What is color management?

Part 10: Custom Proof setup

Once you understand the basics of soft proofiing, you can look into ways to customize your system.
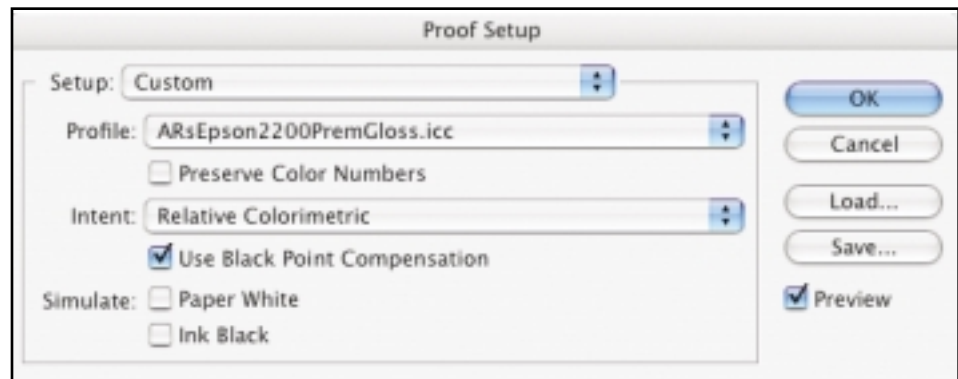
Proof Setup, under View in the Adobe Photoshop menu, has a custom dialog containing a number of options for configuring the soft proof.

When applied, the **Preserve Color Numbers** option shows how the image would appear if printed on a device without using the output profile first selected in the Proof Setup. In other words, if I have a file in Adobe RGB (1998) that I wish to print with an Epson Stylus Pro 4000 on Luster paper, clicking this checkbox on would show me how poor the image would look if I did not apply the output profile for this printer. Adobe RGB (1998) isn't remotely close to the correct values for this printer; that's why we need to convert the working space to a print space using an ICC profile. With the checkbox off, I'm seeing how the image would look if I first converted from Adobe RGB (1998) to the Epson printer profile. Preserve Color Numbers will be grayed out if the current color space and the output space are the different.

This checkbox can sometimes be useful. It illustrates the need for output profiles and why it's necessary to convert from the work-ing space to a print space using an ICC profile. When working with untagged files or files that are in a print space, specifically CMYK, it can useful to see a preview of how the image would appear if the current set of numbers were sent to the printer as is (no conversion).

I recommend always turning on the Use Black Point Compensation checkbox, unless you want a preview of how your image would look in a non-Adobe application.

I discussed **Black Point Compensation** (BPC) in the June installment of this series, "Convert to Profile command." Turning this checkbox on shows a soft proof of the Black Point Compensation applied to the image. I recommended always using Black Point Compensation; however, this checkbox does have some limited value. Because only Adobe products support the use of Black Point Compensation, turning off the checkbox will give you a soft proof of how your image would look if converted outside an Adobe application.

Simulate: Paper White/ Ink Black is an important option for soft proofing. It ensures an accurate screen-to-print match. Without Paper White/Ink Black, Photoshop is producing a Relative Colorimetric rendering with Black Point Compensation for the screen. This means that when a document contains a very dark value such as R=0/G=0/B=0, Photoshop attempts to preview the image with these values as dark as possible. Photoshop sends little if any signal to the display in attempting to make the black as dark as the display can produce. The

opposite is true for white values, such as R=255/G=255/B=255. The display produces a signal with as high an intensity as possible to simulate the white.

The white of printed paper and the black of ink on paper aren't really close to this intensity. There is a mismatch in the dynamic range of these two extremes, so there are Simulate checkboxes for Paper White and Ink Black to produce an accurate soft proof. When the Paper White checkbox is applied, Photoshop attempts to simulate the white of the actual paper, not the brightest white the display can produce. Checking Ink Black shows you a somewhat weaker and muddy black, rather than R=0/G=0/B=0, the darkest black the display can produce.

The black simulation more accurately shows how dark the black ink on the paper should appear, while the white on screen more accurately previews the color of the paper white. The output profile has all the information about the blackest black and whitest white of the printer, and the soft proof options use this data.

Unfortunately, when you turn on these

checkboxes, the image on screen appears muddy and flat compared to the original preview. Watching this transformation can prompt the viewer to form an unwarranted negative opinion of the image, so it's best to avoid watching the change. The best way to do this is to save a series of soft proof settings with these options turned on, then pick the saved setting while turning your head away as the preview updates. After a few seconds of not viewing the original preview, the soft proof will not seem as "muddy." It is just dangerous to watch the Paper White/Black Ink preview redraw.

There is a critical caveat when using Paper White; hide other windows, like palettes and the toolbar. These elements will preview at their original intensity and affect your perception of white. Your eyes adapt to the brightest white of the monitor rather than to the simulated white point produced with the Paper White option turned on. When you wish to view the document with Paper White simulation on, be sure the image is in full screen mode with a black background. Tap the tab key to hide all the palettes and then tap the letter "F" until the entire image is surrounded by black. This produces the best screen-to-print simulation.

Note that whenever you select the Paper White checkbox, the Ink Black will always be applied as well. You can't have Paper White simulation without Ink Black, but you can pick just Ink Black. Generally, you'll want to check both boxes, but in some cases, depending on the profiles and how accurately they reflect these two ends of the tonal scale, Ink Black alone can be a good option. Play with these options and see if the soft proof to print matching is really better or not.

If you wish to set a saved Custom Proof setup and have Photoshop default to this menu setting, select it when no documents are open. Then each time you launch Photoshop, that soft proof menu item will be the default when you use the cmd/ctrl-Y key command. While the Soft Proof may not produce the most pleasing preview of your data, it should be a far more accurate indication of what you'll see printed. For this reason, always show your clients images with the soft proof on! Otherwise, they will expect the output to appear in a form that simply cannot be reproduced. ❏