

Digital Camera Profiling

The Art of Creating and Using Camera Profiles

Presented by

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Goals for This Evening

- ✓ Understand the concept of camera profiles.
- ✓ Learn how profiles are handled in RAW and JPEG files.
- ✓ Learn how to apply profiles to RAW files in Lightroom and Adobe Camera Raw.
- ✓ Learn how to create custom profiles for specific lighting conditions using ColorChecker Passport.
- ✓ Learn how to create custom “general purpose” profiles to use with a wide range of lighting conditions.

Understanding Profiles

- ✓ **In a sense**, a profile acts as an interpreter. It informs the software of the color the hardware can capture or produce.
- ✓ **For example:** A Printer Profile informs the software of the intended printing conditions, i.e., printer, paper, and ink combination.
- ✓ **Accurate profiles are** the cornerstone of a color-managed workflow because each describes a device in the workflow chain.

Why Camera Profiles?

- ✓ **Sometimes it's hard to** nail particular color relationships under specific lighting conditions.
- ✓ **Adjusting white balance helps,** but anyone serious about accurate color must consider profiles as well.
- ✓ **A camera profile describes** the specific tonal distribution and color handling properties of a camera.

Manufacturer Profiles

- ✓ **Cameras come with** a set of profiles designed to modify a range of interpretive settings. (See next slide.)
- ✓ **When you shoot JPEG**, these in-camera profiles affect the outcome.
- ✓ **When you process a RAW file** in Adobe Camera Raw (ACR) or Lightroom (LR), the in-camera profile is ignored (the same as most other in-camera settings).

Canon Camera Profiles

- ✓ **Faithful:** Color is adjusted colorimetrically to 5200K in an attempt to make color appear true to life.
- ✓ **Landscape:** More vivid blues and greens. Higher sharpness and contrast.
- ✓ **Neutral:** Lower saturation and contrast.
- ✓ **Portrait:** Smooth skin tones, soft texture, and subdued focus.
- ✓ **Standard:** Vivid, sharp, and crisp.

Understanding RAW

- ✓ **RAW files are grayscale images:** color attributes and resolution are undefined. ISO, shutter speed, and aperture are the only in-camera settings that permanently affect the file.
- ✓ **There is a huge variety** of proprietary RAW formats.
- ✓ **Adobe's products** don't write to camera manufacturer RAW files.

Why JPEG & RAW Look Different

- ✓ **In-camera profiles** are baked into JPEG files.
- ✓ **Adobe Camera Raw and Lightroom** ignore in-camera profiles. They apply a default profile instead.
- ✓ **The preview of a RAW file** on the back of the camera looks different from the computer monitor because it's created from a profile-aware JPEG image that's embedded in the RAW file.

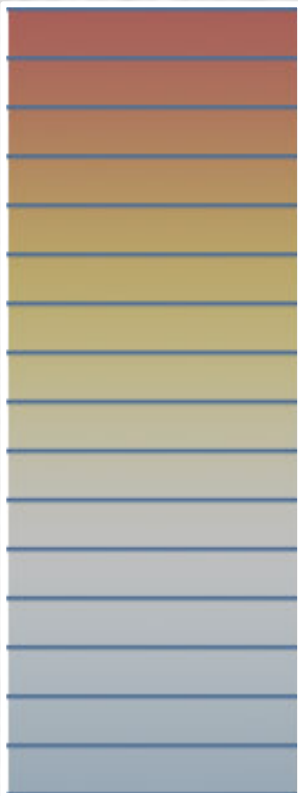
Profiles in ACR and LR

- ✓ **In the summer of 2008** general camera profiles were added to ACR 4.5 and Lightroom 2.0.
- ✓ **Profiles are located in** the Calibration panel in ACR and Lightroom.
- ✓ **Adobe provides these** general profiles to help leverage “in-camera style” profiles.
- ✓ **There are profiles for** most modern digital cameras.
- ✓ **Only profiles relevant to** the camera used to capture the photo are displayed.

Profiles & White Balance

- ✓ **A profile adjusts for** differences between colors under specific lighting conditions.
- ✓ **White balancing is** an attempt to compensate for the color of the illuminant.
- ✓ **To be effective,** custom white balancing must be done after a profile is applied.
- ✓ **Use a white balance target** when shooting, if possible.
- ✓ **If you don't have a target,** try to find something in the image that should be neutral.

The Color of Light



- ✓ **Candlelight: 1000-2000K**
- ✓ **Tungsten bulb: 2500-3500K**
- ✓ **Sunrise/Sunset: 3000-4000K**
- ✓ **Fluorescent: 4000-5000K**
- ✓ **Daylight, Clear Sky: 5000-6500K**
- ✓ **Moderately Overcast: 6500-8000K**
- ✓ **Shade or Heavy Overcast: 8000-12000K**

DNG Profile Editor

- ✓ **Adobe also introduced the ability to** create custom profiles using DNG RAW files.
 1. Photograph a colorful scene, preferably a target like the Macbeth color chart.
 2. Adjust the colors using the profile editor.
 3. Save the adjusted profile as a custom profile.
 4. Use a program like ACR or LR that understands DNG to apply to profile to your RAW files.
- ✓ **Unfortunately,** it's not a process for the non-geek.

Understanding DNG

- ✓ **DNG was introduced by Adobe** to address some of the issues with proprietary RAW file formats.
- ✓ **Unlike manufacturer RAW files**, metadata can be written to a DNG file.
- ✓ **Converting to DNG in Lightroom:** Library > Convert Photo to DNG.
- ✓ **Converting to DNG in ACR:** Click the Save button. Then choose DNG when the Save Options dialog opens.
- ✓ You can also download the free Adobe DNG Converter.

Custom Profiles & ColorChecker Passport

1. Photograph the small target to record the light.
2. Import the RAW file and convert it to DNG.
3. Drag the photo of the target into the ColorChecker Passport software and name it.
4. Apply the new profile to selected files in ACR and Lightroom.

Two Types of Profiles

- ✓ **Single Illuminant Profile:** A custom profile for a specific color of light. The target is photographed under a single lighting condition.
- ✓ **Dual Illuminant Profile:** A custom profile created from two different lighting conditions. The target is photographed under cool lighting conditions and warm lighting conditions. Then a single profile is created for the entire range.

Choosing a Default Profile in ACR & LR

- ✓ **In ACR:** Go to the panel menu and choose Save New Camera Raw Defaults
- ✓ **In Lightroom:** Choose Develop > Set Default Settings
- ✓ **Caution:** Be certain that no other adjustments are being applied to the file (such as tonal or color adjustment).

Storing Profiles as Presets

- ✓ **This makes it easy to** organize and apply profiles to individual files or groups of files.
- ✓ **Presets can be applied** to all files during import into Lightroom using the Import dialog's Develop Settings menu.