Photoshop 5-Correcting and Enhancing

Part One-Editing in Camera Raw

The beauty of raw files…

A camera raw file contains all the data the sensor captures when the picture is taken. This is the digital replacement for your negatives from the days of film. It is an image source, not a finished, viewable picture. There is no current image file type that contains more data about the image than a raw file. With a jpeg or tiff file, the camera processes the data into a final image and jettisons all the extraneous data that it thinks is no longer necessary to the image. This makes precise and subtle adjustments more difficult and limited than with a raw file. In Adobe Camera Raw, the file is not altered. A meta-data file called an xmp file is created to tell Adobe imaging programs how to display the image. Even when you crop an image, all the area you cropped out is still there, it's just hidden when viewed in conjunction with its xmp file. In order to have Camera Raw edits show outside Adobe programs, you must save a new image as a jpg, tif, psd, or whatever file type is appropriate to the job.

I. Editing multiple images in Camera Raw

A. In Bridge, or Mini-Bridge, navigate to the images you wish to edit

B. Select all of those images and open them in Camera Raw

C. Three ways to correct White Balance

1. Presets or Auto

2. The White Balance Tool- Click in a black, white, or gray area to neutralize

3. Kelvin slider

D. Setting brightness and contrast

1. "Auto" doesn't always work well, but it can get you into the ball park

2. Sliders are great for fine-tuning

E. Clarity, Vibrance, and Saturation

1. Find a good default for your camera

2. Sliders are great for fine-tuning

F. Sharpening

1. Zoom to 100%, this is the best way to determine how much to sharpen

2. Click the "Detail" tab (Third from left)

a. The "Amount" slider determines the degree of sharpening applied to an image. Start high to better see the sharpening effect and reduce it after the other parameters are set

b. The "Radius" slider determines the pixel area Camera Raw analyzes as it sharpens the image

c. The "Detail" slider determines the level of detail that shows

d. The "Masking" slider helps ACR determine which areas to sharpen.

e. It may be necessary to reduce the "Amount"

The object of sharpening is to more clearly define details and edges. The "Masking" slider will help Camera Raw to affect only the hard edges. Soft edges like spheres can develop artifacts that look un-natural, so it is necessary to be observant of this. Camera Raw also offers a Sharpening slider under the adjustment brush which will allow you to selectively sharpen specific parts of an image.

G. Synchronizing settings

When you are working with several images shot in similar lighting with similar exposures, you can often apply the same, or similar, corrections to all of them. When you know you want to do this, just select all of the images that should require about the same settings, and make the corrections. Only the first one you selected will show, but once you've made the corrections, select them one at a time to check for minute differences. For pictures that will be displayed together, this helps keep the color balance and brightness uniform. If you have already made corrections to one image and discover several others that are likely to need the same corrections, use the "Synchronize" button at the top left in ACR to match them up. When you select multiple un-synchronized images, the settings that are different between the images will be blank in the settings panel. Clicking in a blank box will set all the selected images to match the setting of the image that is displayed. The displayed image will be the first image that was selected.

H. Saving Edited Images

1. Select the images you want to save

2. Click the "Save Images" button at the bottom left

3. The options to choose are

a. "Destination:" Save in Same Location, or select a different folder

b. "File Naming:" Document Name to keep the file names unchanged, or rename them as they are saved

c. "Format:" Select the format that is appropriate to the purpose you have in mind for these images

4. Click the "Save" button

5. At the bottom left, in Camera Raw, the "Image Save" countdown is displayed. If you want to apply these changes, click "Done;" or you can continue editing. If you just wanted to create a few new files, but do not want to use these changes anymore, click cancel and any changes you made will not show in the raw files, but will still show in the new saved images.

When opening files from ACR, if you want to continue the process of non-destructive editing, hold the Shift key and the "Open Image" button will become "Open Object" and when you click it the image will open in Photoshop as a Smart Object. When you open an image from ACR in Photoshop as a Smart Object, you preserve the ability to go back to Camera Raw directly from Photoshop by clicking on the image thumbnail in the Layers panel. When using filters on Smart Objects, the filters become Smart Filters. Normally, when a filter is applied to a regular pixel image, it becomes part of the image and can't be altered without applying yet another filter or undoing or stepping back. A Smart Filter can be re-opened anytime it is necessary to adjust the filter. It can also be turned off and on to see how the image looks without the filter. Some filters will not work on a Smart Object. If possible, it is best to save the application of those filters for last. Then you can duplicate the Smart Object layer, rasterize the duplicate layer, and apply the needed filter.

Part Two-High Dynamic Range Images

I. Merging to High Dynamic Range (HDR) Images

A. In the Menu bar choose File>Automate>Merge to HDR Pro…

B. In the Merge to HDR Pro dialog box, choose "Browse"

C. Navigate to the folder containing the images you want to merge

1. Select the images you want to merge

2. Click OK

D. Make sure "Attempt to Automatically Align Source Images" is checked

E. Click OK

F. Take a nap, order a pizza, check out a movie…

G. Eventually the Merge to HDR Pro window will open

1. A large preview image is in the middle

2. The three source files appear at the bottom as thumbnails

3. A slider panel appears to the right

H. The controls…

1. The preset dropdown at the top is fun to experiment with

2. The "Remove Ghosts" check box is for images that show motion

3. The Mode controls allow you to select the bit-depth of the sample image and the level of automation applied to the image

a. 32 bit- greatest range of colors, light to dark, limited manual control

b. 16 bit-best combination of range and manual control

c. 8 bit-similar to 16 bit, but with coarser controls

4. Edge Glow-Sometimes merged images have glowing edges caused by imperfect masking of the different source images, this control keeps that to a minimum, or enhances it for special effects, like a sharpening mask

a. Radius- Size of area sampled when analyzing edge glow

b. Strength- Controls suppression of glow

5. Tone and Detail

a. Gamma- Adjusts the difference between shadows and highlights

b. Exposure- Exposure, duh

c. Detail- Controls contrast along all edges and lines

d. Shadow- Controls shadow luminance

e. Highlight- Controls highlight luminance

f. Color Tab- Vibrance and Saturation like in ACR

g. Curves Tab- Direct control of curves against a histogram

III. HDR Finishing Touches

Levels adjustment

We arbitrarily divide the lightness and darkness of an image into three primary sections, Shadows are the darkest areas; Highlights are the brightest areas; and Midtones are everything in between. Highlight and Shadow adjustments tend to have some affect on the Midtones, and Midtone adjustments can affect both Highlights and Shadows; but except in the case of very big adjustments, the overlap is minimal. The Levels Adjustment gives us precise control over each section and allows us to greatly mitigate that overlap. In the Levels Adjustment layer, there is a Black slider on the left for Shadows, a White slider on the right for Highlights, and a Gray slider in the middle for Midtones. Sliding to the right darkens; sliding to the left lightens. The Output Levels sliders, Black on the left and White on the right, do the opposite; allowing for lightening of Shadows and darkening of Highlights. Be very careful with the Output sliders, small adjustments can make big changes.

A. In the Adjustments panel, click on the Levels button (Top row, second from left)
B. Notice in the histogram if the left side doesn't quite make it to the wall.
C. Move the black slider over to the beginning of the histogram to fill out the blacks
D. Move the gray slider to the left or right to the midtones if necessary
E. Make sure the image looks good. Sometimes trusting the histogram can be misleading, look at the image and make adjustments as necessary

Usually, an HDR image is built on two or more photographs with different exposures merged into a single picture. This is best done with a bit of planning and a tripod. Current digital cameras have such an impressive dynamic range that a single raw file can sometimes be used to create an HDR image. Simply open the raw file in ACR; (if you have previously edited this image, make a snapshot before you do anything else so you don't lose those settings.) adjust the exposure and any other appropriate parameters for the highlight area and save it as *filename*_hi.dng. (It wouldn't hurt to make a snapshot of those settings if you want to come back later to play with it.) With the same image still open in ACR, adjust for the midtones and save this one as *filename*_mid.dng. (Once again, a snapshot wouldn't hurt.) Make one more set of adjustments for the shadows and save it as *filename*_shadow.dng. (Snapshot) Click "Done" to close ACR and use "Merge to HDR" on those new files.

You can save a few steps in accessing the Merge to HDR Pro function by using Bridge. In Bridge, just select the images you want to merge; in the Menu bar up top, select Tools>Photoshop>Merge to HDR Pro… and Bridge will open Photoshop (if it is not already open) and launch the Merge to HDR Pro dialog box for you.

Part Three-Retouching and Enhancing

When retouching a pixel layer, it is very important to work on a duplicate, or new blank layer. Once again, non-destructive editing saves headaches. In Photoshop CS5, the Clone Stamp, Healing Brushes, and Paint Brush tools will work nicely on a blank layer; the Patch, Dodge, Burn and Sponge tools will need active pixels to work with, so a duplicate layer is necessary to use them. In the 64-bit version of Photoshop CS6, most of these tools will work on a blank layer. By leaving the original layer untouched, you have more options available if you need to go back and redo retouching that went wrong. In many cases, if you just got a little too heavy-handed, using the Eraser tool on a recently retouched layer at ten or twenty percent opacity can produce a more natural look to a retouching job. If there is no original layer below the retouched layer, you will be erasing part of your image.

A Hue and Saturation Adjustment layer is usually a preferable substitute for dodging, burning, and sponging; especially when working with a Smart Object. Simply click on the Hue and Saturation button (Second row, second from left) in the Adjustment panel. You can adjust the lightness of a color, the level of saturation, and the actual hue of the color. Adjust the picture to correct for the part you want to fix, ignore the rest, we'll put it back to normal in a moment. In the Layers panel, rename the Adjustment layer to denote what you are correcting. Select the mask for the new Adjustment layer and press Ctrl+I. This will turn the layer mask black and conceal the whole Adjustment layer. Using the paintbrush tool, with the foreground color (at the bottom of the Tools panel) set to white, brush in the area you want to correct. If you make a mistake, just press the letter X on the keyboard to switch the foreground color to black and color over the mistake, press X again to switch back to white, and continue. By controlling the brush size and hardness you can make a beautiful, smoothly feathered transition that you can go back to whenever you want and make new adjustments. If, after re-masking the image, you find that you need to modify the adjustment layer, you can return to it and make the adjustments with the mask in place.

To have a pre-fab mask in place for your Adjustment layer, make a selection of the area you want to adjust and then select the adjustment layer. The layer will be created with a mask already in place for the area you selected. You can create an adjustment layer for nearly every aspect of the image you need to adjust, and always have to ability to go back and change it later.

IV. Surface Blur as a Smart Filter

A. In the Layers panel, select the layer (or layers) you want to blur

B. If it is not already a Smart Object, right-click the layer you want to convert and select "Convert to Smart Object"

Smart Objects are images with special properties conducive to non-destructive editing. Very little is done directly to a smart object, most editing is done through layers and filters. Most filters, when applied to a Smart Object become Smart Filters. The difference between a Smart Filter and a regular filter is that a Smart Filter can be re-adjusted, turned temporarily off and on, and deleted without adversely affecting the original image. Certain tools, filters and functions will not work on Smart Objects, so the use of them is generally saved for the last step of editing or retouching. At that point, you must rasterize the Smart Object. The best approach for that is to create a "New Smart Object Via Copy" and rasterize the copy for further pixel editing.

C. In the Menu bar, Filter>Blur>Surface Blur…

1. Set the radius

2. Set the Threshold

D. It is usually best to set the Surface Blur a little heavy, and then lower the opacity of the Smart Filter

E. In the Layers panel, under the filtered layer is the layer mask for the Smart Filter. Under that is the Smart Filter sub-layer, to the far right end of the Smart Filter label is an icon of two tiny horizontal lines and two tiny triangles. That is the Blending Options icon. Double click that icon.

F. In the Blending Options Dialog box, lower the Opacity to until it looks good

G. Click "OK"

H. By clicking on the Eye icon for the filter, you can turn it off and on to preview the change. The effect is very subtle and a lot of magnification is often necessary to be able to see it

I. When applying surface blur to a person, you will normally want the eyes in the image to be sharp. In order to do that, a mask must be applied to the filter

1. In the Layers panel, select the Smart Filters mask

2. In the Tools panel, make sure the Foreground/Background color swatches are black and white, respectively

3. With the Brush tool, using a small brush with soft edges, brush around the eyes and eyelids and lashes. Do the same around the subject's mouth. This will clear the effects of the filter in the masked out area

4. Press Ctrl+1 to fit the image to the screen

5. With a much larger brush, mask out the subject's clothes and hair. Don't worry about the background. You can be sloppy with this as long as you don't cover the face. If you mess up, press X on the keyboard to change the Foreground swatch to white and fix the mistake, press X again to return to black, and continue

Part Four-More Corrections you can make

I. Red Eye

A. If you have an image that can be opened in Camera Raw, do so; if not, open it in Photoshop. The same technique is used in both

B. Camera Raw

1. Zoom in very close to the eyes

2. Using the Red-Eye tool (E), draw a box around each eye

3. Sometimes, if the red-eye is very subtle, it may take a few attempts

4. The default setting usually works well; if not, you can use the sliders to control the size and darkness of the red-eye overlay

5. From here you can save a new image, save the correction, or open the file in Photoshop for further editing

C. Photoshop

1. Zoom in very close to the eyes

2. Using the Red-Eye tool, under the Healing Brushes (J), draw a box around each eye

3. Sometimes, if the red-eye is very subtle, it may take a few attempts

4. The default setting usually works well; if not, you can use the settings in the Options panel to control the size and darkness of the red-eye overlay

II. Noise Reduction

Digital cameras and scanners tend to produce random extraneous pixels that aren't part of the image detail. These pixels are called "Noise." There are two types of digital noise, "Luminance," and "Color." Luminance noise is grayscale "snow" or "static" that makes an image look snowy or grainy. Color noise is colored grain that renders as color artifacts in an image. Both forms of noise reduce gradation and color accuracy within an image. The Signal-to-Noise ratio (SNR) determines how evident noise is within an image. The higher the ratio, the less noise appears. All digital cameras have a "Native ISO," which is the ISO setting that is exactly normal for that camera's sensor. Most digital cameras have a native ISO of 100. Several Nikons (The D90, D700, D3) have a native ISO of 200. The farther from the native you set the ISO, the more the Signal-to-Noise ratio decreases. At very high ISO, the SNR may get so low that the noise may begin to overwhelm the signal and render an unacceptable image. Underexposure also weakens your SNR, thus increasing evidence of noise. Using a very slow shutter speed in low light reduces the SNR as well. With a scanner, dark areas within an image and resident film grain can contribute to digital noise. It isn't really practical to zoom in to the pixel level of an image and replace each noise pixel with the correct color, so we rely on noise reduction software to help. Digital cameras have built-in noise reduction controls. Some are automatic, typically based on the ISO and shutter speed setting; some require you to turn them on and adjust them. Most of the time it is best to leave the camera's noise control settings at default and make noise corrections after shooting. The noise reduction controls in Photoshop and Adobe Camera Raw are among the best. There are aftermarket plug-ins for Photoshop that allow more noise reduction control, but except in cases of very large prints, the noise reduction tools in Photoshop are more than sufficient.

A. In Camera Raw, click on the Detail tab (Third from left)
- **1.** Zoom to 100%
- **2.** Set Luminance
- **3.** Set Luminance Detail
- **4.** Set Color
- **5.** Set Color Detail

B. Zoom in to 300% and preview

C. When you're satisfied with the results, click "Done"

When applying noise reduction, it is important to remember that noise is reduced by decreasing the contrast and sharpness of all of the pixels. Overdoing noise reduction can result in a loss of sharpness. You can take just about any image, noisy or not, and reduce its sharpness by applying too much noise reduction. This makes noise reduction a handy retouching tool when you're dealing with a subject with coarse skin. Applying a bit of noise reduction to a bad patch of skin can often smooth it over nice and pretty.

In Photoshop CS6, the Adjustment Brush in Camera Raw has a noise reduction setting. With this, you can selectively reduce noise without having to affect the whole image.

Part Five-Correcting Lens Distortion

I. In Camera Raw

A. Under the Lens Corrections tab

1. Under the "Profiles" tab, check the "Enable Lens Correction Profile" box and you can select the camera brand, and lens brand and focal length. Camera Raw will automatically make the necessary corrections

2. If unwanted colored lines appear at the convergence of highlights and shadows, check the "Remove Chromatic Aberration" box

3. If you have an image with no lens data embedded and you don't know what camera and lens combination was used for this picture; or if the automatic corrections did not work, go to the "Manual" tab

4. Under the Manual tab, you can use the sliders to manually correct for distortion, plane angle, rotation, scale, and vignetting

5. The "Defringe" menu will help minimize the fringing caused by chromatic aberration

6. Once you're satisfied with the corrections, you can continue editing in Raw, save a new image, close the image with the corrections applied, or open the image in Photoshop for further editing

II. In Photoshop

A. In the menu bar, Filter>Lens Correction…

1. At the bottom, check "Show Grid"

2. Make Sure "Auto Scale Image" is checked

3. Make sure "Transparency" is selected in the "Edge" menu

4. Click the Custom tab

5. Set the Distortion slider to the desired level of correction

6. Click "OK"

B. If you're using a Smart Object, you can compare before and after by clicking the Eye icon in the Layers panel to turn the Smart Filter off and on.

Part Six-Extending Depth of Field

It's not unusual to have to choose between the foreground and background for what part of the image is to be in focus. We can't always shoot at f/64, so when the need arises, if the situation is under control, break out the tripod and shoot one shot with the foreground in focus, and one with the background in focus.

I. Open one of the images you want to merge

A. Save this image with a new name

B. In Bridge (or Mini-Bridge) select the image you want to use for the depth-of-field extension

C. Click on it and hold, and drag it into Photoshop and release it into the image that is already open

This is using the "Place" command outlined in Lesson 4

D. In the Menu bar, Edit>Auto-Align Layers…

E. Select "Auto" and click "OK"

II. Toggle the top layer off and on again to make sure they line up properly, be sure to have both layers visible for the next step

A. In the Menu bar, Edit>Auto-Blend Layers…

B. Make sure Seamless Tones and Colors is checked

C. Select Stack Images and click "OK"

III. Photoshop has created two very complex layer masks that are almost exact opposites. If you need to, you can fine-tune these masks using the Paint Brush tool and by toggling between the black and white brushes.

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