

## Making a DCP Profile with ColorChecker Passport

### Making the DCP Profile

#### *Items Needed*

- Digital camera capable of saving images in camera raw format
- Macbeth ColorChecker Mini
- X-Rite ColorChecker Passport software (Mac/Win)
- Adobe Photoshop

#### *Procedure*

1. Set your camera to capture camera raw and with the correct exposure and white balance for the scene and lighting.
2. Capture the ColorChecker Mini in raw format.
3. Convert the raw file to generic raw or Digital Negative Format (DNG) using Photoshop or Adobe DNG Converter.
4. Launch ColorChecker Passport and drag the .dng file with the ColorChecker into the profile window (Figure 1).
5. Make the profile. If the profile is generated successfully, you will get a confirmation and can save the Digital Camera Profile (.dcp).
6. Name the profile something you will remember, such as Camera\_Lighting\_Date, e.g., EOSM10\_LED\_100117.dcp.

### Using the DCP Profile in Photoshop

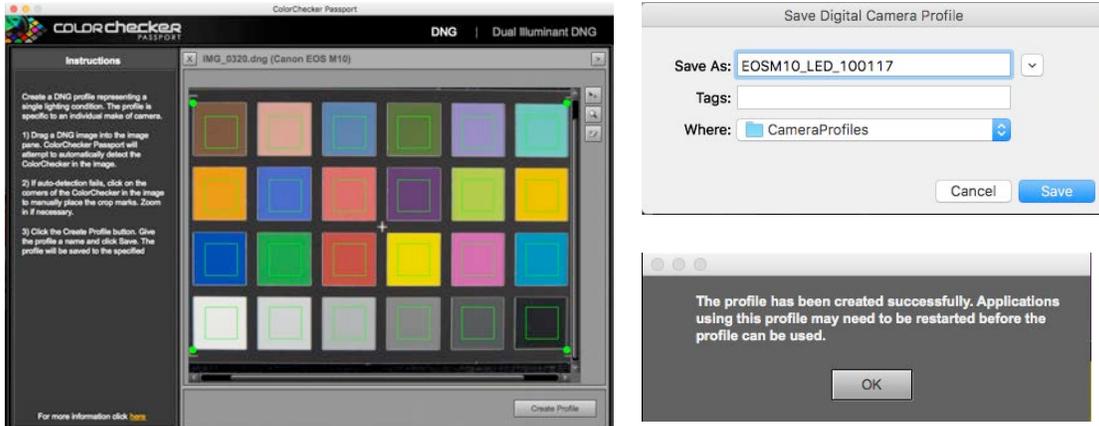
1. Open the raw or DNG version of the ColorChecker Mini target and any other images you would like to test (Figure 2) in Photoshop.
2. In the Camera Raw dialog box, go to Camera Calibration (8th tab from left) and select the profile you made.
3. Compare the color rendering with other profiles, especially if your camera has a “Camera Standard” profile.

### Deciding if Camera Profiling is Worthwhile for Your Application

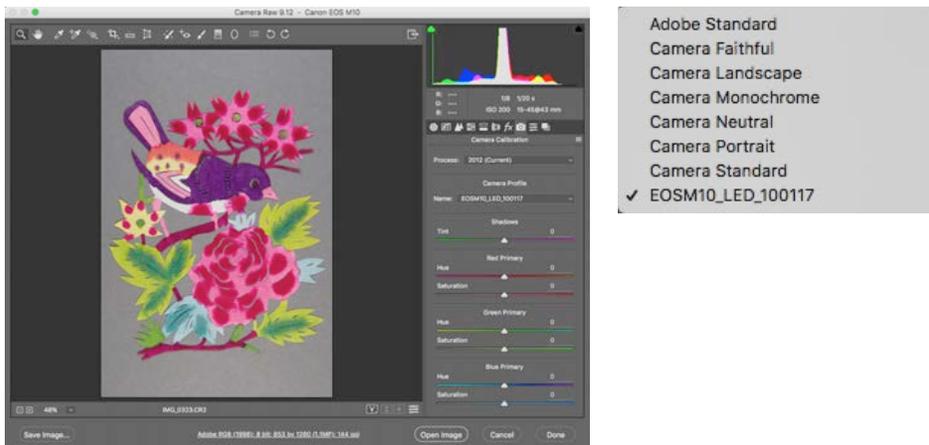
This example illustrates the use of a digital camera profile to copy an original Chinese watercolour. To see if camera profiling is helpful:

1. Compare the screen preview with the original artwork, viewed in a standard viewing booth with 5000-K lighting. Note the difference in the screen preview with and without the camera profile. Does the preview match the artwork more closely?
2. Compare the screen previews of the artwork taken with the Canon EOS M10 and Sony Alpha 5100 digital cameras. After the profile is applied, do the two images match more closely (Figure 4)?

- Note that the digital camera profile (.dcp) is not the same as an ICC profile but is a type of rendering (Figure 4), an alternative to in-camera rendering or default rendering in the camera raw plugin.



**Figure 1.** To make a Digital Camera Profile (DCP) in X-Rite ColorChecker Passport, drag-and-drop a Digital Negative (DNG) file of the ColorChecker Mini target into the application window (left). Save the profile with a name you will recognize when it pops up in Photoshop (top right), in this case a Canon EOS M10 camera was profiled under LED lighting on October 1, 2017.



**Figure 2.** To use your digital camera profile, open a camera raw or DNG file in Photoshop. In the Camera Raw dialog box (left), choose your profile from the Profile popup in the Camera Calibration tab.



Canon EOS M10 Camera Standard



Canon EOS M10 Custom Profile

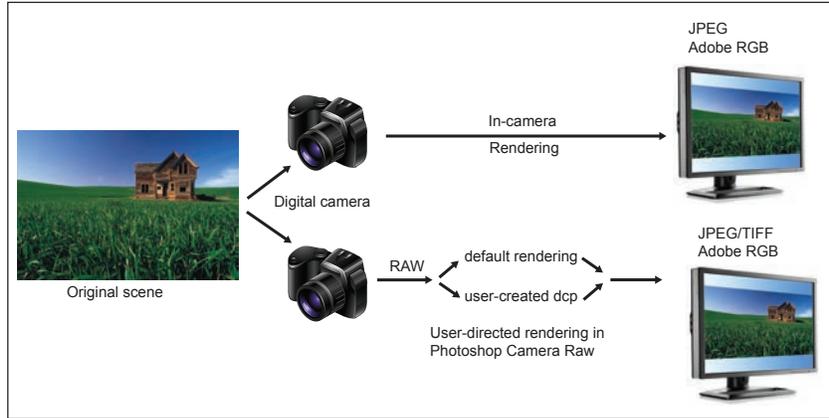


Sony Alpha 5100 Camera Standard



Sony Alpha 5100 Custom Profile

**Figure 3.** Unprofiled (left) and profiled (right) captures of a Sianxi papercut watercolor.



**Figure 4.** Types of rendering that apply to digital camera profiles include manufacturers' proprietary in-camera rendering (top) and default vs. custom rendering of raw files in the camera raw plugin (bottom). (Courtesy of Abhay Sharma, *Understanding Color Management, 2nd Ed.*)