Achieving Consistent Colour

From Capture to Computer Screen to Final Print

Setting Camera Colour Space

- **Colour space needs to match throughout the process of taking the image and final printing of the image i.e. either Adobe RGB (1998) or sRGB.**
- **There are lots of different views expressed on this, but unless you are taking and processing images for commercial purposes, colour space sRGB should be your default setting. Most consumer computer screens and printers are only capable of showing/printing in sRGB colour space anyway.**
- **Set the camera colour space to sRGB**
- **Adobe Photoshop, Lightroom and Elements will automatically detect colour space from the image file metadata, as will most photo editing software.**

Monitor/Laptop Screen

- **Your screen needs to match the colours in your image as best as possible, otherwise it will be extremely difficult to achieve consistent colours in your prints.**
- **The best way to achieve this is to have your screen calibrated using a proprietary calibration device from ColorMunki or Spyder etc. Prices range from £100 to £400.**
- **If you are a member of Amersham Photographic Society you can borrow their ColorMunki for free. Alternatively there are several colour display specialists around who will come round to your home and do the job for you.**

Optimize Colours for Screen and Viewing

- **Make sure you are viewing the best representation of colours on your screen by telling your image manipulation/printing software e.g. Adobe Photoshop/Lightroom, Elements to optimize colours for your screen.**
- **In Elements go to Edit>Color Settings and click on: 'Always Optimize Colours for Computer Screens'**
- **No adjustments are necessary in Photoshop CS or CC or Lightroom.**
- **Photoshop, Elements and Lightroom will automatically pick up the sRGB colour space from the image Metadata.**
- **What also affects our perception of the final print colours is the light in which we view our screen and print. During calibration of the screen the ambient light will be measured so this is taken care of. For viewing prints it is best to do it in daylight or under 'daylight' light bulbs i.e. ones with a colour temperature of around 5500 degrees Kelvin.**

Matching your Print to your Screen

- **By default, most printer drivers will be set so the printer manages the colour, and the user can then adjust parameters such as tone, brightness, contrast etc. Unfortunately this does not provide consistency for printing in colour (B & W is a different story and more on that later!)**
- **For colour images it is generally best to let Photoshop/Lightroom etc manage the colours, thus effectively turning off 'Printer Manages Colour'.**
- **The method of achieving this varies according to whether your computer is using Windows or Mac operating systems and also the printer manufacturer, but basically you are adjusting Printing Preferences in the printer driver, which is accessed via Photoshop/Lightroom etc once you select 'Print'.**
- **Enabling 'Photoshop Manages Colour' will adjust basic settings within the application so that the printed image appears as close to the screen image as possible, but there are two other small, but very important parameters that need to be set correctly in order for the print to actually match the screen colour. These are Media Type and the ICC Profile for the paper being used.**

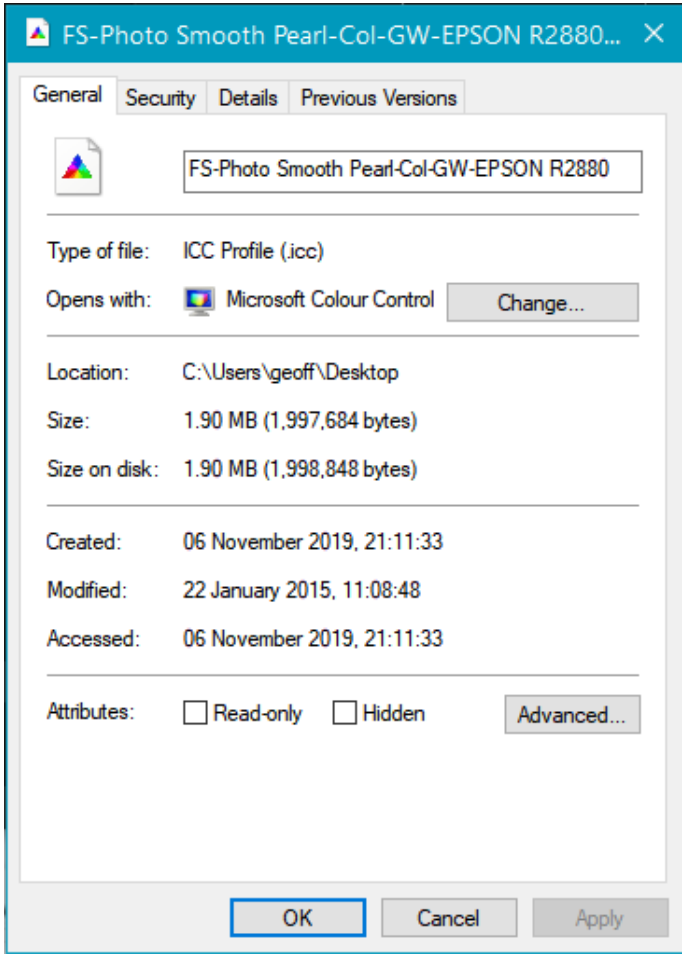
Matching your Print to your Screen

- **Media/Paper Type settings are usually to be found in the 'Printer Preferences' section of the printer driver for your particular printer/application. Common settings available will be e.g. Epson Premium Photo Glossy, Epson Semi Matte/Lustre, Epson Archival Matte.**
- **Third party paper suppliers will tell you what Media/Paper Type settings to use for each of their papers.**
- **This will provide basic settings, but these need to be refined further using paper specific ICC (International Colour Consortium) Printer Profiles. ICC Printer Profiles are small files which are produced by photo paper manufacturers containing colour adjustments based on the paper type, coating, printer type and inks used. These files are available for download from all the major photo paper manufacturers/suppliers websites and are copied into your Photoshop program files. (1FS_PSP290_R2880-K3_Generic.icc). Instructions for doing this are also available from the same websites. The profiles are then used by Photoshop/Lightroom etc to fine tune the colour output information to the printer.**

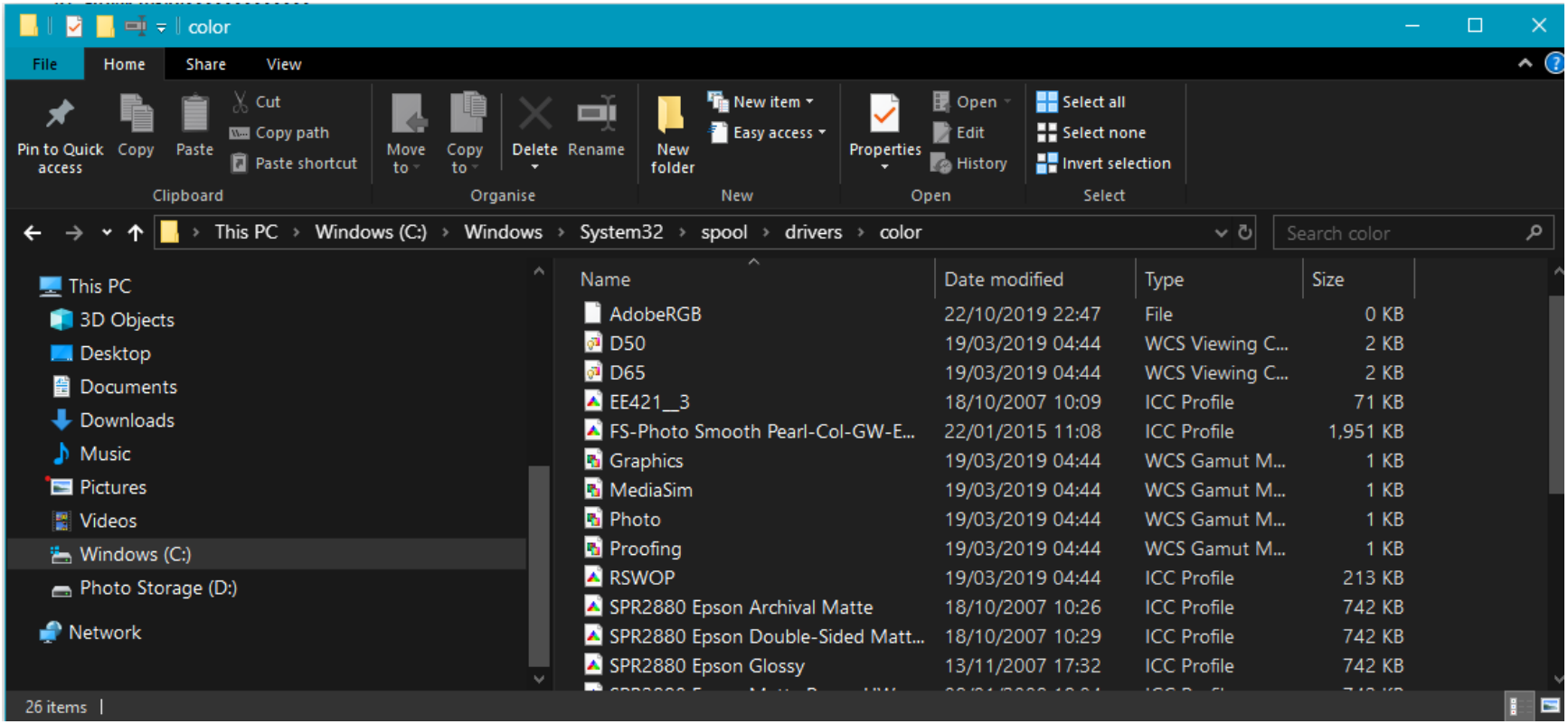
Matching your Print to your Screen

- **For most purposes these ‘Generic’ profiles are generally more than adequate. But if you require absolute perfection then you need to have your printer specifically profiled for each type of paper you use. You can do this yourself using a printed test page from the paper supplier and a calibration device (ColorMunki or Spyder etc), e.g. my own ICC profile for the above paper/printer combination is: FS-Photo Smooth Pearl-Col-GW-EpsonR2880.icc**
- **Alternatively most third party photo paper suppliers e.g. Fotospeed and Permajet offer a free printer profiling service together with detailed instructions supplied in a Profiling Pack.**
- **Download a Profiling Pack from their website which will include a special colour test page file.**
- **Print the test page on each of the papers you wish to use following the provided instructions.**
- **Post these off to the paper supplier and they will create ICC profile(s) and email them to you.**
- **These are then installed onto your computer (automatically saved to correct folder) and will be available to use in your preferred editing software.**

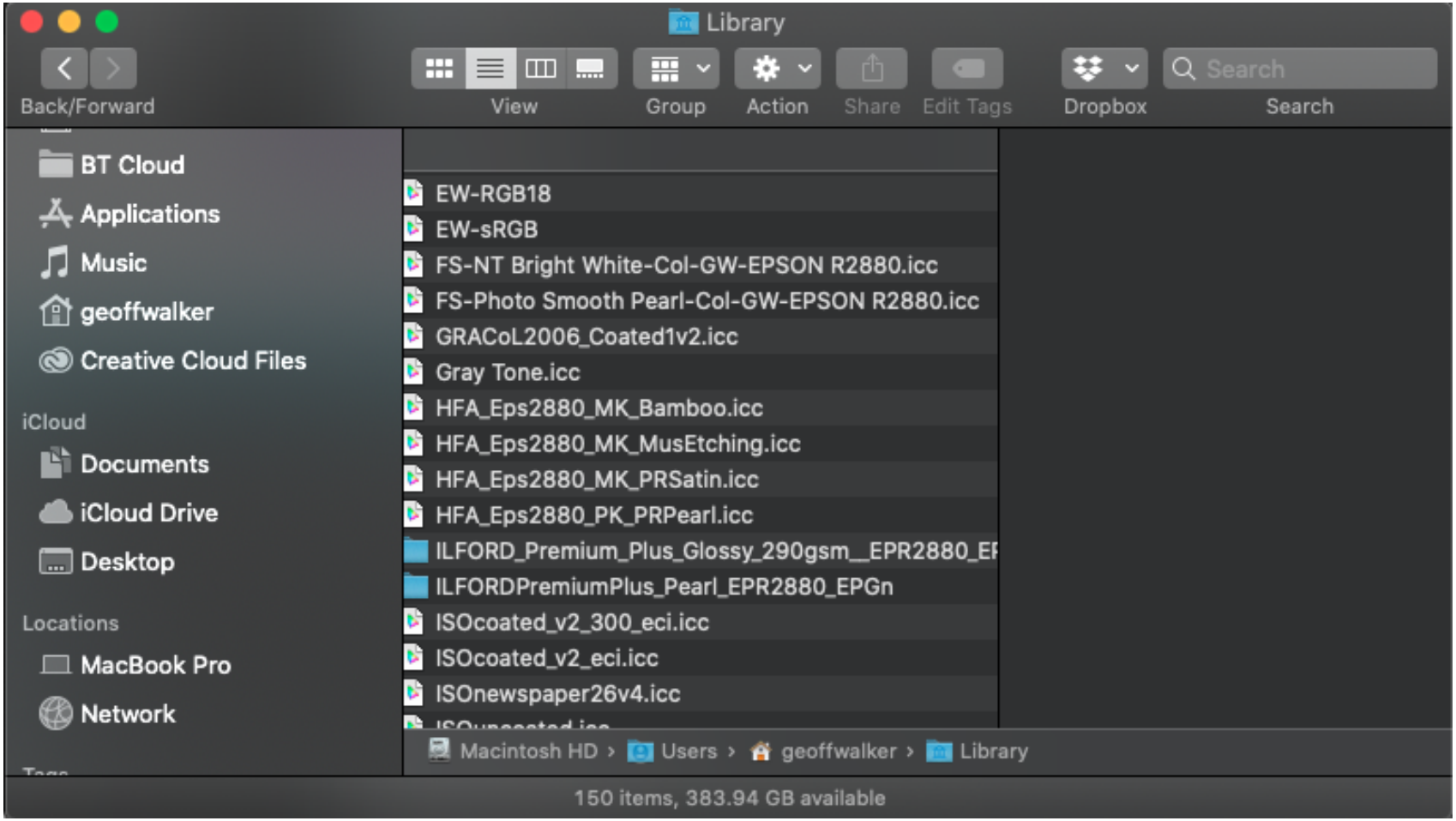
ICC Profile


FS-Photo Smooth Pearl-Col-GW-EPSON R2880...
General
Security
Details
Previous Versions
FS-Photo Smooth Pearl-Col-GW-EPSON R2880
Type of file: ICC Profile (.icc)
Opens with: Microsoft Colour Control
Change...
Location: C:\Users\geoff\Desktop
Size: 1.90 MB (1,997,684 bytes)
Size on disk: 1.90 MB (1,998,848 bytes)
Created: 06 November 2019, 21:11:33
Modified: 22 January 2015, 11:08:48
Accessed: 06 November 2019, 21:11:33
Attributes: Read-only Hidden
Advanced...
OK
Cancel
Apply

ICC Profile Location - PC



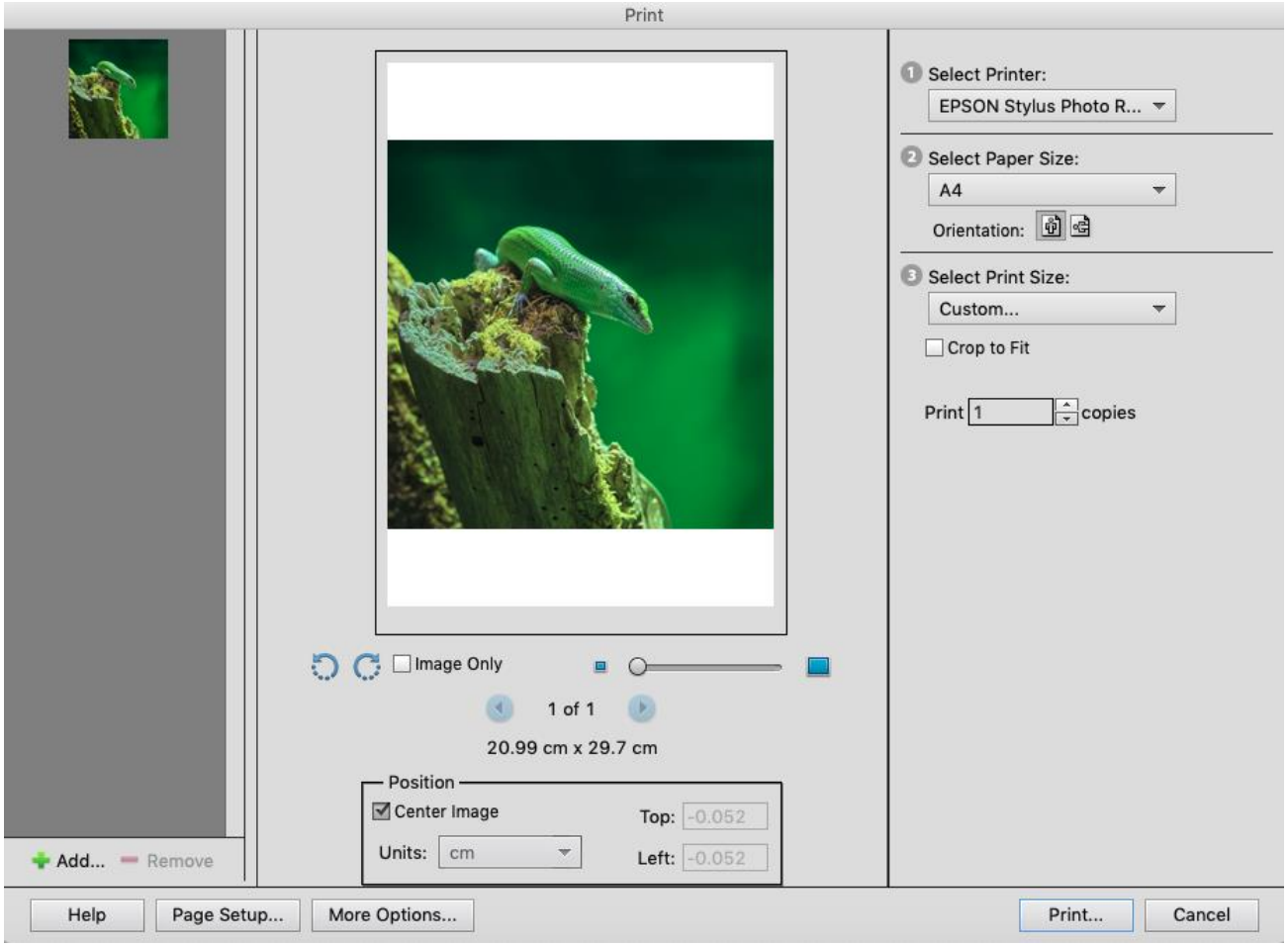
ICC Profile Location - Mac



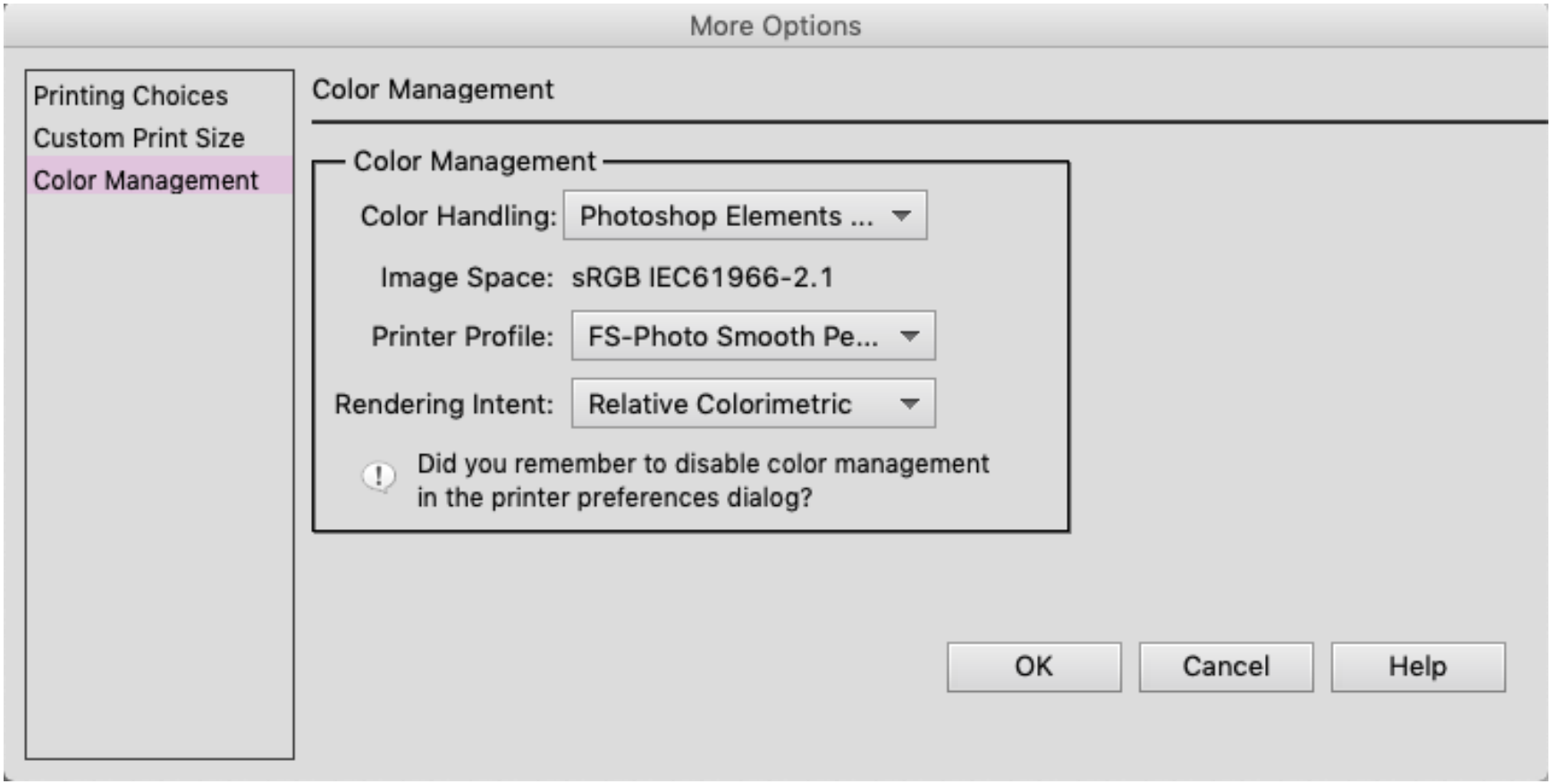
Setting Printer Preferences

- **Similar process in both Windows and Mac but the 'Printer Preferences' dialogue box will appear in a different format for the same printer type/model.**
- **Open image and click 'Print'.**
- **Select 'Printer' if more than one connected.**
- **Go to 'Color Management' box.**
- **Click on 'Color Handling' and select 'Photoshop Manages Color'**
- **Click on 'Printer Preferences' and set parameters.**
- **Click on 'Printer Profile' and select ICC Profile (some will already be available within the printer driver from the printer manufacturer, if they also manufacture their own paper brand).**
- **Click on 'Rendering Intent'. Select either 'Perceptual' or 'Relative Colorimetric'. There seems to be some debate as to which is best but I have tried both and by experiment have found 'Relative Colorimetric' to give marginally better results.**
- **Save your settings to a pre-set for future use.**

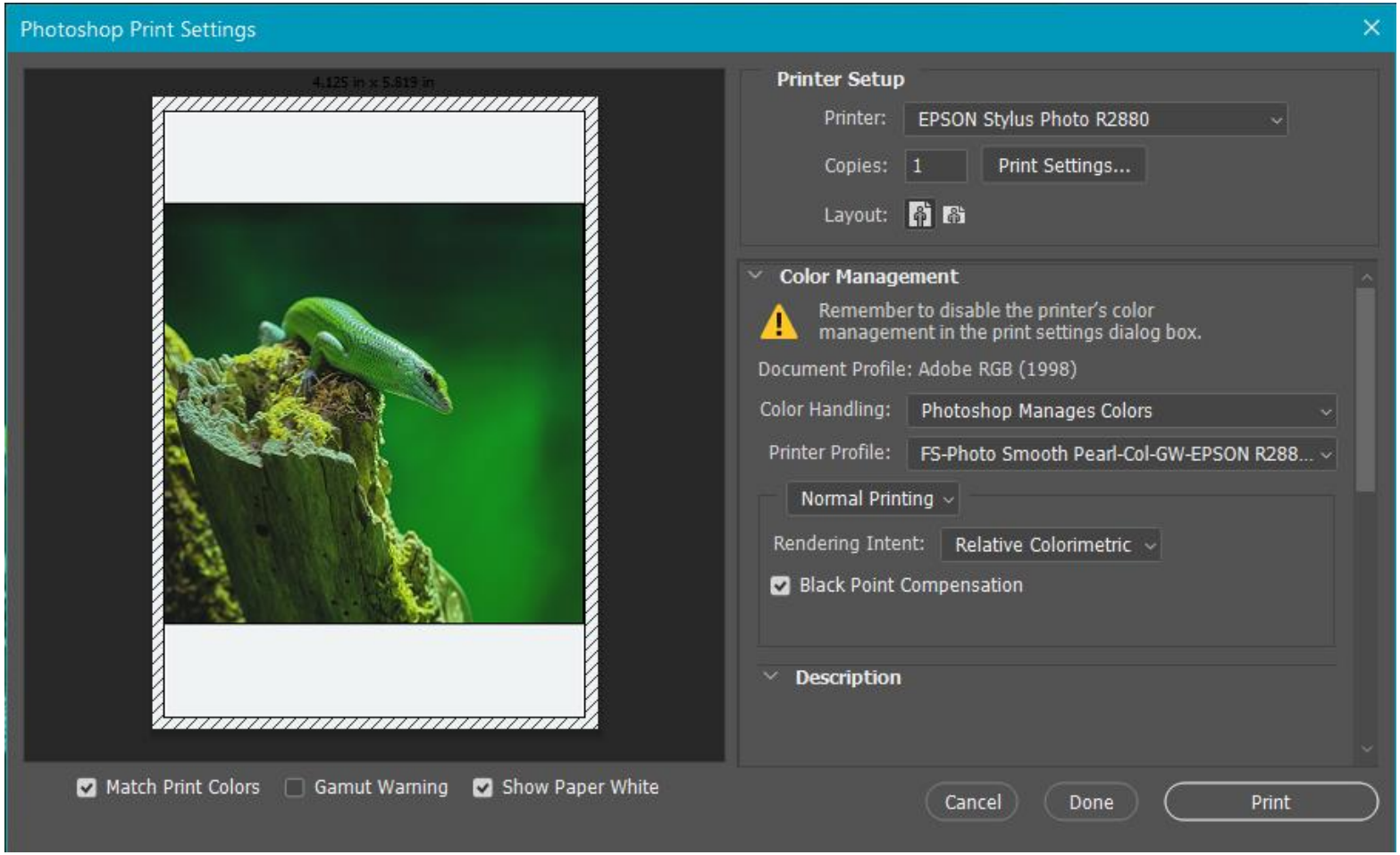
Photoshop Elements 12
Print Window



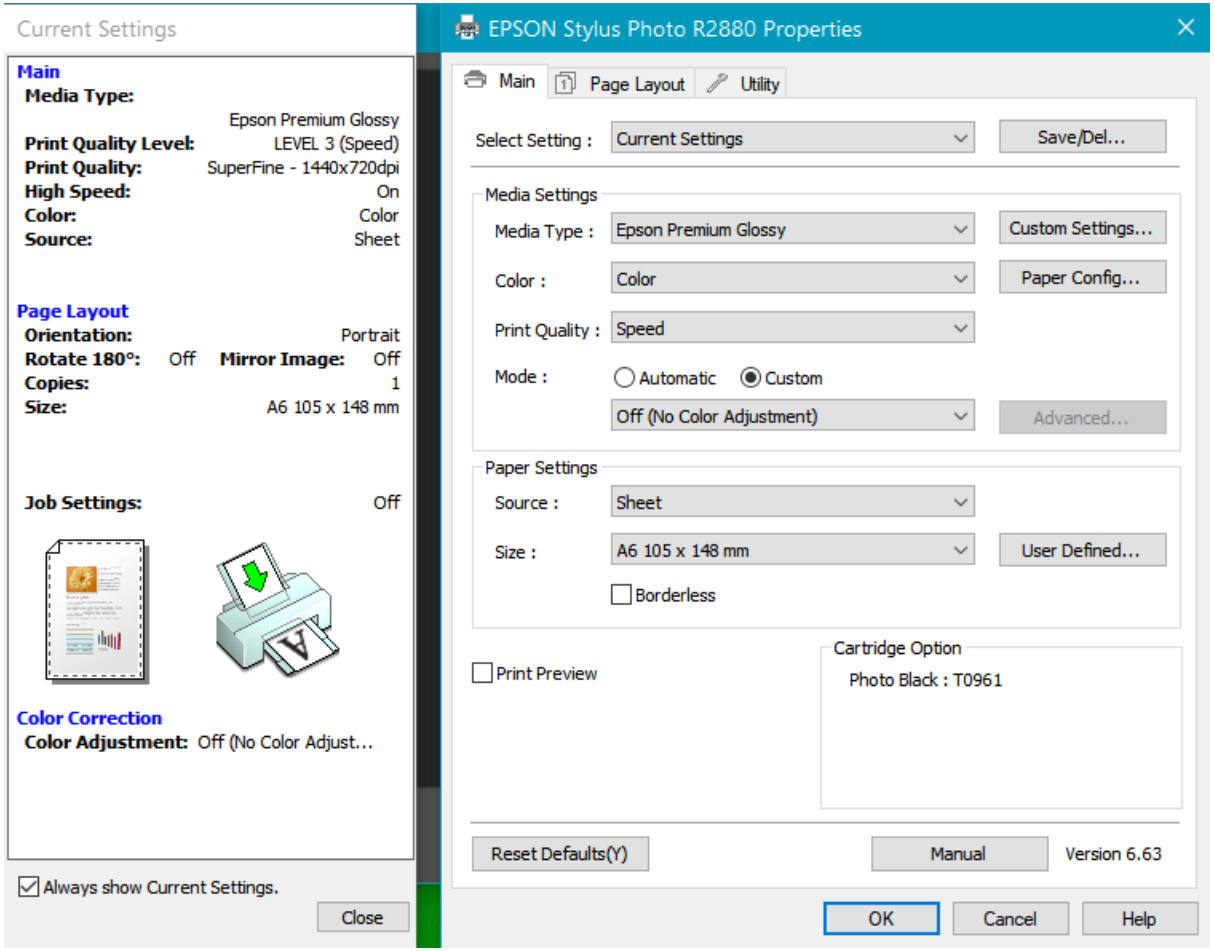
Photoshop Elements 12
Printer Properties Window



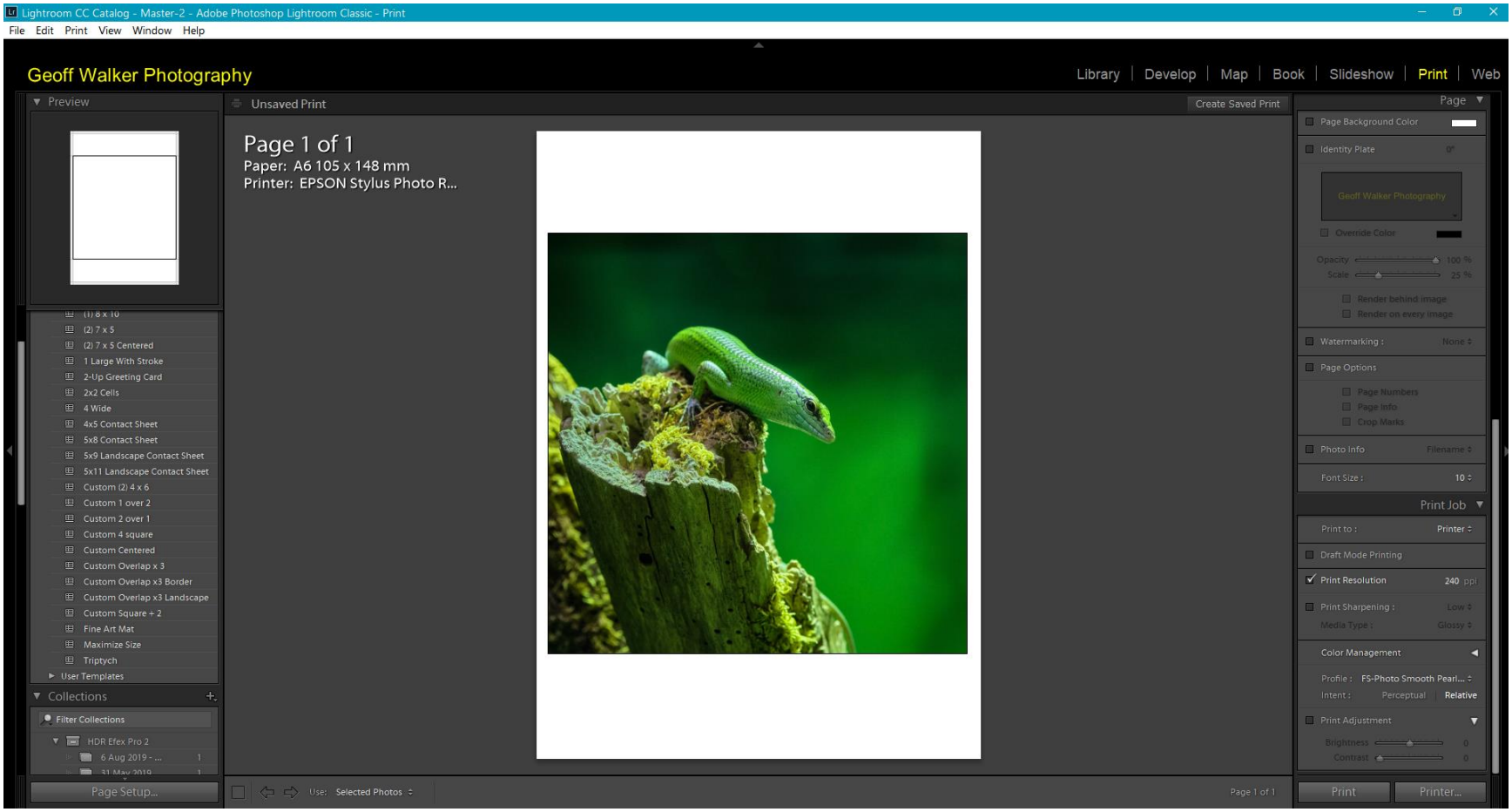
Photoshop CC - Print Window



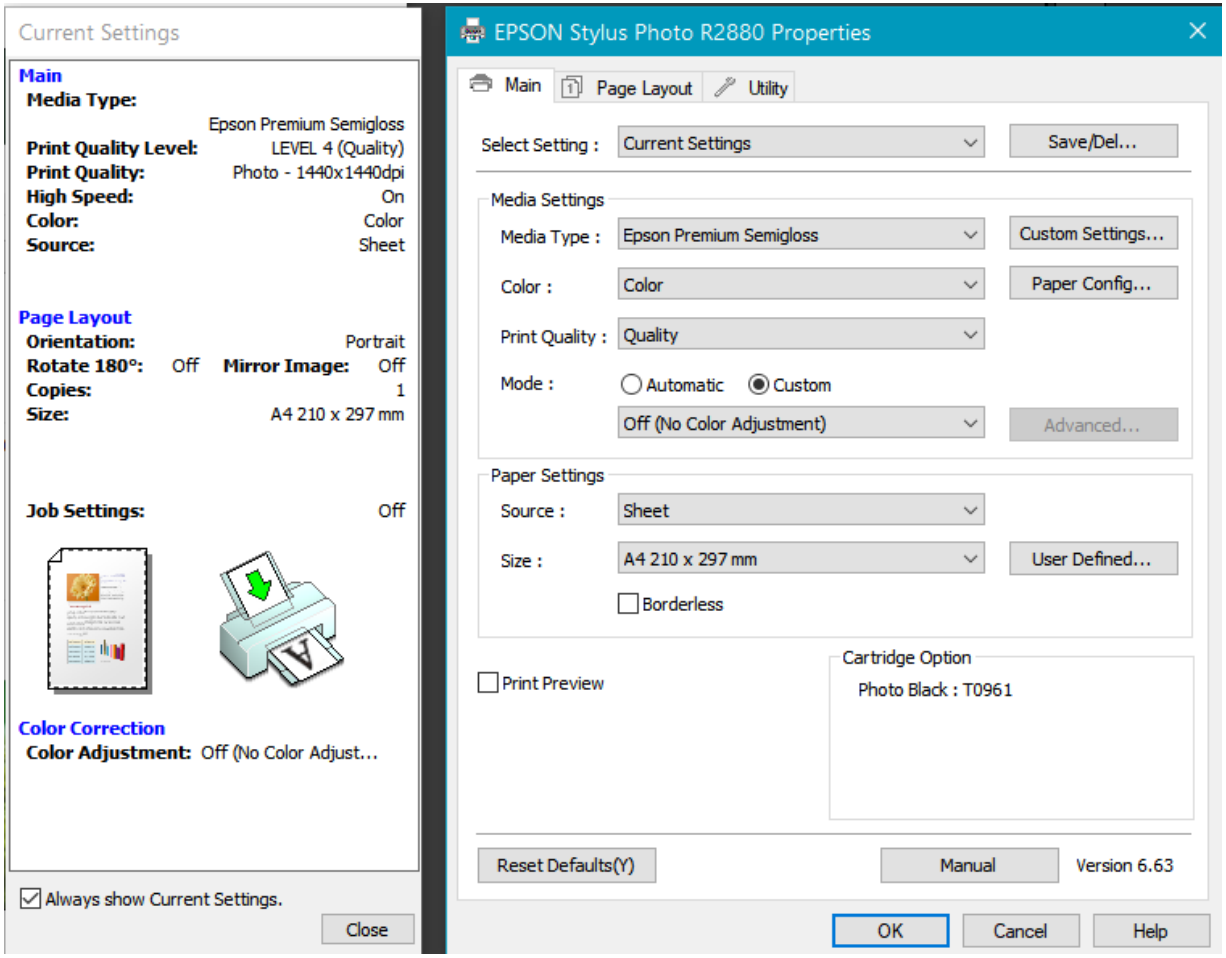
Photoshop CC
Printer Properties Window



Lightroom Classic CC - Print Window



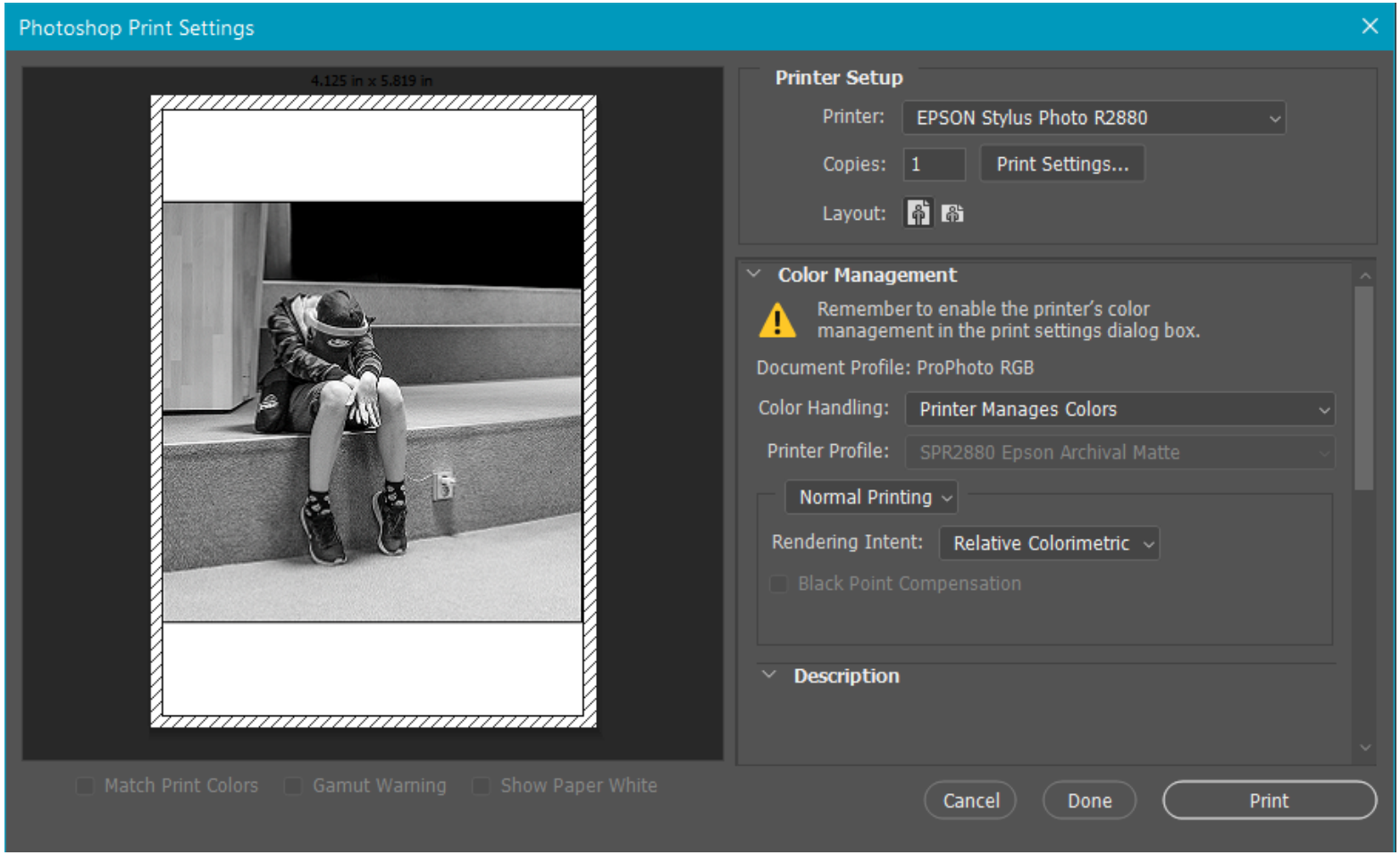
Lightroom Classic CC Printer Properties Window



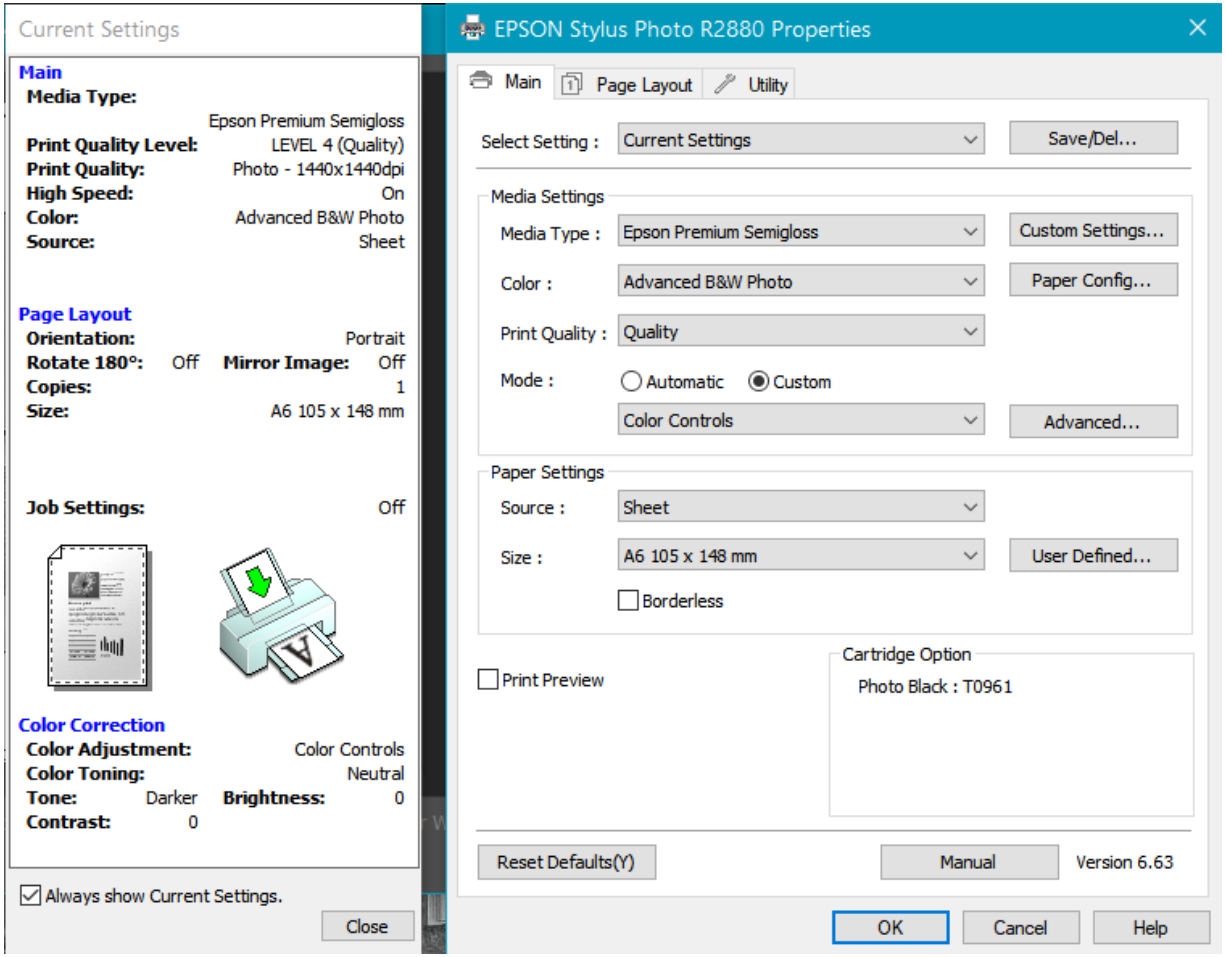
Printing in Black & White (Epson Photo Printers)

- **This method uses Epson's 'Advanced Black & White' print setting and is designed for printers with a black ink and two or more grey inks.**
- **Set 'Color Handling' to 'Printer Manages Color'**
- **In 'Printer Preferences' select 'Advanced B&W Photo' (Epson printers).**
- **Remember to still select the correct Media/Paper settings, but you will not have the option of selecting a printer profile as the printer will control ALL the colour options.**
- **Select 'Mode' and click on 'Colour Controls' then click 'Advanced' button to fine tune.**
- **Adjust settings by trial and error until you achieve the correct result and save the settings as a pre-set.**

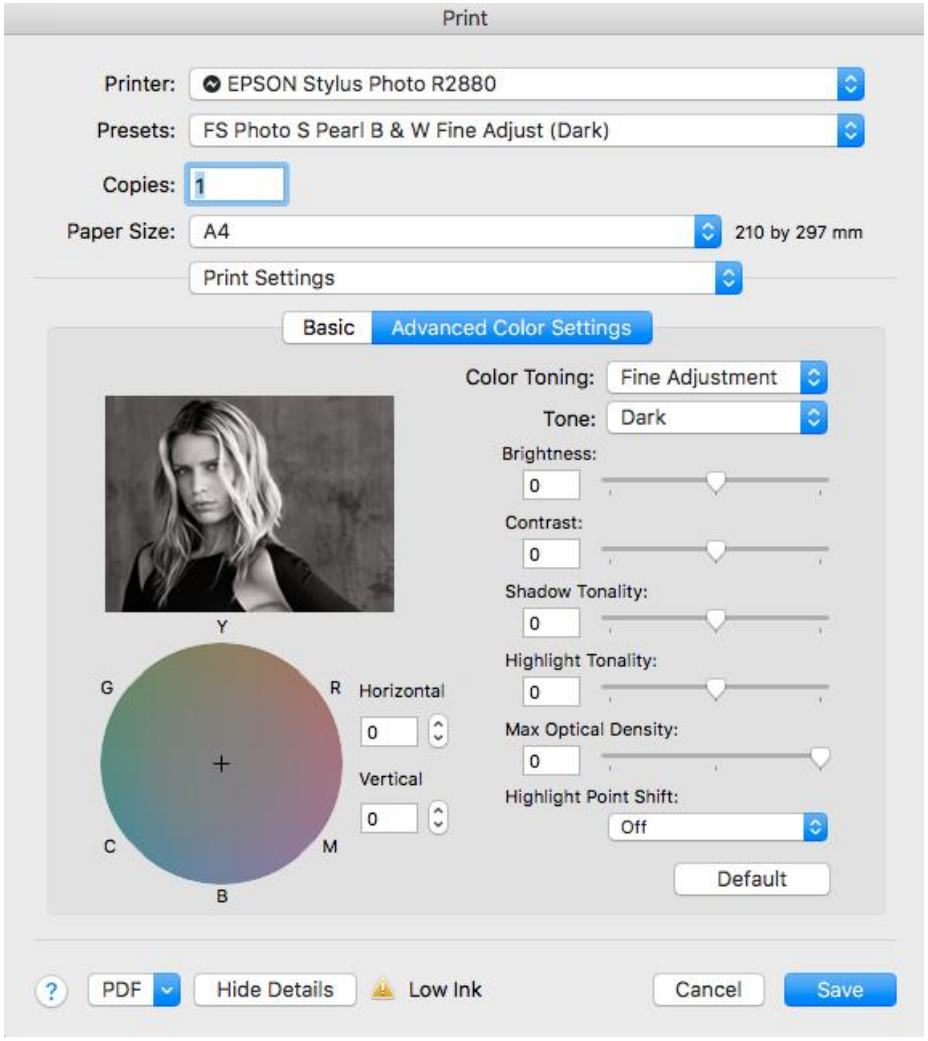
Photoshop CC - Print Window



Photoshop CC - Printer Properties Window – Colour Controls



Photoshop CC - Print Window



Printing in Black & White (Epson and other Photo Printers)

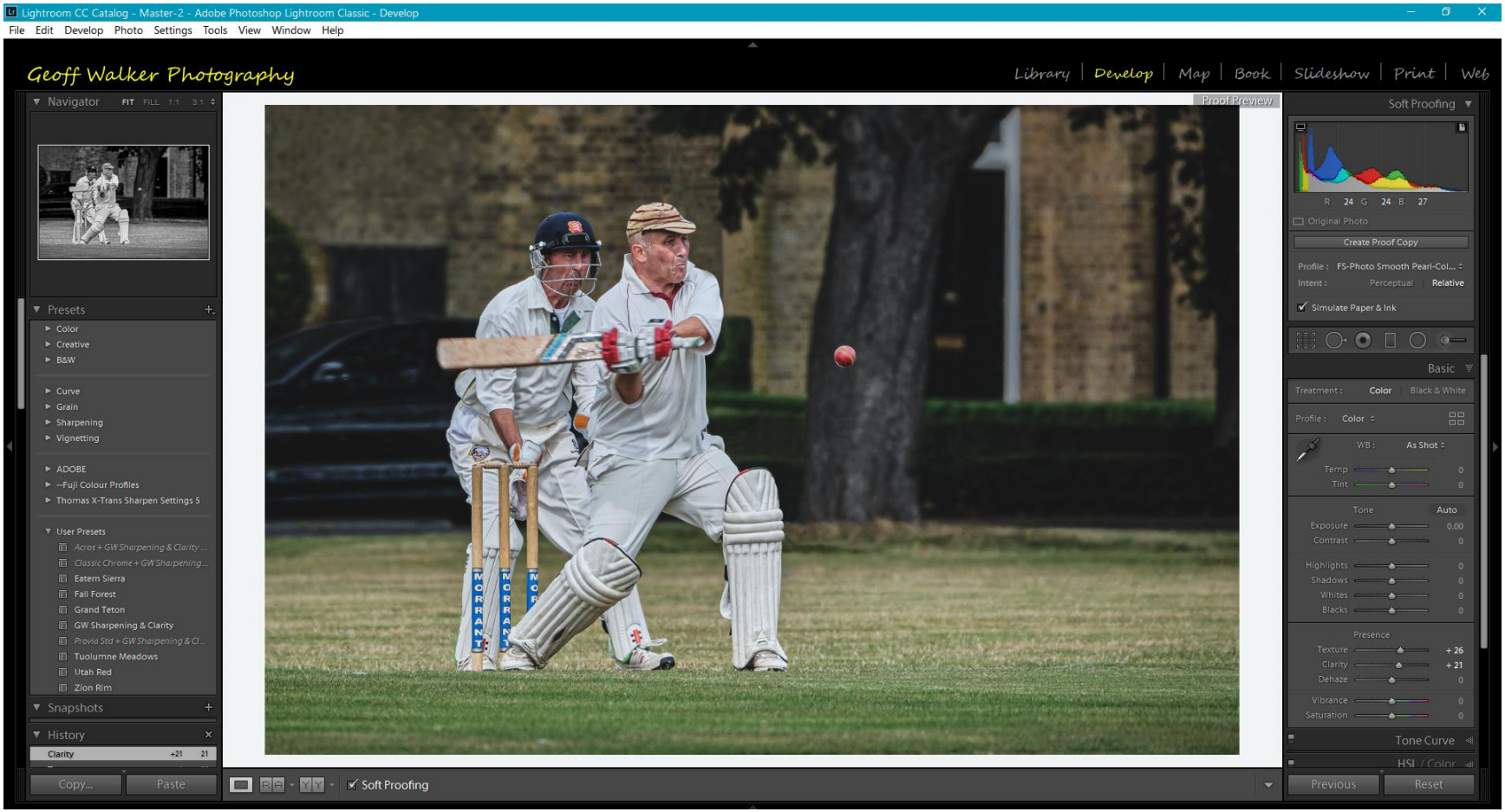
- **If your printer doesn't have separate grey inks an alternative method is to use all the colour inks and the same procedure as you would use to make a colour print i.e. letting Photoshop/Lightroom manage colour and using the ICC profile for the paper/printer/ink combination.**

Soft Proofing in Lightroom

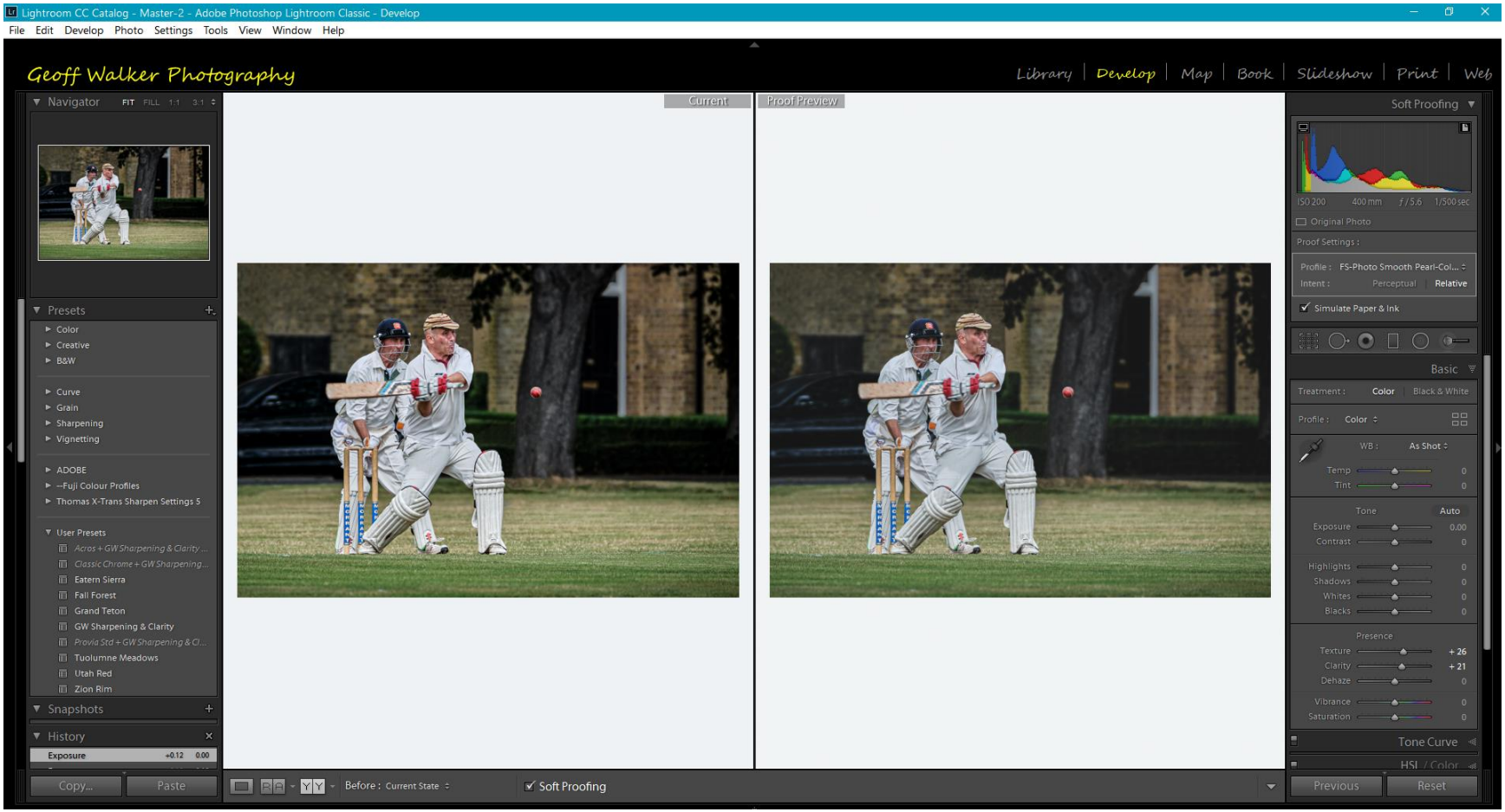
- **There is yet another step that can help to ensure that your print exactly matches the colours on your screen and this is a process known as Soft Proofing.**
- **Soft Proofing is the capability to preview how on-screen photos appear when printed, and optimize them for a particular output device (e.g. printer).**
- **I believe this option is available in Photoshop but I have only used the Lightroom version.**

Lightroom Classic CC - Develop Module - Initial Screen

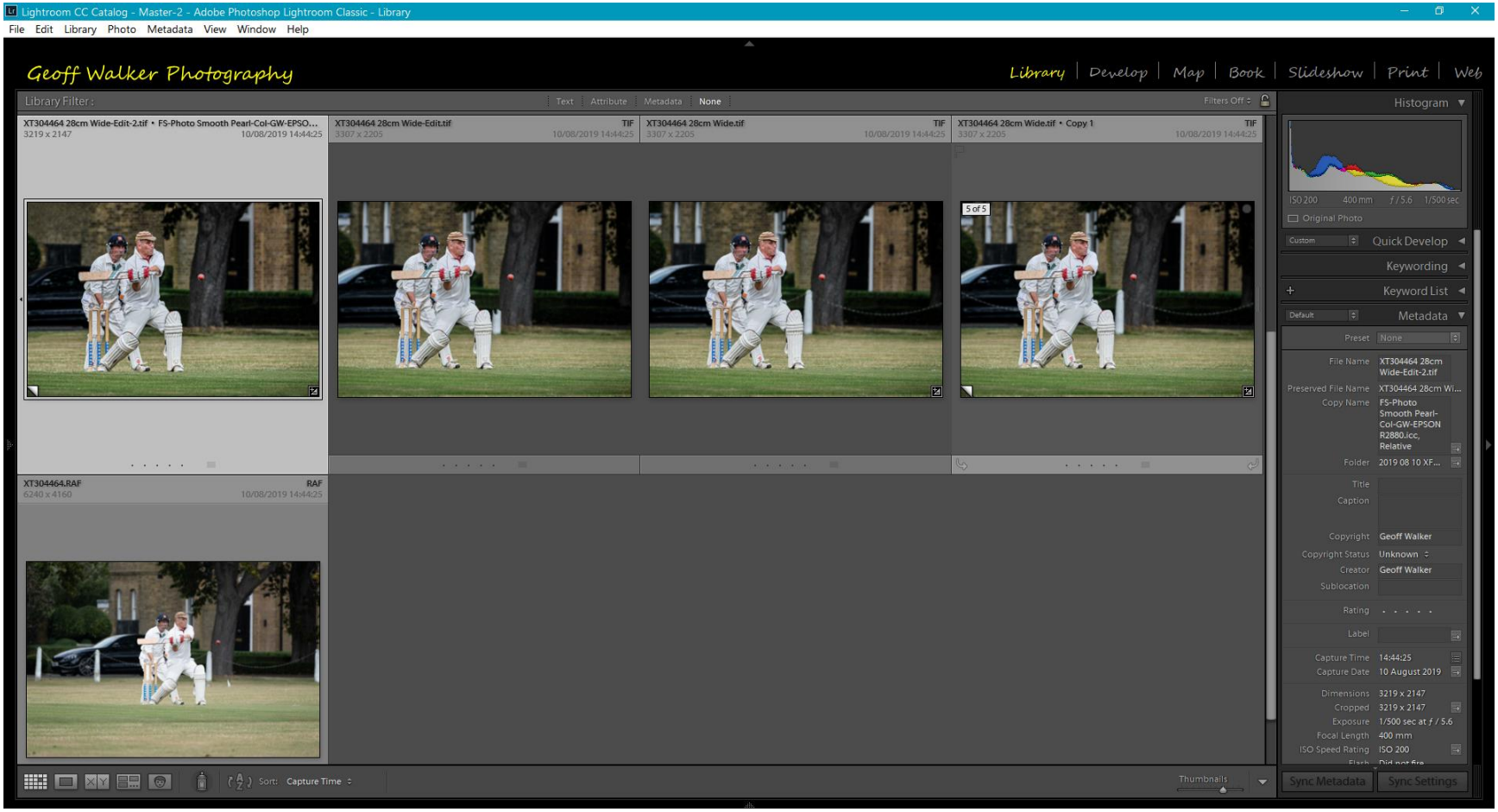
Lightroom Classic CC - Develop Module – Soft Proofing Selected



Lightroom Classic CC - Develop Module – Image Comparison



Lightroom Classic CC - Library Module – Soft Proofed Image



Consistent Colour Achieved!

If you're still awake, thanks for persevering!