



PSNZ Help Sheet No 17

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Digital Printing
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Printing the Image

A good printed image depends on a number of factors.

- 1 An understanding of DPI and how it impacts on image quality.
- 2 Understanding how the printer is calibrated to the computer screen.
- 3 Understanding how to “tweak” the printer driver.
- 4 Choosing the appropriate paper type and setting the printer correctly.

Almost any Ink Jet printer can produce colour pictures but for top photographic quality the choice is at this moment in time limited to those devices that claim “photographic” printing with the top machine in my opinion being Epson. The Epson range of domestic printers (870) (1270) and the new range of “photographic” papers are capable of producing images which are indiscernible from silver based prints and will now last just as long.

This does not mean that the output from your Epson printer should be hung on the wall in full sight of the sun any more than you would hang a treasured painting in the same position. Please use the same judgment as you would for a treasured art print to avoid UV damage.

DPI (dots per inch)

Although a printer may be rated at 1440 DPI as far as squirting blobs of ink is concerned this is more to do with the printers ability to produce continuous tone colour and should not be confused with actual print requirements.

A top quality glossy photographic picture book is printed with about 150 line per inch for the quality graphics which equates to a digital file with a resolution of 300 DPI. If you want to print a quality full size A4 print at 300 DPI a file size of approx 28 Mb is required. For A3 prints an even bigger files is required.

When an image is produced by a digital camera the number of pixels (dots) is determined by the quality (and price) of the camera. This in turn determines the maximum size that can be printed without loss of quality.

If an image is scanned on a flatbed scanner to be reproduced at the same size via a printer it should be scanned at 300 DPI. There is no point in scanning at a higher resolution as the additional data will simply be ignored by the printer. If however you wish to enlarge the image to say twice the size then if you scanned it at 600 DPI it could be resized to double the area and then still be 300 DPI.

35mm film is scanned at 2700 DPI so that when enlarged to say A4 size there will be sufficient resolution for quality printing.

It is therefore very important to have the final image size clearly in mind before any scanning is done because although pixels can be added via a process known as interpolation, the process is software driven and it is not possible to maintain quality if too much stuff is added that was not there in the first place.

It is possible to get reasonable results with less than 300 DPI but this should be the main goal.

A classic example of printing at lower resolution is when an e-mail attachment picture or an image from the internet, is printed without manipulation. As received, internet images are 72 DPI. This is because your computer monitor displays at 72 DPI and the files are kept as small as possible to enhance the speed of download. On the screen the image will look great but if you print it, the quality will be similar to a newspaper. The quality can be improved by simply resizing the image smaller while maintaining the original file size. By making the image smaller the pixels get squashed together and hence the resolution (and quality) increases.

To obtain quality printing it is important to “calibrate” your screen to the printer. There are a number of ways to achieve this and a lot of fiddling and ink will be involved but this is a vital step if you want the subtle tones you spent so much time getting in your work to show up when it is printed. A good starting point is to print an image with a good range of colours and then adjust your imaging software to get the same results on screen. Be sure to note the changes required and use this as a basis for further adjustment.

Better imaging software will allow you to adjust the “gamma” (mid range) of your imaging software in addition the gamma of the screen can be adjusted in most better monitors. The gamma range will adjust the brightness of the image and is important to matching printed results.

Better “photo” quality printers have the ability to individually adjust colours in the printer dialog box. This can be a very useful tool and after experimentation the settings can be saved and used as required.

When installed Epson printers create a custom colour profile in Photoshop which goes a long way towards getting WUSIWUG (what you see is what you get) prints.

I still produce “test prints” by resizing an image down so I can get 4 prints to an A4 bit of paper (saving ink and paper) because even the best calibrated system can sometimes lose the plot when confronted with competition prints.

Paper selection is important. All papers are NOT created equal and my advice has to be to match the paper brand to the printer, The manufacturers generally do know what they are doing and some pretty strange results can often be experienced mixing paper brands. It is of course possible to print on art paper and many other surfaces including treated canvas but calibration will be required so don't expect a great print the first time and be aware that the UV resistance might not be as good as a branded paper.

I am more than happy to help anyone with digital imaging questions.

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