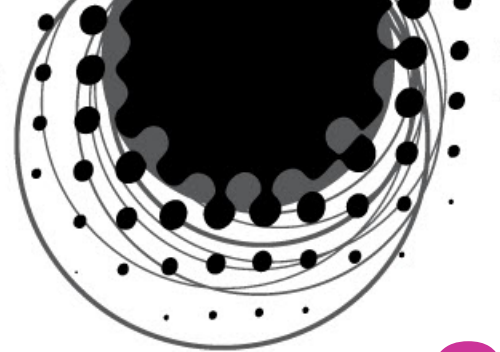




PIXELOGIE

Capture to Customer

Capture Colour Management, Colour Spaces,
Colour Viewing, Printing and Hard & Soft proofing
best practices File handling and Workflow

February 12, 2015 ● India Expo Centre ● Greater Noida,
Delhi NCR



PIXELOGIE





It's all about the
Message ...

The Image is
the message



ICC Profiles define source and destination
colours well, but...
unless good process variable controls are in
place colors will change and color
management fails.



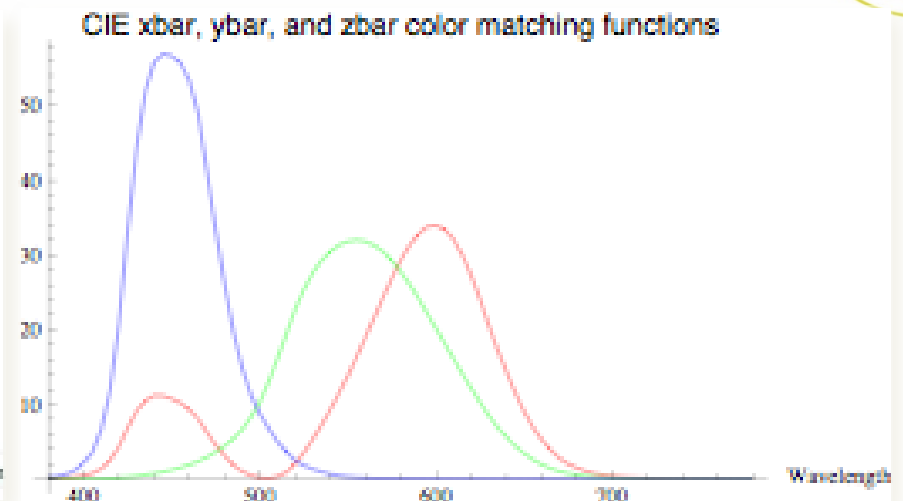
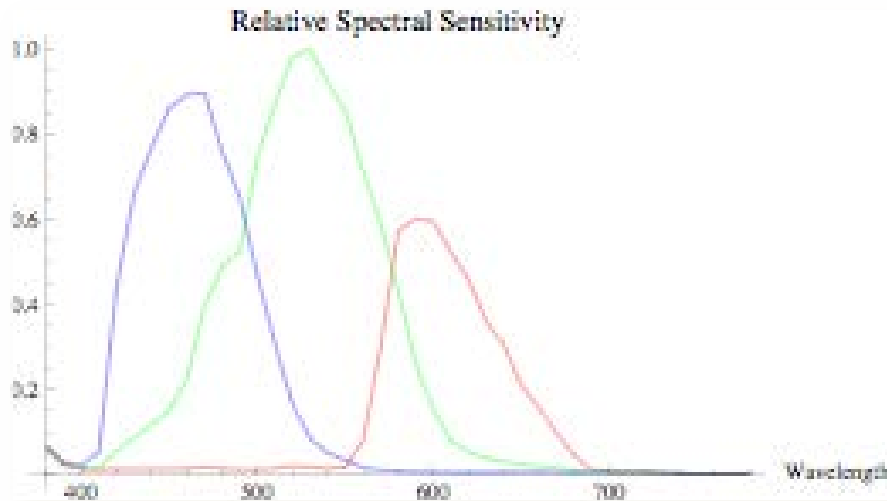
PIXELOGIE



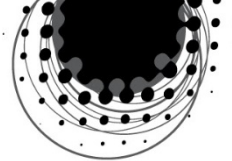
Colour Management is...

- o The process that can make or break your work.
- o When you do it right your images look best.
- o You need some basic knowledge to understand just how things work together.
- o RGB files without assigned profiles have no defined Colour because the RGB values are not linked to CIELab.
- o ICC Profiles describe Colours of a file exchanged on computer systems in unambiguous ways.

Cameras are not Eyes

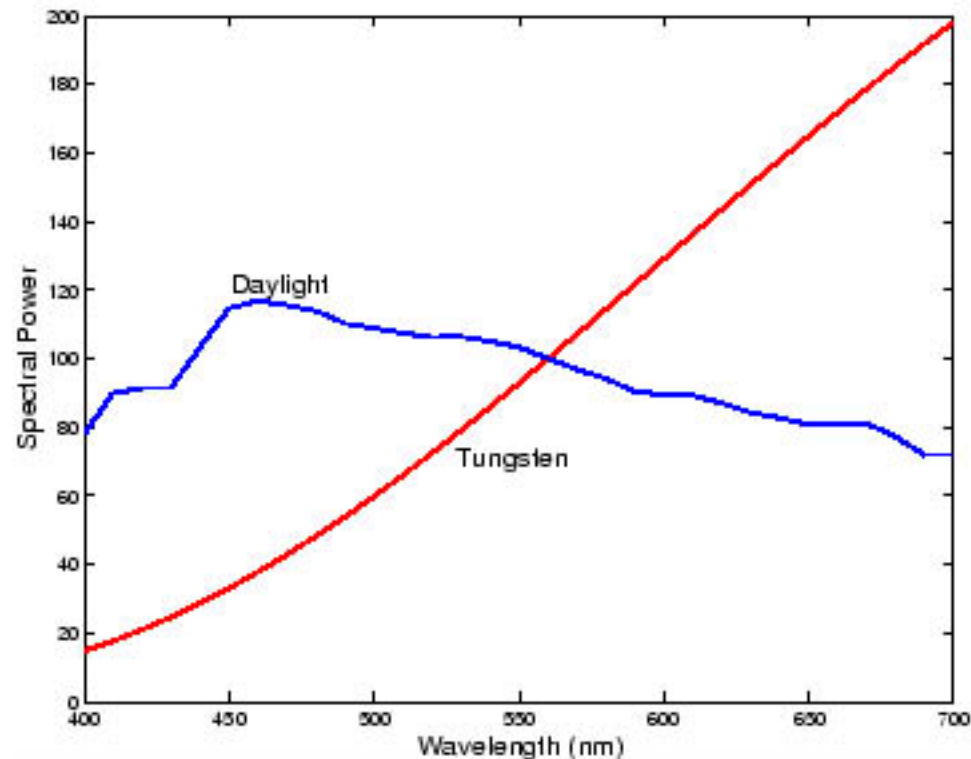


- o Your Eye is a Better Camera than Your Camera
- o Every Camera type see's Colour differently.
- o Different Camera brands or models will not see Colour the same.
- o No Camera brand or model on the market today see's Colour correctly
- o Calibrate your cameras, to the same standard to save time and money

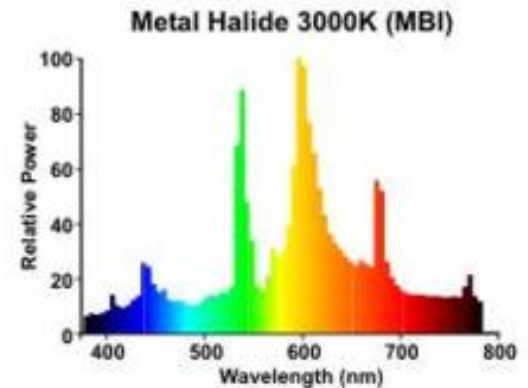
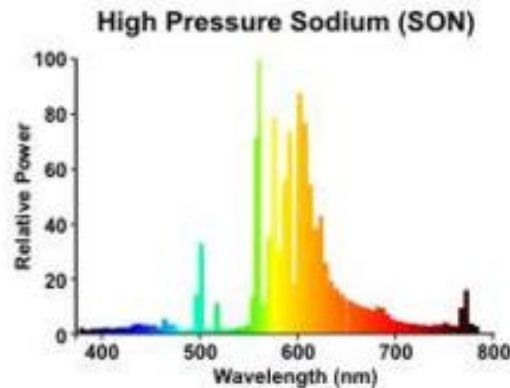
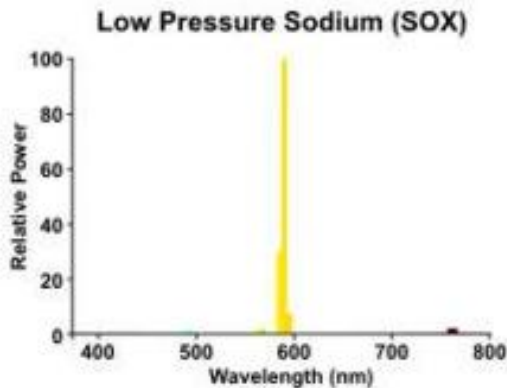
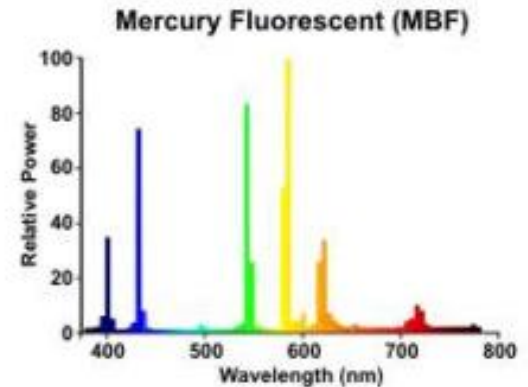
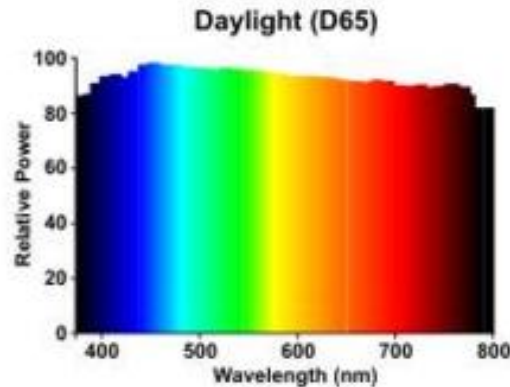
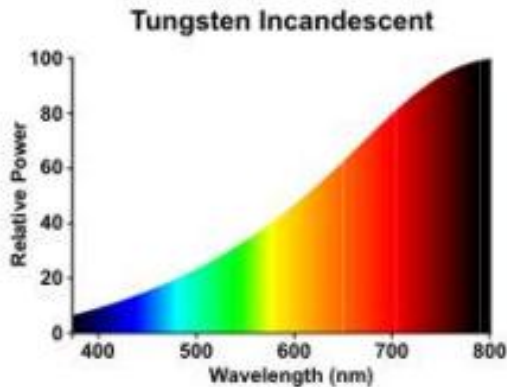


White Balance doesn't work

- o Light is Colour
- o How much that matters to your customer and your workflow will depend on how much or how little Colour management you do.
- o It's all about profits.



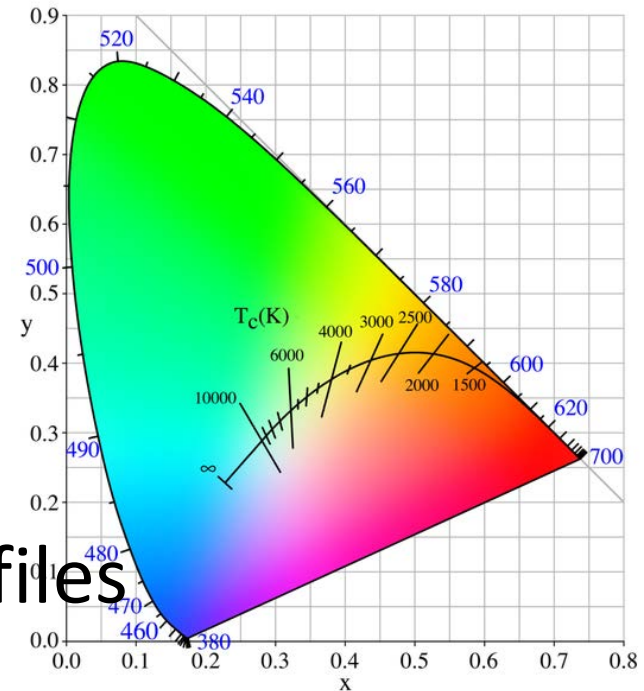
When your light isn't Daylight





Colour Managed Workflows for Photographers

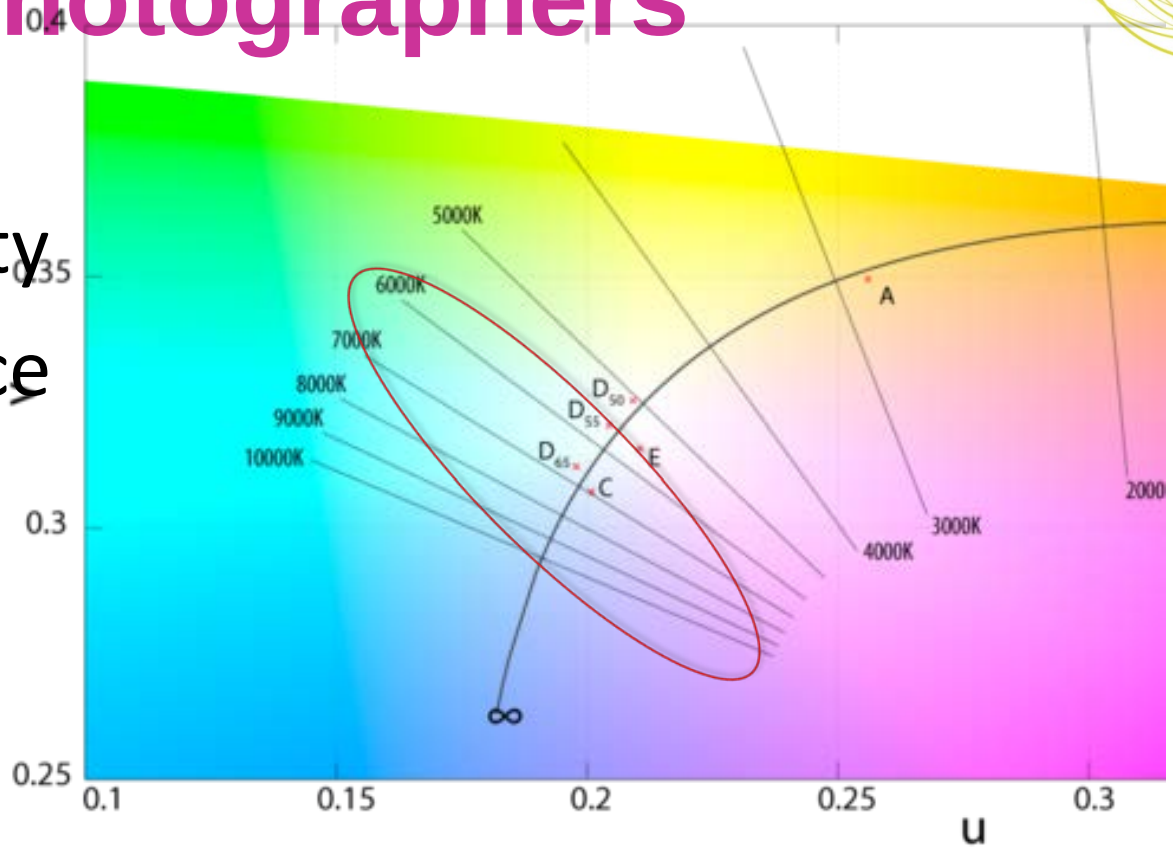
- o Light
- o Colour Temperature
- o CIE XYZ Colour
- o CIE Lab Colour
- o RGB Device independent profiles
- o Device dependent profiles





Colour Managed Workflows for Photographers

- ▶ Light
- ▶ Colour Quality
- ▶ White Balance





Camera Calibration Or Not

X-Rite's Colour Checker
Passport

Good for making improvements
But may not be a solution to all
your problems, but ..it could be.

Nothing works in mixed light.
AWB is best in that situation.

Both Colour Checker Passport
and Expodisk can do a custom
white balance for your images.
Good tool, but it's only a partial
solution.



Other options are dcptool (open source) & DNG Profile Editor (Adobe)



Camera Calibration – Pro's & Con's

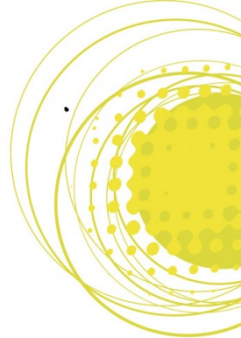


- o Good White balance and a better starting point for ACR or LR presets.
- o Allows closer matching of different camera bodies for back up cameras and second shooters.
- o Provides the ability to change white balance or Colour correction in cool and crazy ways by editing the calibration image prior to building the camera profile.
- o Con's are when your going for a look that has nothing to do with what the scene looks like. Then skip it!
- o But when the Colour of the light is significantly different than daylight and you need images to look correct, then camera calibration is the best plan.
- o It can't be perfect, because cameras don't see Colour like people, ever, even after calibration. Why?....

Colour Managed Workflows for Photographers

- Metamerism – the damage is only visible later...





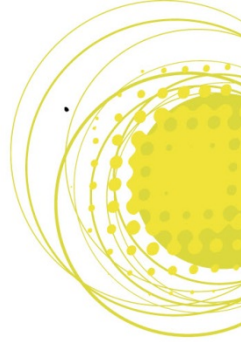
Solving Metamerism

- Metamerism – the damage is only visible later...



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Which ICC Profiles?

- o Pro Photo is the largest ICC device independent Colour space.
- o Adobe RGB is the next “smaller” ICC device independent Colour space.
- o sRGB is the smallest standard ICC device independent Colour space. It is the monitor standard for CRT displays and the internet.

Profile Misinformation

- o Bigger profiles are better right? “More flexibility”
- o Smaller Profiles “More banding” - Not true
- o Misinformation- “use ProPhoto when you need lots of Colour to work and need to make drastic changes” “ProPhoto provides more Colour information in dark tones.”
- o Let’s see what they look like and understand why we use them!

Which ICC Profiles and why?



Which ICC Profiles and why?



ICC Profiles and Images



Camera Calibration

Sometimes it's value is limited

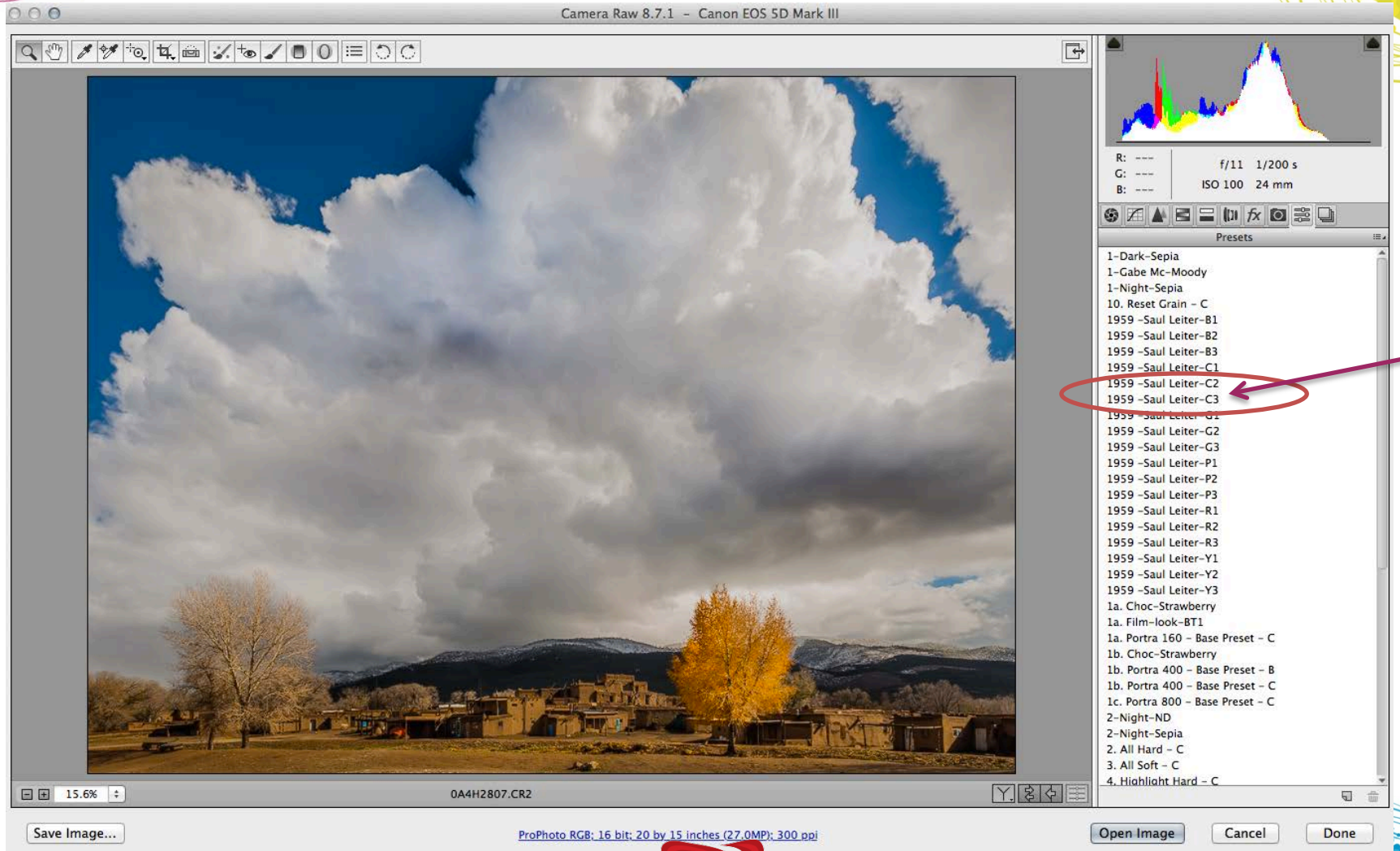




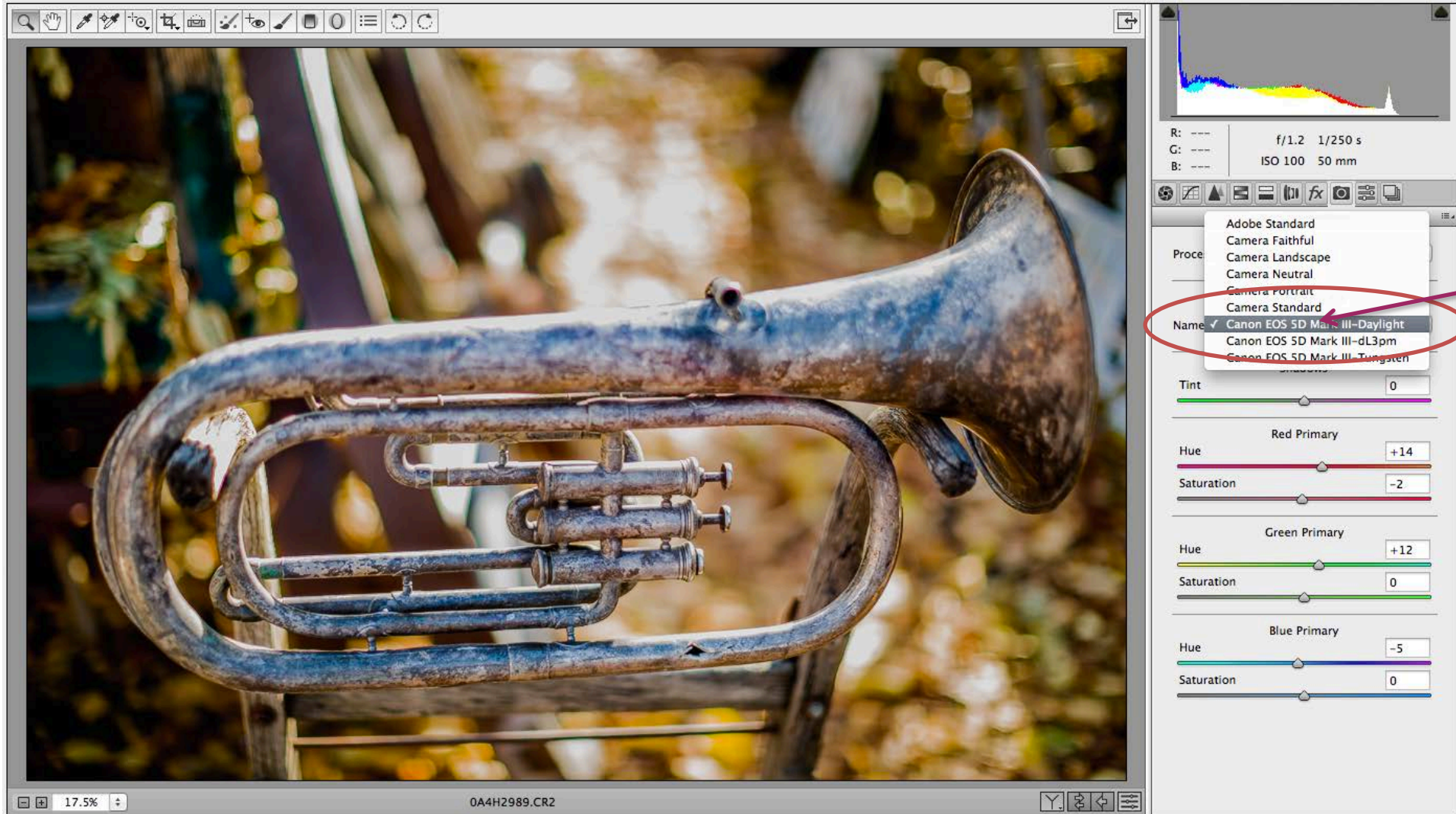
Raw Files and ICC Profiles

- o A raw file is just a text description file of what the sensor captured and your camera settings. No Pixels
- o Setting an ICC profile rendering space in your camera is only for Jpeg files.
- o If you use jpeg files as back up files, set your cameras Colour space to Adobe RGB.
- o If your posting to instagram or the internet , use sRGB.
- o Your Raw file editor decides what pixels get created and in what device independent profile the pixels are rendered.

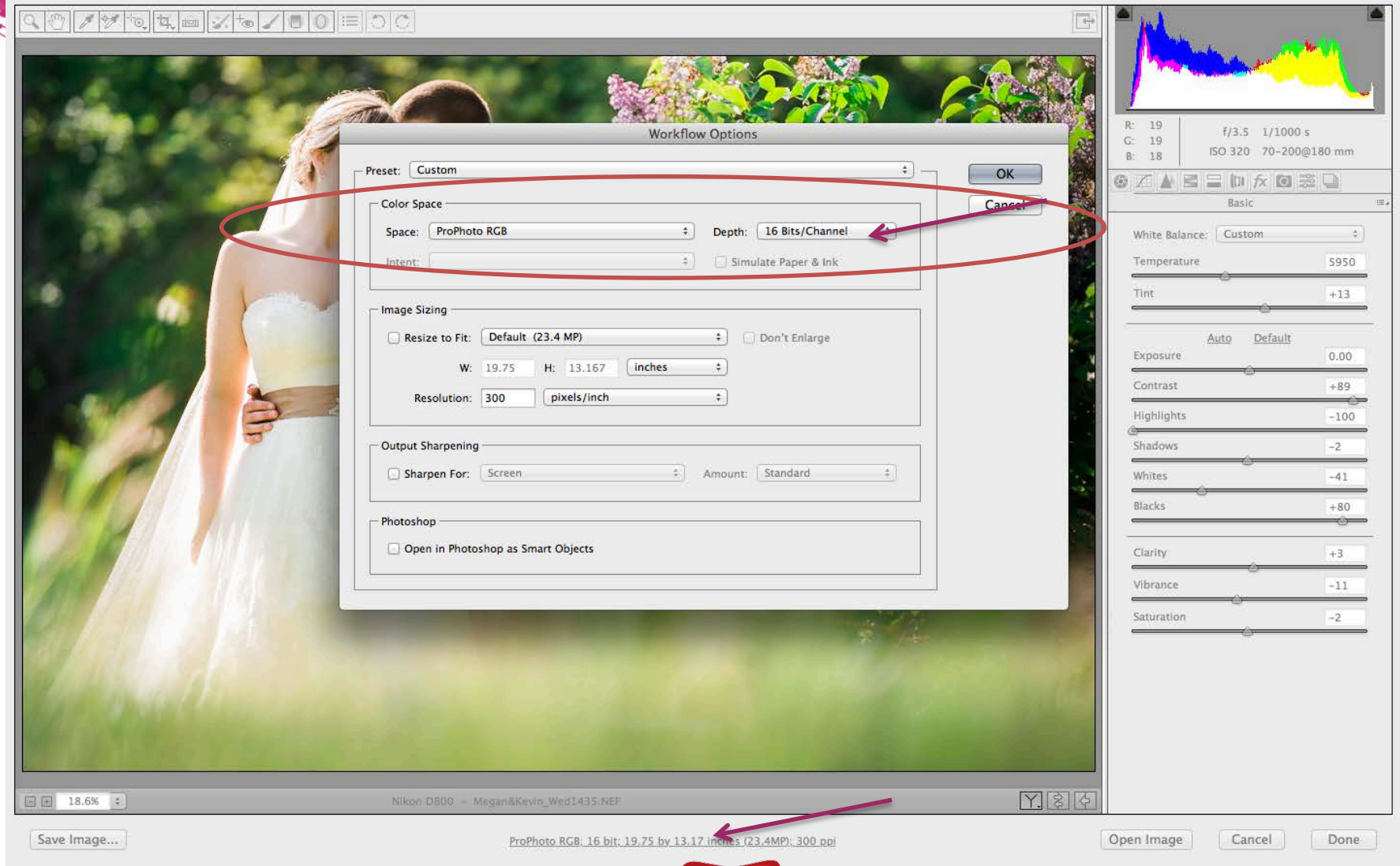
Profiles in Practice



Profiles in Practice



Profiles in Practice



Edit – Preferences - LR

Preferences

General Presets External Editing File Handling Interface Lightroom mobile

Edit in Adobe Photoshop CC

File Format: TIFF 16-bit ProPhoto RGB is the recommended choice for best preserving color details from Lightroom.

Color Space: ProPhoto RGB

Bit Depth: 16 bits/component

Resolution: 300

Compression: LZW

Additional External Editor

Preset: Custom

Application: < not specified > Choose Clear

File Format: TIFF The AdobeRGB (1998) color space cannot encompass the full range of colors available within Lightroom.

Color Space: AdobeRGB (1998)

Bit Depth: 16 bits/component

Resolution: 300

Compression: None

Stack With Original

☒ Stack With Original

Edit Externally File Naming: IMG_0002-Edit.psd

Template: Custom Settings

Custom Text: Start Number:



Edit Colour Settings - Photoshop

Color Settings

Unsyncronized: Your Creative Suite applications are not synchronized for consistent color.

Settings: Custom

Working Spaces

RGB: Adobe RGB (1998)

CMYK: U.S. Sheetfed Coated v2

Gray: Dot Gain 20%

Spot: Dot Gain 20%

Color Management Policies

RGB: Preserve Embedded Profiles

CMYK: Preserve Embedded Profiles

Gray: Preserve Embedded Profiles

Profile Mismatches: ☐ Ask When Opening ☐ Ask When Pasting

Missing Profiles: ☐ Ask When Opening

Conversion Options

Engine: Adobe (ACE)

Intent: Relative Colorimetric

☒ Use Black Point Compensation

☒ Use Dither (8-bit/channel images)

☒ 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

Description

OK

Cancel

Load...

Save...

Fewer Options

☒ Preview



Edit Colour Settings - Photoshop

Convert to Profile Advanced

Source Space
Profile: ProPhoto RGB

Destination Space

- ☐ Gray Profile: Working Gray - Dot Gain 20%
- ☒ RGB Profile: sRGB IEC61966-2.1
- ☐ LAB
- ☐ CMYK Profile: GRACoL2006_Coated1v2
- ☐ Multichannel Profile: PANTONE(r) Hexachrome(r) RolandFJ500
- ☐ Device Link Profile: AnimePalette
- ☐ Abstract Profile: Black & White

Conversion Options

Engine: Adobe (ACE)

Intent: Perceptual

☒ Use Black Point Compensation

☒ Use Dither

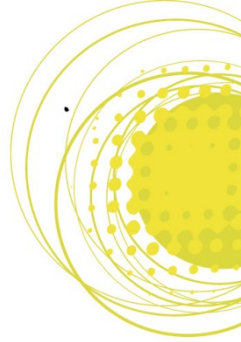
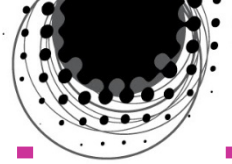
☐ Flatten Image to Preserve Appearance

OK

Cancel

☒ Preview

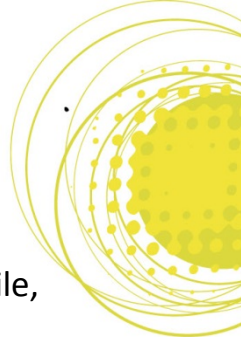
Basic



Rendering intents

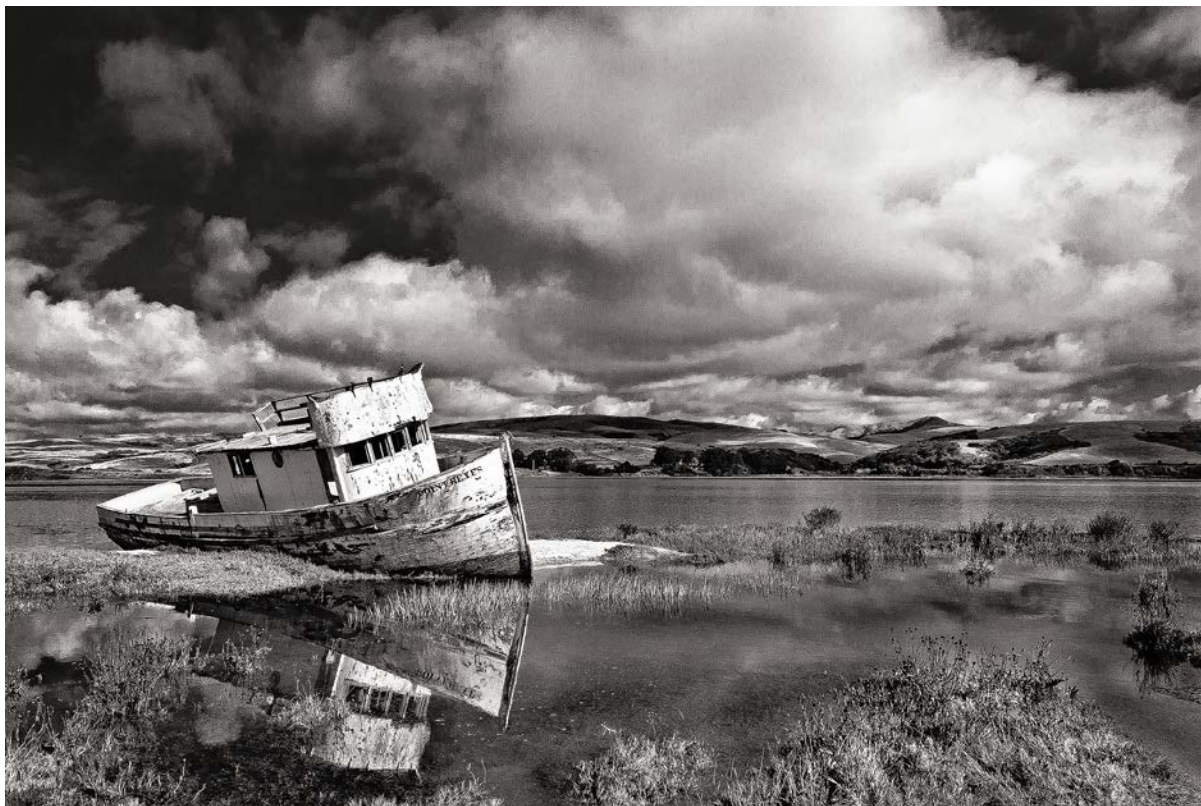
- o 2 Main Rendering intents we will use
 - o Perceptual Rendering: Making a large gamut fit into a small one
-
- o For when your going from a large gamut image or Colour space into a smaller one.
 - o Relative Colourimetric –It cuts off what won't fit inside.
 - o What happens when I combine Images with different profiles?

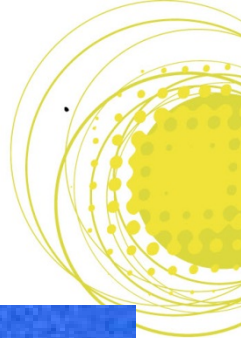




Maximizing S/N Ratio

- o With 10 Stops available in a raw file capture, assuming a 13 stop dynamic range and a 14 bit raw file, the data is distributed as follows:
- o The brightest stop = 8192 tonal values
- o Stop 2 = 4096 tonal values
- o Stop 3 = 2048 tonal values
- o Stop 4 = 1024 tonal values
- o Stop 5 = 512 tonal values
- o Stop 5 = 256 tonal values
- o Stop 6 = 128 tonal values
- o Stop 7 - 64 tonal values
- o Stop 8 - 32 tonal values
- o Stop 9 -16 tonal values
- o Stop 10 – 8 tonal values
- o Stop 11- 4 tonal values
- o Stop 12- 2 tonal values





Maximizing S/N Ratio

ETTR

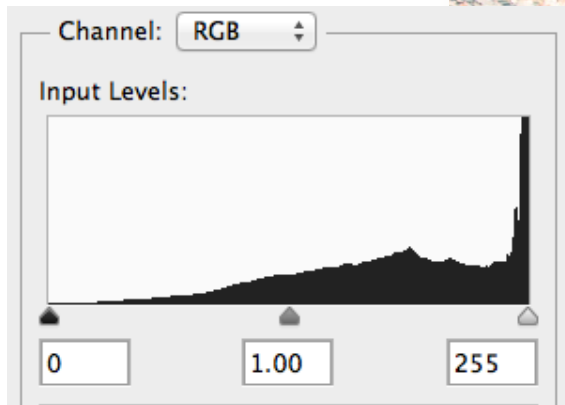
Normal Exposure

Both Images @ ISO 2000

ETTR

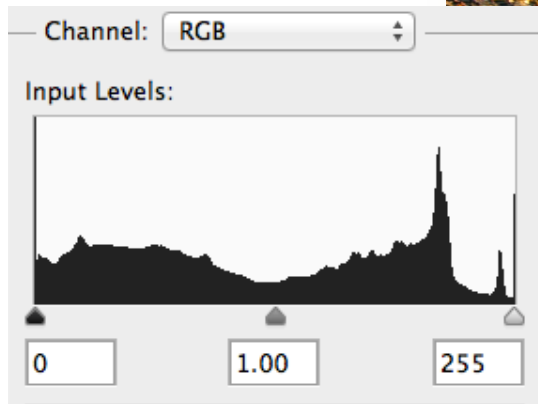
S/N - ETTR Raw File Exposure

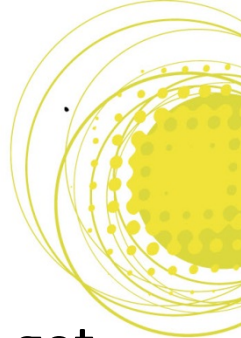
Histograms are
worthless when
it comes to
Judging real
results – why?



ETTR - Rendered & Recovered Image data

Histograms are rendered data plots from raw files. You can get more out of them than a Histogram

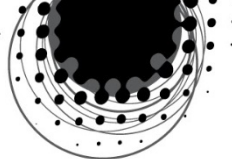




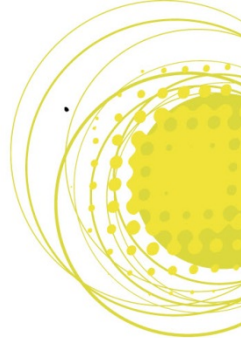
Maximizing S/N Ratio

- o Over Exposure allows you to place the details where you get the most bits.
- o Good ETTR is about 1 stop over exposed, but it's subject dependent.
- o In a real life wedding ETTR is dangerous when shooting white details in changing light.
- o When in doubt bracket 1/3 off your ETTR.





Secrets to better shots



- o Shoot Sharp – When its important to your image.
- o Crop in camera when you can.
- o Get "correct" exposure in camera & use ETTR to reduce noise.
- o Process raw and sharpen your images in 16 bit mode (or greater)
- o Then retouch, filter, and generally add any enhancements, as a compositional tool.

Monitor based Proofing

- o ICC v4 Profiles are much more accurate for monitor based proofing.
- o ISO 3664:2009 Creates problems in all ICC based proofing.
- o The usual measurement matching methods must be replaced for materials with Optical Brightening Agents.
- o Rule of thumb: Don't use Optically brightened print papers if you want to get an accurate match from screen to print.



Basics of Colour Management for Content Creators

- o Soft Proof Environment variables
- o Disaster avoidance 101

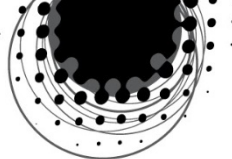




Monitor proofing Essentials

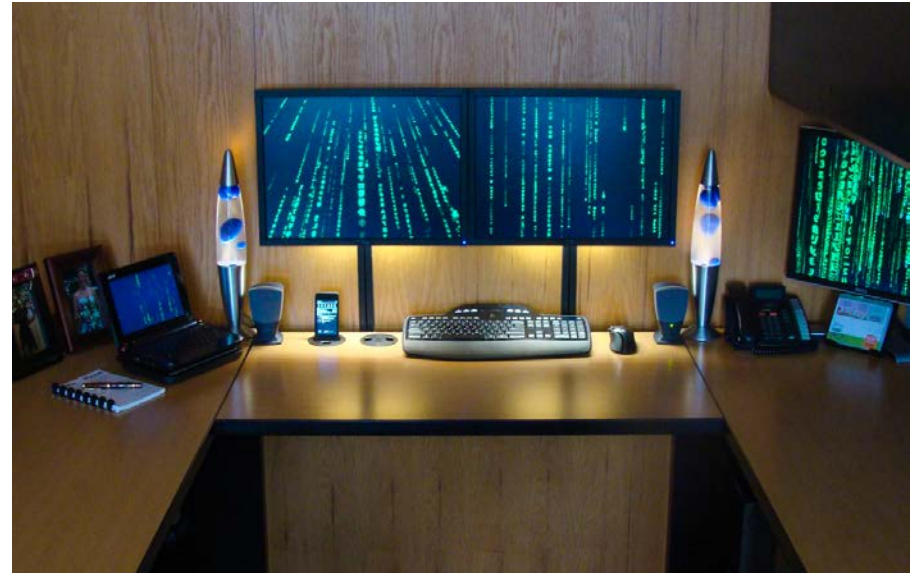
- o Soft Proof Environment variables
- o Disaster avoidance 101
- o Lighting





Monitor proofing Essentials

- o Soft Proof Environment variables
- o Disaster avoidance 101
- o Lighting
- o Surround



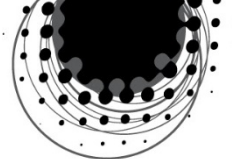


Monitor proofing Essentials



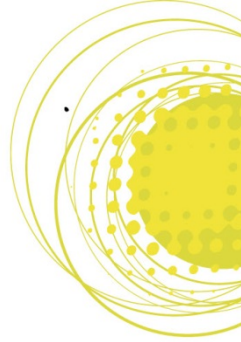
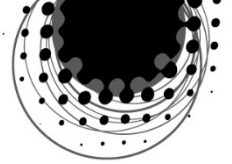
- o Soft Proof Environment variables
- o Disaster avoidance 101
- o Lighting
- o Surround
- o Display type
- o Glare
- o Image Size





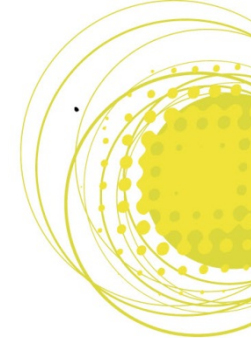
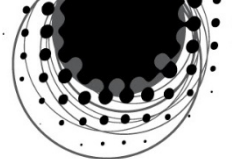
Raw workflows in Lightroom

- o Streamline your shoots, and get more done using Lightroom
- o Import using your Colour presets, metadata, copyright etc, and do your back-up at the same time.
- o Set your previews to minimal at first for speed, then do your picks.
- o After image culling, then set image previews to smart previews so you can work off line if needed.
Library > Previews > Build Smart Previews



Prints are not Proofs

- o Most photographic prints are made to closely match a standard device independent profile.
- o Colour proofs for press must match closely to ISO colour characterization data for the printing press aims.
- o If prints are made in colour space larger than the proof space, out of gamut colors will change when mapping them into a smaller gamut size and process inks due to ink contamination.



Thank You!
Bob Hallam

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