

Alphabet Soup and Your Printer

by Photographer Raymond Klass



Do you feel like you need a dictionary just to get your printer to work? You're not alone. Using a desktop printer has become far more complicated than it should be.

Every manufacturer insists that you need their product to make the most of your prints. That their paper is better, that their calibration and profiling solution is the best, and that if you don't master CMS, RGB, CMYK, LAB, sRGB you can't print your images.

Printing doesn't have to be complicated, and you shouldn't need a dictionary to do it. This article has two goals, to explain the ideas behind printing in simple, plain English, and to provide step-by-step directions.

Your camera captures light, whether digitally on a sensor, or on film which is scanned. In either case, your computer ends up with a file made up of millions of tiny colored pixels.

These pixels are represented to the computer as numbers, and these numbers allow the computer to tell the monitor how to display these colors. How accurately these colors display is determined by both the quality of your monitor, and the degree to which it is tuned.

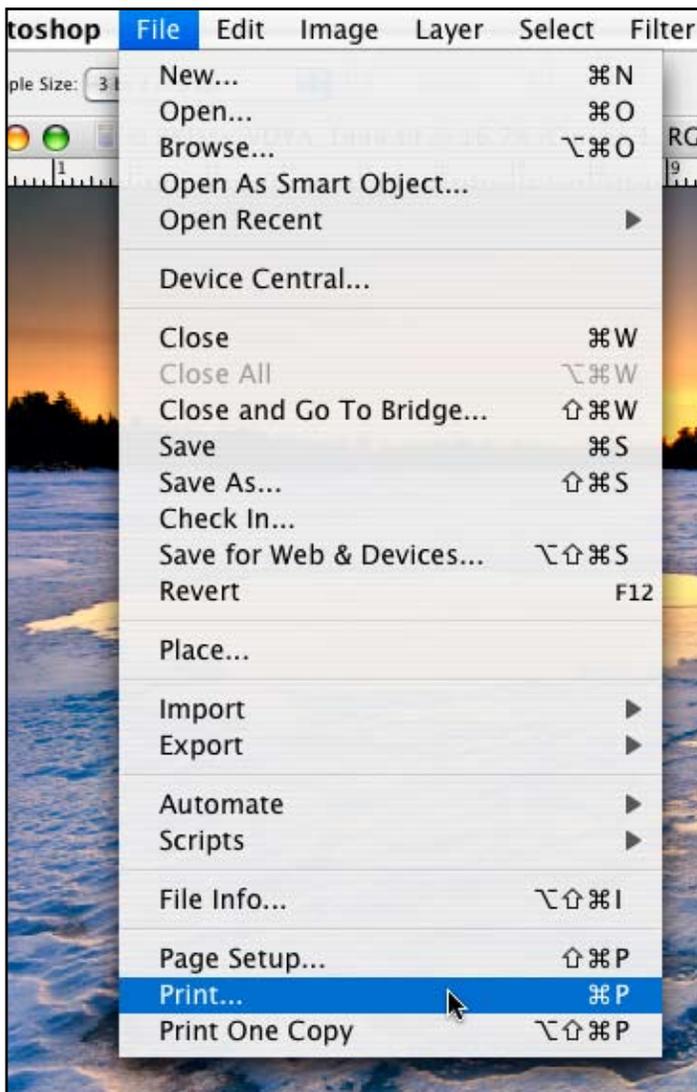
So here enters the first two buzz words, **profiling** and **calibration**. Let's define them.

Calibration is process of adjusting your monitor to its defaults. Think of your monitor as having three light bulbs inside, one for red light, one for green light, and one for blue light. Over time these bulbs shift in color, so we calibrate the monitor to get them as close to where they should be as possible.

Profiling is the process of digitally describing what your monitor is displaying. During this process the computer sends colors to the monitor, and sees how the monitor is displaying them. It can determine for example, if a red is too bright, too dull, or just right. Based on the computer's findings, it can adjust the way it sends the colors to the monitor, so that the display is more accurate.

Both profiling and calibration are important steps in the process of getting colors to display accurately. Several companies sell devices that make these two steps possible. Color Vision and Gretag Macbeth both make reliable devices that have an automated, easy to use interface. They combine special software with a physical device that attaches to your monitor. This device reads what light your monitor is emitting, and helps the computer interpret just how to adjust itself to get the most accurate display. Personally I use a device called the iOne by Gretag Macbeth.

Step 1. Step 1 is to calibrate and profile your monitor. I do this annually, but there is no hard and fast rule as to how often you must calibrate and profile. Unfortunately, the devices made

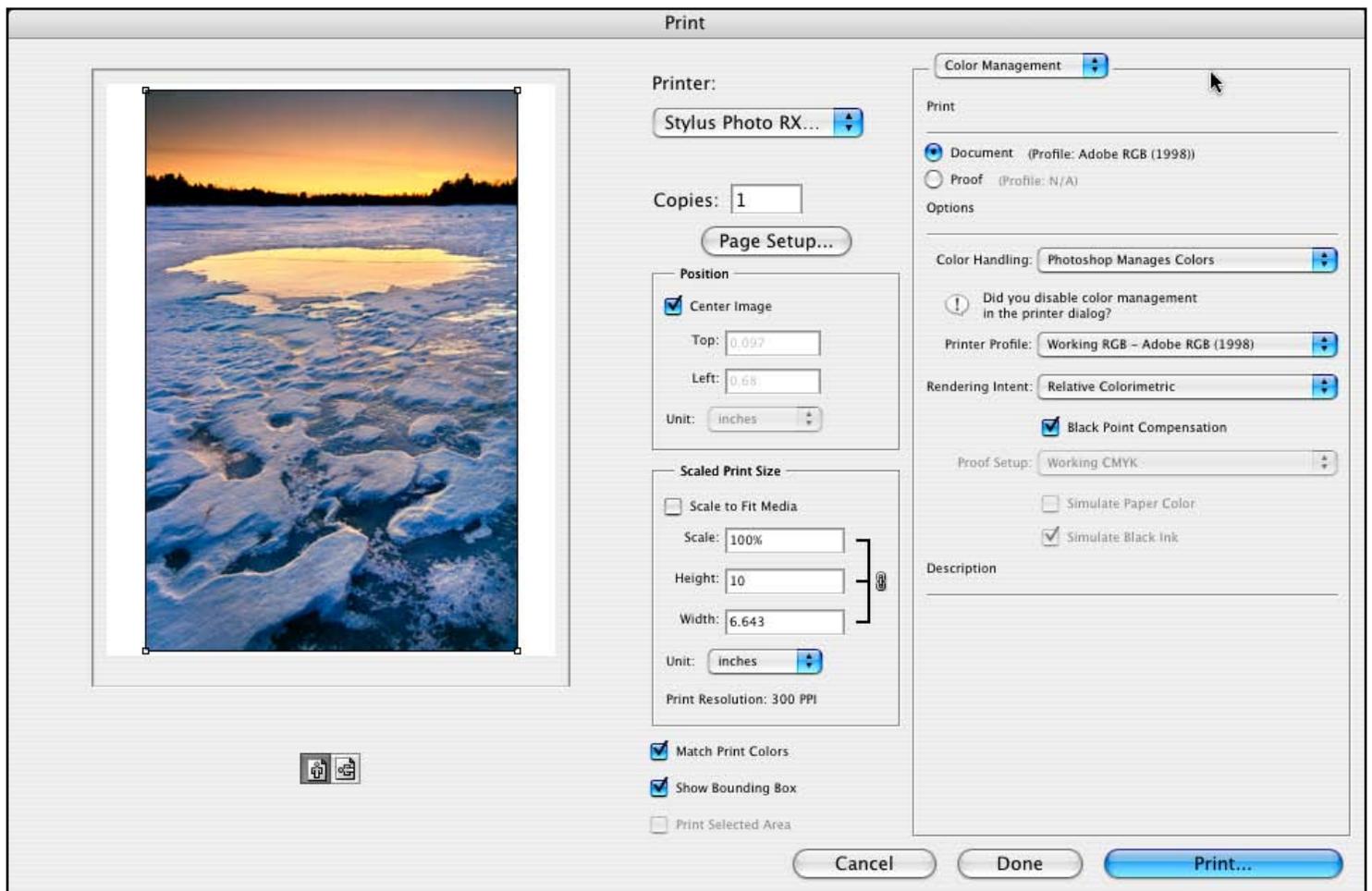


for this can be somewhat expensive (\$200+), but it is worth it alone in ink, paper, and frustration saved.

Step 2. Adjust your images for color and tone. When the image is well balanced, resize the image for the final print, and sharpen the image as desired.

Step 3. Now that you've adjusted the image with your properly balanced monitor. It is time to set up the printer to reproduce the colors correctly. See the note below about which command to use. These instructions were written for CS3 using a Mac, if CS2 or PC users have any questions, please e-mail me at: raymond@klassphoto.com

As a side note, Adobe Photoshop® seems to take pride in changing around the menu options to make things more confusing for those of us giving directions. The print command is different in CS2 and CS3. **In CS2, or earlier, use File: Print with Preview, in CS3 use File: Print.**

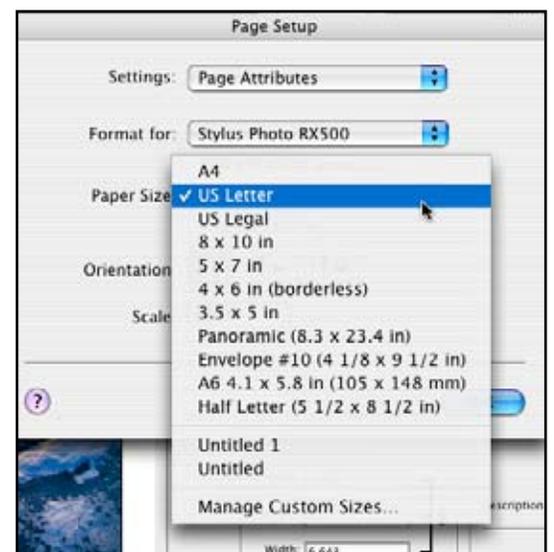


In Photoshop CS3, this opens a print dialog similar to the one above. If you are using CS2, the same options are there, but they are just arranged a little differently.

Starting from left to right, the left-most pane is the “preview” of your image. Don’t worry if the color isn’t perfect, this preview is less color-accurate than Photoshop’s regular display, so pay no attention. Do however make sure that the print is fitting properly in the box, as shown above. If it is not, you will need to change the printer page setup.

Step 4. This step is optional if you need to change the page setup. If your printing on 8.5” X 11” (Letter) paper, chances are there is no need to change this, but it doesn’t hurt to check anyway. Click the **Page Setup** button in the center of the dialogue box.

This brings up the Page Setup dialogue which allows you to change the page size and orientation. When you’re finished, click **OK**.



Step 5. Now move your attention to the right pane of the Print box. This is the area that we will tell the printer how to reproduce the color. Much like we created a profile to describe the way the monitor reproduced those pixels, the printer needs a profile to describe how the pixels should be translated into ink dots.

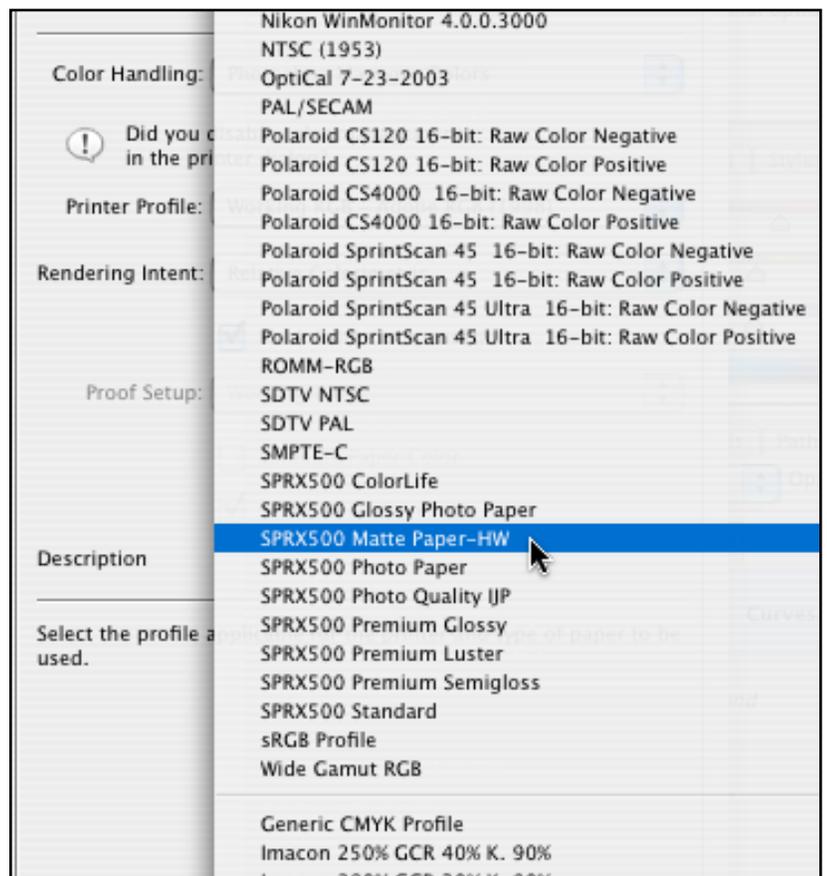
In this box you should have **Color Management** selected so you can see the options Photoshop give us. Under this, the box reading **Color Handling** should be set to **Photoshop Manages Colors**. This will allow us to tell the printer which paper profile to use.

Because different papers absorb color differently, there are different profiles for each paper.

I am using Matte Paper, so I click on the **Printer Profile** box and scroll down to find my printer. In this case it is an Epson Photo Stylus RX500, so the profiles all begin with the "code" **SPRX500**. From here I scroll down to find the one for matte paper and click on that.

These profiles were all supplied by Epson when I loaded the printer onto my computer. Most printer manufacturers supply their users with some sort of profile, although you may have to download it from their website.

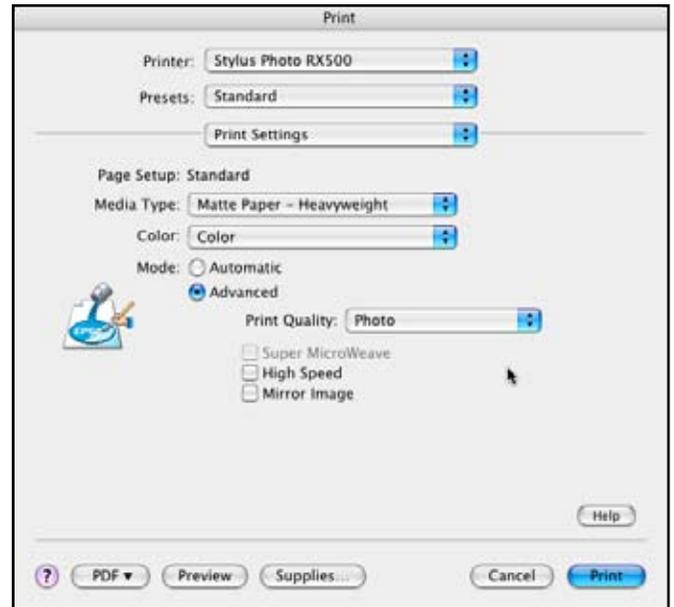
If there are no profiles available for your printer, it is possible to build your own with a special device made to read printed output and generate these files. Unfortunately the devices that so do both monitor and printer profiling can be expensive, so if this not an option, choose the option that matches the **Document** box right below where we chose **Color Management**, which reads **Adobe RGB(1998)** in this case.



Step 6. When you have set the printer profile, click the **Print** button in the bottom right of the window. This will bring you to a second window. Where the window comes up displaying **Copies and Pages**, click that box to display its options. Choose **Print Settings** from the pull down menu.

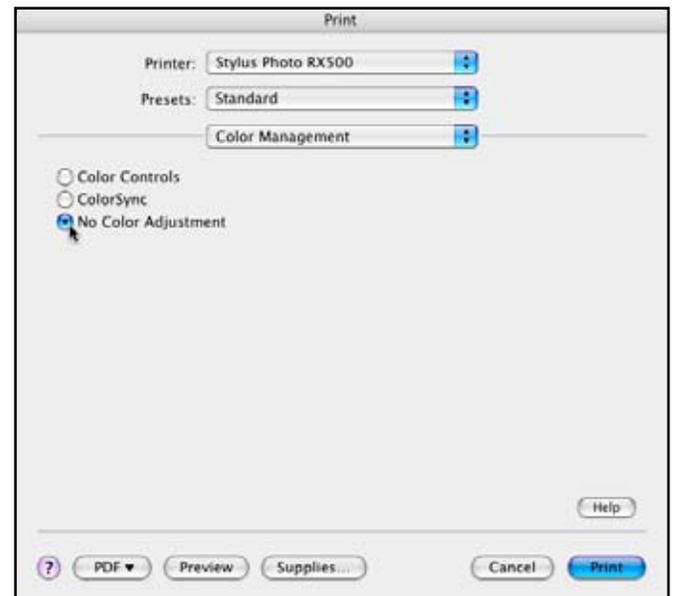


In the box that reads **Media Type**, click the menu and choose the type of paper that is closet to the paper you are using. In this case I am using Heavyweight Matte paper, so that is the option that I have selected.



Below that is a box that reads **Color**, make sure that color is the option selected. Even if you are printing a black and gray image, the printer will do a much better job of representing the tones if it uses all the colored inks to produce neutral tones.

Below that is set of options buttons, make sure the one that reads **Advanced** is checked. This will allow you to change the settings below. You should un-check the **High Speed** option. By un-checking this, the printer will be a little slower, but will produce a more finely detailed image because it can be more precise in moving the paper on its rollers.



Step 7. With the options selected in the **Print Settings** section, click the menu that now reads **Print Settings** to move to the **Color Management** section. Because we have told the printer how to reproduce the color via the printer profile in Photoshop, there is no reason to have the printer make any color judgements.

Choose the **No Color Adjustment** option.

You are finished, click **Print**.