

Trillium Photographic Club

Electronic Clinics Colour Management

Colour profiles communicate the colour characteristics of a device to the colour management system. Associating the correct colour profile with all of your publishing tools helps to ensure consistent colour application throughout the publishing process whether it is printing, digital projection or Internet display. **A colour profile is a set of programming instructions, which directs the application of a colour space.**

This process starts with your camera or scanner and continues through the computer to the projector.

Colour models and colour spaces

Colour models are used to describe the colours we see and work with on computer monitors. Each colour model represents a different method for describing and classifying colour. Colour models use numeric values to represent the visible spectrum of colour. The most common colour model is the additive RGB (red-green-blue) colour model, opposed to the less common subtractive CMYK (cyan-magenta-yellow) colour model. Colours inside a particular colour model can be described as (R)ed, (B)lue and (G)reen coordinates. The most saturated (i.e. purest) red in any colour space has an R-value of 255. All digital cameras and most film scanners capture digital data in the RGB colour model, opposed to the CMYK colour model.

A colour space is a variant of a colour model and has a specific gamut (range) of colours. A colour space can be described as the specification of the number of colours that can be contained within a digital image. Within the RGB colour model there are a number of different colour spaces, with the most common the Adobe RGB and sRGB colour spaces. While each of these colour spaces defines colour using the same three axes (R, G, and B), their gamuts are different. Adobe RGB has a larger colour gamut than the smaller sRGB colour space. However digital projectors (and the internet) operate with the sRGB colour space.

The digital projector functions as a computer monitor, thus each member contributing must set his or her monitor to the same colour profile as the projector. The projector expects **sRGB** as the default profile hence clinic contributors should run their computers and monitors to this profile when preparing images for clinics. Gamma (contrast ratio) is also important and the standard is Windows default. If these standards are not followed then images may not project as expected, even though they may have looked OK on the submitter's computer. We will endeavor to calibrate the projector carefully before clinics and showings, but it behooves members to control their computer systems profiles.

Cameras and Scanners

Most digital cameras default to sRGB, thus if you operate your camera in its default colour space mode no further changes are necessary. Some digital cameras allow Adobe RGB as an option. If you operate your camera in this mode then you should save your images for clinic presentation in sRGB colour space. Instructions follow. (See Adobe RGB under Photoshop.) Space requires that these instructions be brief, thus you should consult your software help files and manuals for detailed instructions.

The same advice applies to film scanners.

To set the active color profile for your monitor (Windows 2000 or XP)

1. Open Display in Control Panel, (or right click on the desktop, then click on Properties.)
2. On the Settings tab, click Advanced.
3. On the Color Management tab, click Add to open the Add Profile Association dialog box. Scroll through the files listed until you find “*sRGB Color Space Profile.icm*” (the color profile you want to make active), click Add. The dialog will close.
4. Then click on “*sRGB Color Space Profile.icm*”.
5. Click on Set As Default.
6. Click Apply or OK.

Notes

- Windows provides a color profile named “sRGB Color Space Profile.icm”, which you can use with any device that supports Image Color Management 2.0.
- Similar instructions are available for MacIntosh users. Please consult your manuals for details. Also note that the default Gamma for the Mac is different than Windows. Mac users will have to adjust their images to the Windows Gamma for best results.
- Once you have set your monitor’s colour profile, download and use one of the colour/contrast/brightness charts from the club’s website and adjust your monitor if necessary. See <http://www.normankoren.com/makingfineprints1A.html> for suggestions on using these colour charts.

Digital Editing Software

Once you have set your system to “sRGB Color Space Profile.icm” then check that your Digital Editor (Photoshop, Paint Shop Pro, etc.) shows that the colour profile is set to sRGB in the following dialogs for Gamma and Colour Management.

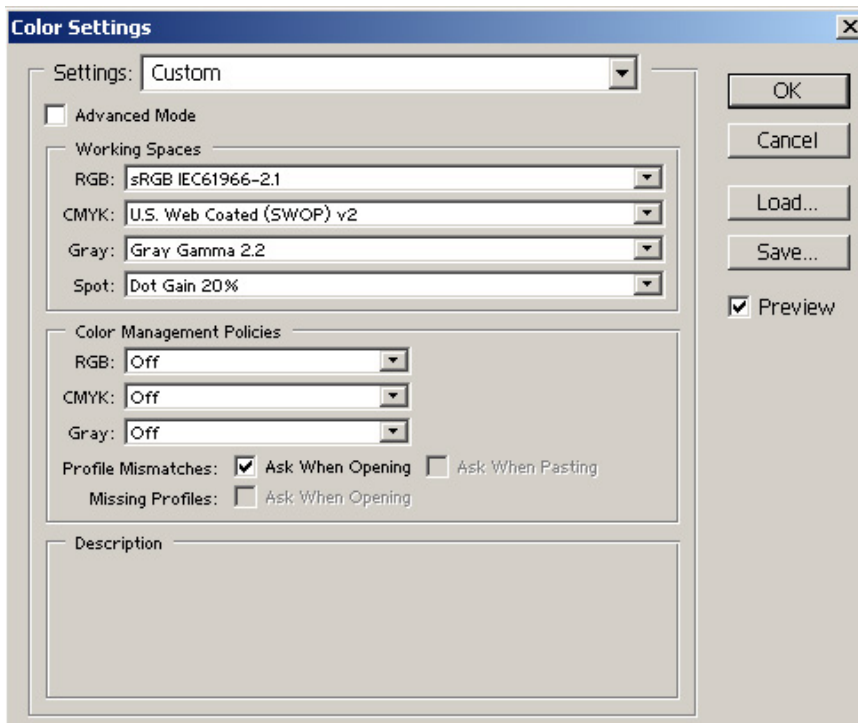
Gamma should be set to 2.2 for Windows. Please refer to your manuals and/or help screens for detailed instructions on how to employ these dialogs.

Photoshop – Adobe Gamma – run from Adobe gamma found in the Control Panel

For detailed instructions see: <http://www.adobe.com/support/techdocs/321608.html> or <http://www.ephotozine.com/techniques/viewtechnique.cfm?recid=12>

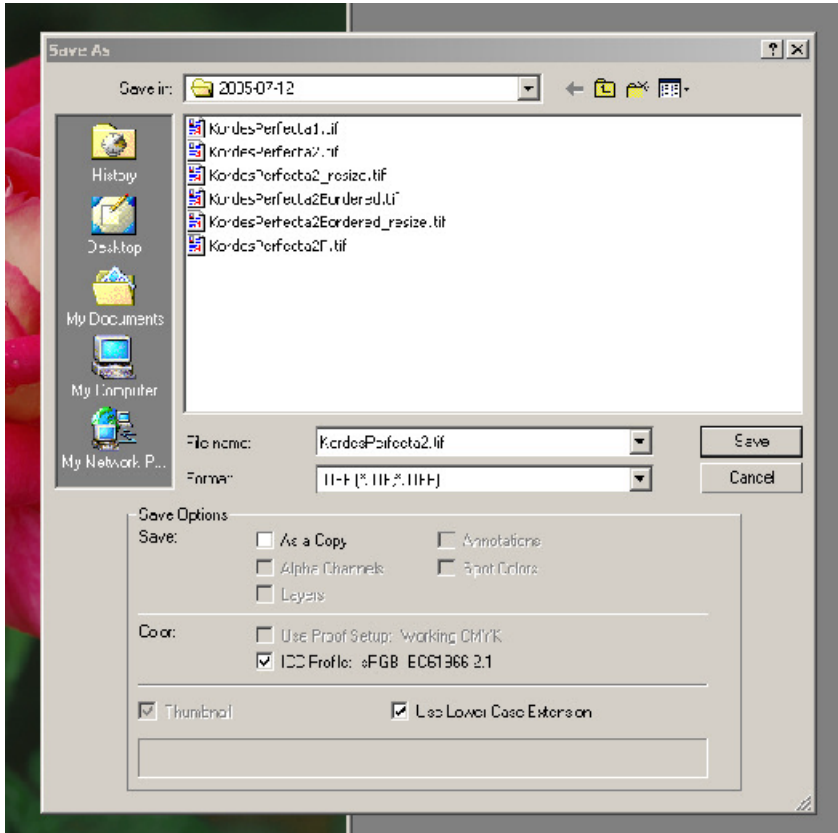


Color Settings - Run from Edit|Color Settings (Note that the Working Space for RGB should be sRGB ICE61966-21 and Gamma at 2.2 for Windows.)



Saving Images

When saving files under Photoshop ensure that you are saving them in the native operating system (Windows) sRGB. The save dialog has a check box for colour profile. Uncheck this box when saving. (See the following screen capture.) If you are running Windows with sRGB and have set up Photoshop according to the above guidelines then your image will be saved in a “vanilla sRGB flavor

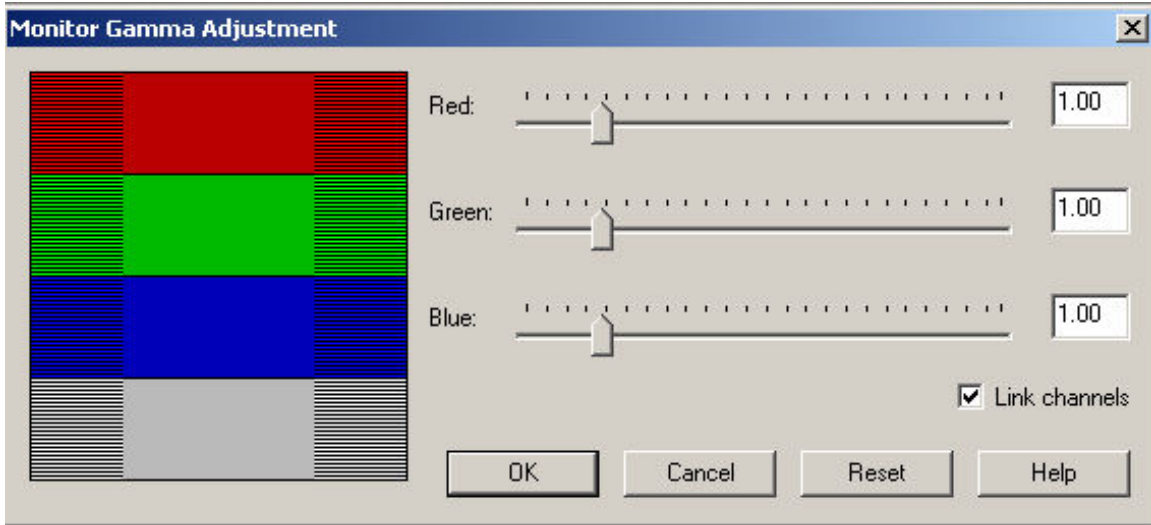


Adobe RGB

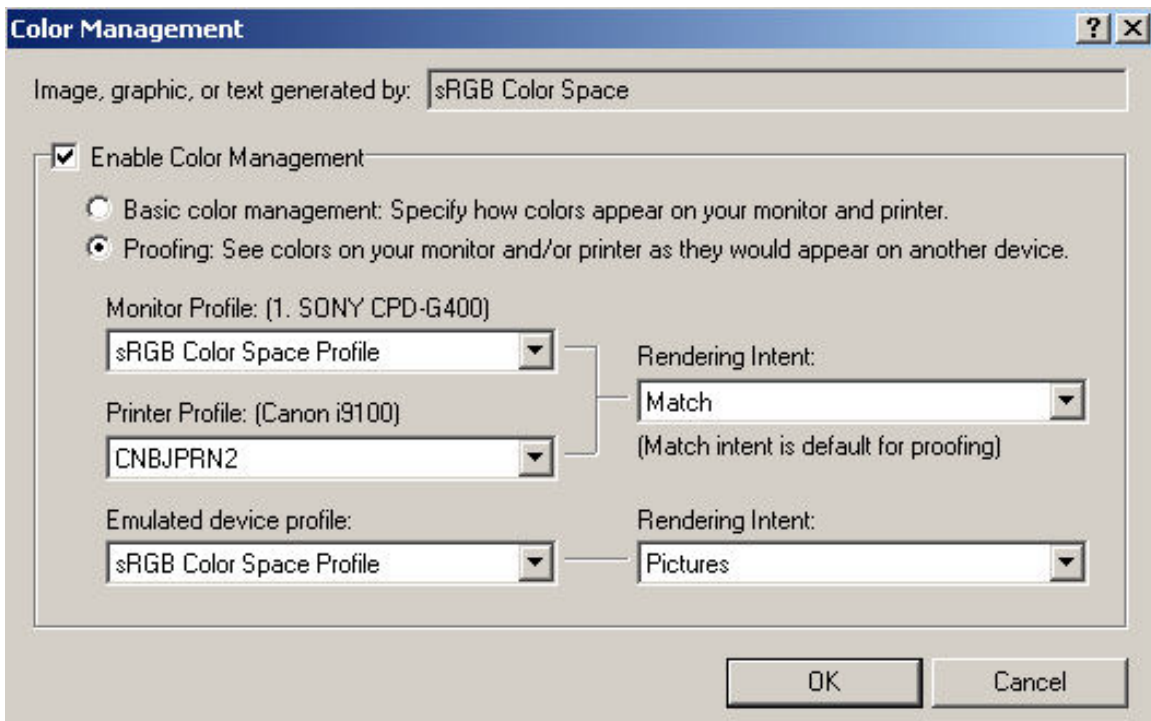
If your image is in Adobe RGB colour space the following instructions will assist in converting it to sRGB colour space:

Convert the final image to the sRGB colour space for screen display or projection with a data projector. This is done to avoid inaccurate display of the image, should software that is not colour aware, be used to display the images. It is also currently the safest option, given the limitations of both hardware and software to display wide colour gamut images accurately. If Adobe Photoshop is being used, this conversion can be done as follows: Select "Image" from the top menu, and under "Mode" select the option "Convert to profile". A window will appear that states the current colour space (source space) of the image and below that a drop down option list with numerous options for the destinations colour space. Select sRGB from the drop-down list and press "OK". Remember to save the file under a separate name to preserve the original image in the wide colour gamut colour space for later use. Once an image is converted to the smaller gamut colour space, information is lost and cannot be recovered by converting the image back to the Adobe RGB colour space.

PaintShop Pro – Monitor Gamma – Run from File|Preferences|Monitor Gamma. Follow the help instructions for use of this dialog. When the colours and gray box blend the Gamma is set correctly. (Although Windows Gamma is 2.2 this box should show 1.00.)



Color Management – Run from File|Preferences|Color Management (The Monitor Profile relates to your Monitor. The Printer Profile will relate to your printer.)



Internet References:

Digital photography Guidelines from Krugersdorf Camera Club, South Africa.

<http://www.kameraklub.co.za/E-photo-april.pdf>,

There is also an HTML version at http://www.kameraklub.co.za/pssa_rules.htm.

There are also a number of good pages on monitor calibration.

<http://pages.prodigy.net/ecmorris/tips/monitor.htm>

http://www.ltimagery.com/monitor_calibration.html

http://www.drycreekphoto.com/Learn/monitor_calibration.htm (This page has several electronic versions of the GretagMacbeth ColorChecker charts that can be freely redistributed with attribution.)

<http://www.normankoren.com/makingfineprints1A.html> (also contains a few test images. It also links to a free gamma calibration utility called QuickGamma.)

<http://www.ephotozine.com/techniques/viewtechnique.cfm?recid=12> (This page is on using Adobe Gamma to calibrate)