

Color Managed Workflow: Soft-Proofing

If you have device profiles for your printer, you can soft proof your image in Photoshop before printing a hard copy. Soft-proofing converts the image you see on your monitor into the device space of a profiled printer, and displays a simulation of how the printed output will appear when printed using a specific printer, ink, and paper combination. The better the quality of the output profile for the device being printed to, and the better the quality of your monitor, its calibration and profile, the more accurate the soft proof will be.

“What’s the benefit?” you ask. While nothing is as accurate as holding a hard copy of a printed image to check the accuracy of its reproduction, a reasonably accurate “soft” copy of the image on your monitor can save you time, ink, and paper by making that first proof print much closer to what you want. When an image is converted from its working space to a printer’s device space, most typically, colors are desaturated to fit into a printer’s smaller gamut. Depending on the rendering intent used, colors may also be clipped. Viewing the result of these color changes provides you with the opportunity to make “fine tuning” adjustments to compensate for these rendering shifts before making that first print.

Setting Up A Soft Proof

If you have profiles for the printer, paper, and ink combination to be used, soft-proofing is relatively simple. You access soft-proofing settings by selecting View/Proof Setup/Custom... to bring up the Proof Setup dialog box.

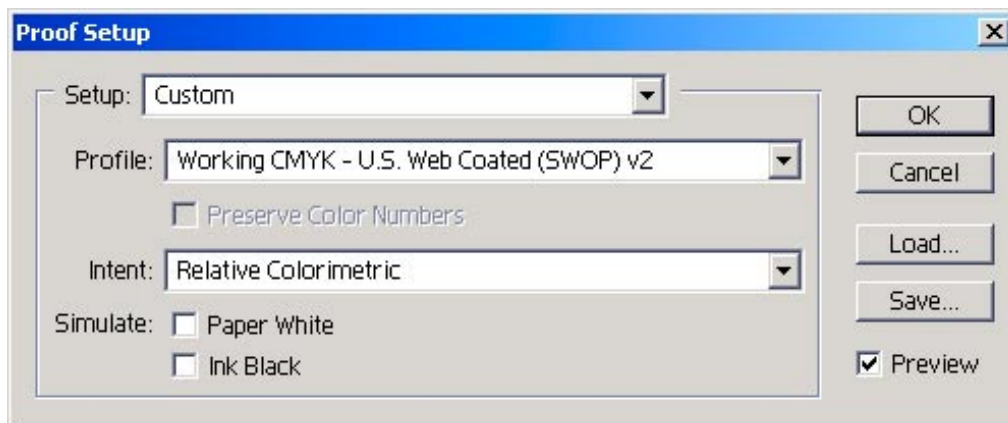


Figure 1: Proof Setup dialog box.

Figure 1 shows how the Proof Setup dialog looks if you have not previously created a default Setup. If you do not have a set of custom settings saved on the Setup drop-down, you need to build a setup for the output device you wish to proof. I will explain how to save your settings on the Setup drop-down and how to create a default Setup that appears every time you open the Proof Setup dialog later in this tutorial. For now, start by selecting the printer profile you want to use from the Profile menu.

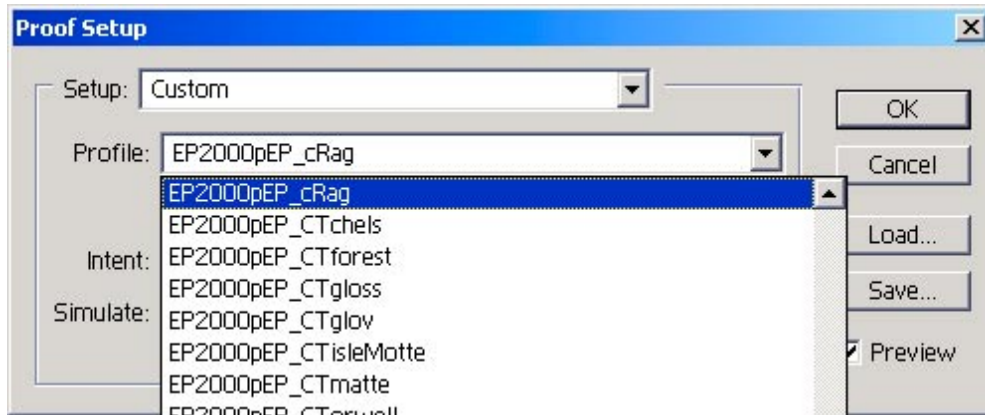


Figure 2: Proof Setup dialog box showing device profile list in Profile drop-down.

The Profile drop down list shown in Figure 2 provides you with a list of all profiles available on your system. These profiles are saved in a variety of locations depending on your hardware and operating system. For instance, on my Windows 2000 Professional system, device profiles are stored by default under WINNT/System32/spool/drivers/color. If you need to copy profiles to your system where Photoshop can find them, search your hard drive for *.icm files on the PC or *.icc files on the Mac.

These profiles might be profiles shipped with output devices that you have, profiles that you created using device profiling software and hardware, or custom profiles that you purchased from a vendor. You need a profile for the printer-ink-paper combination that you want to proof before you can create a custom proof setup.

What Are Rendering Intents and Which One Should I Use?

Once you select a profile from your list in the Profile drop-down, you have to decide how you want the image rendered from its working space to the printer's color space, and finally, how you want the simulation rendered to your monitor.

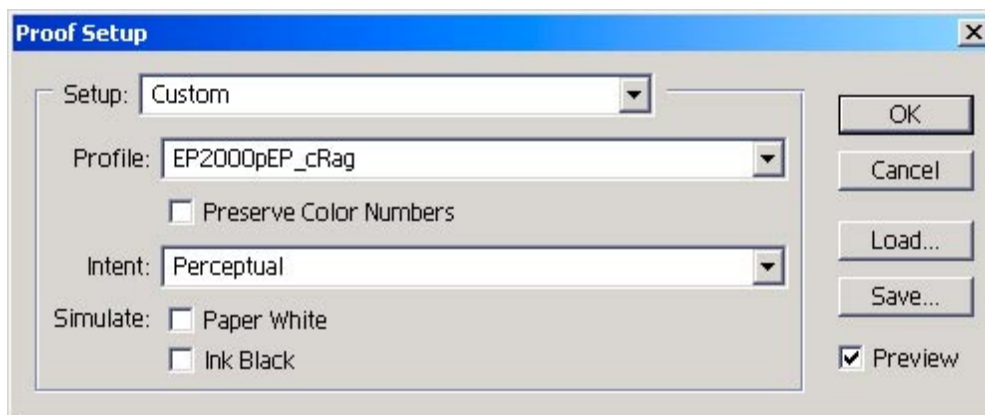


Figure 3: Proof Setup dialog box with profile selected.

The Intent drop-down list allows you to select how you want your image rendered from your working space to the printer's color space. It provides a list of four rendering intents:

- Perceptual
- Saturation
- Relative Colorimetric, and
- Absolute Colorimetric.

You will normally use only two of these choices for photographic images, perceptual or relative colorimetric, but you should experiment with all of them to get a feel for their effect on various images. Read the information about the different rendering intents in the Photoshop help file to understand more precisely how each intent works. Note the Preview check box on the Proof Setup dialog. If you have this checked, you can see the effect of your rendering intent choice on screen as you try them out.

Perceptual is the most common rendering choice, and the one most frequently used with photographic images. It desaturates (compresses) colors to fit Photoshop's working space into the output device space. Remember, printer gamuts are usually smaller than working spaces like Adobe RGB. Perceptual rendering generally does a better job of maintaining the relationship among colors than the other rendering choices.

Relative Colorimetric rendering is typically used for vector art such as that from Illustrator, but can be used with photographic images, particularly those where you do not want the gamut compressed. Consider a high-key photograph with no saturated colors. You would achieve a better end result with a relative colorimetric rendering, which clips out-of-gamut colors, than perceptual rendering, which would unnecessarily compress the image's colors which probably already fit into the output device's gamut.

Once you have made a decision on rendering intent, you need to decide how the simulation should be rendered to your monitor.

You can choose to have the print image's black and white mapped directly to the monitor's black and white space by leaving the Paper White and Ink Black check boxes unchecked. This is a reasonable choice when printing to glossy papers.

When printing to matte or watercolor papers, you will get a better representation of the actual look of the printed image by checking the Paper White check box, which by default selects the Ink Black check box. If you have a well constructed profile for the printer, ink, and paper used, it should do a good job of showing the effect of the paper's color as well as the effect of the paper's texture and coating.

Images printed to matte or watercolor papers are those most likely to need final tweaking after being proofed. Off-white paper color, paper texture, and surface coating all effect the way light is reflected through the ink on the paper back to the viewer. Most commonly, colors will look less saturated and blacks less dense.

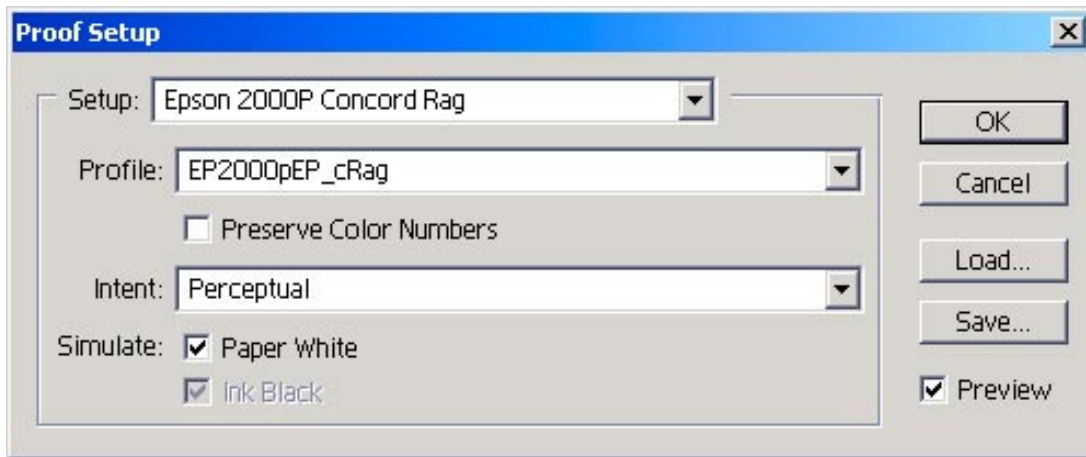


Figure 4: Proof Setup dialog with custom Setup loaded.

Once you have made all of your proof setup selections, you can save them by clicking the Save... button and naming them in the resulting dialog box. These settings are then made available on the Setup drop down for future use. It is wise to give your settings a clear name. In Figure 4, the Setup selection was named “Epson 2000P Concorde Rag” to denote the name of both the printer and paper used. If you use more than one kind of ink, you might want to add the name of the ink to the name as well.

If you have a setup that you use frequently, you can make that setup your default by opening the Proof Setup dialog box without any image open in Photoshop, selecting a custom proof setup from the setup list, then clicking the OK button. This assumes that you have created and saved a custom setup as described above. When you open the Proof Setup from then on, the custom setup you selected will appear by default. To change the default, you must again open the Proof Setup with no image loaded and select a different custom setup.

Final Image Adjustments

Once you have made your Proof Setup settings and clicked OK, you are left with an screen image that should give you a good approximation of the final printed result. If you choose, you can now proceed to make final corrections to the image to change the effect of weak blacks or desaturated colors.

Your best bet for making these final tweaks is the use of adjustment layers. The benefit of using adjustment layers is threefold. One, you can turn the effect of adjustment layers on or off, giving you the option of having multiple sets of adjustment layers for different printer-paper-ink combinations. Two, the changes made to the image by adjustment layers can be easily altered if the printed effect is not quite what you expected. And third, if you use multiple adjustment layers to achieve a desired change, the cumulative effect of the changes is applied all at once, and is not as destructive to the image as multiple individual adjustments.

Taking the Proofed Image to Print

If you are printing to a desktop printer, such as an inkjet, you should make sure that you specify the same profile and rendering intent that you used in your soft proof. You have two ways of specifying your profile and intent when printing from Photoshop.

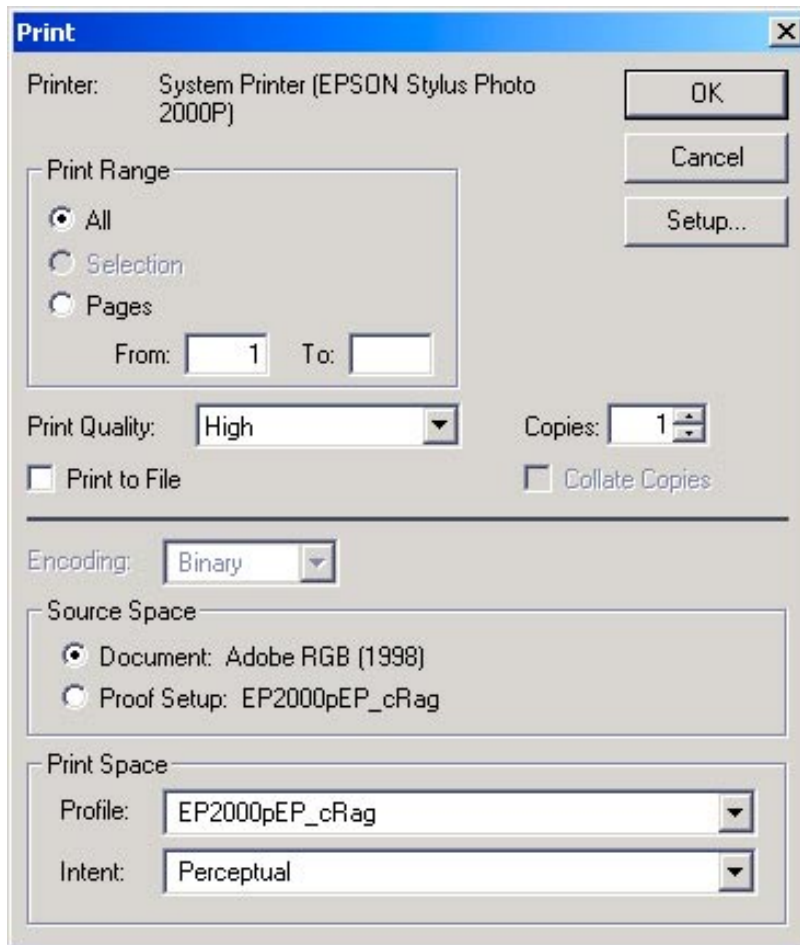


Figure 5: Print dialog for Epson printer showing profile selected under Print Space.

One way is to specify the profile in the Print Space setup. Note the settings for Source Space and Print Space in the Epson print dialog shown in Figure 5. If you used the Concorde Rag profile with a Perceptual rendering intent in your Proof Setup in Photoshop, then you should choose the profile for Concorde Rag under Print Space with a Perceptual rendering intent in the Print dialog. The working space for the image, Adobe RGB (1998), is selected as the Source Space.

Another way of specifying the profile is by selecting Proof Setup rather than Document under Source Space as shown in Figure 6.

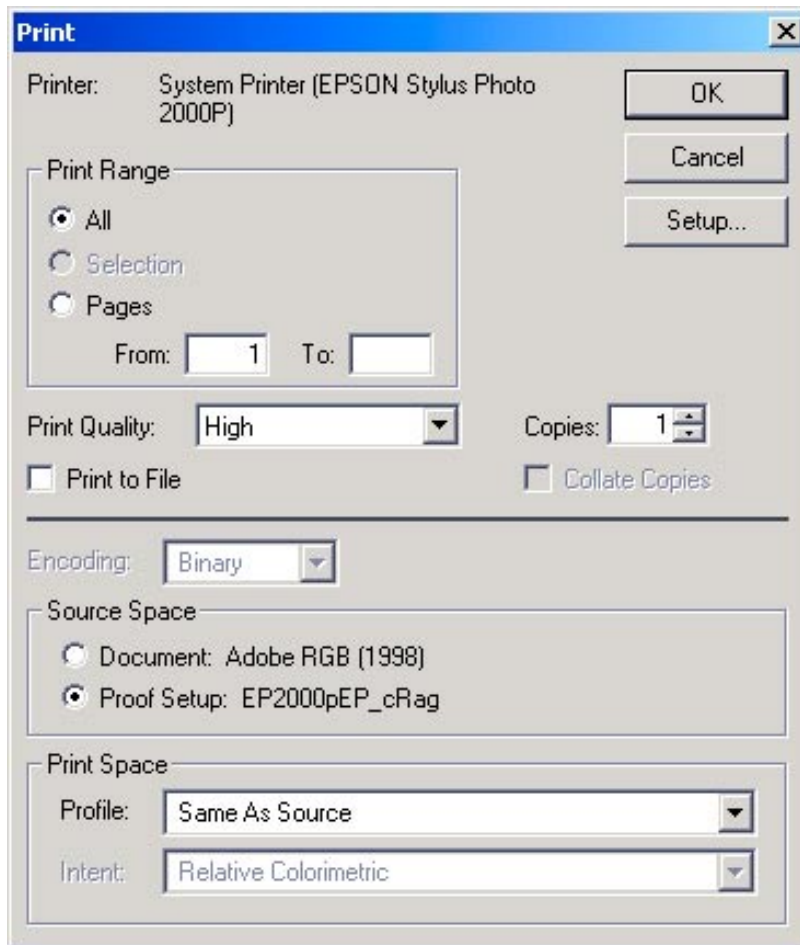


Figure 6: Print dialog for Epson printer showing profile selected under Source Space.

Note the settings for Source Space and Print Space in the Epson print dialog shown in Figure 6. Instead of selecting the profile under Print Space, Proof Setup is selected as the option under Print Space. As long as the image that you are printing has had the custom profile settings applied under Photoshop's Proof Setup, selecting Proof Setup on the Print dialog will use the same profile and rendering intent. The Profile setting under Print Space should then be set to Same As Source. Intent is grayed out since the intent specified under Proof Setup in Photoshop will be used.

This option is particularly useful if you are proofing a print destined for a printing press on your desktop printer. Photoshop makes the conversion from the image's working space to the profile and rendering intent specified under Proof Setup in Photoshop, and then finally, to your desktop printer. But this option also works if your final destination is your desktop printer, and not a printing press.

Finally, make sure not to turn on any printer color management when printing to a desktop printer using a color profile managed by Photoshop. Photoshop does the conversion into the printer's device space using the profile and rendering intent selected.

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