Special Editing in 16 bits

By Jeff Schewe

I'm not sure just how to stress the importance of doing color and tone corrections in 16 bits in Photoshop. One can point to the obvious advantages - 65,536 shades of gray in 16 bit vs. 256 shades in 8 bit. The ability to do multiple edits without worry of level loss and banding. The ability to do both global and local corrections (through the process I'll outline here) and bring in a final "perfect 8 bit" file for imaging. I suppose the difference could be characterized as professional vs recreational use of Photoshop.

While there is a small but vocal group of individuals who would love to see even more 16 bit editing in Photoshop, the tools available in Photoshop 6.0 at least allow a full set of color and tone correction. Additional basic functions such as USM as well as other select filters and the use of the History Brush (why Fill from History was omitted is a mystery) round out the basic functionality.

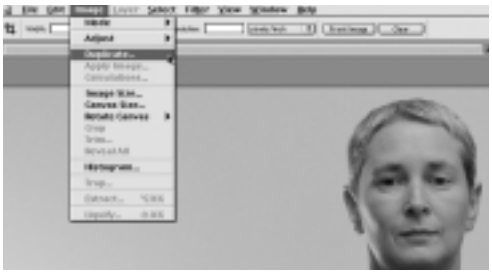
But, the real trick to using Photoshop's 16 bit editing is a little known capability to actually move a selection from an 8 bit file to a 16 bit file. In this manner, one can create a specific selection with the full capability of Photoshop's selection tools while in 8 bit for use in 16 bit.

So, how does one take advantage of this technique? Well, you have to start with a 16 bit RGB or grayscale image. Converting an 8 bit file to 16 bits for editing, while moderately better than editing in 8 bits, will not really suffice. You need to scan in 16 bit to obtain the full benefits of 16 bit editing. One might make the argument that using a scanner's own color editing tools will give sufficient quality that scanning in 16 bit is wasteful. That would be true except for a couple of important aspects. First, no scanner software that I'm aware is capable of making "local" corrections so the best the scanner can deliver is an overall good global setting. Secondly, and this is critical, at this point, Photoshop 6.0 is arguably the best soft-proofing software out there. That means that within Photoshop, the ability to do "what you see is what you get" editing will be far superior to visual based corrections in scanning software.

The way to start is to open a 16 bit file. You can confirm that it's 16 bit by going to Image>Mode and seeing if the "16 Bits/Channel" is check marked.

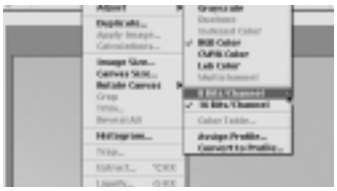
This figure shows where to determine if an image is 16 bits.

Once you have a 16 bit image open, the first step will be to Duplicate the image (Image>Duplicate).



This gives you a copy of your original file. This copy then needs to be converted to 8 bit (Image>Mode>8 Bits/Channel). This 8 bit copy will serve as your staging area for creating specific selections to be moved to your 16 bit file for editing.

Here the image has been duplicated and is sitting on top of the original 16 bit file. The next step is to convert the copy to 8 bit.



Bring the 8 bit document window forward will allow invoking the Color Range command.

In this example, Color Range is being used in the 8 bit file to create a selection based on the skin tone. Once the Color Range has selected the 8 bit data, and this is where the important step takes place, making sure you have a selection tool active (Marquee or Lasso) you can start to drag the selection from the 8 bit file to the 16 bit file.

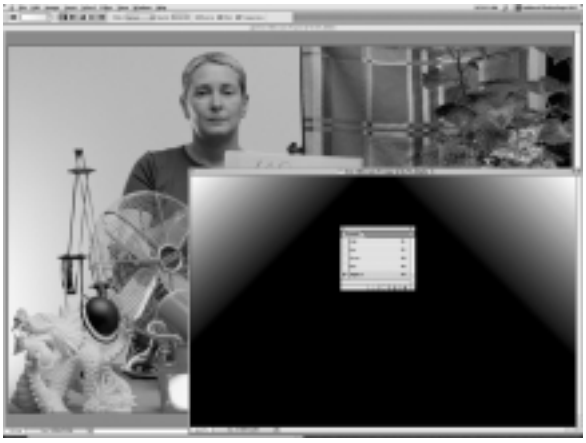
Here the Color Range has created a selection in the 8 bit file.

Once you have started to drag the selection and before actually releasing the mouse, you also need to hold down the "Shift Key". This assures that the selection will be pin registered from your 8 bit to your 16 bit file. Since your two files are the exact same pixel dimensions, you can drag selections between the files in exact registration.

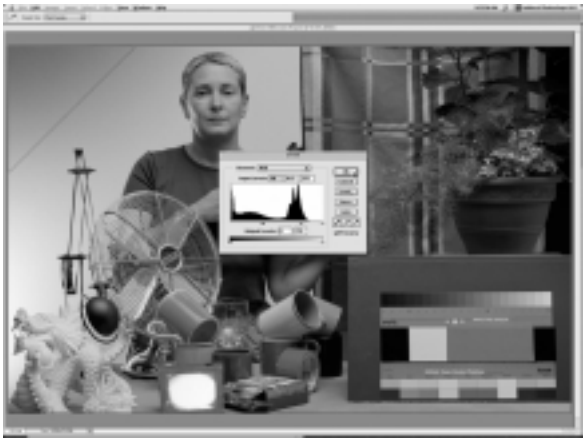
In this figure, the selection, which started in the 8 bit file has been dragged to the 16 bit file.

Once in the 16 bit file, this selection can be used to do a "local" color or tone correction for skin tones. Pretty sneaky huh?

But, it doesn't just end there. You can use any selection technique to create a selection in your 8 bit file and drag it into your 16 bit file. In the next example, creating a gradated selection is as simple as making a channel with the desired gradations that will become the selection in your 16 bit file

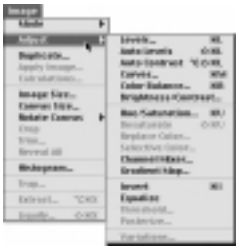


In the 8 bit file, creating a new channel and making gradations will allow creation of a gradated selection.

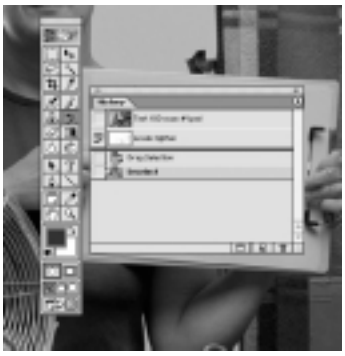


In the 8 bit file, creating a new channel and making gradations will allow creation of a gradated selection.

In fact, you could even use Adjustment Layers with finely tuned layer masks as a basis for making 16 bit corrections. As long as the Adjustment Layer you create is supported in 16 bit (Levels, Curves, Color Balance, Brightness/Contrast, Hue/Saturation, Channel Mixer being the most critical). You merely load the Adjustment Layer mask as a selection and then enter the same corrections made in the Adjustment layer in your 16 bit file.



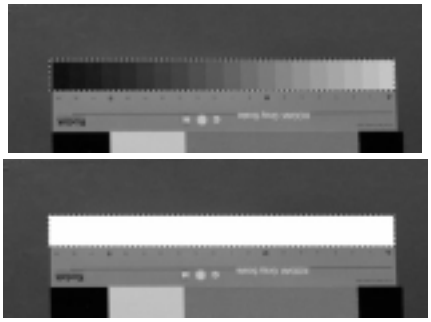
When using Adjustment Layers in your 8 bit copy, be sure to only use adjustments supported in 16 bit.



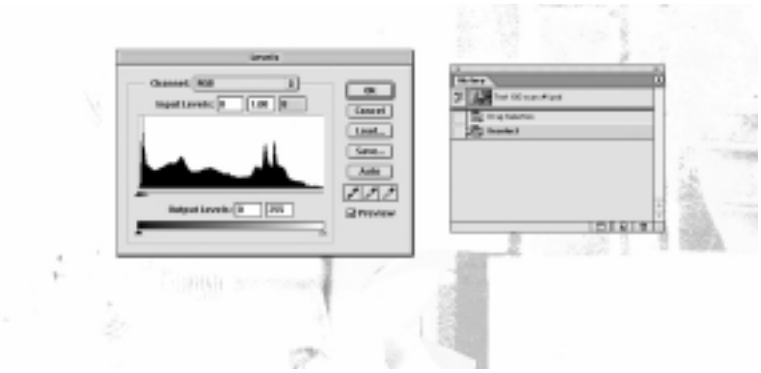
After undoing the adjsutment, set the new snapshot as the History Source.

As Russell Brown likes to say:
"But wait, there's MORE!".

While there is no ability to use a paint brush in 16 bits, there is an ability to make a correction, take a snapshot, undo the correction and then using the History Brush, paint in the effect. This capability can be useful for "painting" in 16 bit files. By using an appropriate adjustment, you can literally "capture" just about any color or tone to use in painting.



Here, in a selected area, painting in with the History Brush effects a change almost equal to actually painting a color with a paintbrush.



Here, doing a strong levels correction will allow taking a Snapshot and using it as a source for the History Brush.

So, that's it. Using Photoshop's tool set to do major and substantial corrections in 16 bit.

After doing the Levels adjsutment, take a Snapshot (using Current Layer to preserve scratch disk) and then Undo the levels adjustment.