

Colour Management – Recommendations

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See www.simongarrett.co.uk for copies of slides, and a “Colour Management Cheat Sheet”, containing more information and many links and references I’ve found useful.

Quick recommendations

If the workflow is not colour-managed (profiled and calibrated monitor, colour-managed software, profiles for the printer), then stick to sRGB. Why?

- sRGB includes nearly all the colours in nearly all images – you’re missing little with sRGB. Most naturally-occurring colours are within sRGB.
- Few monitors show more than sRGB, and if you try to display Adobe RGB images, ALL colours on the screen will be wrong on most monitors unless they’re profiled.
- If you’re using jpeg (8-bit), you get more accurate editing (less “posterisation”) in sRGB than Adobe RGB. The tonal gradations are finer with sRGB.
- Even without colour management, most things default approximately to sRGB, and most normal monitors have a colour space close to sRGB. You probably won’t get accurate colours without colour management, but sRGB will give the best approximation.

If uploading to the web, use sRGB.

- Most monitors can handle only sRGB, and have a colour space of approximately sRGB.
- Most browsers aren’t colour managed
- If you put Adobe RGB images on the web, the colours will be wrong on 99.9% of browsers.

If you shoot jpeg, probably stick to sRGB, even with a colour-managed workflow:

- The data is 8 bits, so sRGB gives most precision
- Sticking to sRGB avoids conversions in 8 bit (which leads to inaccuracies)
- If you photograph in jpeg, might as well start in sRGB and stay there

If you shoot jpeg, you may benefit from using Adobe RGB if *all* of these apply:

- You mainly print on a quality printer (>4 ink), *and the printer understands Adobe RGB*.
- Either you have a profiled monitor, or you don’t edit colours (as the colour will almost certainly be wrong on unprofiled monitors with Adobe RGB images, so it’s dangerous to try to edit)
- You have a lot of highly saturated colours in your pictures (especially cyans, greens and yellows).

Note that if you photograph in sRGB, there is no point converting to Adobe RGB. You can’t add colours that weren’t in the original sRGB image.

If you have a wide-gamut monitor, you really must have a colour-managed workflow (profiled and calibrated monitor, colour-managed software), and bear in mind that unmanaged software (i.e. most non-photographic software) will display the wrong colours. Why?

- Most colours displayed on a PC screen are assumed to be sRGB.
- Most software is unmanaged, including the Windows desktop and most Windows software.
 - The result: the colours will be as expected only on an sRGB monitor (most monitors except so-called wide-gamut monitors approximate to sRGB).

- A wide-gamut monitor will display over-saturated colours unless it is profiled (NB, software calibration is not enough) and even then it will display correct colour only with colour-managed software.

Further, if you have a wide-gamut monitor, the only fully colour-managed browser is Firefox, and you have to alter setting “gfx.color management.mode” to 1. (Google for how to do it.) This is because other browsers don’t colour manage images unless they have an embedded profile. As most web images do not have embedded profiles and are sRGB, they will look wrong on wide-gamut monitors unless colour-managed.

If you shoot raw:

- Do as much editing as possible in 16 bit or more (which implies editing the raw file or converting to something like 16 bit TIF or PSD format). Convert to jpeg (if necessary) only as a last step.
- While in 16 bit, keep a wide colour space (Adobe RGB or ProPhoto RGB), and if you need to convert to another colour space, do it in 16 bits.
- If you need to export to jpeg, convert to sRGB and then convert to 8-bit (before converting to jpeg) unless it’s to send the file to a printer that can make use of Adobe RGB, or are preparing the image for a print service or publisher that needs a specific colour space (in which case convert to the appropriate colour space).
- And you need a colour-managed workflow: calibrated and profiled monitor, colour-managed software, profile(s) for the printer. If you don’t have a colour-managed workflow, you might as well convert the raw files to sRGB as the first step (and lose some of the benefits of raw).

“I have a monitor with a factory-calibrated sRGB mode, such as the NEC PA241W, Dell U2410, U2413, U2711 etc. Should I still calibrate/profile my monitor, or just set the monitor profile to sRGB?”

- The reviews I’ve read suggest that pre-calibrated sRGB modes are not as accurate as profiling/calibrating these monitors in their native modes. In any event, many monitors’ colours change slightly with age.
- However, for non-photographic work with non-managed software, sRGB modes may make the display look better.

“I put my pictures on the web. Most users of the web don’t use colour management (that is, don’t use colour-managed browsers, or don’t have calibrated and profiled monitors), so I’m better off *not* using colour-management myself, so that I see the picture as others do.”

- Alas, no! It’s quite true that most people don’t use colour management. But that doesn’t mean pictures look the same on all unmanaged systems. In fact, pictures will look different on every one! If you don’t use colour management, it doesn’t increase the likelihood that your browser will look like anyone else’s (in fact it probably reduces it).
- However, most monitors (except “wide-gamut” monitors) have a colour space that approximates to sRGB. So uploading sRGB images to the web means colours will be very roughly right on unmanaged monitors. Colours won’t generally be exactly right, but if your own monitor is unmanaged too then you’re generally *increasing* the chance of other people getting different colours on their browsers, compared with the colours on yours.