

How to Get Great Color Prints

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This article is to provide all our neighbors with information about controlling color with their cameras or using editing software to adjust color. I'd also like to explain a bit about image analyzing at Candid 2000 to help you get the most out of your prints.

****Any reference to the way a lab handles files is based on the procedures at Candid 2000. While many labs may operate in a similar fashion, we do not speak for other lab's policies and they may vary to some degree. Please consult them for more accurate information.****

Q. Does Candid 2000 analyze every frame and what is being adjusted?

A. Believe it or not, yes! We have human analyzers that view every image that enters our lab unless the photographer has selected the "Do Not Adjust" option in our ordering software. In the case of "Do Not Adjust" orders, they go directly to our neutral-balanced printers which print the files exactly as they are sent.

Q. I like my images warmer than most photographers. Can I expect warmer prints?

A. Because of questions like this, we had to seriously question how much adjusting we should make to images regarding color temperature. Because the files are Jpeg files, we are already working with an image that has very little flexibility for adjustments. Any adjusting that's done will only further damage the quality of the file. Since we know that it's always best to get the correct color at the time of capture, we feel it's best to recommend that you capture the image at your desired color temperature.

Your camera is the absolute best place to adjust for not only the best color, but also, the color that best suits your taste. There is no way for an analyzer here at the lab to determine who likes images neutral, slightly warm, warm or very warm. Therefore, you set the amount of warmth you desire and we'll only adjust images that we find to have too much green or blue in them.

Q. How do I set the color temperature on my camera?

A. Every digital camera is equipped with a feature called 'White Balance'. When cameras come out of the box they are factory set to "Auto" or "AWB" (Auto White Balance). Every camera's white balance function can be set for various pre-set modes such as sunlight, cloudy, shade, tungsten, and florescent. There are a few cameras that offer a few additional ones to these. In addition, DSLR cameras (and some non-DSLR cameras) have the ability to set a custom white balance setting that is done by getting a reading of the light hitting your subject making for the most accurate color of any subject. Most DSLR cameras offer a Kelvin temperature scale that allows the user to select the exact color temperature of a light source if they already know its color temperature. This setting is commonly displayed as "K".

Q. I leave my camera set to Auto White Balance. Should I change it?

A. Fortunately, camera manufacturers are making huge strides in fitting cameras with great white balance sensors. The Auto setting is going to capture a terrific color temperature for most any subject that is captured in daylight conditions or when using a flash on your camera. The only times you should avoid using the Auto setting is when you are photographing in a studio with electronic strobes or when you are photographing the same subject over consecutive frames. When you are shooting wedding party group shots and the overall subject color stays the same, the camera cannot be relied upon to accurately read and meter the color temperature for every frame over the course of 10 or more frames. There's going to be some slight shifting. This is something that could be avoided by locking in a white balance setting that doesn't fluctuate from frame-to-frame.

In my wedding and portrait work, I only use cameras that allow me to set the color temperature that matches my light. To do this, you'll need a camera that has a setting for "Kelvin" or "K". All Canon cameras come with this feature except for the Rebel series. Nikon includes this feature on the D200, D300, D2 and D3 series models but not the prosumer, D-series models. Fuji has it on their Finepix S5 model.

I know that nearly all electronic strobe devices are 5500 degrees Kelvin or they are within +/- 100 degrees. Therefore if I set my white balance for "K" and choose a temperature of 5500 degrees, I will have a neutral image when my subject is lit by a flash or strobe. If I want it warmer, I can adjust the temperature to 5600 or higher to add more of a warm cast. The opposite will make for a cooler cast. The great thing about setting it at 5500K is it works for nearly all outdoor lighting scenarios as well, with or without flash. The only reason to adjust it would be to go to warmer

setting for shooting in extreme shade on cloudy days. Since I shoot with flash for nearly everything indoors, 5500K is the perfect setting. When I turn off my flash to use available light only in a wedding ceremony setting with tungsten spotlighting as my source, I change the temperature from 5500K to 3000K to better neutralize the extreme yellow light flooding the bride and groom.

Q. What is the best way to create a custom white balance setting?

A. Custom white balance is most commonly done by using a white card. It's important to use a white card that is deemed as being pure white. Some manufacturers make a card with black, white and gray and can be used as well. Hold the white card in place of the subject so it's reflecting the light source back to the camera, zoom in to fill the frame with the card only and shoot a properly exposed image. Now the camera has a capture of the off-colored light source that will be striking your subject. In the camera's menu, select Custom WB and if the current image showing is the white card then press set or OK. Your camera has just made the necessary compensation to neutralize any subject captured with that light source. The final setting you need to do is set your WB setting to the symbol for "custom WB" on Canon cameras or to "preset" on Nikon cameras.

Another popular method is with a device called an Expo-disk. This is a device sold in many camera stores that's opaque white and it fits over the end of the lens. Instead of pointing your lens at a reflecting white card, you point the lens directly at the light source and shoot at a proper exposure. Use that image as the calibration image for your camera's custom WB setting. Note: to shoot an image using either method you'll need to set your camera to manual focus since there will be nothing for it to focus on. Remember to switch it back when you're done.

Q. Does the lab adjust for exposure?

A. Yes! This is the primary characteristic we are looking at on every image. We refer to exposure adjustments as "density" adjustments. Density is a term carried over from the days of analyzing film. Adding density will bring down the exposure as subtracting density will lighten the exposure. Our goal is to adjust the density where it is needed in order to create consistency throughout groups of similar images.

Exposures often fluctuate throughout a wedding especially when shooting in one of several Auto exposure modes. We want to try and minimize the variances from frame to frame within the limitations of the captured file.

You probably are already aware that digital files are very sensitive to over-exposure and cannot be adjusted if they're beyond ½ stop over. Unlike film, underexposed images are much easier to manage with digital. We have the ability to make moderate corrections to underexposed images until the point that digital "noise" starts to creep into the shadows. Noise is a bunch of tiny specks of varied colors that

show up in shadows that have been lightened too much. With film it was known as “grain”.

I will be writing articles in the near future that will address exposure issues in greater detail.

Q. Would I get better color shooting in the RAW setting?

A. Yes, but only when you spend time adjusting and converting the images prior to creating a Jpeg file. The RAW setting will only give you flexibility when it comes to adjusting the color on your end. If you were to make a careless mistake while photographing a wedding in the Jpeg setting, it would be very difficult to correct the color no matter who is doing the adjusting. If the same thing happened while shooting in RAW, the file is very forgiving when it comes to correcting overall color errors. The downside to capturing in RAW is the conversion time involved and the added space they demand on storage media.

RAW files are not yet printable due to the fact that they are just that, RAW data waiting to be processed. The processing has to be done by a RAW conversion software on the photographer's end to create Jpeg files for printing. If your camera is set to capture Jpeg files to begin with and you're able to get good color at the time of capture, there is no need for conversion and the files are ready to send. It comes down to how much extra time and space you are willing to give up to have the safety net offered by shooting RAW files?

Q. Do I have to send files in the sRGB color space?

A. No, Candid 2000 no longer requires that all files be embedded with the sRGB IEC61966-2.1 color space profile. Yes, our printers are operating in sRGB because it closely matches the photographic papers manufactured today, but we can accept any color space. We are currently converting all files to sRGB upon arriving at the lab so they are optimized for our printers.

We fully understand the benefits offered by larger color spaces such as adobe RGB (1998), Colormatch RGB, Prophoto RGB, etc. however, those were created for printing processes that use ink sources for printing the image on paper. Pre-press, inkjet and other graphic printing suppliers will of prefer the larger spaces since there are more saturated colors in the gamut of those types of printers.

We feel it's best to stay with the color space that most closely matches the range of colors that are able to be produced by the paper we use.

Q. How come prints from the lab don't match prints from my inkjet printer?

A. Because inkjet is known for having a wider gamut of presentable saturation levels, it is rare that prints on silver-halide paper are going to look the same as inkjet prints. The greatest difference will be seen in bright, saturated reds, blues, greens, etc. Inkjet printers will achieve a more intense level of saturation than lab prints which will "clip" those extreme colors and render a more muted appearance. However, lab prints provide smoother tonal gradations that produce more life-like skin tones, a more durable product for your clients and less cost.

Once a photographer understands that photographic paper cannot produce all the ultra-saturated colors visible on a monitor, it becomes easier to predict what the final print results are going to be. It's easy to think that just because it's on the monitor it should be on the paper as well. Unfortunately, our monitors project many more colors than what photographic paper can reflect.

Here's an example of an image I captured recently. The first image is what this file looks like on a monitor and the second is what the print looked like, presented to the client. Notice the difference in the intense primary colors. The red sweater, blue jeans, light-green grass each looks muted.



Yes, I added saturation in Photoshop to make the monitor appearance look like the first image, knowing that the paper cannot support all of the colors at that intensity. It's very important to know this when receiving prints that have been narrowed by the properties of the paper. It is not a printer flaw or a lab flaw, but rather a paper limitation.

Note: Monitor calibration does not correct this anomaly. Colorimeters merely neutralize your monitor to remove a color cast so you see a neutral-balanced image on screen.