



Lightroom Bitesize: Achieving the correct white balance

You will probably have noticed that some images seem to have a distinct colour-cast to them even though it couldn't be seen by the eye at the time of taking them. This is because light gains a colour-cast depending on the temperature of that light. The human eye (together with the brain) automatically compensates for it (which is why we never observe it when we look at the scene) but the camera's sensor isn't that clever and just records it as it is.

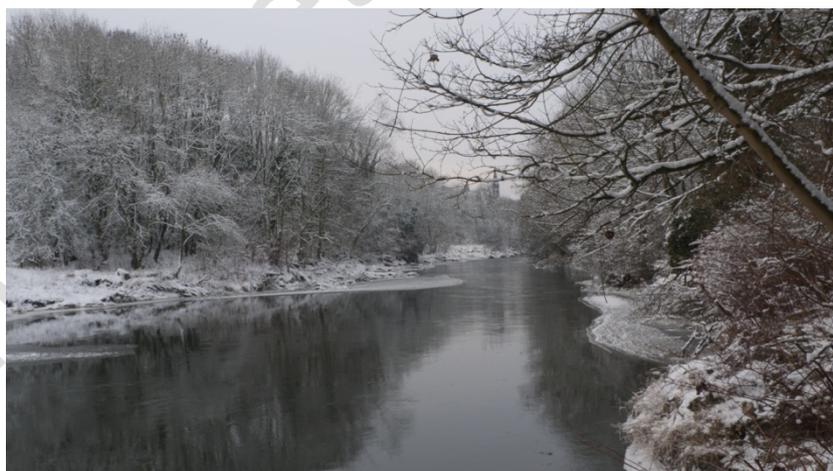
In the days of film, this could be a major problem and so coloured filters were put on the front of the lens to compensate. The most common film was 'daylight' and if this film was used to record an indoor scene lit by tungsten lights, for example, then a distinct yellow cast would be seen on all the images. To counteract this a blue filter (usually an 80A Blue) would be used. Conversely, if tungsten film was being used to record a scene in daylight an orange (85B) filter would need to be used.

Today's digital cameras now have adjustable white balance which you can set dependant on the type of lighting available - or you can do what most do and just set it to auto-white-balance (AWB) and let the camera sort it out.

The trouble is - sometimes the camera gets it wrong - and sometimes we want to create a mood by changing the 'correct' white balance to something cooler (Bluer) or warmer (Yellower).

Fortunately, Lightroom makes it easy to correct (or change) the white balance - and in typical style it offers multiple ways of achieving it.

For the example image I've chosen this one of the River Severn during a particularly cold spell during December 2010 because it has a lot of grey in it and will show up the different colour temperatures nicely:



This was taken with my Panasonic Lumix DMC-LX3 set to auto-white-balance (AWB) and, it has to be said, it has done a fairly good job.

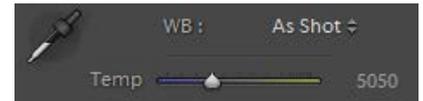
Actually, I can tell from Lightroom that it is actually a little too cool - and hence a little too blue - but I'll tell you how I know this towards the end of the tutorial.



Now let's look at the different ways we can adjust the white balance.

1) The presets:

Towards the top of the Basics panel when in the Develop module you will see the white balance (WB) section. On the right you will see that by default it will say 'as shot' - because it is showing the white balance that the camera set at the time the shutter was activated.



Immediately adjacent is a little pair of arrows. If you click on them a list of alternative preset white balances can be chosen. To see the difference between them with a landscape-type shot let's try each one in turn:

<u>Name</u>	<u>Temperature</u>		<u>Comments</u>
Auto	6750 K		Lightroom has its own 'auto' setting and it is likely that this will differ slightly from your camera's auto setting. In this case Lightroom has created a slightly warmer image (the original shot was 5800 K).
Daylight	5500 K		Daylight is slightly cooler than cloud or shade and, since it is a cloudy day, has created a very slightly bluer image.
Cloudy	6500 K		Very similar to the 'auto' result - and to be expected since it was a cloudy day.
Shade	7500 K		This has made the image slightly warmer (yellowier) since it assumes that shaded light is cooler than daylight or cloudy light and so has compensated accordingly.



Tungsten 2850 K



Tungsten light can give a VERY yellow cast and so it needs a very big blue correction - as can be seen here.

Fluorescent 3800 K



Fluorescent light isn't quite as warm as tungsten light so the blue correction is not as pronounced - but still very visible.

Flash 5500 K



Light from a flash gun is designed to be very neutral and so it's not surprising that it gives very close results to the 'daylight' setting.

Obviously with an image was taken indoors under tungsten light then the 'Tungsten' white balance would look correct but the 'Shade' white balance would look very yellow.

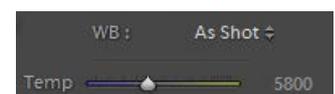
The main use of presets is to apply an instant adjustment if you have accidentally set your camera to the wrong white balance and want to revert to the correct one.

Note: I have assumed you are using RAW. If you use JPG then you won't have the full choice – only 'As-shot' and 'Custom'.

You will notice that I missed one of the presents out - 'custom'. That is because it makes use of the slider.

2) The Slider:

You can just use the slider to choose a temperature of choice (which is shown to the right of the slider). Handily, the slider also shows the colour-cast that the image will obtain as you slide in that direction (Blue = cooler, Yellow = warmer). As soon as you move the slider away from the 'as-shot' position, it will change designation to 'custom'.



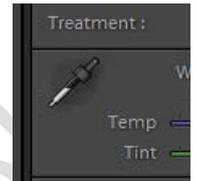
At this point it may be best to mention colour temperature. It is measured using the SI unit of temperature, the Kelvin (K). As a rough guide, 5800K (the colour temperature of the original shot) converts to approximately 5527 degrees Celsius. Quite hot !



3) The Selector

The third way that you can set white balance is to use the selector or 'Dropper'.

Just click on it to select it and then click on an area in the image which you judge to be neutral grey.



In our example image this is quite easy since most of it is, in fact, grey. It becomes trickier when you have lots of colours and shades in the image.

Note: Some photographers carry a neutral grey card with them and take an image of it first so that they can use it to set the global white balance when they start post-processing.

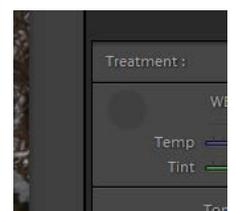
You will notice a pop-up grid appear which shows you details of the colour samples close to the Dropper. At the bottom you will see three numbers indicating the amount of Red, Green & Blue. If you cannot find a grey area, just aim for an area where all three numbers are roughly the same – this indicates a neutral colour.



At all times keep an eye on the Preview pane on the top-left. This shows a live view of the white balance as you hover around the image – and shows if it is going far too blue or yellow before you make the selection.



When you have finished with the dropper just click it back in its original position.

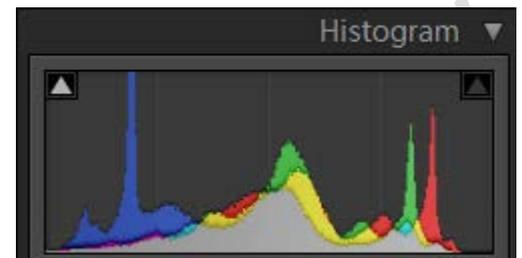




4) Histogram

I mentioned earlier that I could tell that the original image was a little cool. How? – by looking at the histogram.

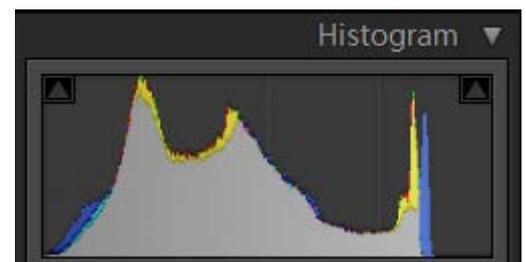
You will notice that the histogram is made up of various colours – and is actually the superposition of the histogram of the three RGB channels using the following colour codes:



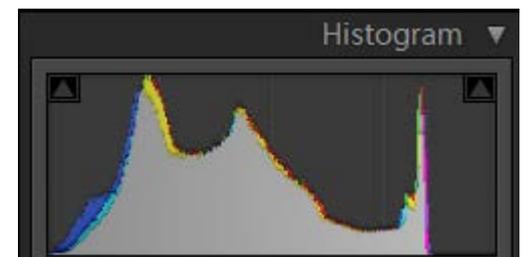
- The histogram is a *primary* RGB colour (i.e. **red**, **green** or **blue**) when the histogram of that colour is not overlapping the histogram of any other colour.
- The histogram is **grey** when all of the three RGB histograms are overlapping.
- The histogram is a *secondary* RGB colour when two of the primary RGB colour histograms are overlapping:
 - The histogram will be **yellow** when the **red** and **green** channel histograms are overlapping.
 - The histogram will be **cyan** when the **green** and **blue** channel histograms are overlapping.
 - The histogram will be **magenta** when the **red** and **blue** channel histograms are overlapping.

In general, the white balance is correct when the grey histogram (when all of the three RGB histograms are overlapping) is at its largest, central position.

In our original image the grey histogram was biased slightly to the left showing the distinct area of the blue histogram to its right.



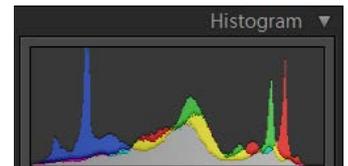
By adjusting the White Balance slider so that the grey histogram moved to the right, covering the blue histogram, a much better white balance was achieved.



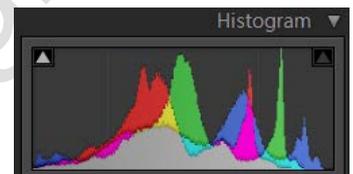
Of course this was easy with an image which was predominantly grey, but even with an image that has distinct colours the same process applies.



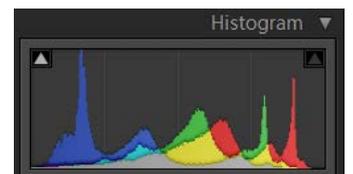
Take this image of beach huts at Whitby. Very distinctive colours which are show as coloured peaks of their respective histogram. However, the grey area is central and as large as it can be – indicating that the correct white balance was used.



With the white balance slider adjusted slightly to the left the grey histogram is smaller. The image now looks too cool (blue).



With the white balance slider adjusted slightly to the right the grey histogram is again smaller. The image now looks too warm (yellow).



Conclusion:

So there we have four different ways of setting & checking white balance in Lightroom – and everyone has their preferred method so the choice is up to you. Be aware that the presets, both on your camera and in Lightroom, are only approximate and so a slight manual tweak with the slider or dropper may always be required to obtain the optimum result.

Remember – there is no ‘correct’ answer. Just find the best compromise between how the scene actually looked like at the time – and what mood you want to convey. And please calibrate your monitor – otherwise the image may look great to you but terrible to everyone else.

If you found this tutorial useful please let me know by leaving a comment on my Facebook page (or just ‘Like’ it) at <https://www.facebook.com/johnhallettphotographs/> . Thanks