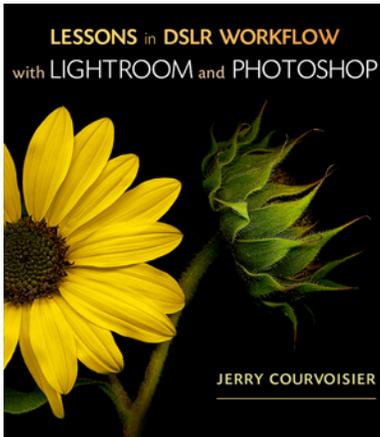


**Jerry Courvoisier**

**Author: Lessons in DSLR Workflow  
with Lightroom and Photoshop**



**Photoshop has two image data modes:**

**8 bits** per channel and **16 bits** per channel

**WHY USE 16 BITS PER CHANNEL for image correction?**

Less data Loss in the process

For maximum preservation of image data, it's best if the image you work with is in 16 bits rather than 8 bits per channel. As always, image information is throw away when you make tonal and color adjustments. The loss of image information is more critical in an 8-bit image than a 16-bit image. 16-bit images have more depth of data (a larger file size) than 8-bit images.

Observe the Histogram panel in expanded view to evaluate and monitor this information loss. The Histogram will exhibit a "combed" appearance as the information is eliminated. You can make a selection or use a mask to contain your color and tonal adjustments to a specific part of an image.

Many of today's digital SLRs allow for capturing more than 8 bits. Most capture 12 bits or 14 bits per channel when enabled. (Review your camera specs on this) This is later represented as 16 bits per channel in Photoshop.

If the images captured with your camera were perfect, these 4 to 6 bits of additional information would not make a big difference as most output printers only use 8 bits per channel to process the info within the printer driver.

Nonetheless, an image that does not require some slight adjustment is very unusual. Once the color balance or tonal contrast of an image is adjusted, the actual color information is reduced (due to mathematical rounding errors) by one or more bits of image data.

If you initiate the image correction process with eight bits, you might end up having only six bits of real tone and color information per channel left. The not so smooth continuous tone nature of the color graduations will show a loss of information.

Starting with 12 to 14 bits ensures there is still a sufficient amount of color and tone information available even after major corrections.

**Jerry's Tip:** Stay as much as possible in 16 bits during the image adjustment process. The 16 bit vs. 8-bit test. Review the Hi\_bit\_imaging.mov provided with this seminar / workshop DVD. Open both the **low bit** and **high bit** bakery images to do the comparisons in Photoshop. Performing some extreme curves or levels adjustments will provide some insight to the destructive nature of applying tone and color corrects to low bit image files. When the histogram for the low bit depth image is viewed in the "Levels" dialog box you will observe a comb effect (spaces or gaps within the histogram).

This indicates lost data and shows up in gradient smoothness, or creates posterization.

TIP: Remain in the 16-bit mode as long as you can when making image adjustments.

The down side to Using 16 bits:

- Creates larger files 2x)
- Requires more memory

But if you have enough Hard Drive space, memory (minimum 2GB and 4GB is preferred) and speedy processors, 16 bits is the advantage when doing image corrections.

## **A Color and Tonal Adjustment Workflow approach using Photoshop CS4**

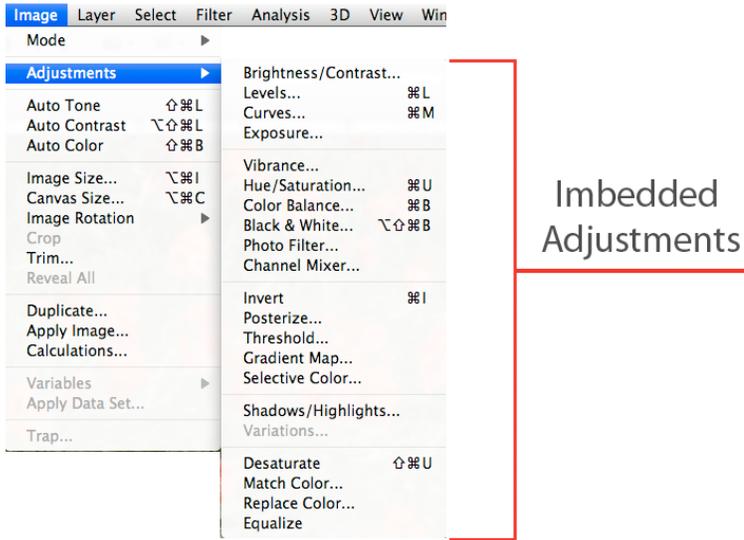
Photoshop's powerful tools can correct the color and tonality (lightness, darkness, and contrast) in an image. Here are some items to reflect on before making color and tonal adjustments.

First and foremost work with a monitor that's calibrated and profiled. For serious image correction, calibration and profiling is essential. Otherwise, the image corrections you make on your monitor will look different on other monitors or when printed.

Remove dust, sensor spots, and scratches from the image before making color and tonal adjustments. The artifacts and defects will be more noticeable when making your image adjustments.

Use adjustment layers to adjust the tonal range and color balance of your image. Adjustment layers allow you revisit tonal adjustments without discarding or permanently altering the data information in the image layer. Accessing the color and tonal commands in the "Adjustments Panel" automatically creates adjustment layers.

**Beware!** You can choose from a variety of image adjustments from the menu **Image > Adjustments > Levels, Curves** etc. By using adjustments from this menu you make direct adjustments to the image layer and this discards image information. I call these types of adjustments **imbedded** adjustments. These can be highly destructive to the tone and color correction process.



## Correcting images

Here is a suggested workflow you can follow when correcting the tonality and color of an image:

Remove dust, sensor spots, and scratches from the image before making color and tonal adjustments. The artifacts and defects will be more noticeable when making your image adjustments

Use the histogram panel to check the quality and tonal range of the image.

Use the Adjustments panel to access color and tonal adjustments. Click a specific tool icon to enable the adjustments in the following steps.

Applying corrections from the Adjustments panel creates an adjustment layer, which allows more flexibility and doesn't discard image information.

Adjust the overall color balance to remove an unwanted colorcast or to correct oversaturated or under saturated colors. With levels or curves you can access the Gray Point Eyedropper tool on an area of the image that is neutral gray. This will only work if a neutral area is present within the image. Hmm. Would photographing a gray card under certain illuminations help to eliminate colorcasts? SURE! The gray card can be used to sample (gray eye dropper) the neutral area and then the adjustments could be applied to other images photographed under the same illumination.

**Adjust the tonal range**, using either the Levels or Curves adjustment layers. Initiate tonal corrections by adjusting the values of the extreme highlight and shadow information within the image, generally setting a tonal range for the image. This method is known as **setting the white and black points**. Setting the white and black points characteristically tidy's up the midtone image information properly. However, you might need to adjust your midtones yourself by using the midtone control slider or adjust the mid curve point up or down.

**Adjust the Color.** After you correct the overall tonal information, shift your attention to image color balance, you can make optional adjustments to enhance colors or produce special effects.

**Sharpen the edges in the image.**

As one of the final steps, before output the Sharpen filter (or the “smart sharpen method described in the PDF companion DVD to this workshop)) to sharpen the clarity of edges in the image. The amount of sharpening required for an image varies according to the image quality produced by the digital camera or scanner you use.

For more tips checkout [www.jerrycourvoisier.com](http://www.jerrycourvoisier.com)