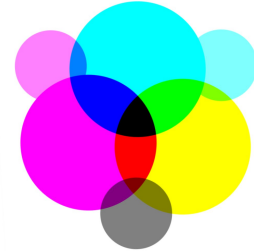


## Colour Management and Colour Profiling

This is the process of ensuring as far as possible that you work on your computer in the best way to enable accurate results. All equipment has a profile, a range of tones and colours that it can see and accurately reproduce. A black / white monitor will display all images as greyscale even if the image is in colour. A monochrome laser printer will print in black / white even if the image is in colour. These are extreme examples of profile mismatch.



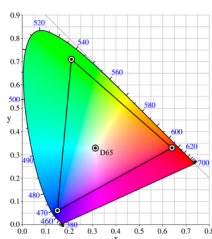
If your monitor and or software are working in a different workspace to your printer, your printed results will not reflect your image on screen, if your workspace set-up is different from mine I will see your images differently on my screen.

In order to make it possible to exchange files, and print images on different printers a number of 'standards' have been created. If we all work within these standards we should obtain reliable results across platforms and media.

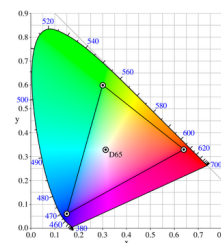
Professional editing software such as Gimp or Photoshop allow you to work in a colour space of your choosing, this can then be embedded into the image allowing the printer you know your intended preference. Set these up in the preferences menu. A colour workspace defines the boundaries of the colours that are displayed or printed.

## Colour Workspaces

Below are examples of the two most common colour workspaces. The triangles represent the boundaries of the colours that the workspace can display ( or print ). aRGB (Adobe RGB) and sRGB (Standard RGB) RGB stands for - Red Green Blue the three colours of light used to create an image on a monitor screen. By mixing these all colours are possible; equal amounts of each will produce white light. You will see that the aRGB space is capable of showing a wider range of colours than the sRGB space.



Adobe – ARGB



Standard – SRGB

In sRGB the S is for Standard, which is the assumed space for computer screens that are not otherwise calibrated, also for the internet; importantly for photographers it is the colour space used in most photographic labs. Therefore if you work in aRGB your images will not be seen on most screens as you see them, nor will they print the way you expect from a lab. ( they will typically look flat or dull. )

Some printing systems - notably high quality inkjet printers are able to print a wider range of colours than those from an sRGB space, so if printing on these the usual preferred profile is aRGB - this will enable you to take full advantage of the extra potential of the printer.

## Calibrating your screen

Your screen needs to be calibrated:

This means that it is set to a standard in terms of brightness, contrast and has a neutral colour balance.

The two ways to achieve this are:

1. Use a hardware calibration tool, eg. Spyder, ColorMunki
2. Use a calibration image and manually adjust the screen to match a print
  - a. Closed loop method ( not usually recommended ) is to print out an image with a full range of tones and containing a grey scale, then adjust your monitor to match the print. In theory all subsequent prints will then match your monitor. The disadvantage is that prints made elsewhere will probably be wrong.

- b. The better option is to obtain a properly calibrated image as both a professionally printed 'hard copy' and as a file. Display the image file on your screen and adjust your monitor to that print, different monitors will give your different options. Then print the file yourself. If the print you make is not the same as the professionally printed example – ( and your monitor ), then you need to adjust the printer settings to correct the print.

Having a screen that is capable of being calibrated is vital.  
The screen should be able to display full 24 bit ( 3 x 8 bits ) colour.

### Colour Bit Depth

- 1-bit colour (2 colours)
- 2-bit colour (4 colours)
- 3-bit colour (8 colours)
- 4-bit colour (16 colours)
- 5-bit colour (32 colours)
- 6-bit colour (64 colours)
- 8-bit colour (256 colours)
- 12-bit colour (4096 colours)
- 16-bit colour (65536 colours)
- 24-bit colour (16777000 colours)
- 32-bit colour (16777000 colours)
- plus 8-bit alpha channel

## Monitors

When viewing content on conventional TN monitors, images and colours become distorted and it is difficult to view at wider angles. The IPS monitors provides angles which allows you to enjoy consistent images in true colour from the front, side, above, below and just about anywhere you stand.

