# Don't Use RGB Files

If you use RGB files, the printed colors often don't match the exact colors shown on the screen. This shift is due to many different reasons that are out of our control.

RGB (red, green, blue) is an additive color spectrum that represents the emittance of light, and when all the primary colors are combined, they form white. Computer monitors and other displays, use the emittance of light to create colors, and therefore, use the RGB mode. However, in printing, inks don't work the same way. Since they don't emit light, they use another colorspace to create colors. This new colorspace is the CMYK (cyan, magenta, yellow, black). The CMYK colorspace represents absorption of light and when all the primary colors are combined, they form black.

Due to these differences, it is impossible for certain colors on a screen to be printed, since the CMYK colorspace does not include all the colors within the RGB spectrum. However, you can properly display the CMYK colorspace on a screen, since the RGB colorspace covers it completely.
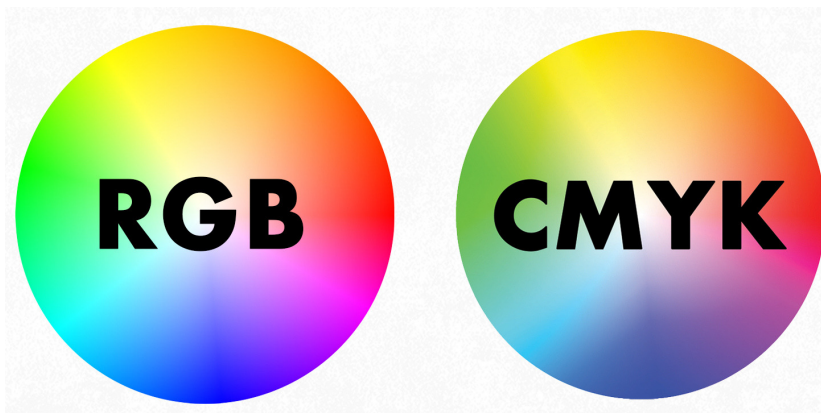
In this section, we'll tell you about a color shift that may happen with the color blue and why there is a reason not to design for print in RGB. The range of colors that can be reproduced in CMYK mode is considerably smaller than the RGB range of colors reproducible on a standard monitor, so when the file is converted to CMYK for printing, the colors will shift and lose vividness.
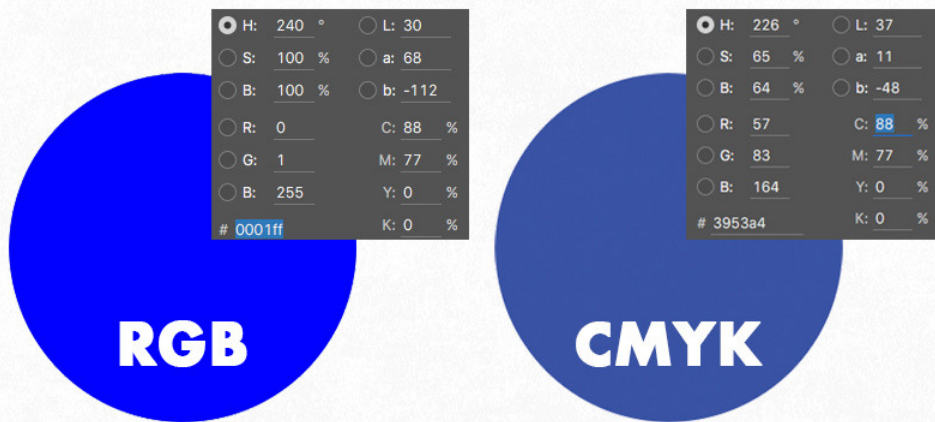

For example, most bright blues in RGB will turn purple when converted to CMYK because they're outside the range of CMYK colors.
Rather than trying to match that same bright blue, here are some blue mixes that you could use instead.
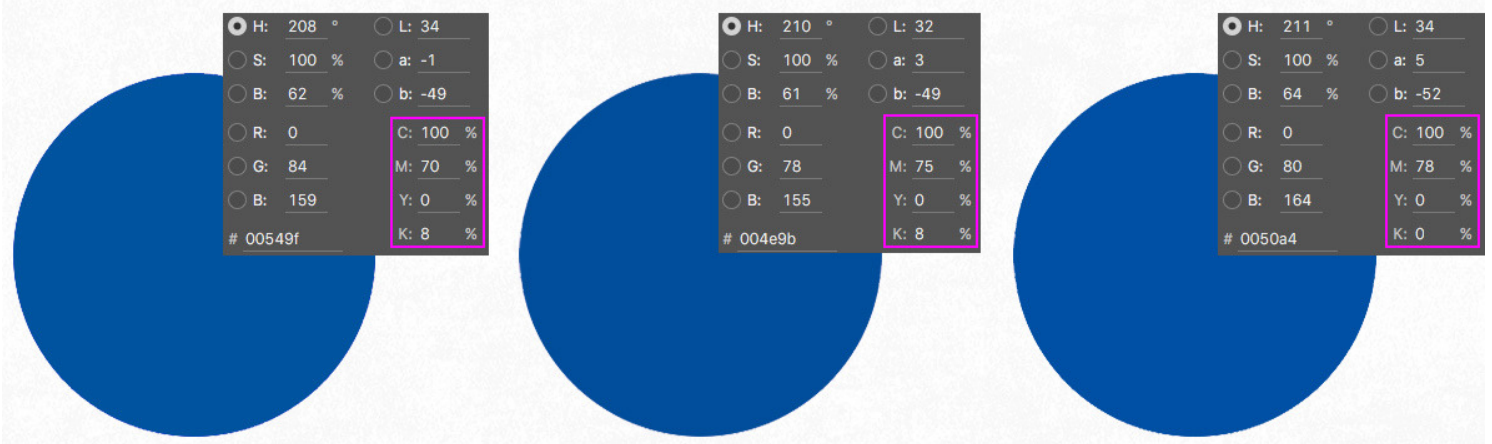
One way to avoid this color shift is not to use colors that show the gamut warning in the color picker since that means that the color is out of the CMYK range and will shift when it prints. If you click the warning icon, Photoshop will choose the closest achievable CMYK color.
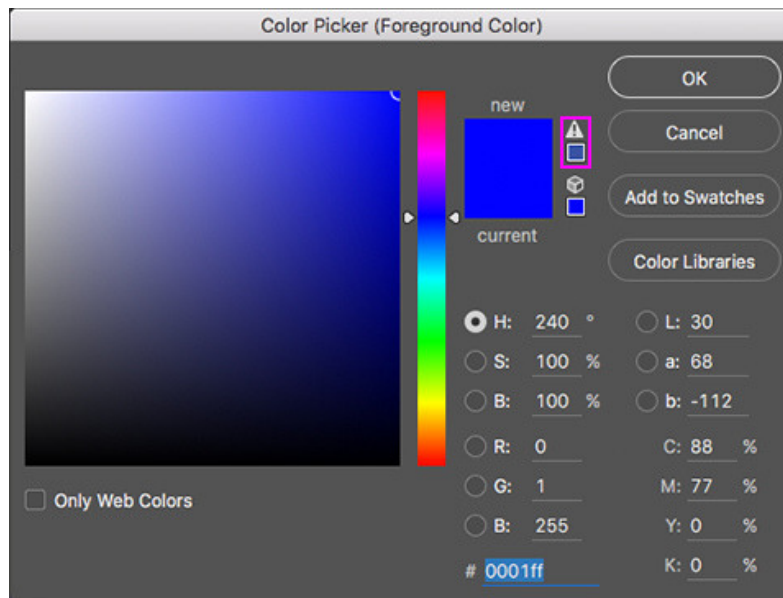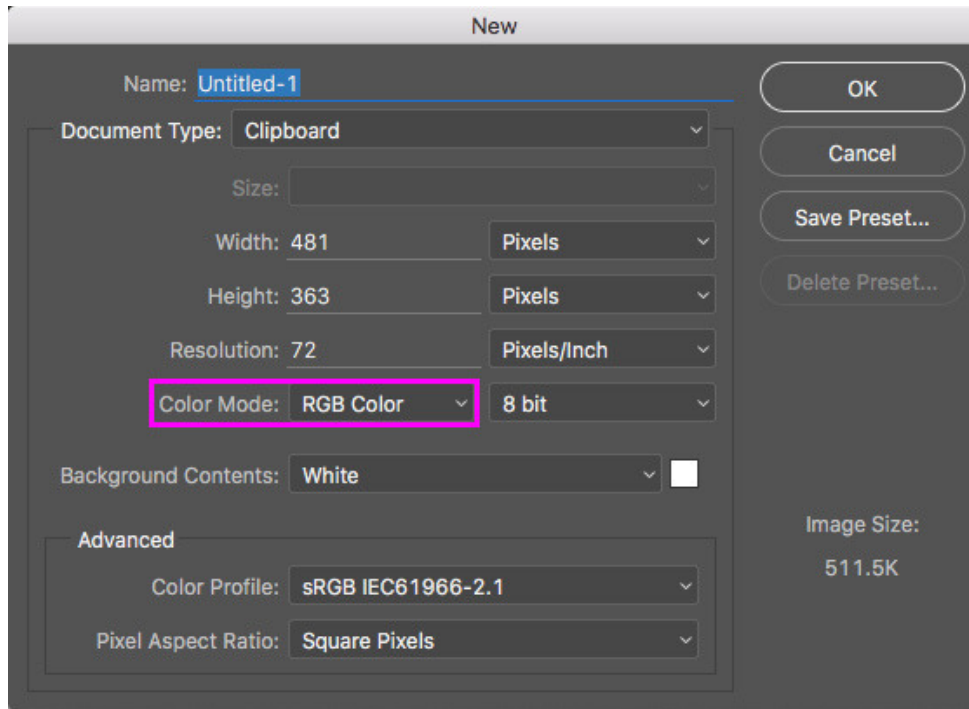

Blue and purple are really close in the CMYK spectrum, so if you want to avoid your blue turning into purple, always use a low amount of magenta and a high amount of cyan. Make sure to leave at minimum of 25% difference in your Cyan and Magenta values.
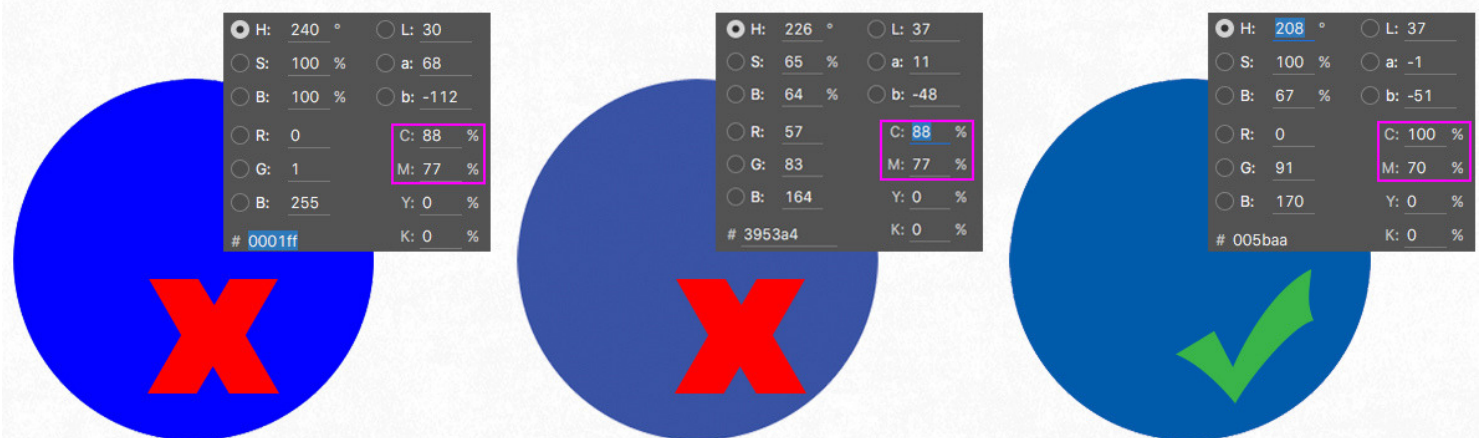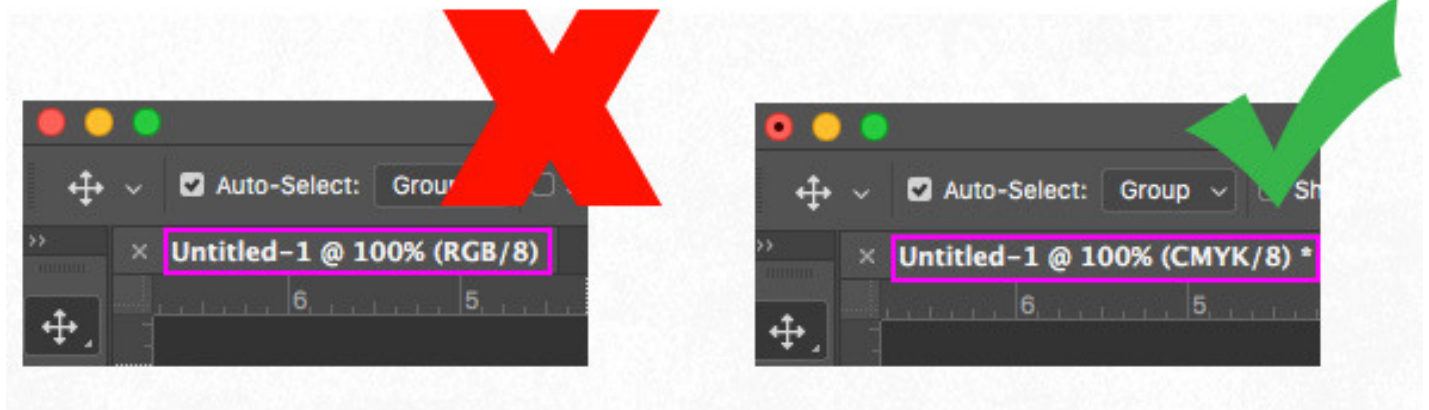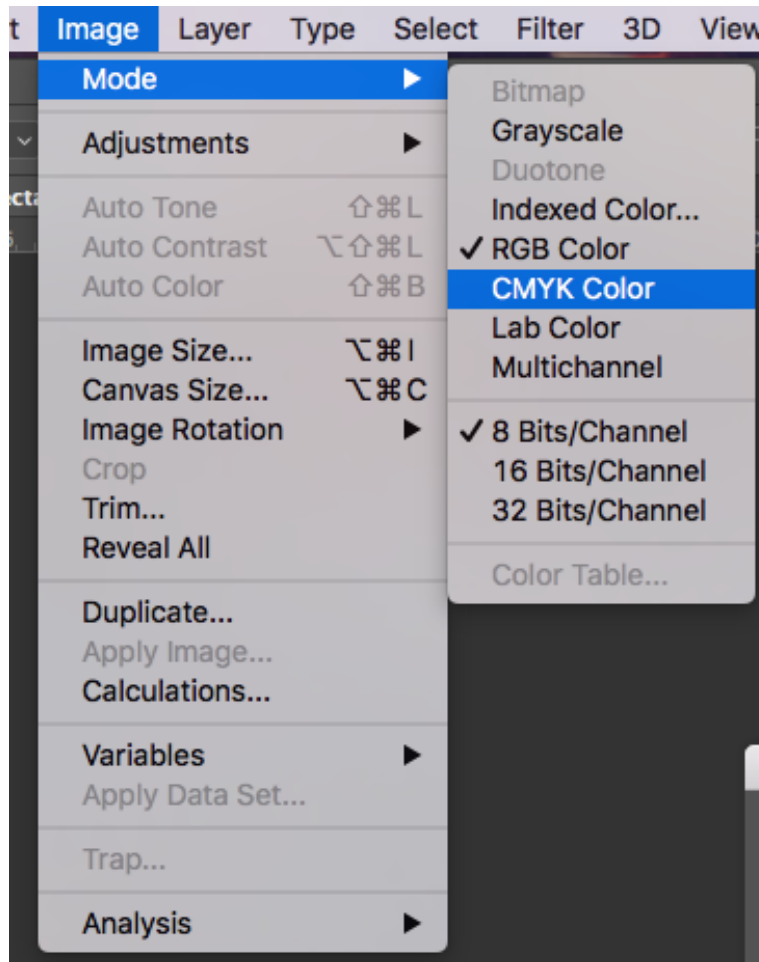
How to Make Sure You're Working with CMYK

When creating a new file, make sure the Color Mode is set to CMYK.

You can also check if the file you're working with is in CMYK or RGB mode in the tab at the top-left corner of the screen.

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If the file is in RGB mode, you can easily change it to CMYK by going to Image > Mode > CMYK color.

Note: We do not support any graphic editing softwares or assist with editing your graphics within those softwares.
For support on the Print Optimizer software, please contact support@coldesi.com or open a ticket at https://support.coldesi.com/open-a-ticket/.

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