



# Master your DSLR in minutes

- **Get to grips with white-balance**
  - Use exposure modes with confidence
  - **Understand file formats**
  - Pick the right metering mode
  - **Learn ISO**
- ... and more!

IN ASSOCIATION WITH

**Canon**

# Welcome

Get the best out of your new DSLR and zoom lens with this special supplement from *Photography Monthly*

**P**hotography is the greatest hobby on earth. But it can also be one of the most confusing. Not only is the process of picture-taking often suffused with technical jargon, but getting to grips with the very equipment you use to take those shots can, for many, be like learning a foreign language. It's for this very reason that we came up with *Master Your DSLR in Minutes*, the first in a series of free supplements with *Photography Monthly* magazine.

As its name suggests, this supplement is all about getting to grips with your DSLR. Mastering your equipment is a crucial step towards taking great pictures and if you know what feature or function to set and, most importantly, when to set it, you'll never be caught out.

If this supplement has prompted you to pick up *Photography Monthly* for the first time: welcome, we hope you find our efforts informative and entertaining. If you're a regular PM reader: welcome back, I hope you'll notice that we've made some major changes to the magazine, with the emphasis on making it more practical and inspirational.

I'd love to hear your comments about this supplement, and the new-look magazine, so why not email me on [roger.payne@archant.co.uk](mailto:roger.payne@archant.co.uk).

In the meantime, enjoy this supplement, enjoy your photography and I'll see you next month, when our second free supplement will teach you how to take great shots with your recently-mastered DSLR.

**Roger Payne, Editor**



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Possibly one of the biggest head-scratchers for novice DSLR users is whether to shoot Raw, JPEG or both? We explain the advantages and disadvantages of each file format, and advise which is the best option to use.

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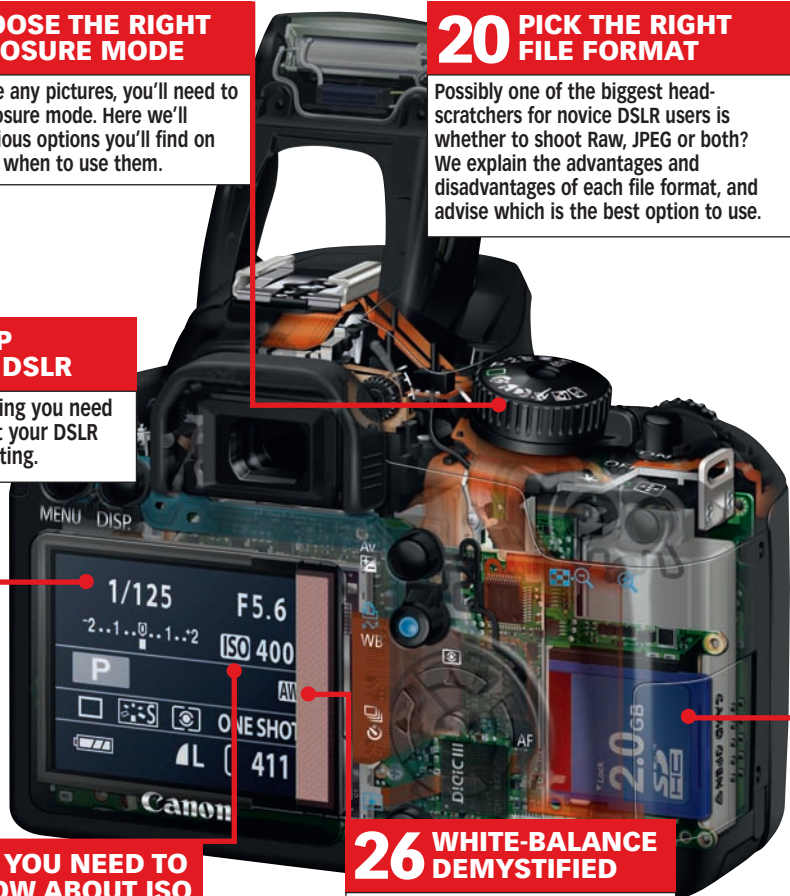
Here's everything you need to know to get your DSLR ready for shooting.

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White-balance affects every picture you take with a DSLR. Most photographers simply leave it set to Auto, but your camera does offer other options. In this section, we discuss those options and, crucially, when you should use them.



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More sophisticated than ever before, DSLR metering modes help you get cracking exposures. Various metering patterns are available on modern DSLRs: find out more about them here.

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## 28 GET THE MOST FROM BUILT-IN FLASH

Most DSLRs feature a built-in flash that typically offers a variety of different picture-taking options. In some modes, the flash will pop up automatically, on other occasions you'll have to switch it on yourself. Find out what to use, when.



## 8 WHICH LENS DO YOU NEED?

If you've got a DSLR, you'll need a lens to go with it. All the main focal lengths are covered in this section.

# Setting up your DSLR

When you buy a new DSLR, it's only natural that you'll want to get out and start taking pictures, but take a few minutes to run through some basic

checks before you begin and you'll enjoy your picture-taking even more. So, in no particular order, make sure you do the following:

## SELECT AN ISO SETTING

If you want to keep things simple, set the ISO to Auto. In this mode your DSLR will vary the sensitivity according to the lighting conditions. If you're just shooting one type of image, set the ISO manually. See page 23 for more details on which ISO to use.

## CHOOSE A DRIVE MODE

Shooting landscapes and portraits? Choose single frame advance. Shooting sport and action? Choose continuous and the camera will continue taking pictures as long as you keep your finger on the shutter release.

## SET THE PICTURE STYLE

DSLRs typically offer a range of picture styles to use. Your camera will feature a number of preset styles, plus you can define your own. Straight out of the box, your DSLR is likely to be set to a standard picture style, but you can change it for instance to make colours more vivid, or even black & white. Try taking pictures with each style to see which suits your photography best.



## FINE-TUNE THE VIEWFINDER

Most DSLRs offer an eyesight adjustment feature on the viewfinder eyepiece and, although it's most useful to photographers who wear glasses, everyone needs to set it up to match their eyesight. Take the lens off the camera, look through the viewfinder and point the camera at a single tone – a painted wall at home is ideal. With your eye up to the finder, turn the eyesight correction wheel, paying close attention to the markings in the viewfinder. As you turn it, they should sharpen or blur. Once they're pin sharp, the viewfinder is set for your eyesight.

## UPLOAD YOUR SOFTWARE

You might be side-tracked by your new DSLR, but it's worth uploading your new camera software before you go out and take pictures. Why? If there are any uploading problems, it's better to know before you've got a card-full of shots you want to view. Plus, software will often have an update that needs downloading, which will take time depending on your internet connection speed. You can leave the update to download while you get to know your camera.



## TRY THE CUSTOM FUNCTIONS

The beauty of DSLRs is that you can set them up exactly as you want. Most cameras feature custom functions, which enable you to change everything from exposure increments to the functionality of a button or dial. In all honesty, custom functions are designed more for the advanced camera user, but there's no harm in seeing what control you have and revisit them when you get more DSLR-proficient.

## CHARGE THE BATTERY

This may sound obvious, but most DSLRs are normally sold with some power already in the rechargeable battery. Tempting as it may be to stick it in the camera and start shooting, we'd advise you to follow the manufacturers charging instructions – most cells typically take two hours to fully charge – as this will prolong the useful life of the battery. Whenever possible, let the battery fully discharge before recharging. Again, this improves battery longevity.

## STORE YOUR IMAGES

Your DSLR needs a memory card to store images. We'd advise you buy a 2GB card as the minimum, or go for greater capacity if finances allow. Memory cards have different write speeds – this is the speed at which the information is transferred from the sensor to the card. The higher the write speed, the quicker you can take pictures. For most, a 133x card is ample. UDMA cards offer a 300x write speed, but you'll only see the benefit from this if your DSLR is UDMA-compliant.



# Which lens do you need?

There's a bewildering range of lenses available, not only from your DSLR manufacturer, but also from independent companies. Nowadays, zoom lenses are the favoured option among DSLR users because they're versatile and well-priced; chances are you'll have a standard zoom (typically covering 18-55mm) supplied with your camera. These 'kit' lenses are suitable for a range of subjects and offer decent, if not exceptional, image quality.

Unless you're lucky enough to own a full-frame DSLR, you'll need to bear in mind your camera's magnification factor whenever you choose a lens. This will be quoted in your camera's instruction manual; for instance, a

you get greater telephoto power. A 70-200mm telezoom on the same camera, for example, becomes a 112-320mm.

The beauty of DSLR photography is that you can pick and choose lenses according to your requirements. As you've already got a standard zoom, most photographers are quick to add a telezoom covering focal lengths around 70-200mm, or a macro lens for close-up work. Over and above this, you could choose a wide-angle zoom (10-20mm is popular) or a longer telephoto zoom for wildlife or sport work. Superzooms, which cover focal ranges from wide-angle all the way through to telephoto are also useful, as they offer an all-in-one lens solution.



ABOVE One of the first lenses to buy, after your standard 18-55mm kit zoom, is a telezoom offering a range of focal lengths around the 55-250mm mark, or a macro lens.

“ Most photographers are quick to add a telezoom ”

Canon EOS 1000D has a magnification factor of 1.6x. Essentially, any camera with a sensor that's smaller than a 35mm frame of film will have a magnification or crop factor, due to the smaller dimensions of the sensor.

Multiplying the focal length of any lens by the camera's magnification factor gives the lens' 35mm equivalent. So, if the Canon EOS 1000D has an 18-55mm lens attached, it's actually offering the equivalent of a 29-88mm lens in 35mm (18-55mm x 1.6).

In practical terms, this can be limiting if you're a fan of wide-angle shooting but, at the opposite end of the scale,

Most manufacturers offer two ranges of lenses; standard and premium. Premium lenses are generally made from higher quality optical glass, are better built and, in many cases, offer a 'faster' maximum aperture – a term that refers to the lens' widest aperture.

Let's say you're after a 70-200mm telezoom, for example. A standard model may have a maximum aperture of f/4-5.6. This means that the widest the aperture can open at 70mm is f/4 and at 200mm is f/5.6. A 'fast' 70-200mm telezoom, on the other hand, may have a maximum aperture of f/2.8 all the way through the zoom range.

300mm TELEPHOTO



14mm WIDE-ANGLE



## Which focal length?

**Landscapes, architecture**

Up to 18mm

**General picture-taking**

18-50mm

**Portraits**

50-100mm

**Sports and action**

100-400mm

**Wildlife**

400mm and above

90mm MACRO





# Exposure modes

## Which one to use, and when

Your DSLR is a marvel of modern camera design. But its amazing complexity belies something all DSLRs hold in common – a shutter that opens to allow light to hit a sensor and record an image. Good exposure is a term that's been hijacked by public relations agencies, but in photography it's all about manipulating the size of the aperture in the lens and the length of time the shutter is open in order to get the right amount of light onto the sensor. Your DSLR offers a variety of exposure modes to enable you to do just that.

## Semi-automatic modes

Shooting using program modes is so easy that it can be tempting to simply use them all the time. But then, there will come a time when you want to start taking more creative control over your pictures. Thankfully, DSLRs provide a middle ground between these point-and-shoot program modes and full-on DIY manual exposures, in the form of semi-automatic modes.

The most common semi-automatic modes on your DSLR's exposure mode dial are aperture-priority (Av or A) and shutter-priority (Tv or S). Selecting either of these modes allows you to take control of one half of the exposure equation, while the camera takes care of the other.

In Av mode, then, you set the aperture and the camera matches it with a shutter speed to suit. Think of the aperture as a hole in your lens that can be made wider or smaller to let in more or less light. Apertures are represented by numbers called f/stops. A small aperture, that reduces the amount of light coming into the

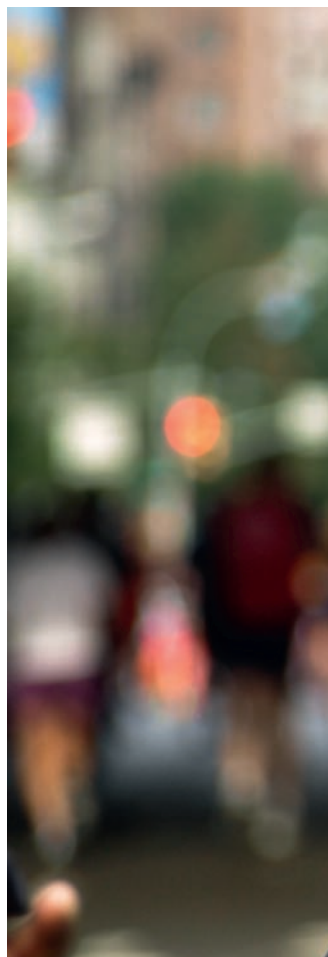
camera, is represented by a high f/stop number (eg f/22). Conversely, a wide aperture, that allows more light in, is shown by a low f/stop number (eg f/4).

But apertures don't only control light, they also effect what is and isn't sharp in an image. The wider the aperture you choose, the smaller that zone of sharpness. So if, for example, you were shooting a portrait and wanted the background to be out of focus, you'd select a wide aperture such as f/4.

“ Apertures control light, and sharpness too ”

Conversely, if you were shooting a landscape and wanted everything from the gate in the foreground through to the hills in the background to be sharp, you'd select a small aperture (eg f/22).

As well as being the other half of the exposure equation, the shutter speed you use also effects subject movement, so if you want greater control over this,





ABOVE Selecting a wide aperture (f/5.6) makes a cluttered background look less messy.

choose shutter-priority (Tv or Time value). In this mode you can, for example, freeze action with a fast shutter speed, such as 1/2000sec, or blur movement with a slow shutter speed, such as one second.

Semi-automatic modes are perfect for learning how shutter and aperture values are linked. Many photographers use them for the majority of their shots. One note of caution: if the aperture or shutter speed number starts flashing, you'll need to increase or reduce the number to adjust the exposure. →



BELOW Shutter-priority is best for sports and movement pictures.



## Program modes

Program (or P) mode is easiest to use when you want a correct exposure. The camera selects the exposure time – the time the shutter is open – and size of the aperture. The advantage of using P is that it allows you to concentrate on composing your shot, or simply to take shots quickly when you don't have the time (or inclination) to set the controls yourself.

Most DSLRs include additional scene modes – the symbols on the mode dial next to P. These are essentially fancy P modes, which are tailored to specific picture-taking situations, altering exposure, focus and frame rate settings to get the best result. Some modes err towards faster shutter speeds to freeze fast-

moving objects such as kids playing or sports. Others (eg portrait mode) veer towards selecting larger apertures to throw distracting backgrounds out of focus. Again, they're handy for quick shooting and generally getting acquainted with your DSLR.

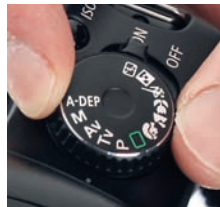
Experiment with a few of them and study the results. Taking the same image using different scene modes will help you spot changes the camera is making.

Some DSLRs let you change aperture and shutter values while you're in P mode, without affecting exposure. This is termed Program Shift. You might, for example, want to select a smaller aperture such as f/16 for greater front-to-back sharpness (depth-of-field). Do this in P mode and the camera will automatically set a shutter speed for an accurate exposure.

**TOP LEFT** Program (P) allows you to concentrate on composition, and catch a fleeting moment.

**ABOVE** Manual (M) mode gives you full control over the way a scene records. This was taken at 1/8sec at f/5 and ISO 400.

**RIGHT** Explore the camera's sub menus to find special preset scene modes – this shot was taken using 'sunset mode'.



**ABOVE** A typical exposure dial offers manual, program, semi-automatic and scene modes.



## Manual modes

Program mode is like driving a car that has two settings: on and off. You can steer the car from A to B but you have no control over how fast it goes. Semi-automatic modes give you a gearbox and a sense of control. Manual mode gives you a steering wheel, an accelerator, air conditioning and Radio 2 playing loudly on the stereo.

In the manual mode – denoted by an M – you make all the decisions for both aperture *and* shutter speed, giving you maximum creative control.

Use manual and there'll be flashing numbers but no pop-up flash. If you want to get the exposure wrong, you can! Thankfully, however, shooting in manual is not based completely on guesswork – your camera's built-in exposure meter will help you out.

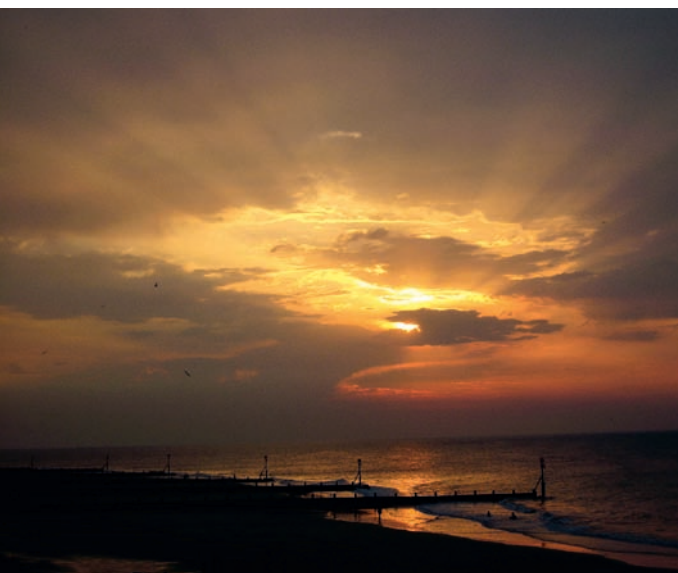
Select M and a metering bar will typically appear in the viewfinder and

“ Shooting manually is not all guesswork – the meter will help out ”

on your DSLR's LCD. Above this bar is a metering marker – changing aperture and/or shutter speed will cause this marker to move. For an accurate exposure, get the marker in the centre of the bar: it's that simple.

Manual mode is a great tool for learning more about exposure, but you shouldn't feel that it's the only mode to use if you want to shoot 'professional quality' pictures. Your DSLR has a full set of exposure modes so there's no point in tying yourself to just one.

Sure, you'll have your favourite mode, but photographers who know and understand the merits of each one, plus when to use them, are more likely to bring home images of a consistently high quality.



MULTI-ZONE



# Get perfect exposures

Would Henri Cartier-Bresson have been a better photographer if he'd have used a lightmeter? The famous photojournalist was notorious for his disdain of photographic gadgets of any kind, including lightmeters. These days, meters are built into every DSLR and very sophisticated they are too, but even so, there are certain situations that will trip them up.

**SPOT/PARTIAL**



**CENTRE-WEIGHTED**



## TYPES OF METERING

### Multi-zone

Manufacturers use various terms for their multi-zone metering patterns. Canon's is called 'Evaluative', Nikon's 'Matrix' while Sony goes for 'Honeycomb'.

In essence, each type performs the same job; taking readings from all zones across the image and then using the results to deliver an accurate exposure.

These systems have become increasingly advanced and many use additional information from other parts of the camera – the focusing system, for example – to further improve accuracy.

### Spot/partial

If you want to take a meter reading from a very specific part of a scene, then you should choose spot or partial metering. These metering modes essentially perform the same task; taking a reading from just one part of the frame and disregarding everything else.

The only difference between spot and partial metering is that partial takes a reading from a larger area of the frame – usually the central 10 percent, as opposed to three percent with spot metering.

### Centre-weighted

Back in the early days of SLRs, centre-weighted was the only metering pattern available. It does exactly what it says on the tin; biasing the metering towards the centre of the frame, but still taking the rest of the frame into account as well. The split in emphasis is typically 75/25, but some DSLRs allow you to define the size of the central area.

Centre-weighted metering has lately been eclipsed by multi-zone metering, but some photographers still like to use it for general picture-taking.

## Reading histograms

The histogram that pops up on your camera's LCD after you've taken a picture may look like a mountain range, but its job is to measure the range of brightness values in an image, from pure black to pure white.

By reading the peaks or 'bars', you can work out a picture's contrast range – that is, how many tones there are between pure black and pure white – and whether the picture is correctly exposed. The brighter an object, the further towards the right of the histogram its bar will appear.

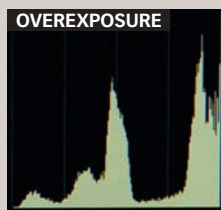
Conversely, the darker an object is, the further to the left its bar will be. The far left of the graph represents pure black and the far right, pure white.

An average picture with good contrast and even tonal range will be represented by bars spanning evenly across the histogram, left to right.

Try this experiment. Take a picture of a scene using your DSLR in program mode, but first dial in an exposure compensation of -2. If the histogram doesn't show up, consult the manual to find out how to turn it on.

Because you've deliberately underexposed the picture by dialling in -2 stops, the bars dominate the left-hand side of the graph, showing the picture is too dark. When this happens normally, increase exposure by dialling in +1 or +2 stops of compensation.

Now take a second picture, dialling in +1 or +2 stops exposure compensation. Now the bars in the histogram will bunch towards the right, indicating overexposure. In severe cases, the bars will be off the scale. To retain detail in the highlights, reduce exposure by dialling in -1 or -2 stops of exposure compensation.



Highlight peaks are bunched to the right.

## Exposure bracketing

All lightmeters are confused by certain situations – especially tricky lighting such as strong back-lighting, which tends to confuse a lightmeter into underexposure. Subjects that are predominantly black or white will also confound; this is because meters like to record the world as a muddy grey tone.

If you took all the tones in a picture and averaged them out, the result would be middle-grey. A simple experiment will prove this: take a picture of a white object such as a white-washed wall that fills the frame. Take it in program mode using any of your camera's metering methods. The result might not be what you expected. The white wall is probably grey!

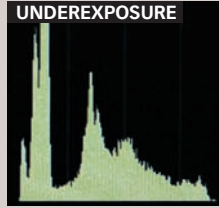
A white object in bright sunlight can be up to eight times brighter than middle grey. That means you need to increase the amount of light hitting the sensor to render it white. The easiest



“ Lightmeters record the world in middle grey ”

way to do this is by using your camera's exposure compensation button, usually represented by a +/- sign. Go back to your white wall and dial in one stop (+1) extra exposure. Then try +2 and +3. The wall will be brighter in each picture.

For a portrait of a Caucasian subject,



Highlights and shadows are evenly spread.

Shadow peaks are bunched to the left.



LEFT Autoexposure bracketing allows you to take one exposure at the estimated 'correct' setting, then a sequence of other exposures in plus and minus increments... eg +1 and +1.5 stops, then -1 and -1.5 stops. You get to choose the exposure you like best.

or a shadow on a white wall, dial in one stop (+1) extra exposure. The opposite applies to a black wall, or dark subject.

When you're uncertain about exposure, use autoexposure bracketing. It may be hidden in the menu system, so check the camera manual. Once activated, your camera will take several pictures in succession at different exposures, each varying by a specified increment from the estimated correct exposure. If you dial in +/- 1, the camera will shoot the first picture at

the presumed correct exposure and the subsequent exposures will vary by one stop either side – plus and minus. This way you can be sure one of the exposures is good.

The mode you're in also determines how the camera changes the exposure. In P mode, the camera will change both shutter speed and aperture. In Av mode, it will keep the aperture constant, changing only shutter speed. In Tv mode, it will keep the shutter speed the same, changing the aperture instead.



# Sharpen your focusing skills

Autofocus has to be one of the greatest inventions for the DSLR user but, like most great inventions, it's easy to get blasé about this impressive technology. As with most other DSLR functions, autofocus systems have become more and more sophisticated, with most offering a range of AF options.

Straight out of the box, your DSLR is likely to be set on One Shot autofocus with all focusing zones active. In this case, the camera will automatically determine where the main subject is in the scene and lock

focusing feature that provides the best of both worlds, where the camera detects whether the subject is moving or static and selects Continuous or One Shot focusing accordingly. Each manufacturer gives this dual-function autofocus a different name; Canon calls it AI Focus.

Often, a DSLR's metering system is linked to the active focusing point. This assumes that the main focus point is aligned with the main subject in frame.

Peer through your camera's viewfinder and you'll typically see a

“ With a moving subject activate Servo or Continuous ”

focus onto this point. With the focus locked, you can reframe the image by keeping light pressure on the shutter release, then pressing down fully to take the shot. This option is fine for a large proportion of images where the subject is static.

If you're focusing on a moving subject, you need to activate a focusing mode that constantly re-focuses, right up to the point the image is taken. This is typically known as Servo or Continuous autofocus. In this mode, the camera will track the subject across the focusing points

and, essentially, predict where the subject will be at the precise moment when the picture is taken, ensuring sharp focus. Many DSLRs also offer a

series of squares or dots that signify your camera's focusing points. The number of points can range from under five to more than 50, depending on your DSLR model.

Leave the choice of focusing point to your camera and it will illuminate the selected point in the viewfinder when you press the shutter release to focus. DSLRs also allow you to select the focusing point yourself. Such a feature comes in handy if the autofocus isn't detecting the subject automatically, or you're using One Shot autofocus and don't want to reframe before taking each picture. To select a focus point, press the AF point selector button then scroll through the points with the camera to your eye, until the required point is illuminated in the viewfinder.

One final piece of jargon to explain when it comes to autofocus: cross-



ABOVE Most DSLRs offer a variety of autofocus options – such as One Shot, Continuous or AI Focus. Don't forget there's always manual focus to fall back on!

ONE-SHOT



SELECTIVE FOCUS POINT



type focusing points. Most DSLRs offer a cross-type focusing point in the centre of the frame, but others offer further cross-type points at other focusing points. They all perform the same function; focusing on image contrast both vertically and horizontally, which delivers a more accurate focusing result. Naturally, the more cross-type sensors your DSLR has, the better the system will work.

Last but not least, don't forget about manual focusing. Most DSLRs offer a switch on the lens or camera body which enables you to flick over to manual focus. Why should you bother focusing manually? Well, there will be times when autofocus won't be able to cope, typically when faced with subjects that have little or no contrast, are in low light or are highly reflective.

When this happens, it's time to go switch to manual and use the focusing ring on your lens to ensure you get sharp pictures.

AI FOCUS



# File formats

When you take a digital picture, data comes off your DSLR's sensor in a string of binary ones and zeros. The camera's processor then bundles the information and saves the image as a file format. DSLRs typically use two file formats – JPEG and Raw – although some top end models also offer TIFFs. So which should you use?

## JPEGs

A JPEG is way of compressing information, which means certain data from the image is regarded by the camera's processor as redundant and ignored. This is why the JPEG format is sometimes called a 'lossy' format.

The advantage of JPEGs is that the more compression takes place, the smaller the resulting file. You can store many more JPEGs on your DSLR's memory card than Raw files. The catch is that as data is discarded, so image quality becomes compromised.

You'll find settings to change the quality of JPEGs in your camera's menu. Stick with the highest quality JPEG setting. Depending on your camera's megapixel count, this will enable you to get a high quality print at least to A4.

JPEGs are readable by most software programs and at the highest quality settings, you can achieve excellent results. If you're just finding your feet with DSLR photography, shoot JPEGs. DSLR purists will tell you to shoot Raw but the fact is, JPEGs are easier to use. They can be emailed and uploaded to websites and occupy much less space on your computer.

## Raw

If you don't want to lose data from your images, shoot Raw. In Raw files, data remains 'untouched' by the camera's processor and comes straight from the sensor, leaving you in total control over the final image. The disadvantage with Raw is that files occupy more space on your memory cards.

Each manufacturer has its own Raw format and provides Raw converter software free with your DSLR. To make a Raw file accessible to all, you'll have to convert it into a TIFF or JPEG first. Programs such as Adobe Photoshop Lightroom and Apple Aperture are designed to handle and process large quantities of Raw files.

There's a lot of fuss about Raw files, but here's some common-sense advice. Shoot the format you feel most comfortable using. Some DSLRs will enable you to simultaneously capture both Raw and JPEG files.

## TIFFs

Although very few cameras shoot this file format in-camera, TIFF is a popular format for saving a Raw file after adjustment in an image-editing program such as Photoshop. This is because it

“ DSLR purists will tell you to shoot Raw... ”

stores information without discarding image data. It's sometimes called a 'lossless' file format for this reason. This means a TIFF may be edited and re-saved many times without losing image quality. Most image-editing programs can read TIFFs – but the file sizes are considerably larger than JPEGs. ➔



ABOVE Raw files allow you 100% control over the final image. Here you can see that 'RAW' is selected on the LCD monitor.

RIGHT Raw and JPEG files can both be manipulated in image editing software – for instance converting to B&W. Save Raw files as TIFFs to retain maximum image data.





ABOVE Canon's own Raw conversion software is Digital Photo Professional, allowing for batch processing, quick previews and saving to TIFF or JPEG.

## What's the fuss about RAW?

Some photographers see shooting Raw akin to playing a piano with half the keys missing! That's because when you shoot a Raw image, the data coming off the sensor is 12-bit, which gives 4096 tones for each of the red, green and blue (RGB) colour channels. (Some DSLRs shoot 14-bit images, giving 16,384 tones.) A JPEG,

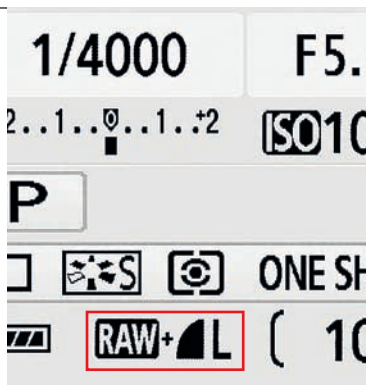
however, only has 8 bits, or 256 tones per channel, so when you shoot a JPEG, the camera has to dump the excess tones. That said, the human eye can only see around 16 million colours and, as an 8-bit JPEG contains just over 16 million colours, you might question whether it's worth the extra effort to get the most from Raw.

## Simultaneous shooting – the best of both worlds!

Many DSLRs offer the facility to shoot Raw and JPEG files at the same time – check in your camera's instruction manual to see if yours does.

The huge benefit of this is that after downloading all the shots to your computer, you can quickly scroll through the JPEGs to see if any may be worth working on. If you've captured some crackers that require some tweaks, simply find the corresponding Raw file and process it accordingly.

The bad news? Shooting in both file formats reduces memory card capacity even more, especially if you're capturing Raw files and large JPEGs.



# Making light work of ISOs



ABOVE Changing the ISO setting alters your DSLR sensor's sensitivity to light, also affecting the 'signal to noise' ratio. The higher the ISO, the more noise.

DSLRs have many advantages over other types of camera, but high on the list has to be the ability to change ISO at the press of a button. No need to wait until the end of the film as with traditional SLRs, just select the ISO for your needs and keep shooting.

If ISO is an unfamiliar term to you, it refers to the camera's sensitivity to light. This sensitivity is measured in ISO numbers, typically running from ISO 100 to ISO 3200, although some models offer sensitivities both above and below these figures.

Each ISO step upwards represents a doubling in the sensor's sensitivity to light. So, a picture taken at 1/60sec at f/11 at ISO 100 will be the same

Noise is seen in pictures as pixels that are abnormal, such as dark pixels on a light area, or a red pixel in a blue sky. It's most prominent in shadow areas and dark colours in an image. The greater the ISO speed, the greater the noise visible in the final picture. You could say it's like grain in film; the higher the film speed, the more prominent the grain.

As with film, image quality is higher at lower ISOs, where tones will be smoother and colours more accurate. Every DSLR performs well up to ISO 400, but some start to struggle when the sensitivity increases to ISO 1600 and beyond. Try shooting the same scene at all ISO settings on your DSLR

“ The greater the ISO speed, the greater the visible noise ”

exposure as one taken at 1/60sec at f/16 at ISO 200.

In the early days of digital, the light sensitivity of film was measured using the ISO (International Standards Organisation) standard, and so it was natural for image sensors to be rated in the same way, even though the science is different. What we're really talking about is a sensor's ISO-equivalent, because when you adjust the ISO speed of a sensor, you're really adjusting its 'gain' or amplifying the signal that comes off the sensor.

Increasing the ISO speed or gain of a sensor affects its signal-to-noise ratio.

so you can ascertain how many of your camera's settings are actually usable.

Noise also occurs during long exposures. Most DSLRs include some type of built-in noise reduction (or NR), which combats noise at the processing stage. Some DSLRs allow you to choose between types of noise reduction, strengths of application from normal to high, and some allow you to turn noise reduction off altogether.

Why would you want to turn noise reduction off? Noise reduction does a good job of reducing noise but all techniques to reduce noise involve a compromise. Fine detail is often →

sacrificed. Activating noise reduction also slows your shooting speed and there may be a shift in colour, especially with high ISO noise reduction.

To minimise noise in the first place, use a low ISO sensitivity between 100 and 400.

Raw images are unaffected by noise reduction – unless you've selected noise reduction in-camera which will be activated by your DSLR's supplied software during Raw file conversion. Canon's Raw Image Task software is one example. Third-party conversion

software such as Adobe's Camera Raw, which ships with Adobe Photoshop Elements, ignores in-camera settings like noise reduction.

Sometimes when shooting long exposures you may see 'stuck' pixels on the final image. These are pixels that are always on or always off. If they're on, they usually appear as a single red, green or blue speck. If they're off, you'll see them as a single dark speck on a light background. Most sensors have them and noise reduction can help to remove them.

## Explore your ISO settings

Explore both extremes of your DSLR's ISO dial – right up to the fastest settings. Here we've tried ultra-fast ISO 25,600. Image quality is always compromised at high ISO, with image noise, errant colours and pixellation.

ISO 100



ISO 400



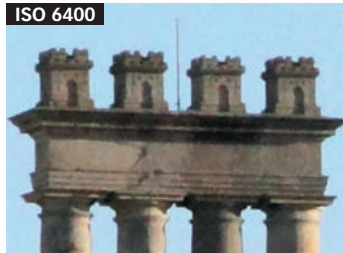
ISO 800



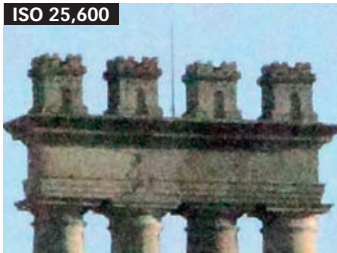
ISO 1600



ISO 6400



ISO 25,600



ISO 100 ORIGINAL







# White-balance

White-balance ensures white objects come out white in your images; the principle being that if the white is right, all the other colours in the scene will also be accurately rendered. Every type of light – sunlight, shadows, tungsten, fluorescent etc – has a colour temperature, which refers to the warmth or coolness of the light.

Our eyes and brain combine very well to assess what is white under different lighting, automatically getting rid of any colour cast the light may have, but DSLRs are less savvy and so need a helping hand.

Your DSLR will have a range of white-balance settings and they're all there to

## Take full control

Sometimes you'll find yourself facing a subject lit by two or more light sources, each one with a different colour temperature. You could simply choose Auto white-balance and let the camera figure it out, or you could create your own custom white-balance setting using an A4 sheet of white paper.

DSLRs employ various methods of setting custom white-balance, but essentially you should place the sheet of paper in the light for which you want to get a correct white-balance reading. Take a picture of the paper, filling the frame, then tell the camera to tweak settings so the paper records white.

“ White-balance can be used for all sorts of pictorial effects ”

help you to get the whitest whites.

Most photographers leave white-balance set to Auto, which is fine. In this mode, the camera will assess the conditions and take a best guess at the white-balance setting – often getting it spot on.

There will be occasions, though, when Auto won't achieve the right white-balance for the conditions you're shooting in. So, if you'd prefer to take matters into your own hands, turn to your DSLR's preset options and scroll through to find the one which describes your lighting most accurately.

For instance, if you're shooting indoors under conventional household bulbs, you should select the tungsten preset. Conversely, if you're shooting outdoors in overcast conditions, choose the cloudy preset.

Just remember to change back to Auto (or another preset) as soon as the lighting changes.

This will, in turn, be saved in the camera's custom white-balance setting and can be used for all subsequent shots taken in those same lighting conditions.

If the light changes, you'll need to take another shot of the paper and repeat the process.

If the idea of carrying sheets of paper around doesn't appeal, there is another option; shoot using the Raw file format. Once you get the files on your computer, you have all the same white-balance controls as you do on your camera, so you can use the one that best suits your image.

It's worth remembering that white-balance is there to be played with and can be used for pictorial effects. Try taking the same shot using all your camera's white-balance settings and assessing the results. They won't all be good, but some could add an extra dimension to your images.



ABOVE The white-balance setting is easy to adjust according to the available light. If your camera has a WB button, press it; if not, it's probably hidden in a sub-menu...

AUTO WB



CLOUDY



CUSTOM



DAYLIGHT



FLASH



FLUORESCENT



SHADE



TUNGSTEN



**ABOVE** Compare the various white-balance settings on your DSLR and you'll see how the camera will correct the orange light from domestic light bulbs (fluorescent and tungsten) by adding blue. You can use these settings outdoors for a cool blue look.

# Using your built-in flash



A large percentage of DSLRs feature a built-in flash, and while it's not powerful enough to light a cathedral interior, it's handy for a range of photo situations.

If you're shooting with a program or scene exposure mode, chances are your DSLR will fire its built-in flash automatically. Or, a flash thunderbolt icon will blink in the viewfinder, advising you to switch the flash on. Once the flash is charged and ready to fire, the thunderbolt will stop blinking.

If you're shooting portraits with flash it's best

to activate your DSLR's anti red-eye feature. People pictures taken with a camera's built-in flash can often suffer from this ghoulish effect where the subject's pupils appear bright red. This occurs because the flash is so close to the camera's lens axis it can record the redness inside the subject's eyes.

DSLRs use various methods to counter the problem, from firing a series of rapid flash bursts to shining a constant torch beam of light just prior to the picture being taken. Whatever the method, they all perform the same function: reducing your subject's pupils to minimise the effect.

It's always worth warning your subject(s) before taking the picture!

## Using flash outdoors

Fill-in flash is handy when taking pictures outdoors. It's most commonly used for portraits on bright days when your subject's face or features may be casting shadows, but can be equally useful for nature images, too.

Confusingly, most DSLRs don't offer a specific fill-in flash mode. Instead you have to force the flash to fire in conditions when ordinarily it wouldn't. This is typically done either by popping the flash up or activating 'Flash On' in your

camera's flash menu. Once the flash is up, try taking a shot to see what you get.

Chances are your DSLR will be sophisticated enough to handle the exposure automatically. If not, find your DSLR's flash exposure compensation function, select -1, -1.5 and -2 and take additional shots – at least one will look more natural. What you're doing here is reducing the output of the flash, so it combines naturally with the daylight to 'fill-in' the shadows.

WITHOUT FLASH



WITH FLASH



A burst of gentle fill-in flash removes shadows.

NIGHT PORTRAIT MODE



NORMAL FLASH

## Using flash at night

If you shoot a lot of images outdoors in low light using a tripod, you won't always want the flash to fire. In these circumstances, it's best to turn the flash off. This can be done via your camera's flash menu. Even with the flash turned off, your DSLR will usually advise you to turn it back on via the flashing thunderbolt in the viewfinder. It's handy to use this as a reminder to put your camera on a tripod or some other support. If the thunderbolt (or the shutter

speed) is flashing in the viewfinder, it means that the light is too low for handholding the camera. Get it on a tripod or suffer shots with camera shake.

DSLRs do offer one feature, however, that's very handy for use outdoors at night: night portrait mode. This is ideal for those times when you want to photograph someone in front of a floodlit building. In this mode, the camera couples a burst of flash with a long exposure so both the person and the building are correctly exposed. Again, you'll need your camera on a tripod as the shutter speed will be too long to avoid camera shake if you handhold it.

## FLASH TOP TIPS

- Your DSLR's built-in flash isn't that powerful – don't expect it to illuminate anything more than a few metres away. The higher the ISO you use, the greater its effective distance.
- If you have a lens hood on your lens, take it off before you use the built-in flash, otherwise it could block the light.
- Get to know how your flash exposure compensation works.

Setting it to minus figures will make the burst more subtle.

- Make sure your subject isn't too close. At less than a metre the flash may be too strong and coverage may be affected.

# Next month

Continue your quest for great pictures with our 32-page guide free with the April 2009 issue of Photography Monthly.

**On sale March 12**



# Essential Photo techniques explained

**Depth-of-field demystified!** Composition conquered!  
Focusing fixed! **Perspective sorted!**

LEE BEEL