

# The Electronic Image

Everything that we have covered so far applies to both film and digital photography, we have been looking at the fundamentals of taking a picture with an appropriate exposure. However, there are some aspects of digital photography which are unique.

## Resolution and File Formats

A photograph taken by a digital camera is recorded and stored as a *bitmap* image. This is analogous to a tapestry made up of many different coloured stitches. The finest tapestries are made up of a large numbers of very small stitches ... the equivalent of a high-resolution image. Only a decade or so ago, the capacity of storage media to save data was much more limited than it is today. For this reason computer scientists worked on different ways to compress data so that it could be stored efficiently in the cramped space available on floppy disks and memory cards. Many of the techniques for compressing images are patented and can still create problems with compatibilities between software.



If you zoom into a low resolution, compressed image you will see that the picture has been divided into blocks of colour. Some of the picture information has been averaged out in order to take up less space. So data has been lost (in fact, the creation of a JPEG is called a *lossy* method of data compression).

With a JPEG image you can't get that data back. You can reduce the file size but you also reduce the quality.

Some photographers exploit this feature when they produce images of their work for sale. So it's possible to download a low resolution sample from the internet but you have to pay for the high resolution file. Whenever you save a JPG image you can choose just how much compression you want to use ... and just how much quality in the final image will remain.



## RAW

A RAW image is one that has no compression in it at all. All the data that was captured by the sensor is recorded in its entirety. So, as you can imagine, RAW images take up a lot more space on your storage media than the same JPG image does. But, you have access to all the data when you pressed the shutter, none of it has been lost.

Many software and web services (such as social media) won't use RAW images. You have to use specialised software to convert them to JPG first. But if your original image is saved as a RAW file then you can create as many high and low resolution JPG images as you want.

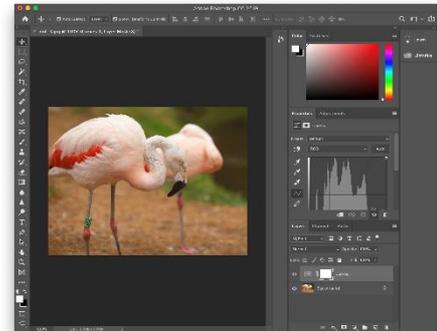
## Software

The fact that the term '*photoshopping*' is so widely known it just illustrates how popular this piece of software is. Adobe Photoshop is a powerful programme but it is expensive. There are cheaper alternatives.

### Photoshop

This is the industry standard software for photographic manipulation. Its main strength is the use of layers when adjusting an image.

There was a time when you bought a copy of this on a CD, now you subscribe to it. The Adobe Photography Plan currently costs £9.98 a month and for that you get the most up to date versions of Photoshop and Lightroom as well as 20GB of online storage.



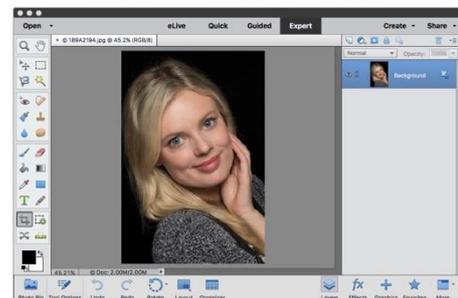
### The GIMP

This is public domain software (you can download it for free from [www.gimp.org](http://www.gimp.org)) which means it's free. It can do most of the things that Photoshop can do but it isn't quite as user-friendly as Photoshop. If you have used Photoshop before and you are confident with it then this software will be familiar. There are user manuals on how to work with it although I wouldn't recommend it for a complete beginner.



### Photoshop Elements

This is a cut down version of Photoshop and it is very good. It will allow you to manipulate photographs and add your own graphic designs to them. If you have the very latest camera then you will need to buy the latest version of the software. Alternatively, if your camera is a year or so old then you can buy previous versions of the software for nearly half the price.



### Lightroom

This is another cut down version of Photoshop but it is aimed squarely at photographers and it's the one that I use the most. Again, you will need to buy the latest version if you want support for the latest cameras.

One thing that I like about it is that it doesn't save over your original photographs. When you make changes to an image it saves the method used to make the changes, so when you open the picture again, the software remembers what it did then applies the previous changes.

Of course, if you export as JPEG then the changes are fixed in the final image.

