

## **Colour Management**

Consistently reproduce colour in your photography.

In its simplest form, colour management is the process of balancing your monitor to achieve colour consistency between your display and final print output. The end goal is to have images displayed on your screen more closely match the final printed product.

Follow the steps in the steps below to achieve more consistent results across your screen and final print output.





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### Step 1 - Monitor Calibration

The first step towards achieving colour consistency between your screen and final prints is using a monitor calibration device, such as X-Rite's ColorMunki Display, to calibrate your screen.

Calibration devices attach to the front of your monitor and analyse a series of colours and grey levels displayed on your screen via the device's software.

Often the most prominent issue seen in uncalibrated screens is the brightness being set too high under default factory settings, meaning that the final print output appears to significantly darker in comparison. One of the primary goals of a calibration device is to set a more appropriate screen brightness.

More advanced devices also measure your room's ambient light levels to adjust the brightness, further helping to avoid prints which appear too dark when compared side-by-side in the same lighting environment and conditions.

Using the readings taken during the calibration process, the calibration software creates a colour profile which instructs your screen to render each colour in a way that will match the print output.

N.B. Although all monitors can be calibrated to at least a basic level the accuracy of the results will vary depending on the quality of your screen. A low-quality, budget monitor which has been calibrated will still provide sub-par results. Common recommendations for colour critical work include Eizo, NEC and Dell's UltraSharp models. At Loxley Colour we use Eizo CG246 displays. It is important to note that even the best screens will still need to be calibrated.

Detailed monitor reviews and recommendations can be found at TFT Central.



## Step 2 - File Format & Colour Space

It is essential to ensure your images are in the appropriate format before placing and order with Loxley Colour. All images should be high-quality 8-bit JPEGs in either the sRGB, Adobe RGB or ProPhoto RGB colour spaces.

#### Lightroom Export Setting

We would recommend creating and saving an Export Preset using the following settings for future print use.

	Export One File		
Export To:	Hard Drive \$		
Preset:	Export One File		
▼Lightroom Presets	Export Location     Choose folder late		
Burn Full-Sized JPEGs Export to DNG	File Naming d505-042-Edit-		
For Email	▶ Video		
For Email (Hard Drive) ▶ DxO Labs	▼ File Settings		
► Google ▼ User Presets	Image Format: JPEG		
Export original Full-sized JPEG	Color Space: SRGB : Limit File Size To: 100 K		
Print Max Quality			
	▼ Image Sizing		
	Resize to Fit:     Width & Height     Don't Enlarge       W:     1024     H:     1024     Resolution:     300     pixels per inch +		
	Voutput Sharpening		
	Sharpen For: Print   Amount: Standard		
	► Metadata Copyright & Contact Info Onl		
Add Remove	V Watermarking		

Recommended Settings:

Image Format: Loxley Colour accept JPEG files only Colour Space: sRGB / Adobe RGB / Pro Photo RGB Quality: '100' to preserve full image quality Resize to Fit: Ensure this is unchecked to preserve maximum quality Don't Enlarge: Ensure this is unchecked to preserve maximum quality Sharpen For: Print



### Photoshop Export Setting

We would recommend creating and saving an Export Preset using the following settings for future print use.

New		Color Settings		
Name: Untitled-5		OK Cancel Save Preset	Settings:         Custom         2           Working Spaces         RGB:         (RGB IEC61966-2.1         1           CMYK:         U.S. Web Coated (SWOP) v2         2           Gray:         Dot Gain 20%         2           Soct:         Det Gain 20%         2	Conversion Options Of Engine: Adobe (ACE) = Can Intent: Relative Colorimetric = Loa ✓ Use Black Point Compensation ✓ Use Dither (8-bit/channel images) ✓ Pre-
Width: 20 Height: 16 Resolution: 30 Color Mode: RC	Inches ÷ Inches ÷ O Pixels/Inch ¢ GB Color ¢ 8 bit ¢	Delete Preset	Color Management Policies RGB: [Preserve Embedded Profiles 1 CMYK: [Preserve Embedded Profiles 2 Gray: [Preserve Embedded Profiles 2 Profile Mismatches: ] Ask When Opening ] Ask When Pasting Missing Profiles: ] Ask When Opening	Compensate for Scene-referred Profiles Advanced Controls Desaturate Monitor Colors By: 20 % Blend RGB Colors Using Gamma: 1.00 Blend Text Colors Using Gamma: 1.45 Blend Text Colors Using Gamma: 1.45 Usynchronized: Your Creative Cloud applications are not synchronized for consistent color.
Background Contents: White   Advanced Color Profile: sRGB IEC61966-2.1  Pixel Aspect Ratio: Square Pixels		Image Size: 82.4M	Description	

We would recommend creating documents using the following settings for future print use.

Image Resolution: 300 Pixels/Inch (150 minimum)

Color Mode: RGB Color / 8 bit

Color Profile: sRGB IEC61966-2.1

We would recommend the following colour settings within Photoshop (Edit > Colour Settings..).

Working Spaces: RGB: sRGB IEC61966-2.1

Color Management Policies: RGB: Preserve Embedded Profiles

Profile Mismatches: Ensure Ask When Opening and Ask When Pasting are both checked.



### Step 3 - Order Test Prints

An essential part of the overall colour management process at this stage is gauging how near/ far your monitor is to our print outputs, and to help with this we offer a free test print service. For best results, submit a test print order containing a range of images which cover a wide spectrum of colours. We also recommend you include a B&W image, as these can help with any density adjustments you may need to make.

Important: When ordering, make sure to select 'No Colour Correction'. Failure to do so will mean your images will be printed from a version of your file which has been altered for best results by our Colour Correction team, which will make any print to screen comparison inaccurate.



### Step 4 - Soft Proofing

When you receive your test prints the next step is to compare the print results with what you see on your screen.

At this stage there's a good chance that, although your test prints will be a much closer match than pre-calibration results, they won't exactly match the same images on your monitor just yet. By the nature of their mediums, there are key differences between screen and print, including:

Monitors are luminous (have their own light source and emit light) whereas prints are reflective Viewing conditions in conjunction with above: natural daylight has very different light temperature from most artificial light sources and differences here can affect the overall look of your print Paper colour/whiteness of the paper used can vary from print process to print process Gamut of print process – the ability of the print process used to represent different colours To help overcome this, programs such as Photoshop and Lightroom use a process called soft proofing, which use print profiles to match the screen to the paper type.

Our soft-proofing profiles are designed to simulate the effects of the different types of print process on offer at Loxley Colour. Soft proofing displays the files based on the printer colour space in conjunction with the monitor profile. If done correctly, the image file itself is not altered, the pixel values of the image remain untouched. The pixels displayed on the monitor are mapped so the colours of the image are as close as possible to what a final print would look like.

We have a range of profiles for you to download, from Fuji photographic lustre paper to Hahnemühle fine art. Each profile will have a slightly different screen output as it tries to mimic the process on offer.

It's important that the profile is used for proofing only and not saved to your files.



#### More on installing and using soft proof profiles

Your test prints are printed on Fuji photographic lustre paper and should be compared to the same image file on screen using the profile 'Loxley Colour Photographic Lustre&Gloss' available via our Print Profile Download page.

Profiles should be installed in the following location:

Windows PC - C:\Windows\System32\Spool\Drivers\Color\

Mac - Macintosh HD > Library > Colorsync > Profiles

If you find a monitor-print match then you should be able to order prints knowing that the output will be very close to your monitor, assuming you do not choose to use our Colour Correction service (includes brightness adjustments). As monitors very gradually dim over time, it is advisable to keep the prints & associated files safe and check periodically that your monitor hasn't shifted over time.

When different papers and print processes are used, such as Giclée Fine Art printing, make sure to utilise the appropriate profile when soft-proofing.



### Soft Proofing in Lightroom

Lightroom cannot use CMYK profiles or colour spaces

Steps for soft proofing in Lightroom:

- Go into the Develop module
- Check 'Soft Proofing' in the bottom tool bar
- Select 'Before: Current State' in the bottom tool bar



In the right hand menu you will now see the Soft Proofing dialogue



- Select 'Show destination gamut warning' reds show areas printer can't handle
- Click 'Create Proof Copy'

• To load the Loxley Colour print profile in Profile drop down > 'Other...' > and then locate the profile on your system

Choose 'Perceptual' as Intent

'Simulate Paper and Ink' should be unchecked
 Adjust levels of your Soft Proof version to match your
 original

Video link for more information (https://www.youtube.com/watch?v=1G83FrjUEyQ)



#### Soft Proofing in Photoshop

### It's important that the profile is used for proofing only and not saved to your files.

A good technique to Soft Proof within Photoshop, is to take your chosen finalized image and duplicate. This duplicated image can then be tweaked with your chosen ink and paper settings, allowing you to keep your original file intact, and you can compare side by side to bring your duplicated image close to the original.

Image > Duplicate

• Window > Arrange > 2-up Vertical

To soft proof:

- View > Proof Setup > Custom...
- Device to Simulate: Your downloaded Loxley profile
- Rendering Intent: Perceptual
- Black Point Compensation should be checked
- Display Options (On-Screen): Simulate Paper Color should be unchecked
- Click OK

\*screenshots on the following page



#### Soft Proofing in Photoshop



Custom Proof Condition: Custom	÷ ОК
Proof Conditions	Cancel
Device to Simulate: Your colour profile goes here	÷
Preserve Numbers	Load
Rendering Intent: Perceptual	\$ Save
Black Point Compensation	Preview
Display Options (On-Screen)	
Simulate Paper Color	
Simulate Black Ink	

Now comparing your images side by side, you should be able to observe any differences on your soft proof image. You can then make small changes to Levels and Curves, to bring your image as close as possible to the original, before saving for print.



Video link for more information http://www.photoshop.com/tutorials/4132

