

## Digital Printing Insights #8: Rendering Intents: One Does Not Fit All!

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Anytime we make a digital print, a profile conversion must be made from the digital file's native color space (for example, AdobeRGB or ProPhotoRGB) to the printer's output profile (for example, any paper manufacturer provided or custom-made profile). However, not all of the colors in the source file will have exact equivalents in the destination space. Color gamut varies by printer - gamut describes a printer's ability to accurately reproduce all colors in the source - with newer printers offering wider gamut color than ever before (Epson K3 inks, for instance). Anytime we make these profile conversions, we must also select the rendering intent for the conversion. Most photographers generally understand that they have only two usable rendering intents: *Perceptual* or *Relative Colorimetric*, but might not understand the differences between them (there are four rendering intents, but only these two apply to printing photographs). Those who have outsourced their printing to commercial labs have likely been directed to convert their files to the lab's output profile using the *Perceptual* rendering intent. Many who print to their own Canon, Epson, and HP printers may also only choose the *Perceptual* rendering intent because that's all they know or that's all that has been suggested to them. NEWSFLASH: The *Perceptual* rendering intent is not universally the best choice for your photographs!

Which is the best rendering intent for your photographs? That depends! One rendering intent does not fit all photographs! In short, the *Perceptual* rendering intent is a good choice when your image contains out-of-gamut colors (out-of-gamut means that the printer cannot accurately reproduce all the colors in the source file; this can be determined through soft-proofing in Photoshop). If your image has no out-of-gamut colors, then *Relative Colorimetric* is generally the better choice. I use the word "generally" as it is always image dependent, and one should always make test prints, not just soft-proof. *Perceptual* compresses out-of-gamut colors into the gamut of the output space, and can often negatively affect color saturation and color density. *Relative Colorimetric* maps out-of-gamut colors in the source space to the nearest in-gamut equivalents in the output space. With in-gamut images, *Relative Colorimetric* more accurately preserves color density and saturation, and is the rendering intent I use for 99% of the prints I make. I determine this through a combination of soft-proofing *and* test printing.

The following is a bit of a tricky demonstration, as the 'original' file was converted from Ektaspace PS5 (a wide gamut color space) to my Epson's output profile (choosing the *Perceptual* intent), and then finally converted to sRGB (a narrow gamut color space) for viewing online. It may be very difficult to discern, but there are both undesirable color

saturation and color density shifts in the *Perceptual* rendering. I have not shown the *Relative Colorimetric* rendering as there is no noticeable shift in both soft-proof and printing.



When you spend hours correcting and processing a file, you do not want the color space conversion and rendering intent to undo your work! Whenever I outsource large prints of this file (or any of my files), I always give specific instructions regarding which rendering intent to use.

In summary, ignore any suggestions or recommendations that the *Perceptual* rendering intent is the only intent suitable for photographs. Always test using both on-screen soft-proofing and by test printing. You might just discover that you've been using the wrong rendering intent all along.



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