

Using a standard photographic (18%) “Gray Card” as a reference

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This example assumes familiarity with pages 1 – 3 of http://www.paulroark.com/BW-Info/Making_B-W_ICCs-1.pdf

Making the ICC Input Data File

1. Print a 21-step test strip.

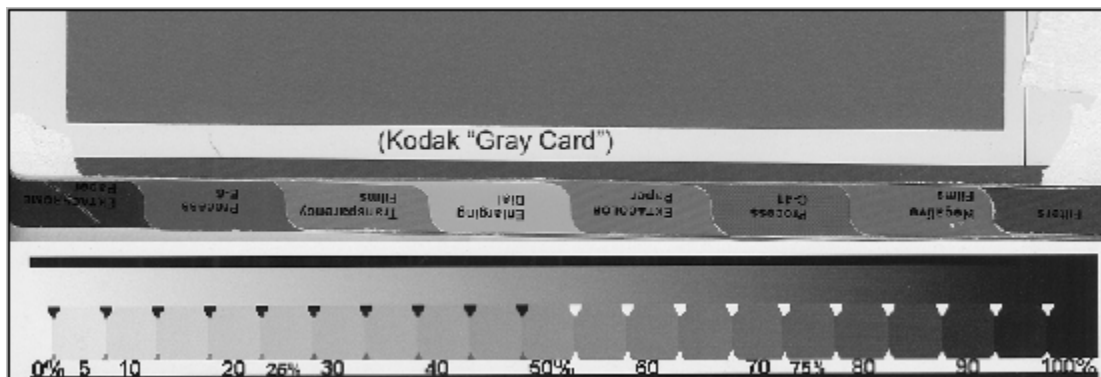
(See the above URL.)

2. Scan the 21-test strip and include a known reference guide.

After the initial 21-step test strip is dry, it is scanned to obtain the relative density data Create ICC needs. A known reference guide can be scanned along with the 21-step test strip to adjust for the normal inconsistencies in gamma that flatbed scanners seem to exhibit.

This example uses the Gray Card on page 3 of Kodak’s “Color Darkroom DATAGUIDE.”

The screen grab below shows the bottom of the Gray Card at the top of the scan and the 21-step test strip in the bottom half part of the scan.



I recommend using 12 bit – or other high bit depth – gray scale mode when making these scans.

The Gray card measures Lab L = 50.

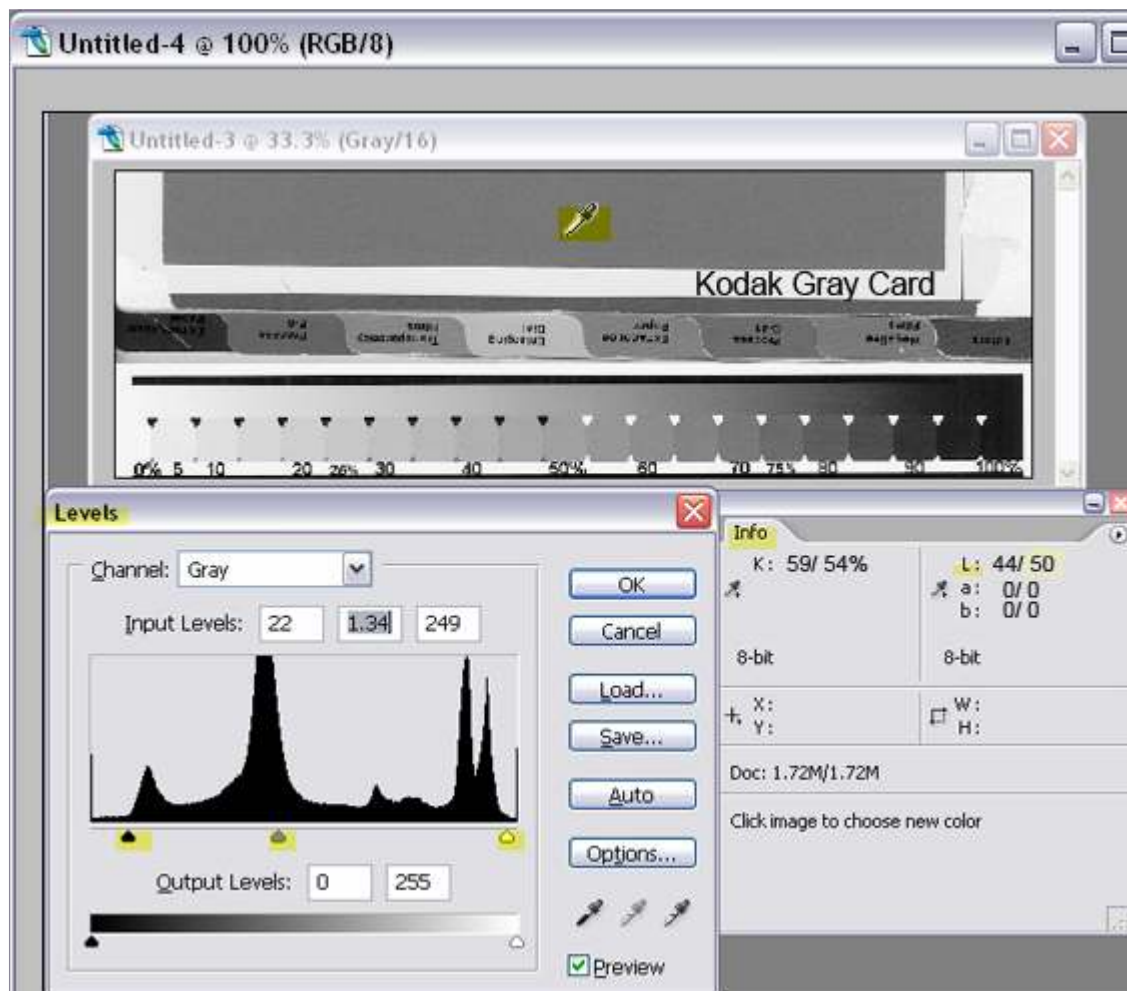
3. Adjust the gamma of the scanned 21-test strip.

In Photoshop, the Levels adjustment is used to correct the gamma. The Levels graph or histogram should show that there is no clipping of the 21-step test strip end points. If there is clipping, re-scan the test strips with different settings.

Here I pulled the end sliders in just a bit, making them relatively even on both sides and being sure not to clip any of the target 21-step test strip. I held the Alt key down while sliding the end sliders to show where the end points of the test strip would clip and then moved slightly out from that to be sure. It does not have to be exact at all.

Using the Gray Card and the central slider in Levels, we can adjust the file so that the gray values that should be at L=50 are in fact at that point. Using the Eyedropper on the Gray Card, I find the central slider point where the adjusted Information Palette Lab L = 50 (use HSB Brightness in Elements).

This screen grab shows the scanned test strips and the Photoshop Levels box. (Image>Adjust>Levels).



When the Levels adjustments are applied, the 21-test strip is ready to have its values measured.

4. Read the Lab L values for the corrected scan.

To obtain a more accurate reading in PS, I recommend smoothing out the scan a bit. This can be done by using the Gaussian Blur filter. Also, using the eyedropper at the 5 pixel size helps avoid noise in the scan.

I have the Information palette to give me readings in Lab L. In Elements HSB B (Brightness) is close enough to Lab L to work. The Information Palette options that allow one to choose these readouts are reached by clicking on the upper right arrow in the palette.

Put the values measured into a simple Notepad text file. All that is needed is the values in order, such as shown below. These are in order from the paper white at the top to the 100% black at the bottom. These are relative values that, particularly at the dark end, are not accurate, but they don't need to be. Each paper will have slightly different numbers; this is just one example.

98
93
90
87
84
81
78
76
72
69
66
62.5
58.5
54.5
50
45
39
31.5
20
10.5
7

While measuring near the center of individual test patches, the readout may still flip between 2 numbers. I record such readings as half way between the two numbers.

Note that while only this bare-bones data is needed, these files can also contain color information that allows soft proofing of tones in Photoshop. However, I'm keeping things as simple as possible here.

Save the file to the Desktop with the printer, inkset, and paper names noted as well as the critical driver settings. I put the printer name first (e.g., "2200") so that all of the ICCs for that printer will be listed together. "QTR" will always precede the ICC name you enter. As such, all of these types of ICCs will be together in the list that will appear when you go to use them. For this example, where I was profiling Red River Green paper on the 2200 with Carbon-6 installed, and the printer set to Color Controls and gamma 2.2, an appropriate text file name might be "2200-C6-RR-Green-CC22.txt".

Making the ICC

The Create ICC program is part of the overall QTR (Quad Tone Rip) set and is initially installed in the Eye-One folder (c:\Program Files\QuadToneRip\Eye-One in Windows). It needs to be put on the Desktop after installation (copy and paste, or drag the icon).

The program is used by simply dragging the icon for the scan data text file (that was saved to the Desktop) to the icon for the Create ICC program. As long as the data is acceptable (for example, has no flat spots), the program produces an output data text file and an ICC with the same name that was used for the input text file.

Location of ICCs in different OSs

The ICC file needs to be in the correct location for Photoshop to "see" it. This location varies for different computer OS's. Note the locations, below.

Windows XP or Vista folder: c:\windows\system32\spool\drivers\color\

Mac OS 9.x: Systems Folder/ColorSync Profiles

Mac OS X: User Library/ColorSync/Profiles

Windows 98/M: \Windows\System\Color

Windows NT/2000 or XP upgrade from NT/2000:
\Winnt\system32\spool\drivers\color

Shortcut method for putting the ICC in the correct folder -- Windows XP

In Windows a folder shortcut on your desktop can be made that allows you to simply drag the ICCs to the shortcut to put it into the correct folder location. This is the procedure to make such a folder shortcut.

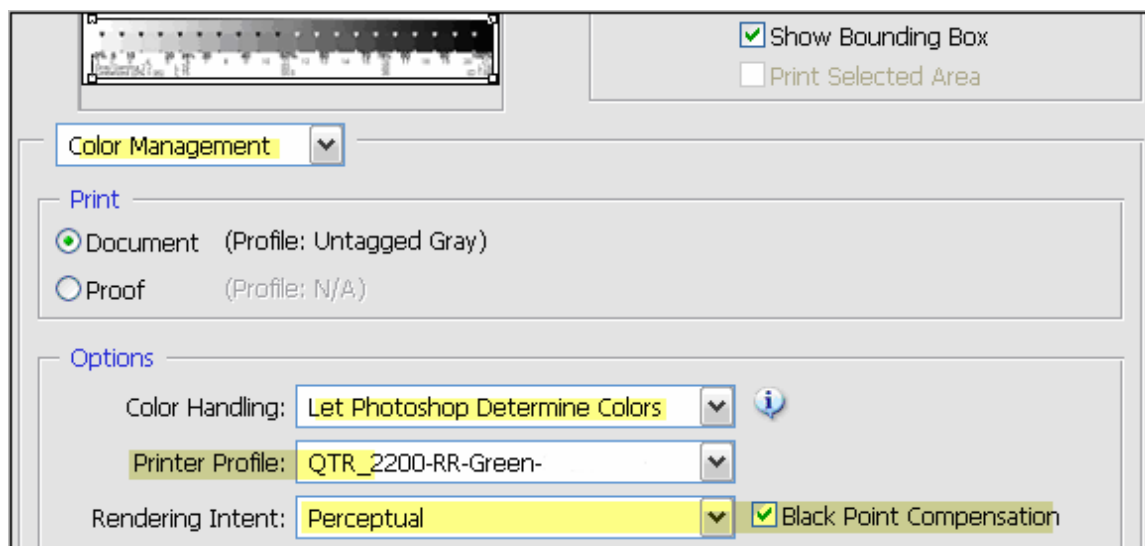
1. Right click on the Desktop (anywhere on your computer monitor where no icon appears and when no program is running there).
2. On the menu that appears, highlight "New."
3. On the new menu that appears, click on "Shortcut."
4. In the space where it asks you to type in the location, copy & paste, or type in the full path: c:\windows\system32\spool\drivers\color\
5. Click on the Next button. "Color" should appear in the box. You might want to also add "ICCs" to this name so that it reads, "Color (ICCs)."
6. Press "Finish" and a folder icon should appear on your Desktop. This is a shortcut to the proper folder.

To use this, simply drag the ICC icon that has been saved to the Desktop over to the Color (ICCs) shortcut folder icon. The ICC icon should be transferred to the proper folder.

Note that if Photoshop has already been opened, it will not "see" the new ICCs until the Color Settings box (Edit>Color settings) is opened and closed.

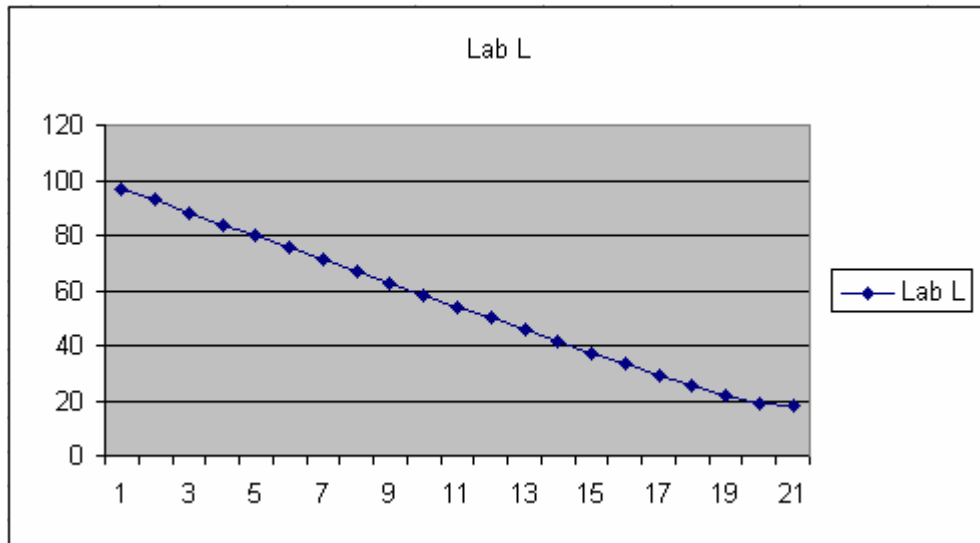
Using the ICC

In general, one simply inserts the ICC the Print Preview in PS. The lower part of the PS Print Preview is shown below.



Assuming the monitor is reasonably calibrated (the Adobe Gamma manual procedure is better than nothing), prints using these ICCs should have a good grayscale ramp that reasonably matches the monitor's display.

Below is a graph of the Lab L values for a 21-step test print made with the ICC I made using this process. The working space was Gray Gamma 2.2, and the ICC controlled output reflects that tonal distribution.



This is a very good grayscale ramp.

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