# Make Book from G.F Smith

# Printing Profiles

gfsmith.com/makebook

Good workflow/colour managemet procedures are how you/we achieve control over colour and tone of digital images, consistently reproducing predictable results. Ideally files should be submitted from a calibrated monitor, thus enabling monitor to print match.

## Make Book File Specifications

- Flattened .jpg format (colour corrected if needed)
- 300dpi
- RGB Mode
- Embedded sRGB Colour Space (We recommend sRGB as this has the closest gamut to photographic paper).

Adobe InDesign or other high quality PDF's files can also be submitted as system will convert to make print ready.

We ask for files to be submitted this way because our LED photographic wet print process, create with our software or any software you would prefer to use.

LED technology uses a Light Emitting Diode printhead as a light source within the imaging device. Unlike laser systems, the LED printhead is solid-state and has no moving parts. The LED bar pulse-flashes across the entire page width and creates the image on the print drum as it moves down.

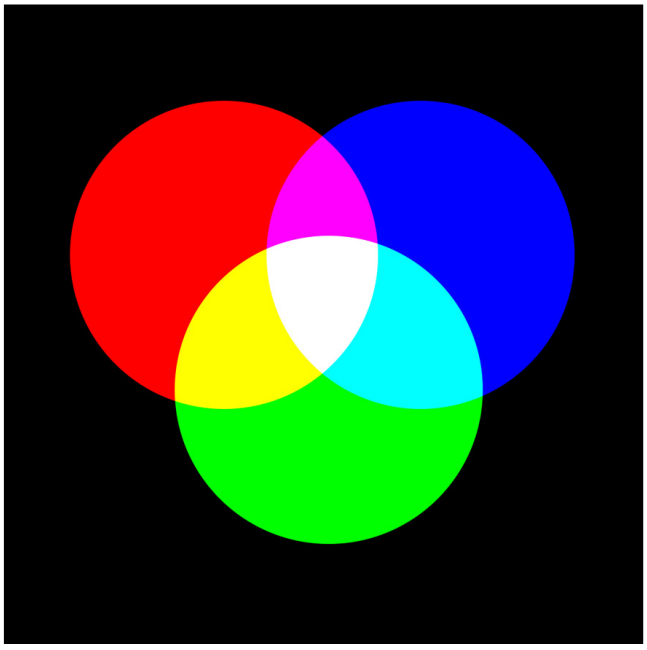
Our professional printers/processing lab system can produce package orders of small prints, larger prints (up to 30" x 100"), and murals with perfectly colour-matched, high-quality results, with high productivity, broad versatility, and high efficiency workflow integration.

With state-of-the-art, patented and award-winning LED technology we can create beautiful, high quality prints.

## Colour Space, Mode and Profiles

At its core, digital photography works by turning colors into numbers. There are a number of different ways of doing so. Some use the physics of light waves, some rely on the way the eye perceives colour, and some are built around the way ink creates colours. Each of these colour mode is useful in different ways. In order to understand how to preserve colour as you change from one mode to another, it's helpful to have a basic understanding of what a colour mode is: a way to turn colours into numbers with a mathematical formula.

RGB is a colour mode that uses the three primary (red, green, blue) additive colours, which can be mixed to make all other colours. RGB builds its mode on different colours of light added together, where the mixture of all three colours produces white light. Digital cameras produce RGB images, and monitors display RGB images.



Representation of RGB colour, this mode assumes you start with darkness and add light to make new colours.

CMYK is a colour mode based on subtracting light – the cyan, magenta, yellow and black inks used in most commercial colour printing (press books, magazines, etc.) Inks absorb coloured light, which is why the mode is called a subtractive one. CMYK is commonly referred to as process colour, and there are many individual colour spaces that use the CMYK colour mode. High quality photographic printers use LED light and chemicals as we do, not ink.

CMYK colour works because paper absorbs certain colours and reflects others, Cyan, Magenta and Yellow are combined to make each colour. Black is used to get extra punch in the image.

CIELAB and CIE XYZ are similar colour models designed to approximate human vision. Because these colour models include so many colours, they are both used when translating from one colour mode, such as RGB, to another, such as CMYK. These are referred to as profile connection spaces (PCS). For instance, Photoshop uses CIELAB as a reference colour space when it converts from one RGB profile to another RGB colour space. Photoshop uses CIE XYZ when it converts from the RGB colour mode to the CMYK colour mode. It's possible to use the CIELAB colour space for image editing in Photoshop, although few choose it for that purpose since it is not as easy to understand as the other colour models.

## What's a Colour Space?

A colour space is a specific implementation of a colour mode. There are many RGB and CMYK colour spaces. You can see that some colour spaces, like Prophoto RGB, contain all of the colours that are in Adobe RGB(1998), and you can see that Adobe RGB contains nearly everything that is in sRGB. When you convert from one colour space to another, any colours that are outside the destination space are "out of Gamut" colours since they can't be represented accurately by the new space.

## Commonly Used Colour Spaces

Most photographers will have to deal with a handful of different colour spaces in their work. In general, these can be divided into three groups: Working, Device and Output spaces.

sRGB: This colour space is a small colour space — it's often thought of as a lowest common denominator, not true. sRGB is a very good choice for images sent to minilabs, especially if no custom profile has been used (GFSmith have a custom profile available for soft proofing).

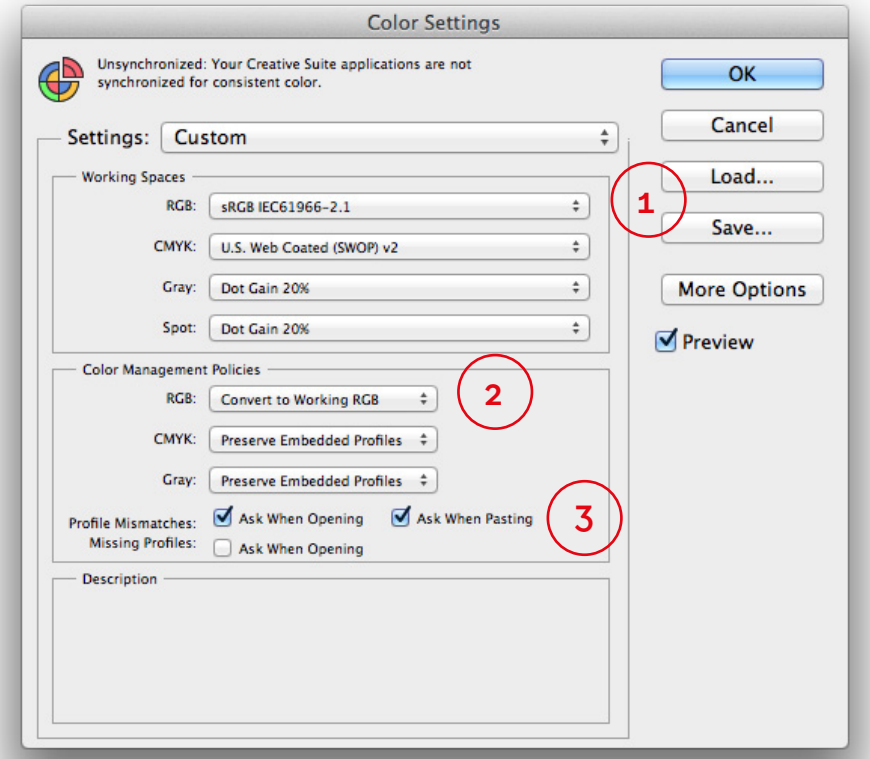
Adobe RGB: Offers a good gamut and very wide support but Adobe RGB images can be over saturated and that without conversion to sRGB will generally appear dark and muted as shown.

sRGB
The left-hand image has been converted to sRGB, and should look reasonably accurate to viewers who have profiled their monitors.

Adobe RGB 1998
The right-hand image is in Adobe RGB, and will look dark and muted to most viewers, even if they have a profiled monitor.

## Photoshop Settings

You can find these in Photoshop by Edit/Colour Settings.




1. Select sRGB IEC61966-2.1 as your RGB (Mode) working space.
2. Under colour management Policies select ‘Convert to Working RGB’.
3. Tick ‘Ask When Opening’ and ‘Ask When Pasting’

Then save

‘Ask When Opening’ can be ticked if you would like Photoshop to prompt you if a tagged file in another colour space is opened, if unticked Photoshop will convert automatically.

## Colour Profiles

A colour profile is a numerical mode of a colour space. Operating systems and programs need to have access to a profile that describes the meaning of the colour values in order to interpret the colour correctly. Proper colour management requires all image files to have an embedded profile.

## Assigning Profiles to Unprofiled Image

If your image does not have an embedded profile, you will need to assign one on the way in to Photoshop. You'll need to experiment with various profiles until you find one that makes the image look its best. As a general rule of thumb, most RGB images that don't have an embedded profile look best when assigned an sRGB profile. Many digital point-and-shoot cameras capture images in sRGB colour space but don't automatically embed the profile in the image file. Once you have assigned a profile and saved the image file with the profile embedded, the image file can be colour managed.

## Converting Between Colour Profiles

There are a number of times when you will want to convert a file from one colour space to another. Usually this is a conversion from a working space to some kind of output space. If that output space is smaller than the working space (and it usually is) then you will be changing the colours. The settings you use to make these changes can help you preserve the colour in your images.

## Rendering Intents Used When Converting Between Colour Profiles

Rendering intent refers to the algorithm or mathematical model used to handle conversions from one colour space or profile to another. The four methods (Perceptual, Saturation, Relative Colourimetric, and Absolute Colourimetric) are defined in the ICC profile specification. Perceptual and Saturation use gamut compression to remap source colours to fit the destination. Relative and Absolute Colourimetric utilize gamut clipping to remap to the closest reproducible hue. The easiest way to think about this is that gamut clipping eliminates out-of-gamut colours but leaves the ingamut colours alone. Gamut compression, however, pushes all the colours around to make them fit into the smaller colour space. With gamut compression, the most out-of-gamut colours are changed the most, but even in-gamut colours may be changed slightly.

Perceptual is for preserving some relationship between out-of-gamut colours, although it may change the colour accuracy of in-gamut colours. Perceptual rendering sometimes makes certain images look better when printed or converted to the CMYK colour space.

Relative Colourimetric maintains the colour accuracy of in-gamut colours, although it clips out-of-gamut colours. Most colour conversions and prints use this rendering intent.

Saturation rendering intent tries to preserve saturated colours, and is most useful when trying to retain colour purity when converting into a larger colour space. It is not usually recommended for digital photo images since it doesn't attempt to maintain colour realism.

Absolute Colourimetric is used most often for proofing – that is mimicking the colour rendition of a specific device and/or paper combination. It does this by moving the white point to reflect the relative whiteness of the target device or substrate being printed on.