Adobe℠ Customer Services

Custom Colors in Adobe Photoshop

The following technical note applies to both Macintosh and Windows versions of Photoshop. Please note that the Control and Alt keys in the Windows version function as the Command and Option keys in the Macintosh version, respectively. In the following text, the Windows key is given after the Macintosh key.

Adobe Photoshop is primarily intended to operate in the four-color CMYK model. PANTONE™, FOCOLTONE™, TRUMATCH™ and TOYO™ inks are provided in the color picker to select process color equivalents. In the CMYK mode, Photoshop uses CMYK values that are provided by each company to ensure Photoshop's compliance with the company's color design. Focoltone and Trumatch are color systems based on process color separations, but many Photoshop users are surprised that Pantone and Toyo, too, have done the research to determine what combination of the process colors most closely matches their colors. Both offer swatch books that show their (and Photoshop's) process equivalents side by side with the actual color.

In the RGB mode, Photoshop converts the custom color you have specified into its RGB equivalents.

Except for Duotone mode, Photoshop does not support custom color plate output. (This is a process whereby a separate plate is output for each custom color used in the image.) Instead, Photoshop outputs four plates for the four process colors, cyan, magenta, yellow, and black. When these are printed properly, the illusion of thousands of different colors is possible.

It is possible to simulate custom color plate capabilities from within the RGB or CMYK modes by using either the individual CMYK or Alpha channels.

CMYK CHANNELS

If you use four or fewer custom colors, you can arbitrarily assign each of your desired colors to one of the CMYK channels and then prepare your image using only pure cyan, magenta, yellow, and black. When you print the document, you will get a plate for each color you used. Print these using the actual colors you desire. Be sure to let your printer know which plate is for which color, since they will be incorrectly labeled cyan, magenta, yellow, or black.

If you are starting with a black-and-white image in Grayscale mode, select all (Command/Ctrl+A), and cut (Command/Ctrl+X) before converting to CMYK mode. Then go to the Black channel (Command/Ctrl+4) and paste (Command/Ctrl+V). This will keep Photoshop from separating the black-and-white image.

There are two ways to proceed from here:

• Go to the CMYK view, and color as you desire using the other three colors. As you paint, the new information will replace the already existing information on the black plate in that area.

• Or select those areas you want for one of the colors and copy and paste the information from the black channel to the appropriate color channel; then delete that area from the black channel.

To see your image close to the way it will end up, instruct Photoshop to display Cyan, Magenta, and Yellow as the colors you've chosen. You cannot change the way the black channel is displayed.

To do this:

1 Choose Printing Inks Setup under Preferences.

2 Click on Save to save this "normal" setup, and choose a name such as *normal.* This will make it easier to return to normalcy when you finish this project.

3 Click on Ink Colors, and choose Custom.

4 Click on the cyan-colored box to the right of the C: row. You will get a color picker.

5 Choose a color that is close to the color you assigned the cyan channel.

6 Repeat steps 4 and 5 for Magenta and Yellow. Don't change the others.

7 Click OK.

8 To save this setup for future projects, click Save, and give it a name you will remember.

ALPHA CHANNELS

Isolate each of the spot colors in a separate Alpha Channel. This will not work if you will be placing this image into another program. Use manual stripping techniques to incorporate this image into the rest of your project.

1 Create your image using custom colors. Do not change modes when done.

2 Select the parts of the image to print with one of the custom colors. (The magic wand is great for this, but be sure to double-click on the magic wand tool in the toolbox, and make sure the anti-aliasing box isn't checked.)

Note: *If you used 100% of a color, skip steps 3 and 6 for that color. If you used other than 100% of the color anywhere in your image, get the halftone information into the alpha channel.*

3 Use Command/Ctrl+C) to copy the contents to the Clipboard.

4 Delete the contents of your selection by pressing the delete key. This will knock out the color from the rest of the image.

5 Select Save Selection in the Select menu. Invert the result (Command/Ctrl+I).

6 Optional –(See note above.) While still viewing the alpha channel, load the selection you just saved and paste the contents of the Clipboard (Command/Ctrl+V).

7 Repeat steps 2 through 6 for each color used.

8 To print alpha channels, select one of the channels, and print Selected channel only from the Print dialog box. Repeat for the other colors. This will give a distinct plate for each custom color. Be sure to select Negative in Page Setup if you want to output negative plates.

TRAPPING

Photoshop's trapping feature will affect CMYK channels, but not any alpha channels you used. Try putting borders on selections following standard trapping rules to run the color into the other areas.

DUOTONE MODE

The Duotone mode is the only mode that will actually output separate plates for each custom color. It does this by sending the same image information to the printer for each plate, but with different halftone information and transfer functions. This means that without extensive work and modifications to the image (see process below), you cannot create spot color plates for certain portions of the image.

In addition to selecting certain custom colors by name, such as the PANTONE coated and uncoated sets, FOCOLTONE, TRUMATCH and TOYO colors, you also create custom colors by using combinations of the four process colors. Use the Duotone feature to print monotones, duotones, tritones and quadtones. Printing or saving files from the Duotone mode will give distinct custom color plates.

To create a spot color in a Duotone:

This technique is an advanced technique and does not work for all images due to the nature of the image. Try this, but if it isn't working, don't spend too much time on it. When this technique is successful, it generally produces a sort of hand-colored look in the areas of the spot color.

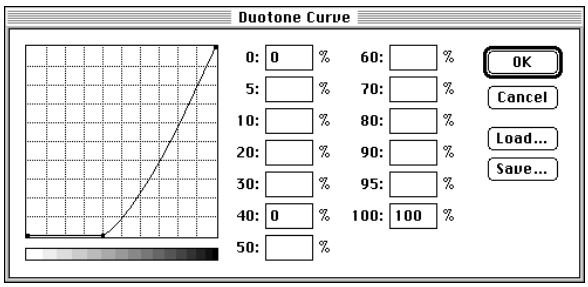
1 Open a grayscale image.

2 Select duotone from the mode menu. Choose duotone, tritone, or quadtone depending on the number of spot plates plus the number of normal printing plates. In other words, if you would otherwise want a duotone (two plates), and you want to have two spot plates in addition, choose quadtone (2+2).

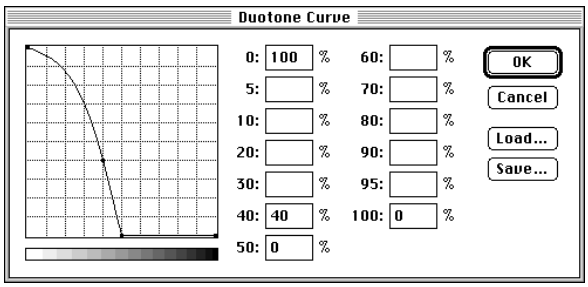
3 Click on the color swatches, and set the colors to the colors you want in the order of darkest to lightest, Ink 1 to Ink 4. Ink 1 should be black or the darkest color you intend to use; Ink 2 should be the next darkest, and so on. If using this image in another program, be sure to use exactly the same names for the colors in your page layout or illustration program. Even minor differences will cause your image to print incorrectly.

4 Determine which range of values in the image will appear in your spot color. For instance, for a landscape with mountains and a sky, make the sky blue and the mountains gray by setting the values for the sky to one range of gray values and the mountains to another range of gray values, using the curves dialog box and selections (see step 6); set the transfer curve of each spot color to affect only the specific area of gray values that are to be printed in the spot color.

For our sky-mountain example, set the transfer function for the sky to 0:0, 40:0, 100:100 and the transfer curve for the mountains to 0:100, 40:40, 50:0, 100:0, which forces the gray values below 40% to print in the spot color and the gray values above 40% to print in black.



Transfer curve for sky



Transfer curve for mountains

Note: *At this stage you will still not see the effect on screen–you will see the effect only in step 6.*

5 Make a selection around the areas to be printed in the spot color selected in step 2. If there are multiple spot colors, select each area, and save the selections using the Save Selection command under the Select menu. The area(s) not being printed with spot colors is also a selection.

6 Using adjust levels under the image menu (Command/Ctrl+M), modify the curve of each selection to limit the gray values to the specific, nonintersecting range of values selected for each spot color in step 4. To use the same example, there are two selections, the sky and the mountains. Set the sky to have only values from 1 to 40% gray and the mountains to have only values from 50 to 100%. The actual values might be different and would depend on the image. The important thing is that they correspond to the values set in the transfer curves of the colors in the duotone box and that the ranges of values don't intersect or overlap.

7 At this point you should see the beginning of the result. Modify the selections with the Curves dialog or the Levels dialog. Try some of the manipulation or map controls in the Image menu for added effects.

Note: *Set any of the painting tools to any value of gray that is being converted to a spot color (in our example, any value below 40%) to paint directly in that spot color on the image.*