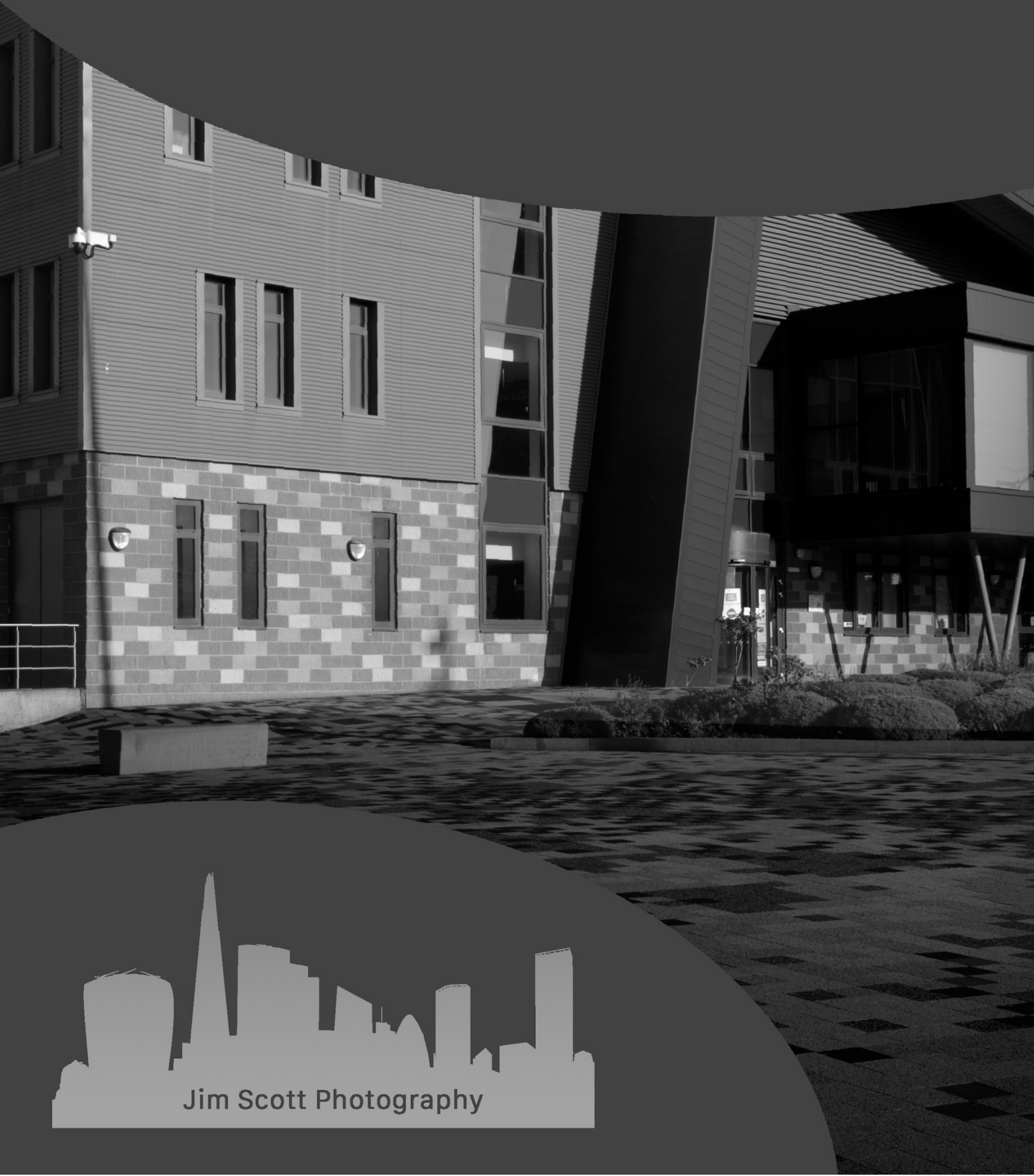


# Converting to Black and White



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## Converting to Black and White

There are a range of methods available in Photoshop for converting images to black and white and are either destructive or non-destructive in nature. This guide will discuss these methods and highlight the strengths and weaknesses of each of these approaches

### Method 1 – Converting to Grayscale

To convert an image to Black and White using Grayscale mode go to **IMAGE>MODE>GRAYSCALE**. The first option that comes up is asking whether to flatten the image or not. On making a selection, another dialogue box appears and looks for confirmation to discard the colour information from the image. Selecting the Discard option will convert the image to grayscale.

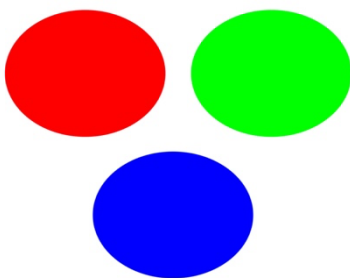
Whilst this method involves only a few steps, it is a destructive method meaning the changes to the image are now permanent and the other disadvantage is whilst a degree of tonality is maintained in the conversions, the option to make further changes to the image are limited as the colour information is no longer available to facilitate any further changes to the image tonality. The Discard dialogue box advises that a Black and White Adjustment should be used if greater editing control of the image is required.

### Method 2 – Desaturate

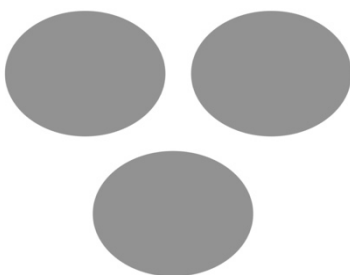
Similar to the first method using Grayscale, the Desaturate method can be applied quickly by going to **IMAGE>ADJUSTMENTS>DESATURATE**, however as per the Grayscale method, this is also destructive in nature and offers no real control of the image after it has been converted.

### Method 3 – Reducing Saturation Using Hue/Saturation Adjustment Layer

Using the desaturation method can be done in both a destructive and a non-destructive fashion. To convert the image to black and white using the destructive method, go to **IMAGE>ADJUSTMENTS>HUE/SATURATION** or alternatively use the non-destructive method by adding a Hue/Saturation adjustment layer.



In both the afore-mentioned methods, reducing the Saturation slider all the way to the left (-100) will remove all the colour from the image.



From the figure adjacent, when saturation is fully reduced, you will see that as well as no colour being present there is also no difference in the tonality of the image which can leave the image looking flat and subsequently limits the ability to have a greater editing control of the image.

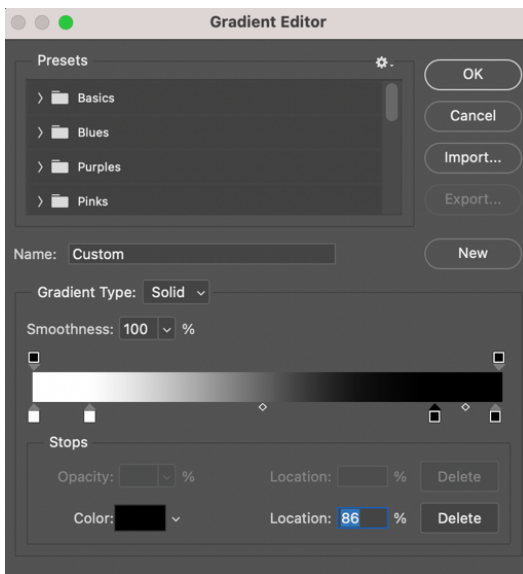
## Method 4 – Lab Color Mode

On switching a colour image in RGB color mode to Lab color mode (**IMAGE>MODE>LAB COLOR**), it will look the exact same, as Lab color mode makes no alterations to the colours of the image. However, whilst an RGB image splits the colour information into three channels comprising of Red, Green and Blue, an image in Lab mode will display the information differently as it separates the brightness and colour values of the image. When looking at the channel information in Lab color mode, one channel is defined as Lightness and the other 2 channels are defined as ‘a’ and ‘b’ (hence the term Lab). All colours from magenta and green are located within the ‘a’ channel with the ‘b’ channel containing the colours ranging between yellow and blue.

To convert the image to black and white, delete the ‘a’ and ‘b’ channels which now removes all colour from the image to leave only the Lightness channel active. The resultant changes now resemble a grayscale image as there are no colour values in the image, only the contrast between the darkest and lightest points in the image. At this point the image cannot be reverted to RGB color mode (menu selection is greyed out), therefore, it must be first converted back to greyscale (**IMAGE>MODE>GREYSCALE**). Once converted the colour space can now be changed to RGB color mode (**IMAGE>MODE>RGB COLOR**) and as there is no colour information at this point the Red, Green and Blue channels are basically copies of the greyscale image. The main limitations of this method are similar to the greyscale method in that it is a destructive method and also offers limited scope to work with the image thereafter as there is no longer any colour information present within the image.

## Method 5 – Gradient Map Adjustment Layer

Using a Gradient Map adjustment layer to convert a colour image to black and white is a non-destructive process as this method does not make changes to the original pixel-based image. To add a gradient map, ensure the foreground and background colours are set to default (black, white) then go to **LAYER>NEW ADJUSTMENT LAYER>GRADIENT MAP**. At this point the gradient map will apply a black and white gradient based on the brightness values of the pixels in the image.



Whilst the image has now been converted to black and white, it may look flat and lacking in contrast. To add some contrast to the image, open the Gradient Editor dialogue box by clicking on the Gradient preset (double click on the gradient icon on the layer to show the layer properties) and then click on either the white or the black stop to show the midtone stop.

Add 2 additional stops one between the white point and the midtone point and the other between the black point and the midtone point. Adjust the position of these 2 extra stops to alter the contrast in the image as required.

## Method 6 – Black and White Adjustment Layer

To convert a colour image to black and white using a Black and White adjustment layer, go to **LAYER>NEW ADJUSTMENT LAYER>BLACK & WHITE**. Unlike some of the previous methods discussed in this guide, using the black and white adjustment layer offers more control of the image as you can make adjustments using the 6 sliders to brighten or darken the colours of the image or alternatively use one of the presets within the adjustment layer. Some caution is required as excessive changes using the sliders could degrade the image.

The adjustment layer can also be used in conjunction with other adjustments layers such as curves or gradient map to make additional changes to the image, all of which can be controlled by using layers to mask in or mask out changes.

## Method 7 – Channel Mixer Adjustment Layer

Converting an image to black and white using a Channel Mixer adjustment layer is a non-destructive process and offers the ability to have control over the image. On adding the Channel Mixer adjustment layer (**LAYER>NEW ADJUSTMENT LAYER>CHANNEL MIXER**), in the properties tab, click on the monochrome box to convert the image to black and white. The output channel has now changed to 'Gray' and changes to the image can be done using the Red, Green and Blue sliders. Moving the slider to the left will darken the respective colour channel, whilst moving it to the right will lighten it.

Whilst each of these sliders has a percentage value, there is also a 'Total' figure displayed in the Properties panel which is derived from the adding the values of the 3 colour sliders. When making adjustments to the image, the aim is to have the total sitting at 100% as a value either less or more than 100% will result in the image being either underexposed or overexposed respectively. In addition to using the sliders there are also six presets that can be used to emulate the application of a filter to the image.

Sitting under the three colour sliders is a fourth slider referred to as the Constant slider and can be used to move/adjust the black or white points of the image to create more contrast. When this slider is used the same principle applies as the value represented by the Constant slider should be added to the total value of the 3 colour sliders to balance the image out to 100% (when the Constant slider is used, the total value figure is not automatically adjusted, therefore the value should be manually calculated).

## Method 8 – Calculations

An alternative method utilising the colour information of the image to convert to black and white is to use Calculations which is enabled by going to **IMAGE>CALCULATIONS**. This immediately converts the image to black and white and whilst it does not use adjustment layers, it does offer some scope to control changes to the image.

In the Calculations panel that now appears, ensure both Source 1 and Source 2 display the same name and the Layer displayed is also the same on both sources. Select a blend mode then try different combination of channel colours between the two sources to determine the best combination (make sure the Preview box is ticked to see the changes as they occur).

If required, adjust the opacity and then to complete the transformation there are three options available in the 'Result' drop down section. The changes can create a new 'Alpha' channel either within the existing image or output to a new image file or document (there is a third option to output as a selection but that is not relevant in this conversion process).

Outputting to a new image file (document) also offers the opportunity to repeat the process using the colour image again and when using calculations a second time, use a different blend mode such as 'Lighten' and output to another image file (document) At this point the 2 new files can be copied and pasted back into the original colour image file as a layers and then merge the layers together using the BlendIf function (right click on the top layer and select Blending Options) and adjustment to the layer opacity to conclude the blending process

### **Method 9 – Hue/Saturation Adjustment Layers & Luminosity Blend Mode**

Add 2 Hue/Saturation adjustment layers (**LAYER>NEW ADJUSTMENT LAYER>HUE/SATURATION**) and whilst standing on the top layer, move the Saturation slider all the way to the left (**-100**) which will remove all the colour from the image. Next, stand on the underlying adjustment layer and change the blend mode to 'Luminosity'. The Hue slider can now be adjusted to create the desired tonal contrast look.

This non-destructive method offers scope to control the image as localised adjustments can be made and then added to the image using masks. To use different Hue values on different parts of the image, adjust the Hue slider relative to the part of the image the change is to be applied, then group the 2 adjustment layers and switch off the grouped layer. Add a further 2 Hue/Saturation adjustment layers and repeat the previous steps and when complete, group these 2 additional layers. Switch the other grouped layer back on and then paint in or paint out the changes as required using the layer masks. If required repeat again until all adjustments are complete.

### **Method 10 – Hue/Saturation Adjustment Layers & Colour Blend Mode**

Using this method differs from using a single adjustment Hue/Saturation adjustment layer as unlike the single adjustment layer where there is no control of the image when desaturating the image, the use of more than 1 adjustments layer offers some control of the image tonality. Begin by adding 2 adjustment layers by going to **LAYER>NEW ADJUSTMENT LAYER>HUE/SATURATION**. Stand on the top Hue/Saturation adjustment layer and move the Saturation slider all the way to the left (**-100**) which will remove all the colour from the image and change the blend mode of the layer to 'Color'.

Now stand on the underlying layer and move the saturation slider partially to the right (approx. +60) and then move the Hue slider across the colour spectrum and review the tonal contrast changes to the image to determine which adjustment provides the most favourable (desirable) result. If required, make further adjustment to the Saturation slider to fine tune the effect.

It may be the case that different Hue adjustments may suit different parts of the image, therefore, should this be the case, a third Hue/Saturation adjustment layer can be added (in between the 2 other layers) and the Hue slider then adjusted accordingly for the desired effect. Use the layer masks to paint in or paint out the changes on the different parts of the image as required.

## Method 11 – Luminosity Blend Mode

The eleventh method of converting to black and white is an alternative to using adjustment layers or the default features in Photoshop. Begin by making a copy of the colour image and ensure the blend mode is set to 'Normal'. Add a blank layer and fill this layer with either black, white or 50% gray and ensure the blend mode is set to 'Normal' also. At this point drag the layer that has just been filled in and place it under the layer that is the copy of the colour image. Stand on the top layer (copy of the colour layer) and change the blend mode of the top layer to '**Luminosity**'. The top layer will be changed to black and white and is a non-destructive change as it does not affect the original colour layer.

Whilst this method offers less control at the conversion point in comparison to some of the other methods in this guide, it can now be changed using additional methods such as curves adjustment layers and masking to create additional areas of contrast within the image. It is also non-destructive as the pixels in the original colour layer are untouched at this time, therefore the option of return back to the previous state prior to the black and white conversion is still available.

## Method 12 – Luminosity Colour Control

Another method is to use a combination of adjustments layers. Start by adding a Black and White adjustment layer, by going to **LAYER>NEW ADJUSTMENT LAYER>BLACK & WHITE** then change the blend mode to '**Luminosity**'.

Now add two Hue/Saturation adjustment layers by going to **LAYER>NEW ADJUSTMENT LAYER>HUE/SATURATION** and whilst standing on the top layer, move the Saturation slider all the way to the left (**-100**) which will remove all the colour from the image and change the blend mode to '**Color**'. Stand on the underlying Hue/Saturation adjustment layer and increase the Saturation temporarily to around **+80**

Standing back on the Black and White adjustment layer, the colours sliders can now be used to adjust luminosity of original colour values individually after being converted to black and white enabling specific targeted adjustments if required. When all luminosity adjustments have been completed, go back to the underlying Hue/Saturation adjustment layer and reduce the saturation slider to the desired level to conclude the conversion and adjustment.