Image Editing With Adobe Photoshop - Basic Tools

There are numerous photo editing softwares available to the digital photographer. Among these are Corel Photo Paint, Nikon Capture, iPhoto, and Adobe Photoshop. I have found that Adobe Photoshop is such an all inclusive and industry standard program that I use it for all my photo editing needs. For those who don’t want to deal with the expense and complexity of the full Photoshop program, Adobe offers Photoshop Elements. Elements is a cheaper and simpler version of the full Photoshop program.

When you open an image in Photoshop, whether from scanner or camera, you will invariably need to adjust the brightness, contrast, color balance, and sharpness of the image. If care was taken in obtaining the image, less alteration will be needed in Photoshop but all images require some tweaking. Here are some of the essential Photoshop tools tweakers should learn to use.

Levels

When you first open a digital image in Photoshop, you might notice that the exposure probably isn’t just they way you’d like it. It might be a little dark, a little light, a little bland. For the initial exposure tweaking, I always begin by adjusting the levels. If you look at the menu bar under Image/Adjustments you will notice numerous options, “Levels” being the first. Open the Levels dialog box and have a look.
The upper graph under Input Levels is the one we'll be interested in. This graph looks suspiciously like the Histogram you see on a digital camera, because that's exactly what it is. The graph shows the distribution of pixels in the image according to their tonality. Black pixels on the left, middle gray in the middle, and white pixels on the right. Note the black, gray, and white triangles under the graph. Where Levels differs from a camera Histogram is that these triangles can slide to different values, thus changing the tonalities of the image. If you slide the white triangle to the left, you will map all pixels of that value and to the right of the triangle to pure white. As you move the gray triangle you will be mapping different tonalities to middle gray. The black slider works similarly.

Download an image from a digital camera and open up the Levels dialog box. You'll see something like this. Even though this image was decently exposed, it appears somewhat flat. Most of the pixels are in the mid-tones and there are few pure black or pure white pixels.
Slide the black triangle to the right until it reaches the edge of the histogram. This makes all pixels of this value or darker become pure black. Similarly, slide the white triangle to the left until it reaches the edge of the graph. This makes all pixels of this value or lighter become pure white. You can see that just by making these adjustments, the image is contrastier and better looking already. As a final adjustment, slide the gray triangle left or right until the image looks good to you.

The tonality of the image is changed overall when you are working in the RGB channel of Levels. If you choose a different channel (either Red, Green, or Blue separately) the changes you make will only effect that color channel, thus changing the color balance of the image.

Just underneath Levels in the menu is Auto Levels. This tool automatically decides where to set the black, gray, and white points of an image. If you need to work quickly on many images, this is a very helpful function. Be careful to inspect the results as the computer may decide differently than you would on where these points should be set.
**Using Levels and a Gray Card to Balance Color**

If you included a gray card in a digital photo, here is a nifty way using Levels to quickly determine the correct color balance.

1. Open image in Photoshop and open Levels.

2. Select the gray eyedropper in the lower right hand corner of the Levels dialog box. Click the eyedropper on the gray card and it will automatically be made a neutral gray.

3. Adjust the black, gray, and white sliders.
4. Crop out gray card for final image.

Curves

Below Levels in the Image/Adjustment menu of Photoshop is something called Curves. Curves is a tool that can be used like Levels to adjust an image's tonality and color balance. Open the Curves Dialog Box and this is what you'll see:
Like Levels, you can choose which channel to work in. In RGB channel any changes you make to the curve will effect the overall tonality of the image, while changes to individual channels will effect the color balance. Also like Levels, the black, gray, and white eyedroppers in the lower right can be used to set these points in the image. Unlike Levels, Curves does not display the number of pixels at particular tonalities. What it shows is the relationship between the input tonality and the output tonality of all the values in the image.

Before any changes are made, the curve will show a straight line with input and output values equal. Dark values are in the lower left corner and light values are in the upper right corner. To make changes to the curve, click and drag the line to a new position.
By reshaping the curve to this s-shape you increase the contrast of the image. The dark tonalities have been remapped to even darker tones and the light tones have been remapped to lighter tones. Note that the black point (lower left), middle gray, and white point (upper right) have not been altered.
Reshaping the curve in this manner lowers the contrast of the image. Dark tonalities are remapped to lighter values and light tonalities are remapped to darker values, resulting in a lowering of contrast.

Also in the Image/Adjustment menu is a function called Brightness/Contrast. Simple sliders allow you to quickly adjust an image's brightness and contrast. I prefer using Levels and Curves to make these changes, as they allow finer control.

**Color Balance**

After adjusting the brightness and contrast of an image it is often necessary to make adjustments to the color balance. In the Image/Adjustments menu there is a function called Color Balance that allows very fine control over the image's color.

The Color Balance Dialog Box has 3 moveable sliders. These sliders balance the ratio of the 2 opposite colors on each line. By moving the top slider towards cyan, you are making the image less red and thereby more cyan. To make the color balancing even more accurate, you can choose to adjust the colors in the shadows, midtones, or highlight regions separately.
When you open an image and open the Color Balance Dialog Box, all the colors will register as zero.

Choose the tonal region of the image in which you want to make changes, in this case the midtones. Move the sliders until you obtain the proper color balance. A gray card in the image is very helpful for determining the correct settings.
**Hue/Saturation**

Another color adjustment tool you'll find invaluable is Hue/Saturation. It is also found in the Image/Adjustments menu of Photoshop.

Open up the Hue/Saturation Dialog Box and this is what you see. By default, it is set on Master channel, which is similar to the RGB channel in Levels and Curves. Any changes you make to the Hue, Saturation, or Lightness of the image will effect all colors in this setting.
The real power of this tool comes in being able to manipulate subtle color shifts in individual color channels. To pick a color channel just choose from the pull down menu. Now any changes you make will only effect that particular color channel.

Digital cameras do a very good job of accurately recording color but sometimes certain recorded colors may differ from the way our eyes perceive them. This can be a problem with flower colors because the flowers might reflect ultraviolet or infrared wavelengths that effect the digital image but our eyes don't see. In this image lets say the yellow flowers should appear more greenish-yellow.
By choosing the Yellow channel and adjusting the Hue slider to the right, only the yellow pixels in the image were modified to a greener-yellow. The other colors in the image did not change.

To make the yellow pixels become redder, choose the Yellow channel and slide the Hue slider to the left. All the color channels can be tweaked in this manner and don't forget to play around with the Saturation and Lightness sliders also.

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**Unsharp Mask**

When you open an image from a digital camera, import an image from a scanner, or change the pixel dimensions of an image, you will invariably need to sharpen the image. There are several sharpening functions found in Photoshop but I would recommend only using the Unsharp Mask filter. The Unsharp Mask is found in the Photoshop menu under Filter/Sharpen. There are several other options found here but none of them offer the accuracy of Unsharp Mask. After you adjust the brightness, contrast, and color balance of an image sharpen it with the Unsharp Mask in the following way:
Using the Navigator (you may have to open it in the Window menu if it is not visible on the desktop) enlarge the screen image to 100% and choose an important part of the picture to view on the monitor. Make the image fill the monitor as much as possible by dragging the lower right edge of the image. This will allow you to see the changes made by the Unsharp Mask filter on a large area of the image.

Open the Unsharp Mask Dialog Box from the Photoshop menu bar under Filter/Sharpen. To see the changes that are made to the image on the big image on the monitor, make sure the Preview box is checked.
I honestly don't understand what the three variables do exactly but it isn't necessarily important as you will be making decisions on the amount of sharpening visually. I set the Radius to about 1.0, the Threshold to 3, and slide the Amount slider back and forth until the image appears sharper but not oddly pixilated. Try it, you'll see what I mean. The small viewing screen in the dialog box is insufficient to make assessments so view the sharpening on the large image on the monitor. It's also useful to toggle the Preview button on and off to see what effect the sharpening is having on the image. When you are satisfied with the result, click OK. It's best at this point to look over the entire image at 100% to make sure the sharpening looks good all over.