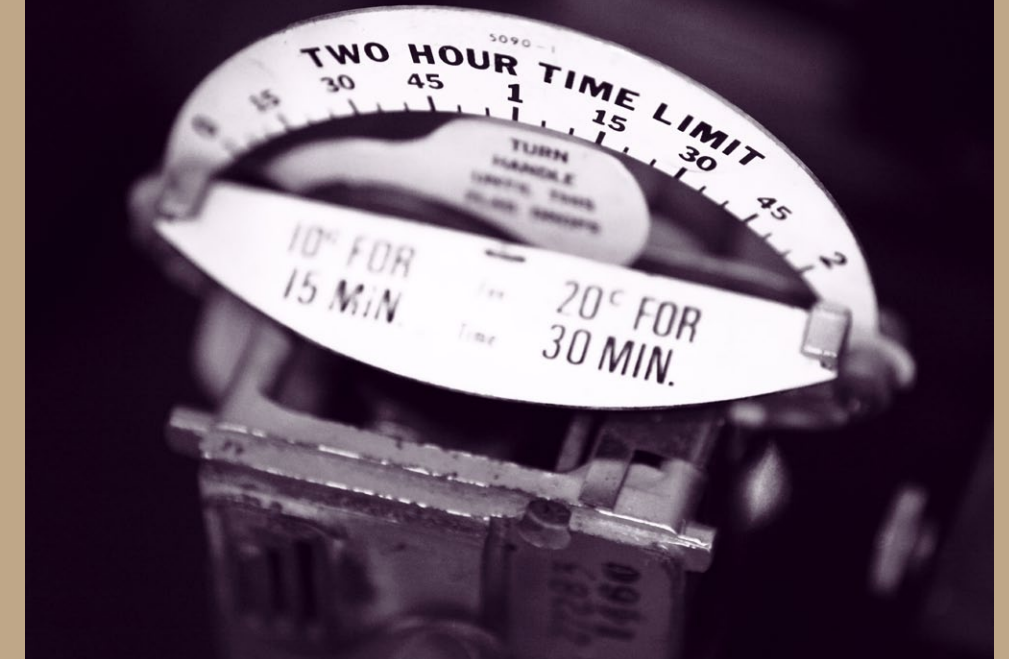
**monochrome Picture Style
green tone saturation 100**



**monochrome Picture Style
blue tone saturation 100**



**monochrome Picture Style
purple tone saturation 100**



Toning with curves

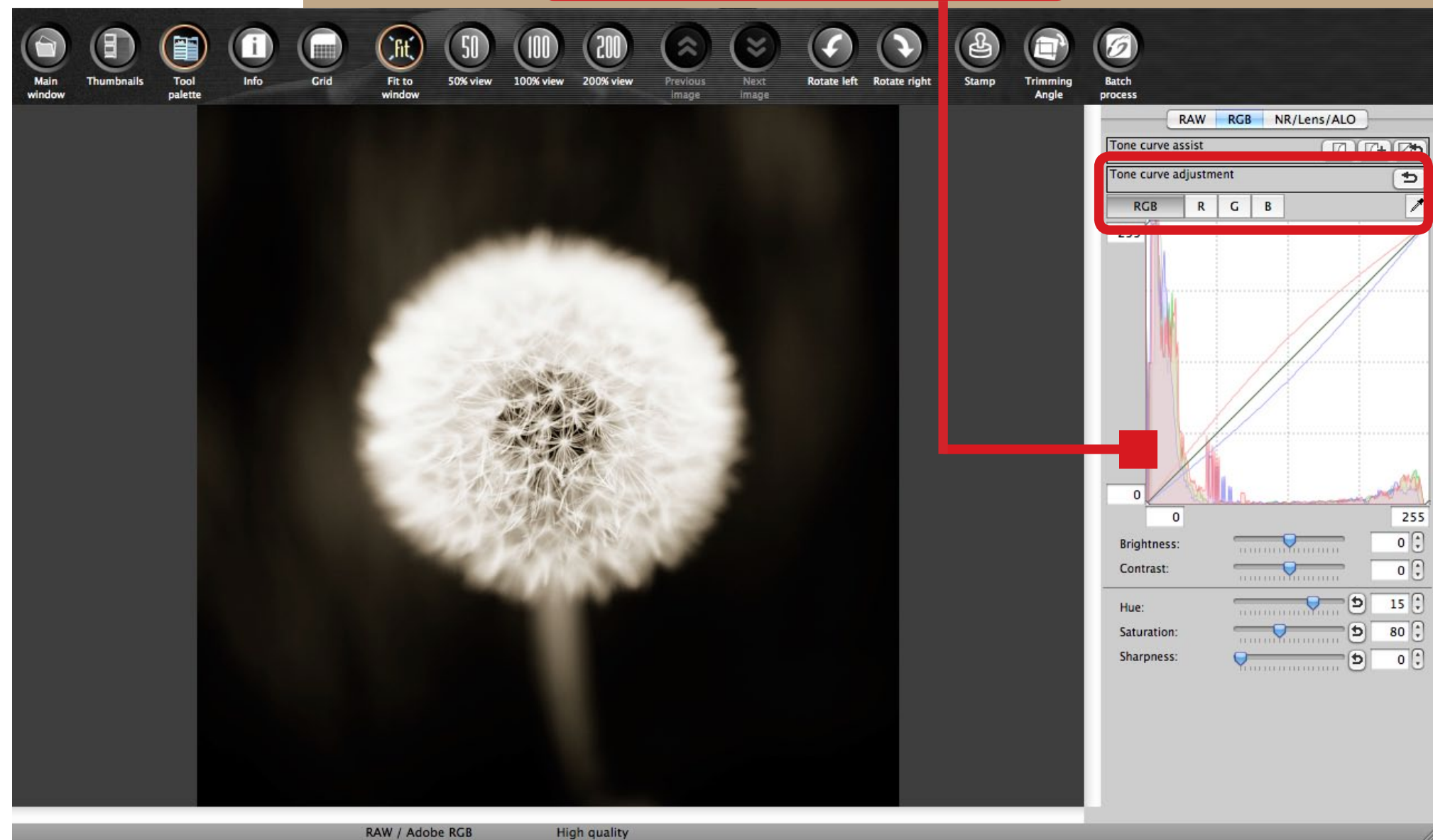
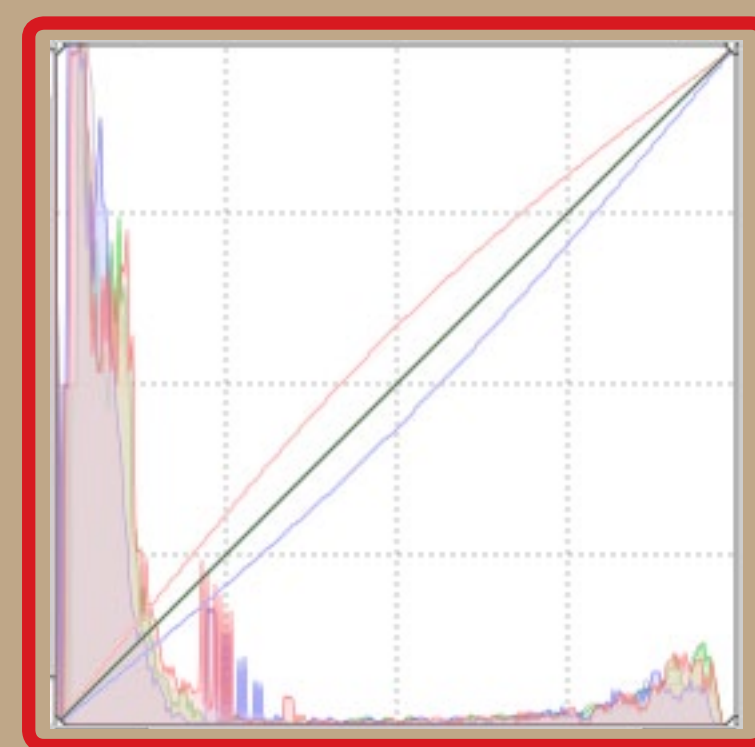
The toning presets are a good way to start toning but they are limited to the four variations provided plus any changes you can make by changing saturation. There is an alternative that lets you create a much wider variety of tones – and even experiment with split toning. It's an easy process to learn and involves using the curves tool under the RGB tab.

The technique works because DPP lets you adjust the curves of the three colour channels that make up the photo.

Sepia tone

Go to the RGB tab and look at the tone curve. Click on the **R** to activate the red channel and move the red tone curve upwards. The result is that the photo now has a red tone. The more you drag the red curve upwards, the greater the effect.

Now click on the **B** to activate the Blue channel, and this time drag the blue curve downwards. Darkening the blue channel produces a yellow tone, which combined with the red tone creates sepia. You can experiment with these two curves to create different sepia tones. You can also use the saturation slider to increase or decrease the strength of the tone.



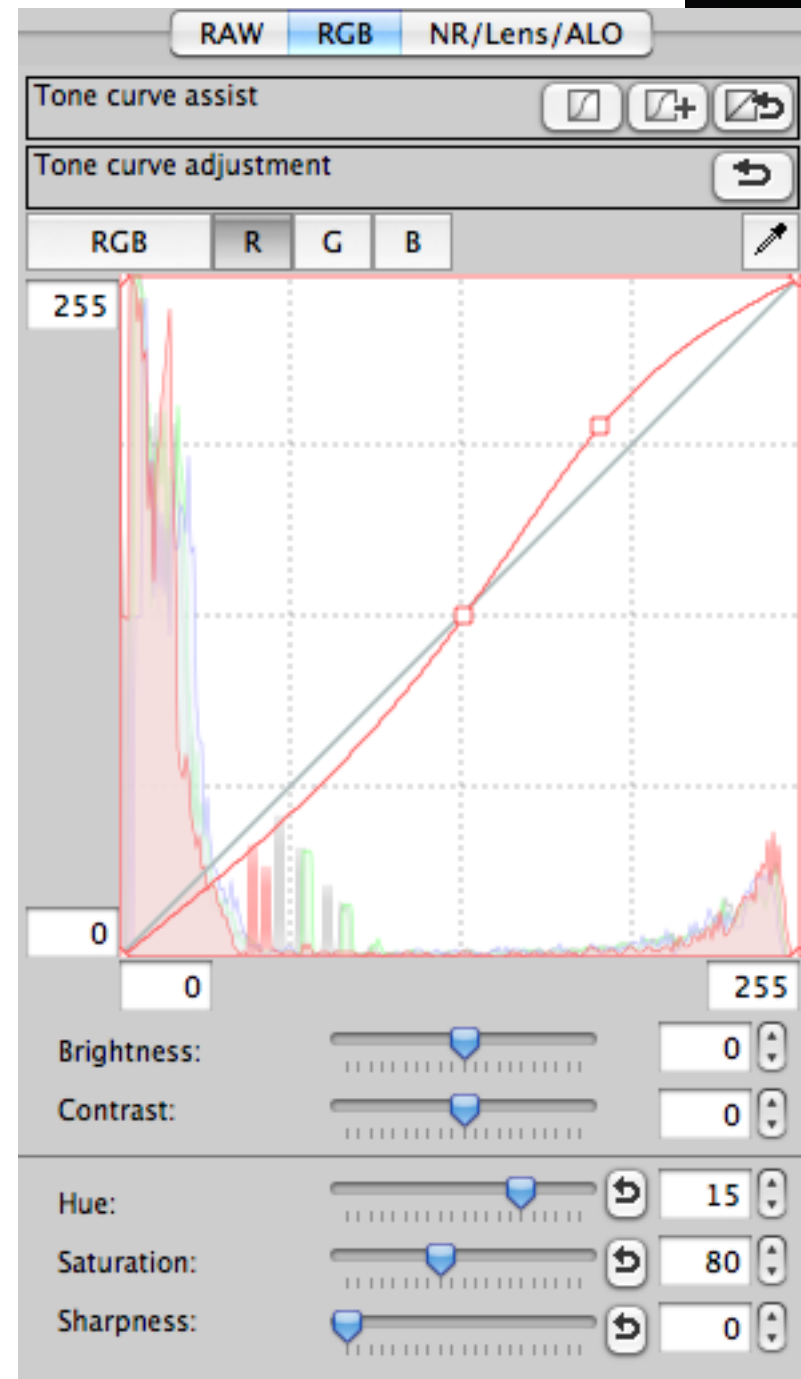
More tones

You can use the curves to create a wide range of tones. For instance, moving the blue curve upwards gives a blue tone, and pulling the green curve down creates a purple tone.

Split toning

You can take the technique a step further and split tone the image. Split toning is a technique where you tone the shadows one colour, and the highlights another. A common combination in the chemical darkroom was blue and copper – blue toning for the shadows and copper for the highlights. The effect is easy to reproduce in DPP using the red curve. Click on the **R** to activate the red curve, then click in the centre of the red line. This adds a square to the curve. Now grab the curve with the mouse about three-quarters of the way up and move it gently upwards. The top half of the curve moves upwards, and the bottom half moves downwards, pivoting around the square in the centre of the curve.

The top half of the curve represents highlights – you have added red to them by moving the top upwards. The bottom half represents shadows – you have taken red away here, turning them blue. The photo on this page was toned with this technique.



Converting files

Whatever you intend to do with your photos, at some point you will need to convert the Raw file to a format that other programs can understand.

JPEG or TIFF?

The two most widely used formats are JPEG and TIFF. Here is an outline of the main differences between the two:

The TIFF format used by DPP is an uncompressed file format. You should use this setting if you want to edit the photo in a program like Photoshop CS or Photoshop Elements. You can open and close a TIFF file as many times as you wish without losing detail.

You can convert the Raw file to either an eight bit or 16 bit TIFF. Use 16 bit if you intend to edit the photo in Photoshop CS – this will help you get the maximum image quality from the file. Most other photo editing programs only edit eight bit files, so you can save the file as an eight bit TIFF if you will edit it in any other software.

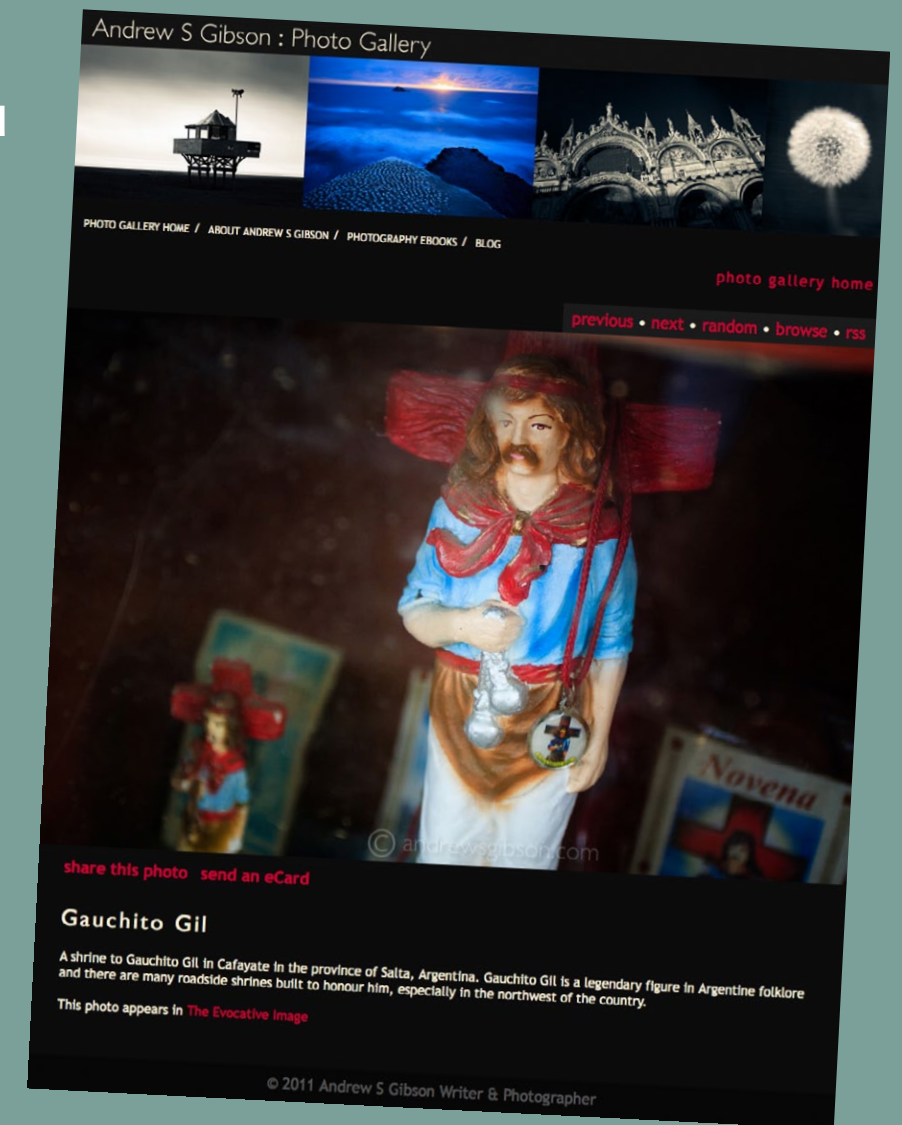
The only disadvantage of TIFF files is their size. A 16 bit TIFF file from an EOS 5D Mark II is approximately 120MB in size. An eight bit file is half that size – around 60MB. These files take up a lot of hard drive space and are unsuitable for sending by email. One solution is to convert the Raw file to a 16 bit TIFF for editing in Photoshop CS, then to save it as an eight bit TIFF or high quality JPEG once you have finished editing it.

JPEG files are compressed and therefore much smaller than TIFF files. Because of the compression you run the risk of losing a little of the quality every time that you open and resave a JPEG file. However, in practice the quality loss is imperceptible at first and is only likely to become an issue if you open and resave the file a number of times.

Creating files for the internet

If you intend to display your photos online, you won't need to create a full size photo file. Instead, you should resize the photo to make a small file for websites to display. If you are sending photos by email to people who don't need the full size version, it is good practice to downsize your images the same way. Smaller images are much quicker to send and for the recipient to download.

Photos displayed online should be saved in the JPEG format at a resolution of 72dpi. In the Convert and Save window, go to Resize setting and tick the Resize box. Set the longest side of the photo to 800 pixels. As long as the Aspect ratio box is ticked, DPP sets the other dimension to match. 800 pixels is a general size suggestion, you can go larger to 1000 pixels, or smaller to 600 pixels, although you won't want to make your files any smaller than this otherwise they will be too hard to see on the screen (if you come across instructions to make your files smaller than this, they are probably outdated, from when monitor resolutions were lower than today). Click the Save button when you're ready to complete the process.



JPEG files are eight bit files, which means that they are not as suitable for editing in Photoshop CS as TIFF files. Because of the small file size, JPEG is the ideal choice if you don't intend to do any further editing to the file after the conversion.

The relatively small size of JPEG files means they are ideal for sending by email. If you want to display your photos on the internet, you will also need to use the JPEG format.

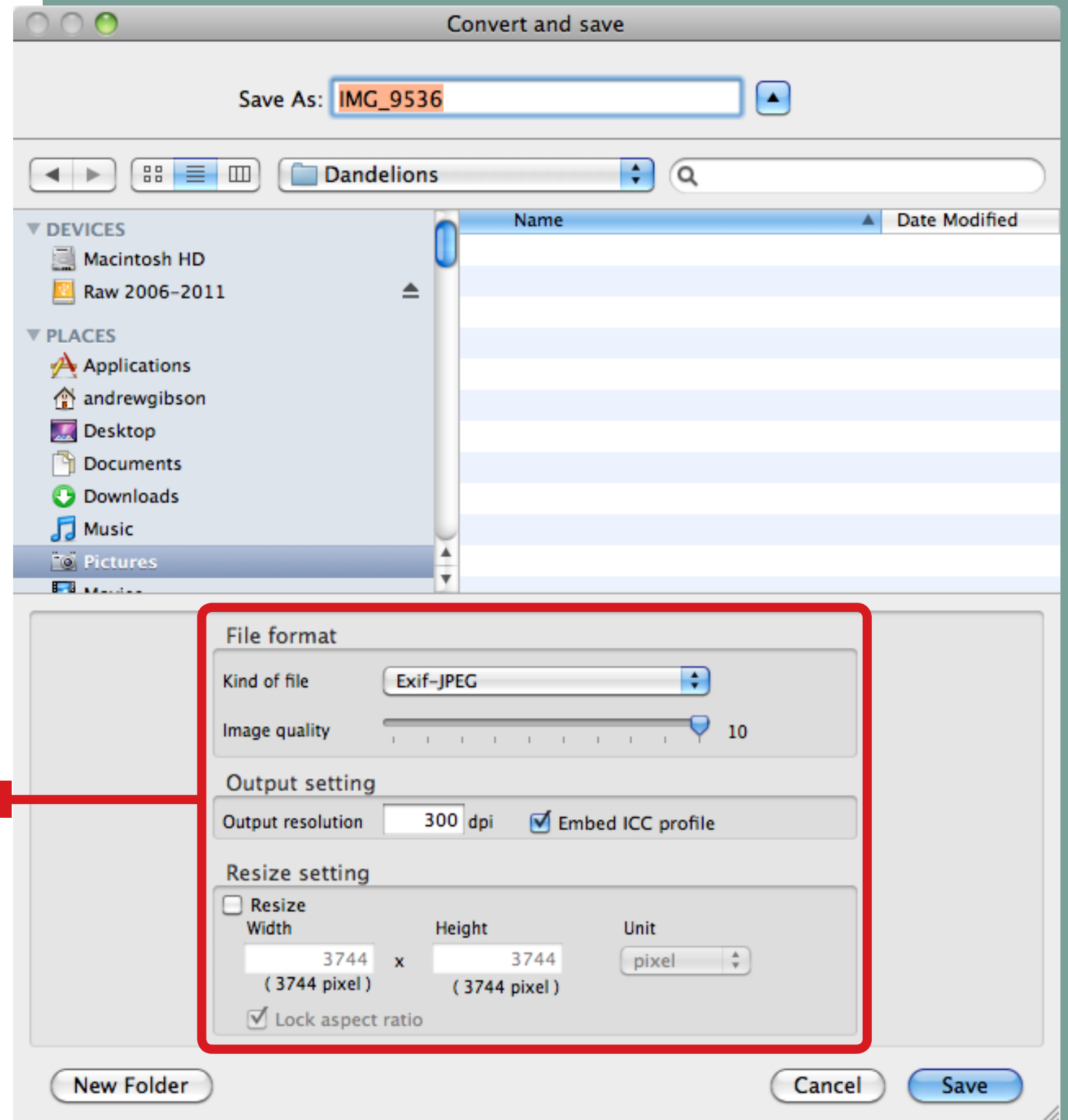
Convert and save

Go to **File > Convert and save**. You can access this from both the Main window and the Edit image window. If you are in the Main window, you need to select the photo you want to convert first, otherwise the Convert and save option will be greyed out. These are the required settings:

File format: Choose from JPEG and TIFF. You also have the option of exporting both JPEG and TIFF files simultaneously if you need to.

Output setting: Set output resolution to 300dpi (the standard for photo quality reproduction) unless you intend to display the photo on the internet, in which case set it to the internet standard of 72dpi. Make sure the Embed ICC profile box is ticked, so that other programs know which colour profile to assign to the photo.

Resize setting: Leave this box unticked unless you intend to resize the photo. You can make the photo either bigger (if you need to make a large size print, for instance) or smaller (for display on the internet or to create a smaller file for sending by email).



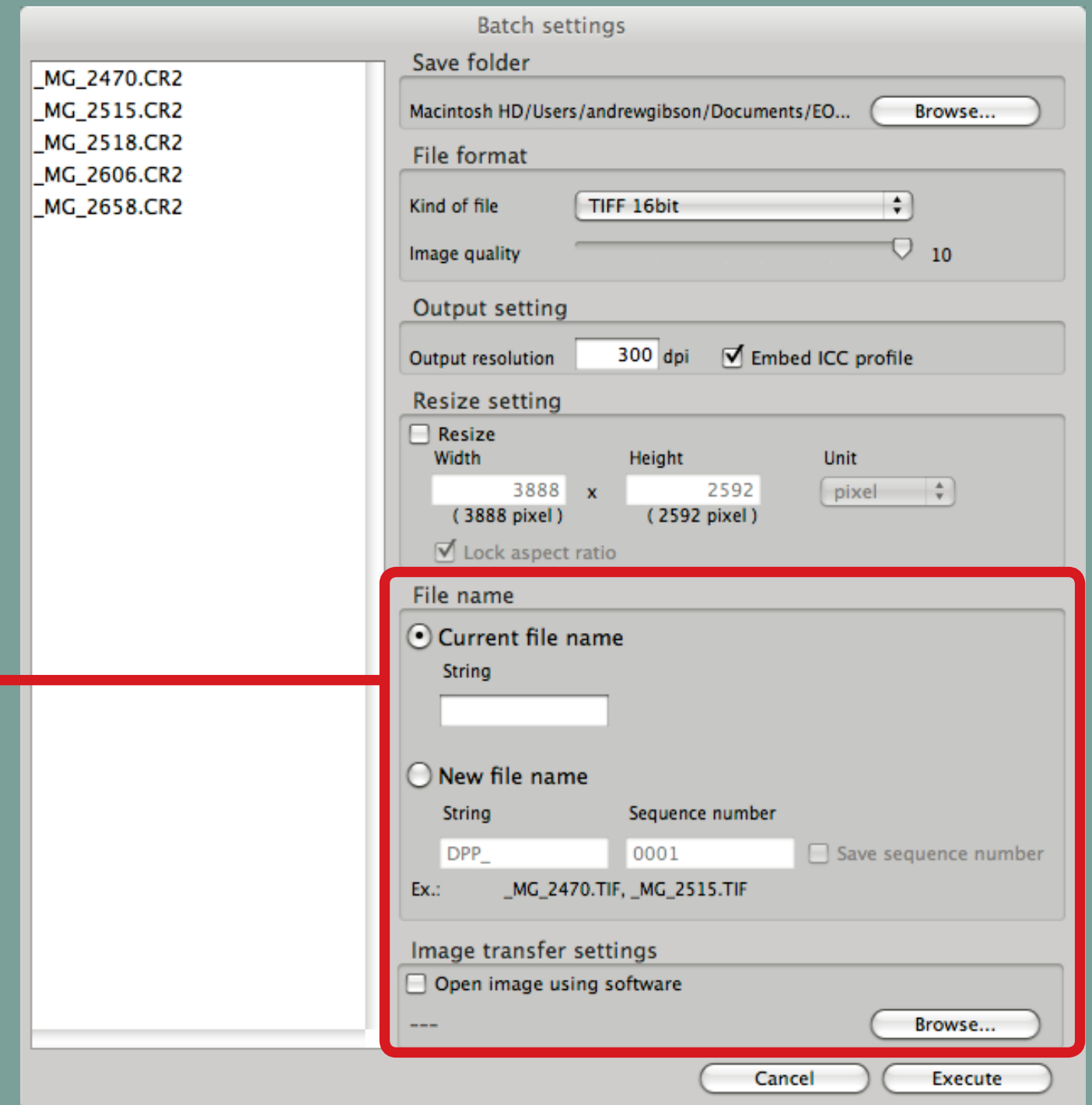
Batch processing

Processing and converting files one at a time is a slow process. You can speed it up using DPP's batch processing facility. The concept is very simple. Start by editing a selection of photos in DPP (you may use recipes to speed up the process). When you're finished editing you can select all the photos you want to convert to JPEG or TIFF files and process them in one go, saving a significant amount of time. Batch processing benefits anyone who needs to process large numbers of photos quickly, including professional photographers.

Select the Raw files you want to convert and go to **File > Batch process** to open the Batch settings window. This works from both the Main window and Edit image window (you can also click the Batch process button on the Toolbar in both windows).

The Batch settings window is similar to the Convert and save window but it does have a couple of extra options. The first is an option to give the photos a new file name. You can either set it to keep the current file name or assign a new file name to the converted images.

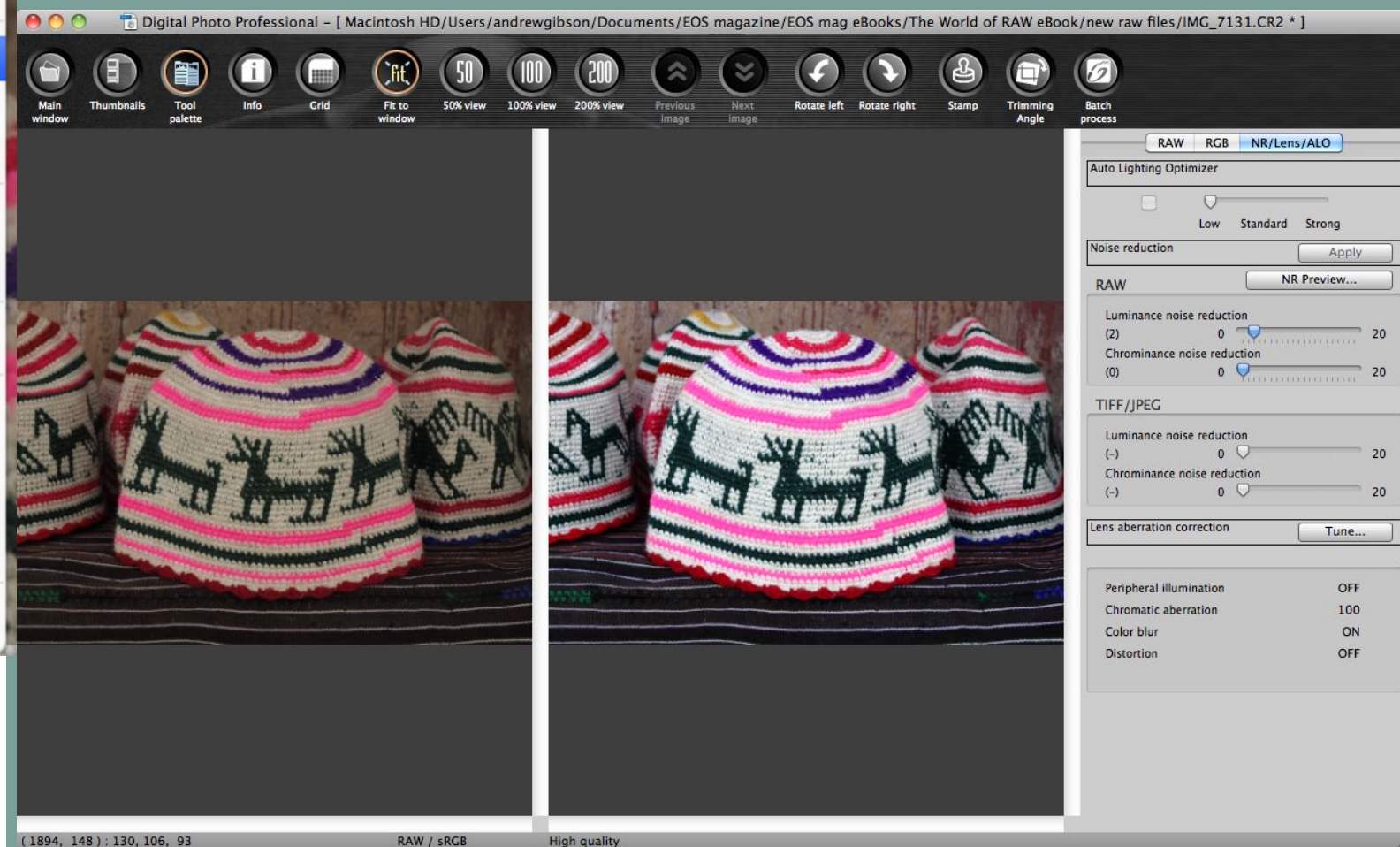
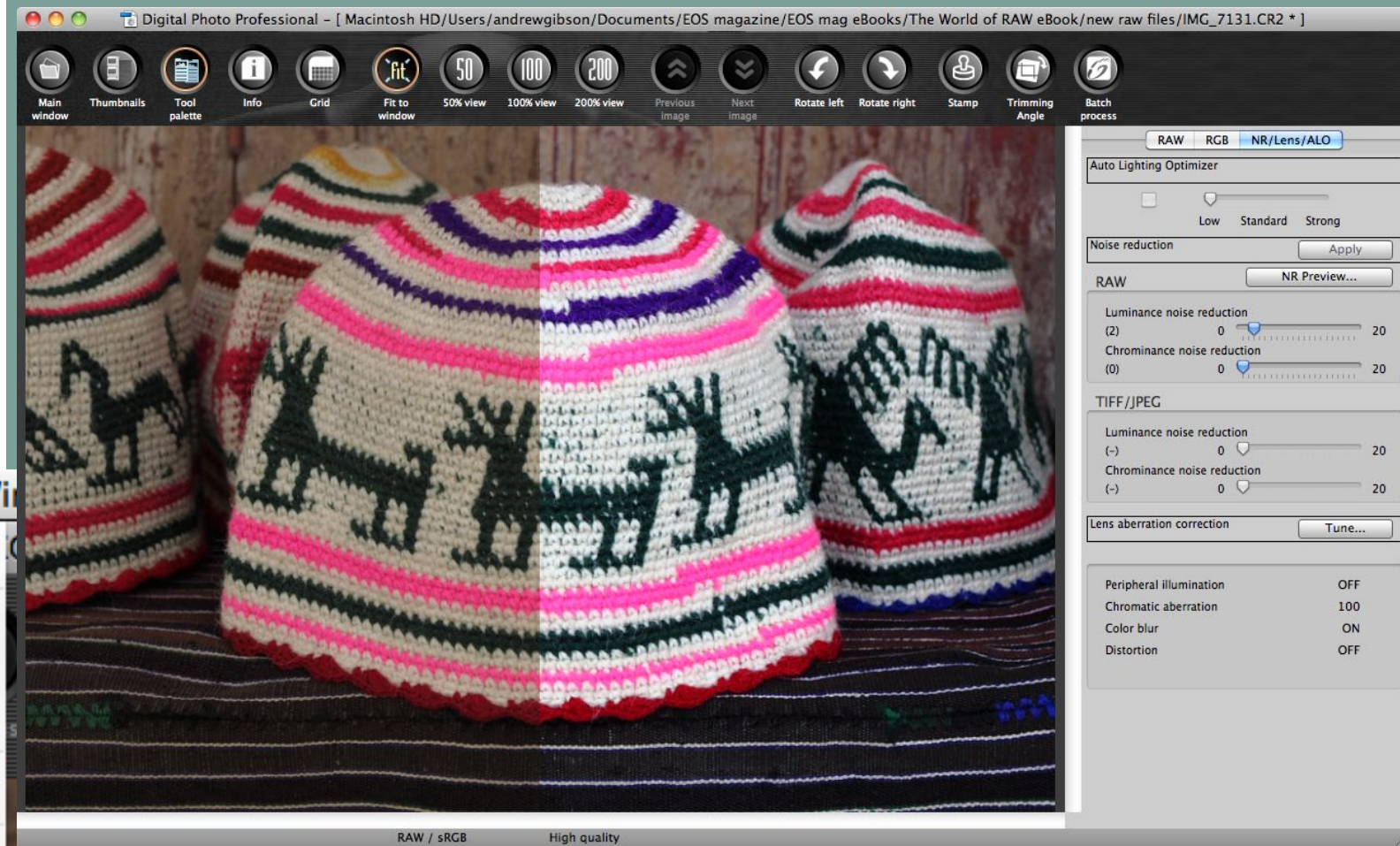
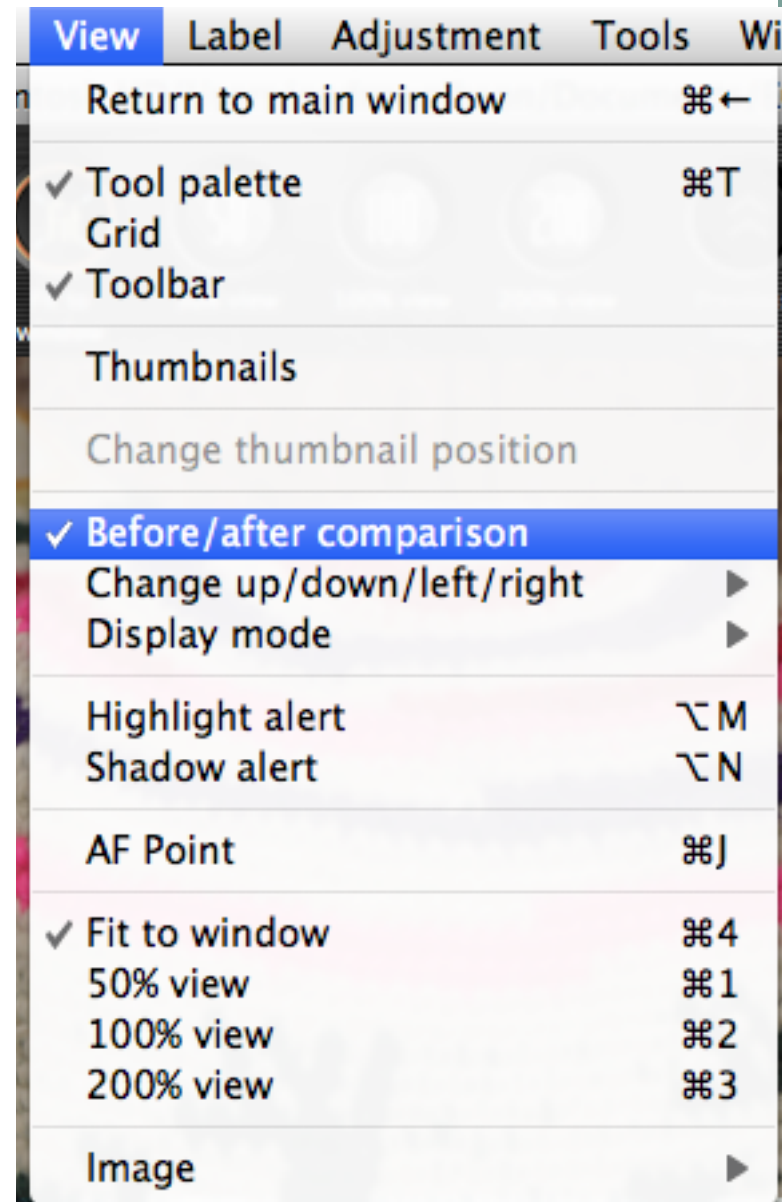
You can also tick the **Open image using software** box to open the photos in another photo editing program afterwards. Click the **Browse** button to choose which editing program to use.



Before & after

Whenever you edit your photos it may be useful to see both a before and after version of the image side-by-side so that you can see the effect that the changes you make have had. DPP allows you to do that quite easily.

In the Edit image window, go to **View > Before/after comparison**. Use the **Change up/down/left/right** option below this menu entry to set the display. You can display two images side by side, or split the image in half so that one side shows the unprocessed version (see the images on this page for examples). To turn the before/after comparison off, just go back and click on the same menu option.



Stamp tool

The stamp tool is for applying dust delete data or manually eliminating dust spots caused by a dirty sensor.

Dust delete data

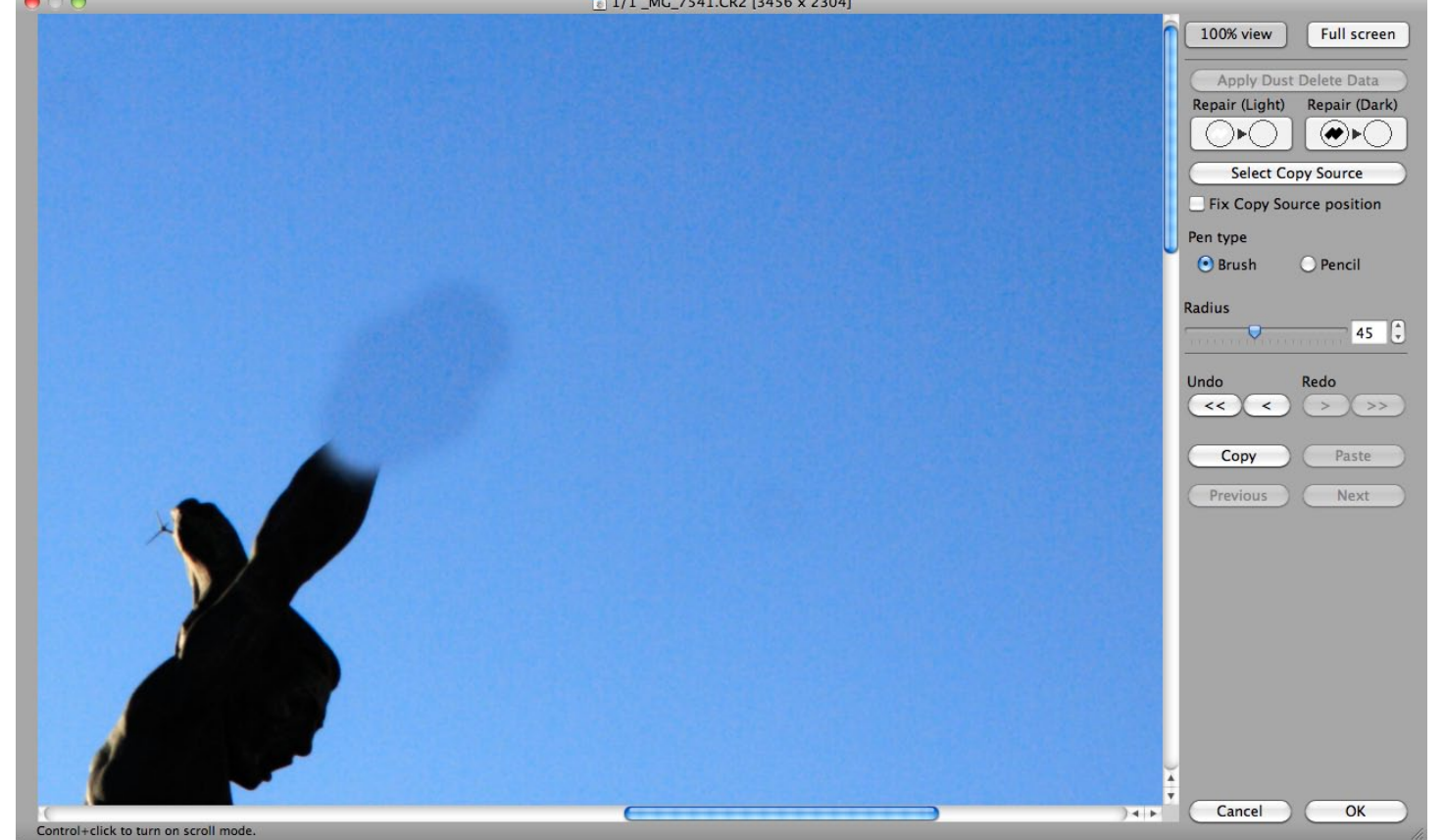
If you have a camera with the dust delete data function, you can activate it with the Stamp tool in DPP (see your camera's instruction manual for details on how to capture dust delete data). DPP is the only Raw processor that recognises your camera's dust delete data.

You can get to the Stamp tool by clicking the **Stamp** icon in the Toolbar in either the Edit image window or Main window. Click the **Apply Dust Delete Data** button to apply the dust spot data captured by the camera. The dust spots in the image should all disappear. If any remain, you can delete them manually.

Manual dust spot deletion

You can use the Stamp tool for images that don't have Dust delete data attached, or for deleting any spots that the **Apply Dust Delete Data** button missed. Start by going to the Stamp tool and double-clicking on a dust spot to go straight to the 100 percent view (or click the 100% button at the top).

If the spot is dark (dust spots always are) click the **Repair (Dark)** button. A green circle appears – you can adjust the radius with the slider in the Stamp window or Ctrl-click to use the scroll wheel on your mouse. Click on the dust spot and it disappears as DPP repairs it automatically. If the dust spot isn't erased right away, you can keep clicking until it disappears. You can keep doing this if there are other dust spots – just hold the space bar down and click and drag to move to another part of the photo.



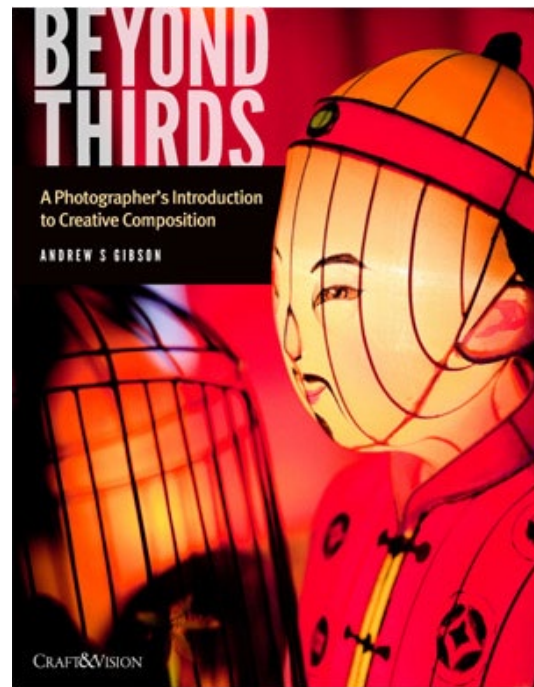
The changes you make to the image with the Stamp tool aren't permanent – DPP remembers what you did so that you always have the option of reverting to the original image. You can undo dust spot removal within the **Stamp tool window** with the **Undo** button. Press < to undo the last action or << to undo them all. Don't worry if you press the wrong button mistake – there are also two **Redo** buttons. You can also use the **F** and **B** buttons on the keyboard to 'scroll' through the dust spots you erased at 100 percent magnification to examine the photo in detail (**B** takes you backwards and **F** takes you forwards).

Cloning with the Stamp tool

To use the Stamp tool for cloning start by double-clicking the area of the image you wish to clone out to go to a 100 percent enlargement. Click the **Select copy source** button and click on the part of the image you want to copy from. Then click on the part of the image that you want to clone out. You can keep the mouse button down to clone a large area. You should note that the Stamp tool functions purely as a cloning device – there is no blending function like you get with Photoshop's healing brush. This means that cloning in DPP isn't really an option – at least if you desire a realistic looking result – as the example above demonstrates. If you need a good cloning tool, you need to use either Photoshop CS or Photoshop Elements.

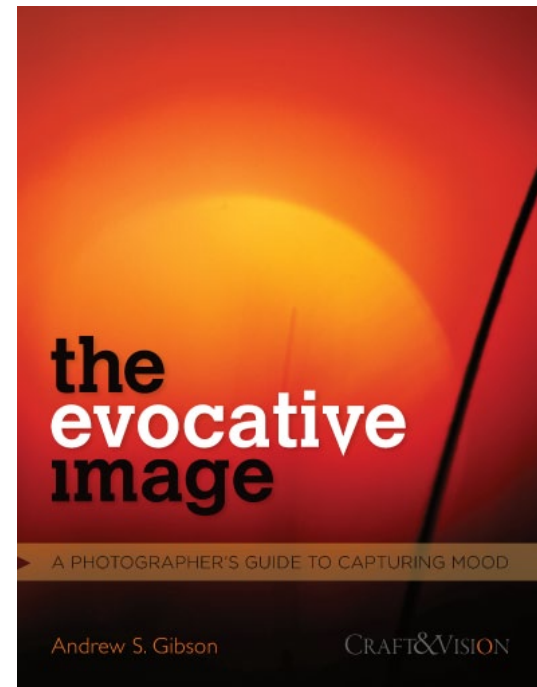
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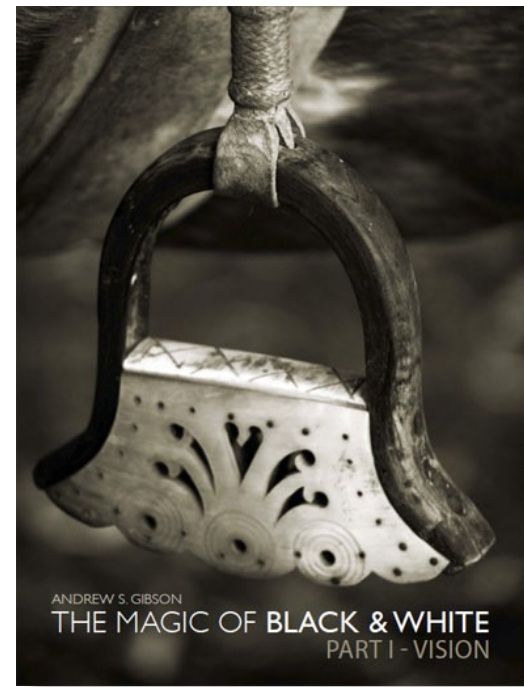
Beyond Thirds

In this ebook I explore concepts like balance, energy, aspect ratios, exploiting multiple focal points and how you can improve your colour images by learning to see in black and white. You'll learn how to improve your composition by going beyond the rule-of-thirds.



The Evocative Image

How do you create images that capture the atmosphere or show the beauty of something that you perceived at a particular time and place? This ebook explores the three key concepts that will help you create evocative images – light, colour and composition.



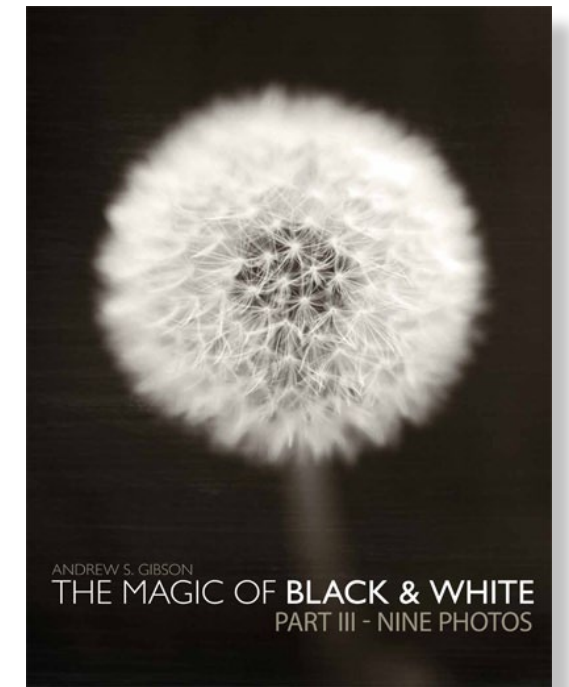
The Magic of Black & White:

Part I – Vision The first step to working in monochrome is learning to see in black & white. This ebook is split into three sections: composition, lighting and subject. You'll learn how to see in monochrome, and why black & white is such a beautiful medium for creative self-expression.



The Magic of Black & White:

Part II – Craft I explain how I process my black & white photos step by step using Photoshop CS and Photoshop Elements. I guide you through the transformation process that starts with a colour photo and ends with a beautiful, toned black & white image.



The Magic of Black & White:

Part III – Nine Photos In this ebook I take you through nine black and white images with the intention of explaining the more advanced Photoshop & Photoshop Elements techniques behind them. I also explore the topic of aligning creative vision with post-processing techniques.



Available now at my website. Click on the cover or on this link to learn more or buy Square.

Understanding DPP Andrew S Gibson

About the author

I'm a freelance writer and technical editor. I specialise in writing about photography and my clients include EOS magazine, Craft & Vision, Flatbooks, Peachpit Press, Focal Press, ILEX and Photo Tuts+. My features have been published in magazines like Practical Photography and Better Photoshop Techniques. I've also acted as Technical Editor on photography books written by Michael Freeman, David Nightingale and Haje Jan Kamps.

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Updating DPP

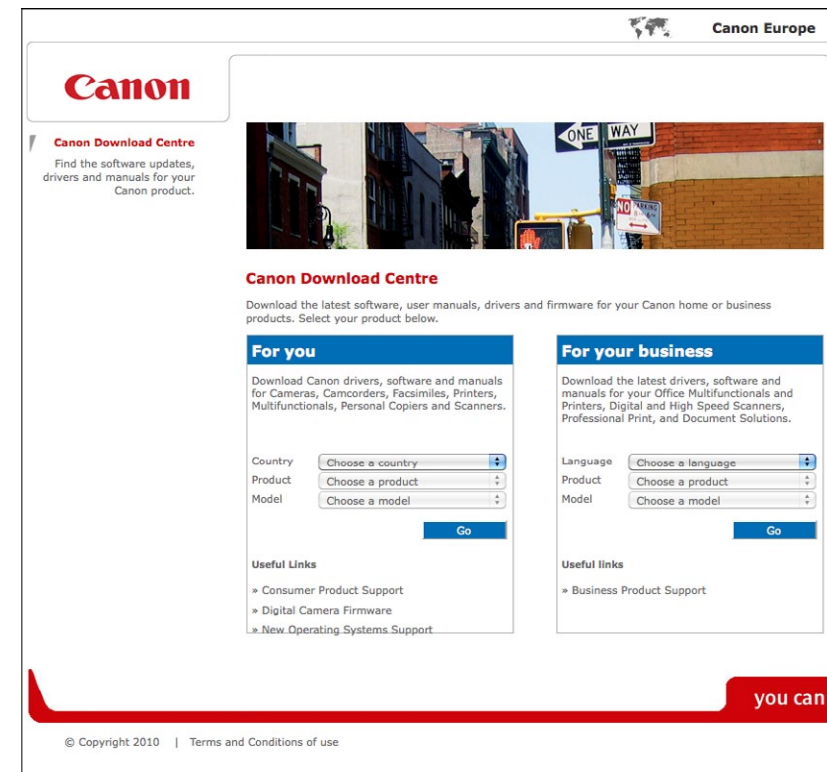
DPP is supplied on the CD that comes with your EOS camera. The software is free, and so are any updates, which means you will always have the right software to process your Raw files.

Canon regularly updates DPP so that it recognises the files from the latest EOS cameras and also to include new features. Canon normally releases an update some time after it announces a new camera – it is always worth updating the software in case any useful new features have been added in addition to updates specific to the newest cameras.

If you have not already installed DPP, start by putting the software CD into your computer's CD-Rom drive and following the onscreen instructions. Once you have installed it, you can confirm which version you have by going to the menu. Go to **Help > Version information** (Windows) or **Digital Photo Professional > About** (Mac) to see which version you have. If you do not have the latest version (3.10 at the time of writing), you can download an update from <http://software.canon-europe.com>

Select your camera, operating system and language and look for the Digital Photo Professional Updater. Canon only provides updates on its website – you first must have installed the full version from the CD supplied with the camera for the update to work.

If you are an Adobe Photoshop or Lightroom user, and you are thinking about buying a new EOS camera, you should check whether the Raw processor in your Adobe software has been updated to recognise the Raw files from the camera you are thinking about purchasing. For example, Adobe Photoshop CS 4 doesn't recognise Raw files from the latest EOS cameras – you have to update to Photoshop CS 5.



If you have lost the software CD or it is damaged, there is a workaround. Canon Japan has a copy of an early version of DPP for the Windows operating system that you can download for free at <http://web.canon.jp/Imaging/sdl/data/dpp100-e.exe>. Once it is installed, you can go to <http://software.canon-europe.com/> to download the latest version of DPP for your camera.

Mac users are not left out – you can download an early version of DPP at <http://web.canon.jp/imaging/sdl/data/dpp100-e.hqx> and use the same process to update the software. The download is a compressed file with the .hqx extension, which you can open with the Stuffit expander, a free utility available from the Apple App store.

Monitor calibration

Monitor calibration is a confusing topic, and if you search online you will find lots of misinformation. There are websites and forums where people say that you don't need to buy a monitor calibration tool, or that you can calibrate with software or by eye. None of this is true – I've yet to see a software solution that works, and your eyes can't detect colour casts accurately – only a machine can do that.

But it doesn't have to be complicated. All you need to know is that you **MUST** calibrate your monitor, and that it's easy to do as long as you buy a special monitor calibration tool called a colorimetric device (these are made by manufacturers like Eye-One, ColorMunki, Pantone and Spyder).

What happens if you don't calibrate your monitor? Well, your monitor, as purchased from the shop, has a strong blue colour cast. Everything you look at on the monitor has a blue cast, although you probably won't realise this until it is pointed out because your eyes are so good at adjusting to different colours. Every photo you edit on an uncalibrated monitor is too warm – because you are warming up the image when you adjust colour to compensate for the screen's blue cast. You may also have trouble with contrast and brightness



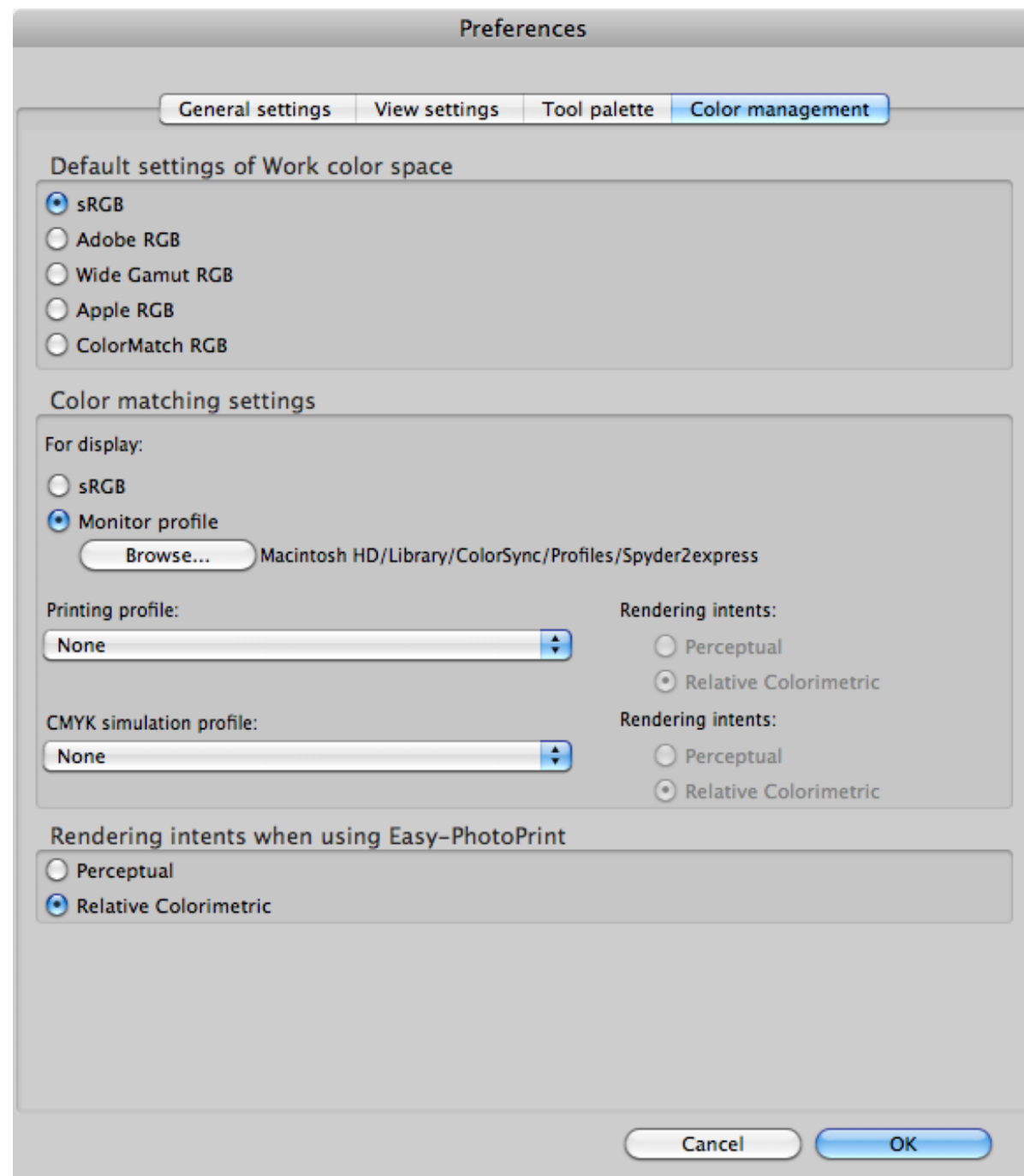
– and you'll never manage to get a print that matches what you see on the screen. The bottom line is this – you will never get accurate colour from an uncalibrated monitor.

Calibrating your monitor is easy. All you need to do is buy a monitor calibration device. I use one made by Spyder – they start at around £60, and even the least expensive models are accurate enough for most photographers. Calibrating your monitor is as simple as connecting the device to your computer, starting the software and following the on-screen instructions. The software that comes with it displays a series of colour patches on the monitor, which are measured in turn by the device. The software measures the difference between what the monitor displayed, and what it should have displayed, and creates a colour profile that corrects any inaccurate colours.

When you're done, the program shows you a comparison of before and after the calibration process. If you've never seen this before, you'll be surprised by how different they are. The program saves a profile to your computer that programs like DPP can use to render colour accurately on your monitor.

After the initial calibration you need to repeat the process every month or so (maybe even more often if accurate colour is of high importance to you). This is because monitor colour slowly drifts – so you need to recalibrate to ensure that the colours on your screen haven't changed.

Once you have calibrated your monitor, you need to tell DPP to use the new profile that you have created. Go to **Tools > Preferences** on a PC or **Digital Photo Professional > Preferences** on a Mac and click on the **Colour management** tab. Set **'Default settings of Work Colour space'** to **sRGB** and **'Colour matching settings'** to **Monitor profile**. Click **OK** when you are finished.



Jargon buster: some essential terms and settings

White point

The brightest white your monitor can display. The recommended white balance setting for the white point is 6500k (sometimes called D65). But if you have an LCD monitor leave the white point at its native setting as this preserves the monitor's maximum colour range.

Native white point

The white point of the monitor before calibration. The native white point of most LCD monitors is 6500K. The native white point of CRT monitors tends to be higher.

Black point

The darkest black your monitor can display.

Gamma

Tells the monitor how to display mid-tones. The recommended setting for both PCs and Macs is 2.2.

Luminance

The monitor's brightness. A brightness level of around 120 candelas is recommended for photographic editing, but not all monitors can be set this low. This is a starting point and you can change it if it doesn't work for you. The recommended setting for laptops is 90 candelas as most laptops cannot achieve a brightness of 120 candelas.

Comparing DPP

At this stage of the eBook I hope you have realised that Canon's Digital Photo Professional is a very capable and powerful Raw processor. It may well be the only Raw processor you ever need. But it is also possible that you want to explore the potential of other Raw processors. Adobe's Photoshop CS has a powerful Raw processor, which is shared by Adobe Lightroom. Capture One Pro 6 is another excellent Raw processor, as are Bibble 5 Prom DxO Optics Pro and Apple's Aperture if you have a Macintosh computer.

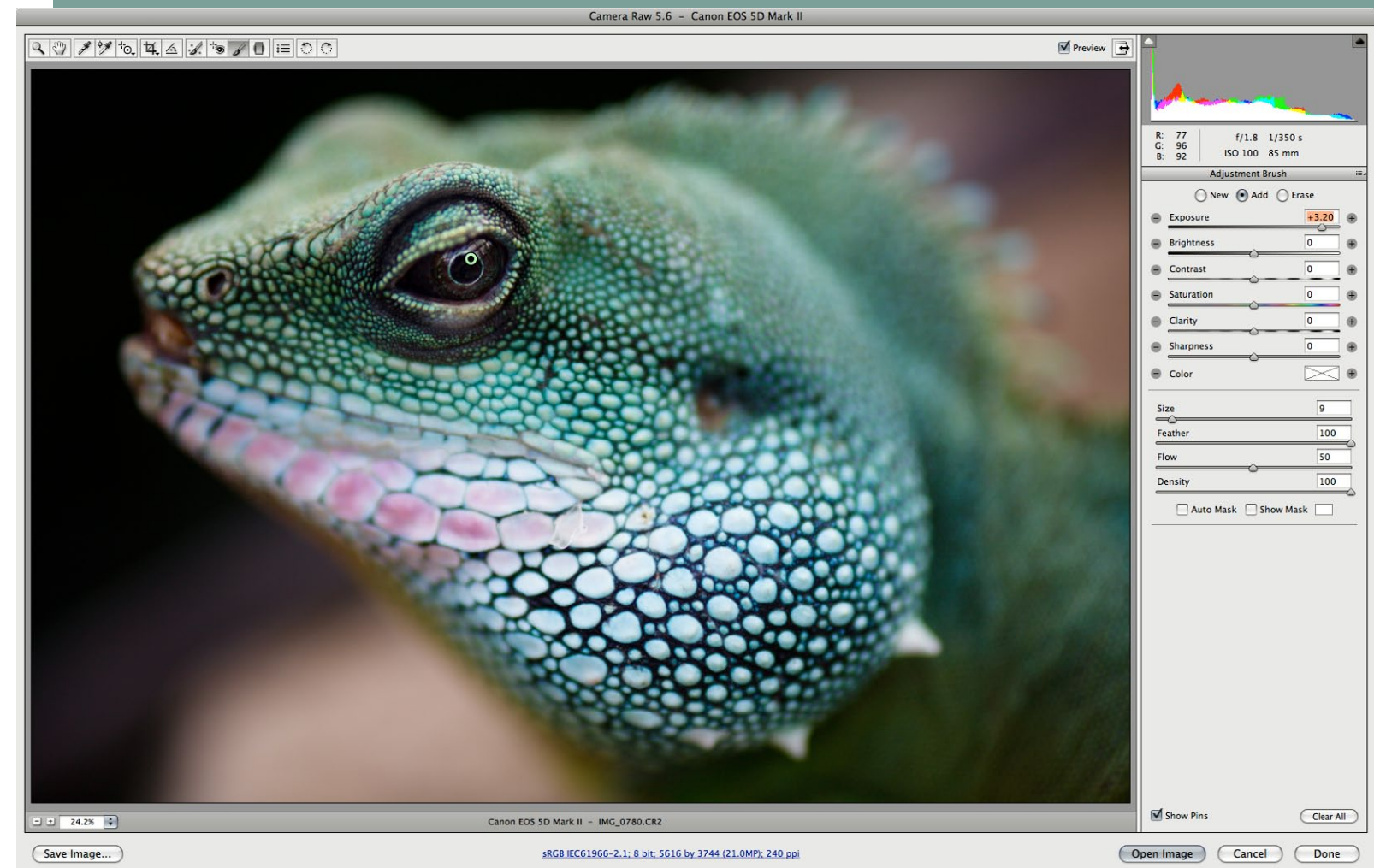
With some of these programs, you are paying for much more than just a Raw converter. Adobe Photoshop CS and Photoshop Elements are image editing programs as well as Raw converters. Lightroom, Aperture, Capture One Pro 6 and Bibble are image cataloguing programs as well as Raw converters. Here is a rundown of what each program does:

Adobe Photoshop CS

Photoshop CS is a powerful image editing program aimed at professional users such as photographers and graphic designers. At the time of writing, the most recent version is CS 5. It comes with Adobe Camera Raw (ACR), an extremely powerful Raw converter (latest version 6.2). Earlier versions of Photoshop CS use earlier versions of ACR, which are still powerful but lack the full feature set of the most recent version. Photoshop CS is the most powerful image editing and Raw conversion package around – which is reflected in its retail price. Learn more at www.adobe.com/products/photoshopextended.html

Adobe Photoshop Elements

Photoshop Elements is a scaled down and much less expensive version of Photoshop CS. It lacks some of the more advanced image editing abilities of Photoshop CS such



Adobe camera Raw in Photoshop CS 4. The latest versions of most Raw processors let you adjust aspects like exposure, contrast, sharpness and colour locally. This means that you can make adjustments to parts of an image that you select, without affecting the rest of the photo. In DPP, any changes you make are applied to the entire image, and it is not possible to edit just one part of a photo. In the example above, I used the Adjustment brush tool to lighten the lizard's eye.

DPP is a good Raw converter, but it has very limited editing capability when it comes to JPEG and TIFF files. Realistically, if you want to edit your JPEG and TIFF files, you will buy image editing software. The two most popular programs are Adobe Photoshop CS and Adobe Photoshop Elements.

as 16 bit editing and the black and white conversion tool. It also comes with a scaled down version of Adobe Camera Raw that lacks the ability of local image adjustments. The most recent version is Elements 10, the details are here: www.adobe.com/products/photoshopel/

Adobe Lightroom

Lightroom is a relatively new program that has gained popularity amongst photographers because it is a superb Raw conversion program and much less expensive than Photoshop CS. It uses Adobe Camera Raw and has full Raw processing capability including local adjustments. Unlike Photoshop CS and Photoshop Elements, it is not capable of extensively editing TIFF and JPEG files. You will need another program if you want to edit your images.

The main advantage of Lightroom compared with Photoshop CS is that you can edit a large number of Raw files and convert them to TIFF or JPEG files in one batch (you can do the same in DPP). This can save a lot of time in the editing process. Lightroom is also an image cataloguing program that creates a searchable catalogue of the photos stored on your hard drives. There is more information about Lightroom 3 at www.adobe.com/products/photoshoplightroom/

Apple Aperture

Aperture is very similar in functionality to Adobe Lightroom, except that it is made by Apple for Apple computers only. The interface will not be familiar to Photoshop users, but it will be quite easy for anyone to get used to who uses iPhoto, the image editing software that comes with any recently purchased Apple computer. For more information, go to www.apple.com/aperture/

Phase One Capture One Pro 6

Capture One Pro 6 is another excellent Raw converter. It has a good reputation and was created by Phase One to go with their medium format camera backs, and is therefore aimed at professional photographers along with the advanced functionality

they require. A less expensive version, Capture One Express 6, is also available for those who do not need the full feature set of Capture One Pro 6. You can learn more at www.phaseone.com/4/

Bibble

Bibble, produced by Bibble Labs, is a fast Raw processor and digital asset management application. An interesting feature is the use what Bibble call 'layers and regions' to make localised adjustments to the Raw file. The cataloging aspect is quite extensive, with the option to sort or search your photos by criteria such as keywords, date or camera settings. There is more information about Bibble at <http://bibblelabs.com/products/bibble5>

DxO Optics Pro

The main difference between DxO Optics Pro and the other Raw converters discussed here is that DxO Optics Pro uses data specifically created by testing each camera model that it supports to reduce noise and get the best out of the Raw file. It also corrects lens aberrations automatically during the conversion process. According to the manufacturer, DxO Optics Pro gives a two stop gain in noise performance compared to other Raw conversion applications. You can find out more at www.dxo.com/us/photo/dxo_optics_pro/raw_conversion

Try before you buy

With so many Raw conversion applications for sale, you'd be forgiven for feeling confused about the best one to buy. The manufacturers of each program listed here allow you to test their products by providing trial versions on their websites. My advice is to wait until you're comfortable with DPP before you try another product, so that you can objectively compare the features. All of them are good and the decision about which one to use is very personal. Most photographers will find that they have a preference for one of these programs over the others. You may also find that you are perfectly happy with DPP, and feel no need to buy another Raw processing application. There is nothing wrong with that – DPP is an excellent program.