White Balance

Understanding White Balance in Digital Photography

White balance (WB) is considered as one of the most important settings of a digital camera. Let's consider a scenario where you want to capture the beauty of sea waves hitting the shore with an overcast sky at the background. Sounds interesting? Well, if you don't use the correct white balance setting of your digital camera, you may get a picture with colours different from the actual ones. Therefore, in order to produce a beautifully exposed image with true to life colours, you must learn to effectively use the white balance setting of your digital camera.

Colour Temperature

To understand the concept of White Balance, you need to first understand the concept of colour temperature. Colour temperature is a characteristic of visible light. It provides a method of describing these characteristics and is measured in Kelvin (K). A light having higher colour temperature will have more blue light or larger Kelvin value as compared to lower light, which has a smaller Kelvin value. The following table shows the color temperature of various sources of light

WB SETTINGS	COLOR TEMPERATURE	LIGHT SOURCES
	10000 - 15000 K	Clear Blue Sky
	6500 - 8000 K	Cloudy Sky / Shade
	6000 - 7000 K	Noon Sunlight
	5500 - 6500 K	Average Daylight
	5000 - 5500 K	Electronic Flash
	4000 - 5000 K	Fluorescent Light
	3000 - 4000 K	Early AM / Late PM
	2500 - 3000 K	Domestic Lightning
	1000 - 2000 K	Candle Flame

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How does the Light Affect the Color?

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You must have noticed some photos turn out with an orange/yellow cast if shot under tungsten lighting or a bluish cast if shot under fluorescent lights. This occurs because each source of light possesses a different colour temperature. A digital camera can measure the colours in the red, green, and blue light of the spectrum, as reflected to its sensors. In a photo taken under the midday sun there is the whole spectrum of light (which makes up “white” sunlight). Under these conditions, the colours in an image appear nearest to the “true” colours. An image taken under tungsten bulb (a normal household incandescent bulb) without adjusting the digital camera for white balance produces the dull orange shade as it spreads the biased light. Similarly, an image taken under the fluorescent lighting produces a brighter bluish cast. However, it is possible to shift the colour in the desirable direction, provided you have a good understanding of your digital camera and its settings.

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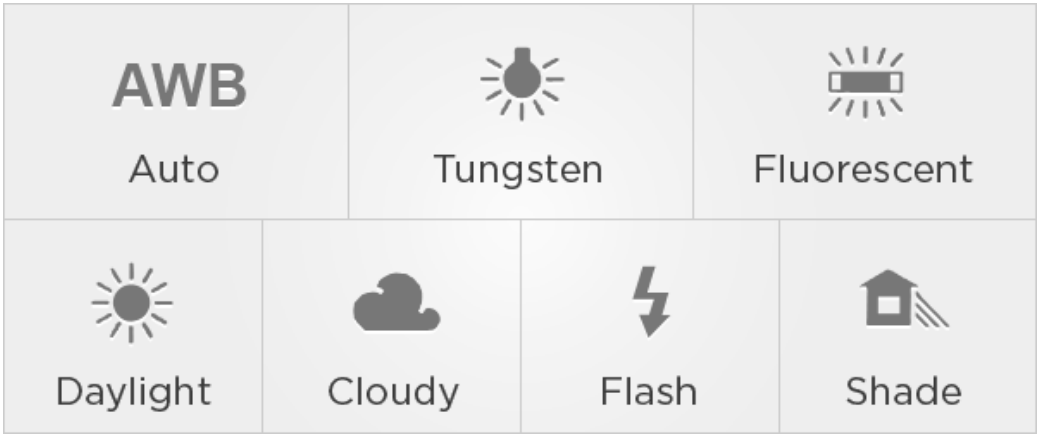
Why to Adjust the White Balance?

Since different sources of light have different colour hues, a picture taken with a normal white balance under artificial lighting conditions transmits the low heat to the camera's sensor. This light touches the red bits of the spectrum, which results into dull yellow or orange shades in the picture. Though the human eyes can automatically adjust to different lights and colour temperatures to sense right colour, a camera needs to be adjusted to different lights for accurate colour reproduction. By adjusting the white balance setting of your digital camera, you can alter the required light or temperature to produce the most accurate colours in a digital image.



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Auto – The Auto setting helps in adjusting the white balance automatically according to the different lighting conditions, but you can try other modes to get better results.

Tungsten – This mode is used for light under a little bulb like tungsten, and it is often used while shooting indoors. The tungsten setting of the digital camera cools down the colour temperature in photos.

Fluorescent – This mode is used for getting brighter and warmer shots while compensating for cool shade of fluorescent light.

Daylight – This mode is for the normal day light setting, while shooting outdoors. Many cameras do not have the Daylight mode.
Cloudy – This mode is ideal for while shooting on a cloudy day. This is because it warms up the subject and surroundings and allows you to capture better shots.
Flash – The flash mode is required when there is inadequate lighting available. This mode helps pick the right White Balance under low light conditions.
Shade – A shaded location generally produces cooler or bluer pictures, hence you need to warm up the surroundings while shooting shaded objects.

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Manual White Balance

You can also adjust your digital camera manually by setting a white object as the reference point. This is done to guide the camera how white the object would look in a particular shot. It is advisable to manually adjust the white balance when taking a picture to compensate for the changing lighting conditions. As the daylight changes during early morning and late evening hours, the varied light intensity is easily perceived by the camera. Therefore, you need to correct the white balance regularly while shooting during these times of the day. To manually set the white balance in your image, you first point your camera at a pure white object, set the exposure and focus. Now, activate the white balance on the object by pressing the button. It may take few seconds for the camera to perceive the shot, but it will this colour setting until the next white balance is performed.

Conclusion

Some people consider it amateurish to use pre determined settings, when in fact there may be times when we are in a rush and cannot adjust everything manually. Also remember that using these modes will teach you about photography and ideal settings for different conditions. If in doubt, you can use Auto mode, then adjust the settings manually. Auto settings are there to be used so try them all, and become familiar with what each one does.