



Using Adobe Photoshop

7 – Image Adjustments

One of Photoshop's strengths has always been its ability to assist in touching up photographs. Even photos taken by the best photographers can do with a little touching up if they were taken in poor lighting or other poor conditions. Additionally, old photos that have been scanned often need some kind of touching up due to fading colours, scratches and other marks. Photoshop includes a wide range of tools specifically aimed at improving the way photos look. Of course many of these tools are also useful for special graphical effects so it's worthwhile experimenting with them when you are familiar with their basic functionality.



Some of Photoshop's adjustment tools, such as **Levels**, **Brightness/Contrast** and **Hue/Saturation** have been available since the earliest versions, though additional tools have been added to more recent versions. The exercises which follow will introduce you to many of these tools. There are other useful tools not covered here but these exercises will look at a selection of some of the most useful.

Note The screen images in the previous sections showed Adobe Photoshop CS (version 8). The images in this and following sections show Photoshop CS2 (version 9).

Adjustment Tools

Brightness and Contrast

One of the oldest and most basic adjustment tools in Photoshop is the **Brightness/Contrast** tool. As the name suggests, this tool allows you to adjust how bright an image is along with the amount of contrast between light and dark tones in an image. It is suitable for quick touch ups but is not recommended for high end output as its use can result in a loss in image detail. One example of where this can be useful is where a photograph has been taken poorly like in the examples below.



Picture of a bike taken with a good amount of light.



This photo is over exposed, meaning that the camera lens allowed in too much light when the photo was taken. This has resulted in the picture looking too bright.



This photo is under exposed, meaning that the camera lens allowed in too little light when the photo was taken. This has resulted in the picture looking too dark.

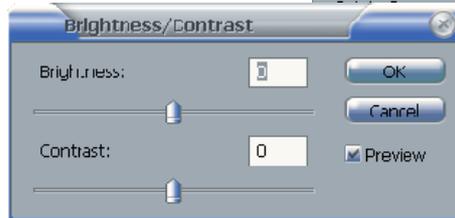
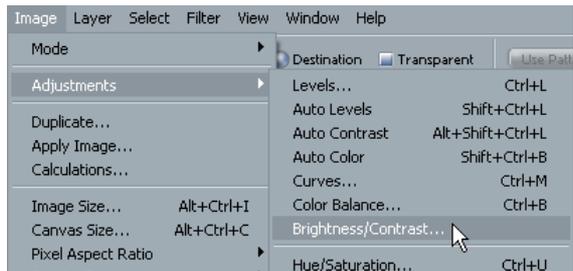


This photo is not too bright or too dark, but the colours look less defined since there is not enough contrast between the light and dark colours.

In each of the last three cases the photo could be improved by using the brightness/contrast tool. You might not be able to get it looking as good as a photograph that was taken properly in the first place and these examples are fairly extreme but it can be used to improve a scanned photo or one that's 'not quite right'.

Exercise 1 – Adjusting Brightness and Contrast

- 1) Open the image called *Bike.jpg*. You will notice that this image looks a little light and doesn't look very sharp.
- 2) From the Image menu select Adjustments and then select Brightness/Contrast. The Brightness and Contrast adjustment options will appear.



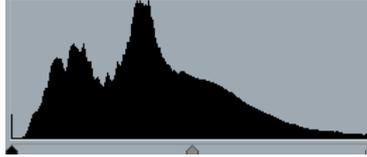
- 3) To darken the picture, move the **Brightness** slider a little to the left until the brightness level is about -10 to -15. If you have the **Preview** option selection, you will see the image change (this change doesn't become permanent unless you click on **OK**).
- 4) To increase the contrast, drag the **Contrast** slider a little to the right until it is at approximately +15 to +20.
- 5) Turn the **Preview** option on and off a few times to see how the picture looks with and without the changes.
- 6) Click on the **Cancel** button since we will try using other tools to make the change.



Levels

In most cases you can get superior results by using Photoshop's Levels adjustment tool. The Levels options look complex for a new user but when you are familiar with how it works, you may find it is easier and more intuitive than it looks.

The levels options use a Histogram to display the number of pixels of an image that are in each intensity range as the examples below illustrate.



In the good image, the pixels in the image are fairly evenly distributed throughout the tonal range as shown by the histogram graph.

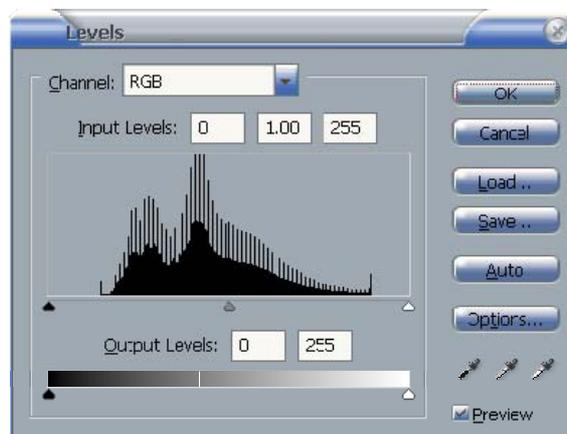


In the lighter, overexposed image, more of the pixels in the image are in the lighter tonal range so the histogram is skewed to the right.



In the darker, underexposed image, more of the pixels in the image are in the darker tonal range so the histogram is skewed to the left.

The Levels options are shown below. The input levels have three options which are for adjusting the Shadows, Midtones and Highlights in the image. There are also two output options for adjusting the darker and lighter areas of an image. Most of the other options will be demonstrated in following exercises.

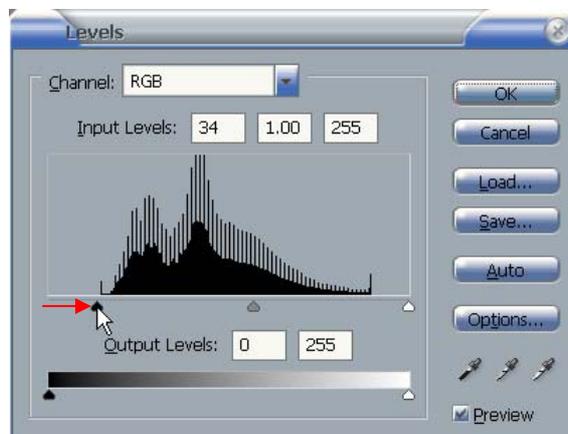


Exercise 2 – Adjusting Input Levels

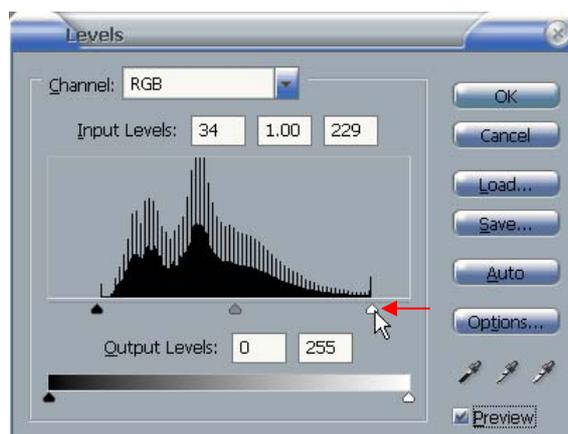
- 1) With the *Bike.jpg* image still open, select **Image, Adjustments** and then **Levels**. The keyboard shortcut (**[Ctrl] [L]**) is worth remembering since many Photoshop users get a lot of use out of the levels options. We're going to start with adjusting Input levels, since that is what you will most likely find most useful.

The levels can be adjusted either by typing an amount in the appropriate box or by dragging a slider beneath the histogram. The first input option is for adjusting the shadow tones in the image. Any pixels of the image that have a tonal value of 0 are completely black. Any with a value of 255 are completely white. If the histogram shows a lot of blank space on the shadow or highlight end then it probably indicates that too many pixels in the image are in the darker or lighter ranges. The Shadow and Highlight input sliders allow you to adjust the upper and lower limits of the tones in the image.

- 2) Drag the black **shadows** slider as shown below, until it meets up with the beginning of the histogram.



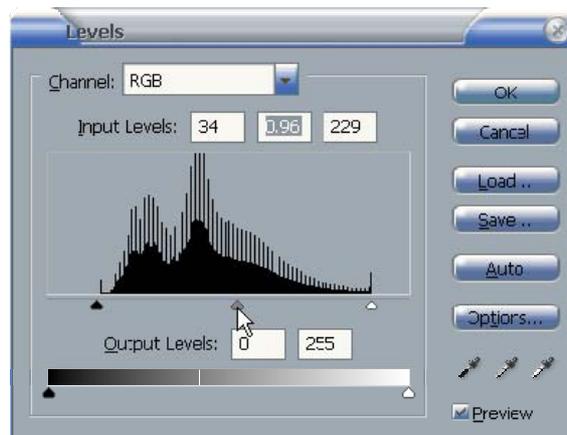
- 3) Drag the white **highlight** slider to the left until it meets up with the beginning of the histogram.



- 4) Turn the **Preview** option on and off to see the image with and without the adjustments. The shadows and highlights of the image should now be adjusted to improve the photo.

Finally, if the image still looks a little too dark or light, we can adjust the levels for the midtones of the image.

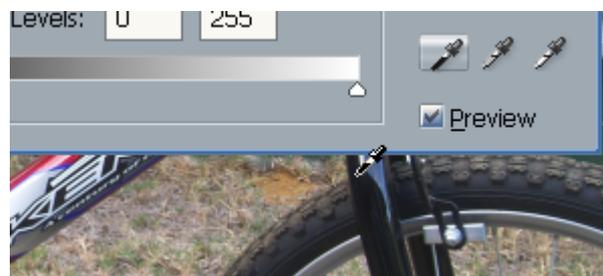
- 5) Drag the midtones slider left or right until the image looks about right. In this particular image there might not be much need for adjusting midtones.



- 6) With the options still open, hold down the **[Alt]** key. The **Cancel** button will change to a **Reset** button. Click it to reset the levels options.
- 7) Levels may also be set using the eyedropper icons in the bottom right corner. Click on the black eyedropper icon. With the eyedropper still selected, move your mouse over the darkest pixel you can find in the image.



Tip Having the **Info Palette** showing can help since it will show the colour values of the pixels your mouse is over. A darker pixel will have lower RGB values.



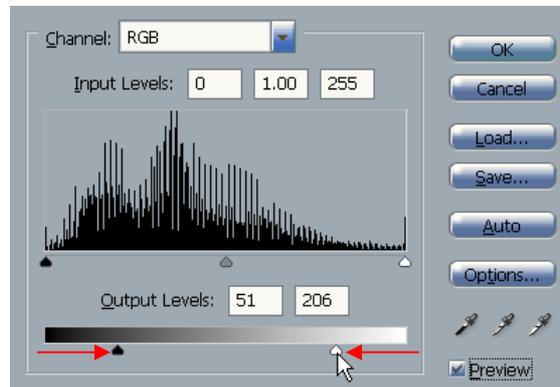
- 8) When you have your mouse over a dark pixel, you can click on it to set that as the shadows limit for your histogram. Try adjusting the **Highlights** and **Midtones** in the same way.
- 9) Hold down **[Alt]** and click **Reset** once you have tried the eyedropper levels options.
- 10) Click on the **Auto** button. **Auto** This will make Photoshop select some suitable input levels for your image. The results of this option are usually pretty good, though it's often worth taking the extra time to select the levels yourself.
- 11) Click **OK** when you think you have the best possible levels for the image, either through the auto or manual methods. You can also use the Auto option without going in to the levels options by going to the **Image** menu and selecting **Adjustments** and then selecting **Auto Levels**.
- 12) Save the changes to the image when done.

Note If you have part of the image selected, the adjustments will only apply to the selected area.

Exercise 3 – Adjusting Output Levels

The levels options are useful for improving brightness and contrast in an image but they can also do the opposite, which can sometimes be useful for certain creative effects.

- 1) With the Bike image still open, display the Levels options [Ctrl] [L].
- 2) Try dragging the output levels towards the middle to reduce contrast in the highlights and shadows as shown below.



- 3) Try reversing the position of the output sliders so that the white one is all the way to the left and the black one is all the way to the right. The effect will not be similar to a photo negative. Of course if you have a scanned image of a photo negative, you can use these options to make it in to a positive image.



Note Going to the **Image** menu and the selecting **Adjustments** and **Invert** from the menu [Ctrl] [I] has the same effect.

Exercise 4 – Adjusting Colour Levels

1) Open the image called *Tank.jpg*.

Like many older photos that have been scanned, the colours in this photo have faded. There is too much of some colours and not enough of others. This imbalance in colours can be corrected through the use of levels. As this is an RGB image, you can adjust the levels for red, green and blue separately.

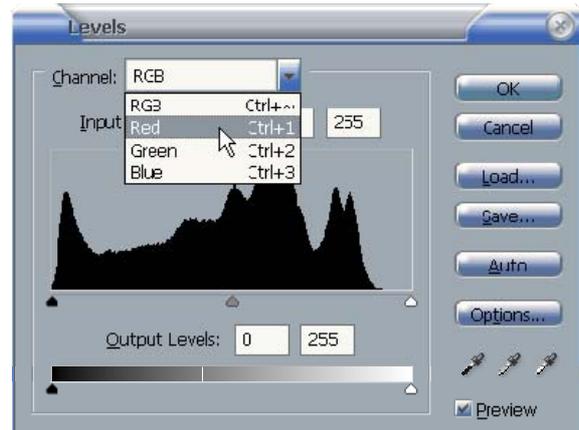


2) Open the Levels options [**Ctrl**] [**L**].

3) From the **Channel** list up the top, select *Red*.

You will notice from the histogram that in the red shades in the image there is a large gap at the shadow and highlight end. Drag the shadows and highlight sliders inward until they match up with the edge of the histogram.

It may also help to adjust the red midtones but it is best to adjust the shadows and highlights of the other channels first.



4) Select *Green* from the **Channel** list.

5) Adjust the shadows and highlights of the green channel.



6) Select *Blue* from the **Channel** list.

7) Adjust the shadows and highlights of the blue channel.



8) Try turning the Preview option on and off to see how it looks with and without the adjustments. There should be a significant improvement in the way the picture looks. You may be able to improve it even further by going back and fine-tuning the highlights, midtones and shadows for each channel.

Note You can also let Photoshop adjust the colour levels for you by going to the **Image** menu and then selecting **Adjustments, Auto Color**. Like many things, this is a quick way to get good results, but you can often get better results from doing it yourself.



Hue / Saturation

The Hue/Saturation options in Photoshop are used to modify the colours in an image. The three settings you can change are:

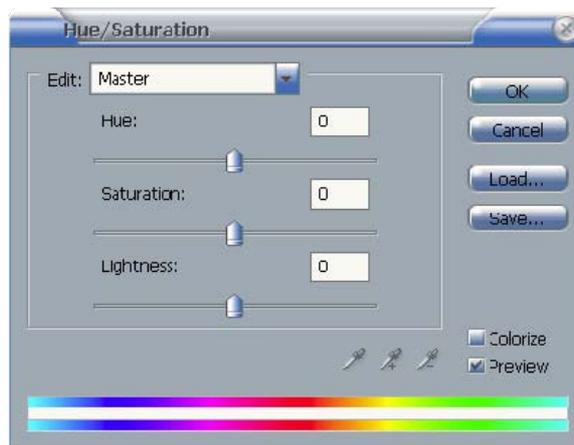
- Hue Adjust along a scale of varying colours
- Saturation Adjusts how intense/dull the colours are
- Brightness Adjusts the brightness of the colours

Exercise 5 – Adjusting Hue / Saturation

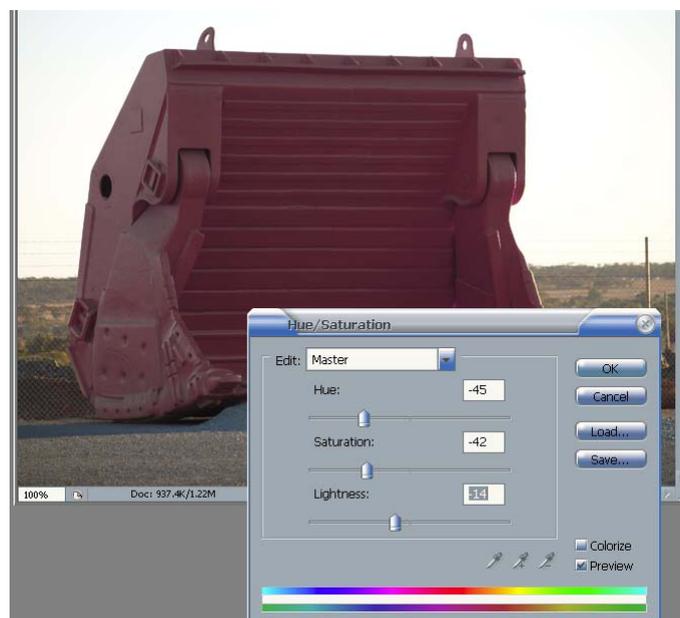
1) Open the image called *hues.psd*.

This image has a saved selection called Yellow.

- 2) Activate the saved selection (channel) by selecting the **Load Selection** option in the **Select** menu, or by **[Ctrl]** clicking the saved channel in the **channels palette**.
- 3) The adjustments might be easier to see while the edges of the selection are not visible. To temporarily hide the edges, select **Extras** from the **Select** menu or press **[Ctrl] [H]**.
- 4) With the selection still active, go to the **Image** menu and select **Adjustments, Hue/Saturation**.



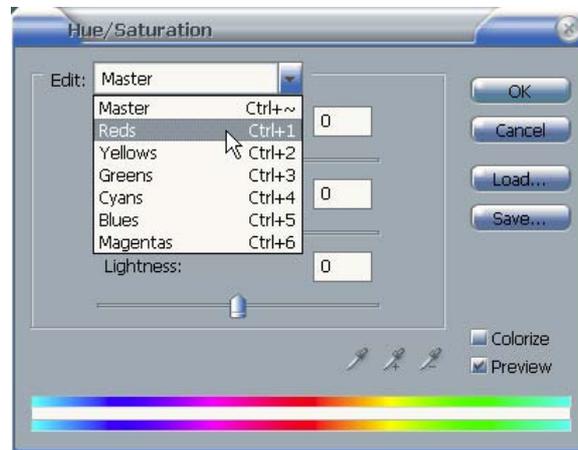
- 5) Experiment with each of the three sliders to see the way they modify the colours in the selected area.



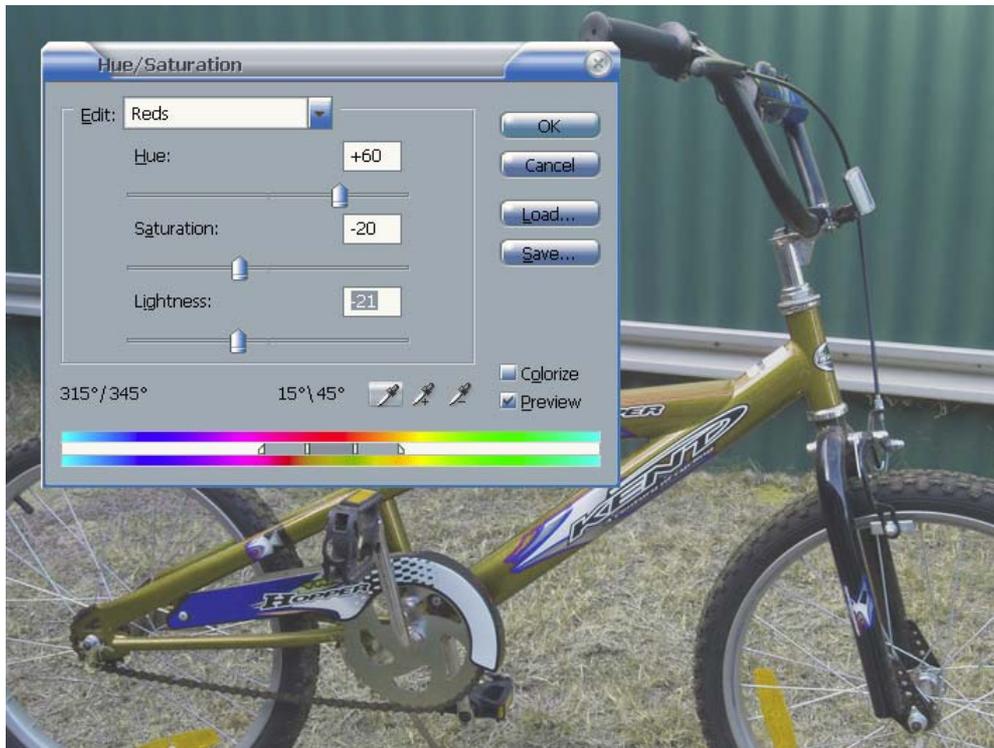
- 6) Click **OK** when you are satisfied with the changes then redisplay the selection edges [**Ctrl**] [**H**].
- 7) Open the *Bike* image if it is not still open.

Suppose we want to change the colour of the bike. If there is one part of the image which stands out from the rest of the colours in the image, it may be possible to adjust the hue without making a selection first.

- 8) Display the **Hue/Saturation** options while the *Bike* image is open.



- 9) From the **Edit** list, select *Reds* as shown above.
- 10) Try adjusting the **Hue** and **Saturation** sliders to change the red parts of the image. If you do it too much it may change partially red parts elsewhere in the image such as in certain parts of the grass but for smaller changes it should only affect the bike.



- 11) Click **OK** to complete the changes.

Adjustment Layers

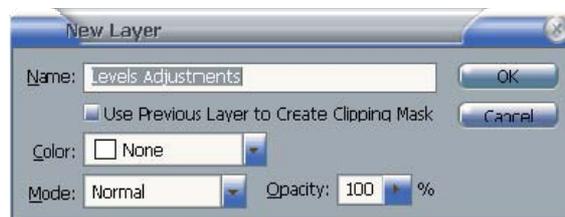
Instead of creating adjustments that permanently change an image, it is sometimes better to create adjustments that can be added and removed at will. This can be done using an adjustment layer.

Exercise 6 – Creating an Adjustment Layer

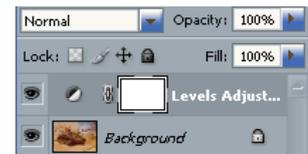
If you want to make adjustments to an image, you can do it without permanently changing the image by using an adjustment layer. An adjustment layer is a layer that doesn't contain any pixel information. Instead it contains information about image adjustments that will affect the layers below it.

- 1) Open the *Tank.jpg* image.
- 2) From the **Layer** menu select **New Adjustment Layer** and then **Levels**.

First you need to name the layer as normal



- 3) Call the new layer *Levels Adjustments* as shown and click **OK**.
- 4) The levels dialog box will now appear. Adjust the levels as you did in the previous exercise and then click **OK**.



Your layers palette will now show the adjustment layer. This can be hidden and displayed like a normal layer without affecting the image itself. If there are multiple layers in the image, you can drag the adjustment layer up or down the list to determine which layers it will affect.

To adjust the options for the layer, double-click on the  icon in the layers palette.

Tip If you are not sure what adjustment settings look best for an image, try using several adjustment layers, each with different settings. You can then compare them to see which settings look the best for your image.

- 5) Close the Tank image without saving the changes.

Shortcuts Learned

Shortcut	Purpose
[Ctrl] [L]	Display the Levels options
[Shift] [Ctrl] [L]	Auto Levels
[Shift] [Ctrl] [B]	Auto colour
[Ctrl] [U]	Adjust Hue/Saturation
[Ctrl] [H]	Temporarily hide selection edges and other visual aids.
[Ctrl] [I]	Invert the colours in the image (like a photo negative)