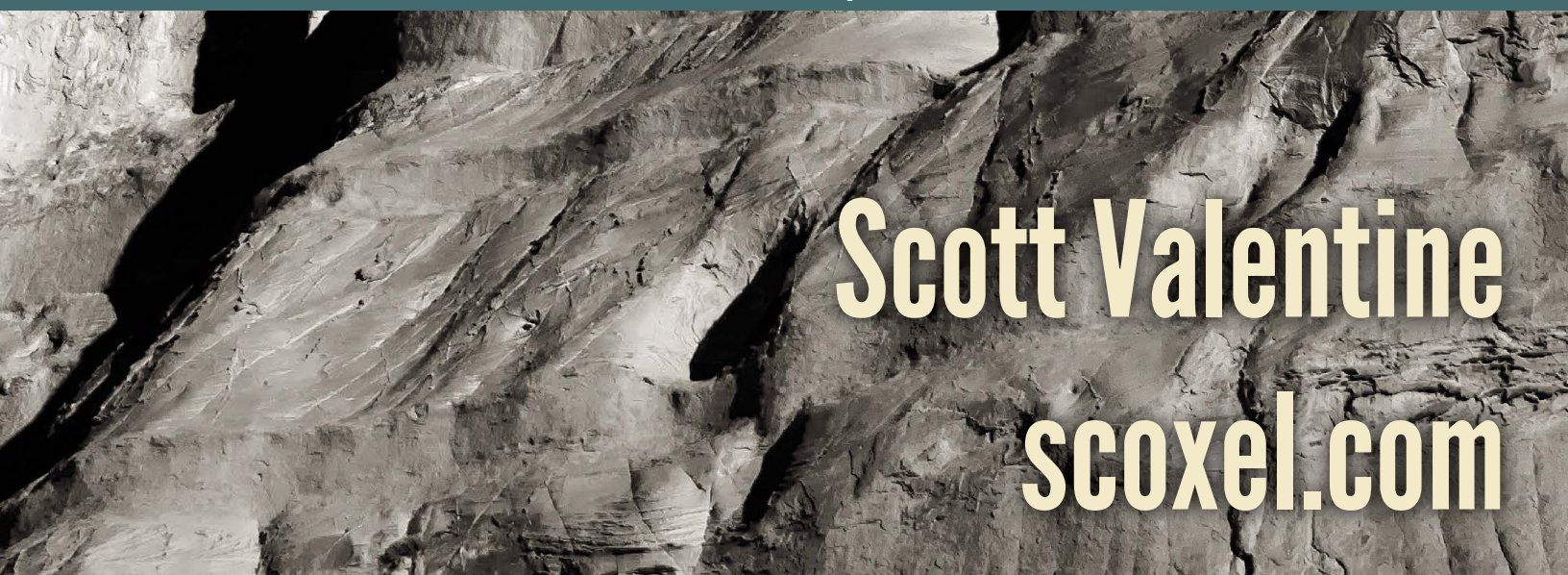
B&W Control Freak

CUSTOM ADJUSTMENT LAYER PRESET

A starter guide for using one of my favorite color to gray conversion techniques, now made super easy with Adobe's Custom Adjustment Layer Preset function inside of Photoshop!



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Overview of the B&W Control Freak Stack

One of the most popular topics you can bring up in any photography or retouching conversation is how to get the best black and white results from color photographs. Everyone has their favorite opinions and tools, and I'm no different. There are some great options out there, including filters right inside of Photoshop and Lightroom. But this adjustment layer stack is my personal favorite for two reasons:

First, I developed this particular stack many years ago specifically to address poor quality from automated conversions.

Second, as an educator it gives me a perfect opportunity to talk about the nature of color in a digital world.

The basic premise behind this preset is to control exactly how a given color is converted to a gray value without having to make direct calculations or precise selections. Moreover, it lets you refine individual colors for more optimal conversion.

Let's get started!

If you haven't checked out the presets in Lightroom, I highly recommend doing so immediately. They're amazing!

Getting Started

Because this is a stack of adjustment layers, there is no action to run or script to load. You simply add the preset per Adob's instructions:

INSTALLING ADJUSTMENT PRESETS

Download a preset file (.psap)
Double click on the downloaded ".psap" file to launch Photoshop and install it. You will see a prompt saying the preset has been imported

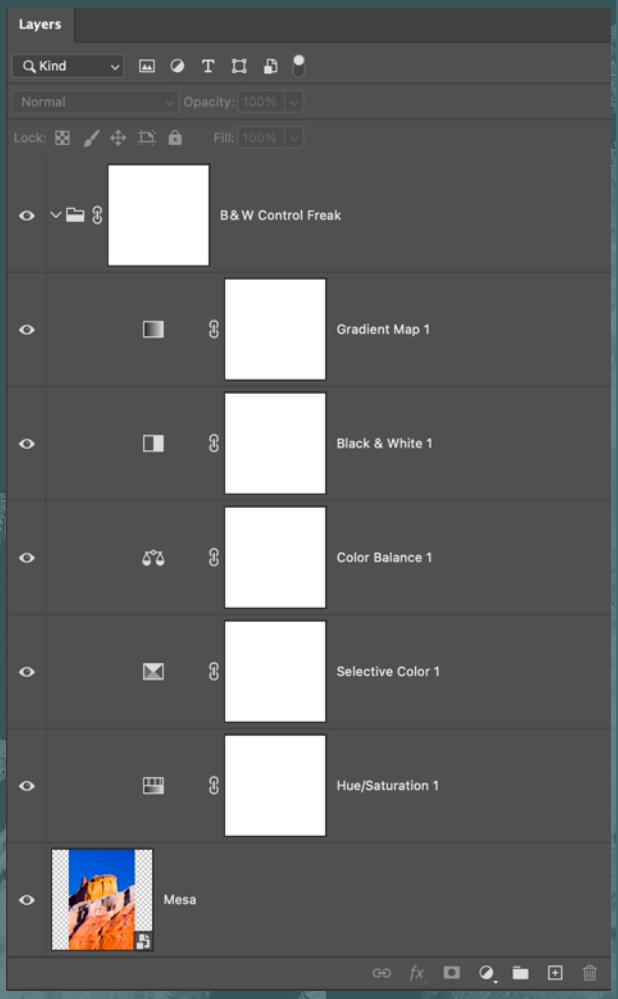
Alternatively, use the Adjustments panel flyout menu and select Import Presets and select the downloaded ".psap" file.

When you launch Photoshop, open the Adjustments panel and you should see a section called "Your Presets," with your newly loaded .psap file ready to go.

Add a preset to your layer stack by clicking on it. That's it!

For more information about Adjustment Presets in Photoshop, click here to see the help manual

The Stack



The B&W Control Freak preset works like this:

Colors are manipulated and refined as they get processed through each adjustment layer, before being converted with a gradient map. The key is to start at the top and work your way down. The gradient map is built to simulate a 12-zone system, developed and popularized by Ansel Adams. I'll explain that shortly.

The next layer is a B&W adjustment, but it is set to Luminosity blending mode. This trick allows us to make sweeping changes to color brightness.

Color Balance allows you to adjust the relative intensity of complimentary colors.

Selective Color reveals powerful controls for refining the exact hue and mix of specific colors and tonal ranges.

Finally, Hue/Saturation enables global tweaking and contrast.

Start at the top, work your way down, then go back and make refinements.

The Gradient Map: where the final magic happens first!

Ansel Adams envisioned 11 unique "zones" of gray. Black is 0, white is 10 and neutral gray is 5. That means each zone of gray varies by about 8.3% from dark to light, all zones being equally spaced.

I have built a custom gradient that removes a slight problem with Photoshop's default gradient, and added stops to simulate the boundaries between zones.

The Gradient Map tool translates (remaps) the brightness value of a given color to a new output brightness (and color if using a color Gradient Map). It's like saying "This gray value of 160 is now going to be 145."

Within the Gradient Map are sliders that control the width of each zone, allowing us to change the mapping from on-canvas values to new values defined by the gradient. What we're doing is modifying the linearity of the transition from black to white.

Open the Properties panel, then click on anadjustment layer's icon to see its controls.

Photoshop's default gradient is not exactly linear. See my blog post for a discussion on why this is and how to correct it.

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How does Photoshop "think" about color?

If the math and technology are boring or you're already up to speed, skip ahead to page XX for using the B&W Control Freak Preset

One of the less commonly taught concepts is how Photoshop "thinks" about color. There is a difference between computer processing of color and human perception. Our eyes do not have constant sensitivity across the color spectrum, but a computer deals with color as brightness when mixing each of three color channels. In order to present this color mixture in a way that makes sense to human eyes, Photoshop applies weighted values of brightness to each of those channels. Each channel gets its own multiplier for brightness.

I'm using "brightness" as a description of power applied to the screen pixels, but the correct term is "luminance"

The connection should be fairly obvious when converting a color to grayscale: if you take away the color information, you're left with a brightness value that gives some level of gray. That brightness value goes from 0-100 percent, and that is scaled by the "power factor" for each channel. When those individual channels are combined, you get a composite result of all three color channels. Those percentages are applied to the 0-255 gray value of each individual channel.

The math looks something like this:

Channel weighting:
R - 30%
G - 59%
B - 11%

These are the "power factors" that get multiplied to a channel's RGB value

This adds up to 100%. Consider a medium gold color with RGB (187, 165, 61). Each channel's brightness value is multiplied by the power factor, then those results are added to give the total gray value. Photoshop does not deal with decimals on the output side, so the values are actually rounded. For Red, 187*0.3 = 56 after rounding. So the brightness of the Red channel contribution is 56 out of 255.

I'm using "brightness" as a description of power applied to the screen pixels, but the correct term is "luminance"

A great way to experiment is to create some gradients with various color palettes and apply the preset so you can see the actual conversions.

Power Factor	0.3	0.59	0.11
Channel	R	G	B
Channel Value	187	165	61
Channel Brightness	56	97	7
Gray Output 0-255		160	

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Summary and next steps

Pick up some additional resources from my website:

After installing the Advanced Preset and understanding the process Photoshop uses to translate color into gray values, I recommend that you start with simple experimentation. I have some color target files on my blog (scoxel.com) for those technically minded folks. Alternatively, grab a stock image or one of your own and dive in!

When you start, pay attention to not only the general color groups in your image, but also the range of tones and hues. Set yourself some goals of increasing contrast between visually similar elements, then decreasing contrast between very different colors. Be mindful of specific color contributions that you may not easily pick up, such as magenta casts in shadow areas, or how much cyan contributes to various regions of sky.

Once you start getting a feel for the controls, you'll find it easy to make targeted conversions and start envisioning your result earlier in the process.

Get Your (B&W Control) Freak On!

As always, if you have questions, suggestions, or would like to talk about Photoshop and digital images, drop me a note. I love to chat!

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