

While you read this, I will be shooting lions and giraffes in Africa, with the camera of course. Yes, I had to write this article in advance (I could hear the sigh of relief from our editor. Deb always gets my compositions days after the deadline). I enjoy writing my monthly column, although it is sometimes a challenge to find an interesting subject which hasn't been covered yet.

Still, writing two articles is a pain, so I thought I give myself (and my readers) a break and report on some common pitfalls in digital imaging. I know - all my readers are professionals who don't fall into those traps - but do read on, very likely you will pick up one or two new things!

## I am OK with JPEGs

'I don't need RAW files'. I've heard that so many times, even from professionals. True, 90% of the JPEGs turn out fine, especially if you take care with your exposure settings. There are three issues here:

1. JPEGs only have 8 bits of information per channel (RAW files have at least 12 bits).
2. RAW files have a larger exposure latitude.
3. JPEG means lossy compression.

Let's look at these three points in more detail. You need to remember one thing: JPEGs also start out as RAW files, but they have been processed by the on-board computer, according to your input (white balance, colour saturation, contrast, sharpening etc). If your exposure and light temperature settings were correct (or if the camera's automatic has done a good enough guess), then you will be happy with the JPEGs.

On the other hand, if the shot was underexposed it will need major corrections in Levels or Curves. Look again at the Levels after fixing the wrong exposure – it now looks like a comb. Instead of 256 levels of information we have only, say 200 left and that can easily show up as posterisation in the final print.

Shooting with the wrong white balance setting also has serious consequences in JPEG. Often the colours of the original scene cannot be restored accurately anymore. On the other hand, you can set the correct white balance during RAW conversion, irrespective of the original camera settings.

The second point, the higher exposure latitude of RAW files, is the most important one. I have seen hundreds of wedding shots where the bride's dress was just a white blob. Once your pixels measure (255,255,255), no amount of Photoshop skill can recover any detail from that dress. RAW files will always allow you to rescue blown-out highlights, comfortably one stop, but often two or more stops.

JPEG artefacts are normally not a problem if you use the high-quality setting, but can become visible when the files get upsized.

The additional workload is often blamed for dodging RAW files. This should not be an issue with the batch processing options offered by today's RAW converters. The higher memory requirements are also not an excuse anymore with 4 and even 8 GB cards becoming widespread (remember the times when we had to change film rolls every 36 exposures?).

The only excuse for shooting in JPEG is if you need to use your camera as a machine gun – RAW files won't allow you to do 5 frames per second.

## Size it to 72 dpi Screen Resolution

I hear this all the time, even from professionals, desktop publishers and Web designers. Right now I am looking at a 20.4 inch wide monitor set to 1920x1200 pixels. That works out to 94 pixels per inch. I can also set the display to 1024x768 pixels, and that would give me about 50 pixels per inch. There goes the 72 dpi myth!

Every Web browser shows you one image pixel per monitor pixel (100% size in Photoshop language). All you need to do is size your files to a certain number of pixels, eg. 600 pixels wide, or 400 pixels high. The dpi setting of your files is totally irrelevant – it only becomes important once you hit the print button.

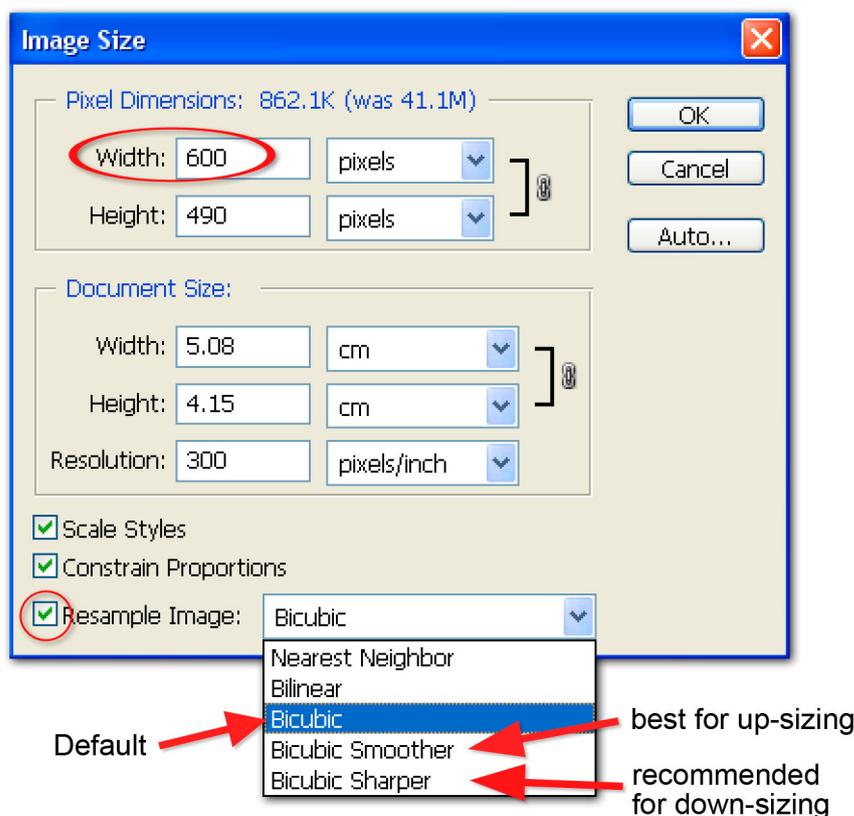
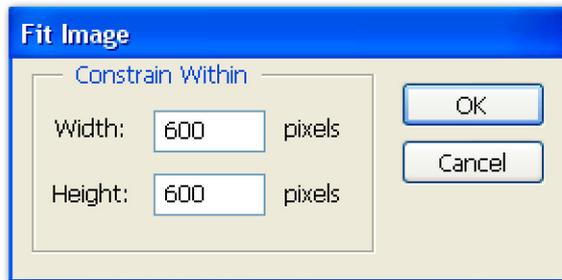


Image 1 - The Re-size Interface

Down-sizing is generally not a problem, pixels need to be thrown out, but the image has to be re-sharpened after sizing. The Bicubic Sharper algorithm does this automatically, but I still prefer using the default Bicubic and do the sharpening manually with a very small radius setting.

Here is a tip: Go to File > Automate > Fit Image, then put the same number into both boxes, say 600 pixels. This will handle both, landscape and portrait shots!



**Image 2 - Fit Image**

## **Print it in A2 (or 'The Dark Art of Upsizing')**

This request often comes in an email, with a little 80 kByte JPEG file attached. More cautious clients will ask 'how big can you print this?' The answer is 'any size you want'.

Here we have the opposite of the previous problem, but more serious, because now we ask the computer to invent new pixels. Needless to say, there won't be any more information in the bigger files than in the original, but the upsampling will make it 'softer'. Printing without upsizing is also not an option; on close inspection a print at less than about 120 dpi will look pixelated.

There are many tips and tricks on how to upsample images. Some people swear by the 'staircase' method. This involves up-sizing to the final required size in small 10% steps. This was before Adobe introduced the Bicubic Smoother algorithm. I find that this new algorithm does a very good job. You will have to re-sharpen the image, though. Unsharp Mask is usually not effective – more often than not you will need to opt for the High-Pass Filter method.

There are various third-party plug-ins which promise you better results. Genuine Fractals (from onOne) has a very good name in the industry. The latest version is 4.1, but version 5 is in the pipeline and pledges even better performance. Or you might try PhotoZoom Pro 2 from BenVista, which uses the S-Spline algorithm.

How many pixels per inch do we need for a good print? Commercial printers habitually ask for 300 dpi files. For inkjet printing this is more than enough. I have critically examined prints from razor-sharp files and not been able to find a difference between a 240 and a 360 dpi file - with a loupe yes, but not with the naked eye. Even a 180 dpi file looks fine. Viewed across the room you can

get away with a lot less. It all depends on the viewing distance. If you could get closer to that billboard, you would see that the gorgeous young lady advertising skin lotion is made out of pixels, the size of golf balls.

## My Photos are Safe on CD

No, they are not! No matter for how many centuries the manufacturer guarantees his CDs or DVDs. There are a number of precautions you can take to minimise nasty surprises:

- Use quality disks - cheap disks generally are of lower quality
- Copy to two disks, preferably from different batches
- Write as a single session and verify with the original
- Don't use stick-on labels and only label with special CD-marker felt pens
- Avoid dirt, fingerprints and scratches (before and after recording)
- Store vertically in a jewel case under cool, dry and dark conditions

The main point is to have at least two copies of all your essential files (better three). New, higher storage capacity discs seem to come up quite regularly every five years or so, and that is probably a good time to refresh and migrate our image collections.

## Always use the Biggest Colour Space

Well, big is not always best. I do recommend using the larger Adobe 1998 RGB colour space, because it gives you a larger colour gamut than the default sRGB. However, Web browsers are designed to show their best colours with sRGB images and images tagged with the Adobe RGB colour space will look less lively. It is easy to design an action for changing the colour space (use Edit > Convert to Profile, not 'Assign Profile!').

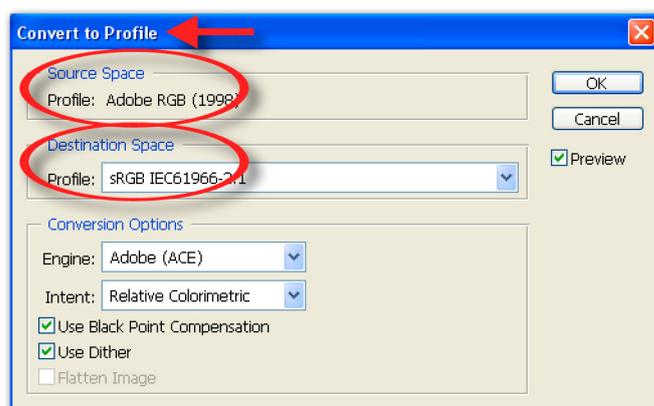


Image 3 - Converting Profiles

Also be careful with files you send to a commercial printing place. People often complain that the prints look dull. This happens when you give them Adobe RGB files and they assume an sRGB profile. Always ask what profile to use before sending files. If they cannot answer your question, or don't know what you are talking about, you can safely assume that they use sRGB.

Perfectionists will be drawn to the ProPhoto RGB space. This is one of the four options Adobe gives us when converting RAW files and it is by far the largest colour space. However, you need to be careful here: it contains a very great number of colours (you would expect that from a large colour space!) and it will be OK as long as you stay in 16-bit. The moment you switch to 8-bit, the extreme colours at the edges of this colour space are so far apart that the limited gradation of only 256 steps per channel is often not enough for smooth colour gradients. This will show up as posterisation.

## **I'll fix it later in Photoshop**

Expertise in Photoshop shouldn't turn us into sloppy photographers. It is OK to pull up shadow areas, tone down highlights, enhance the colours and do the necessary sharpening. However, if you find yourself regularly cropping your shots, straightening the horizon, fixing the exposure and pushing the Unsharp Mask filter because only the ears of your model are sharp, then digital photography has made you lazy and you need to go back to basics!

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