

Photoshop 2-Cleanup with Camera Raw

Part One-Resolution: Resolution has several different meanings

- I. **Image Resolution-** Image resolution is measured in height and width in pixels. 800 x 600, 3000 x 2400, 5184 x 3456
- II. **Print Resolution-** Print Resolution is measured by dividing the Image Resolution by the desired print sized and is expressed as a print size at the measured dpi
 - A. A typical ten-megapixel camera gives you an image size of 3888 x 2592. Suppose we want to print a 4x6 inch photo from this image.
 1. Divide the pixel dimensions by the print size
 - a. $3888/6= 648$
 - b. $2592/4= 648$
 2. A 4x6 from this camera can have a print resolution of up to 648 dpi. An 8x12 can be up to 324 dpi.
 - B. If you were required to provide a specific resolution in dpi, and needed to know what size print you could make, you would divide the image resolution by the preferred dpi. A standard lab resolution is 240 dpi. What size print can be made from this image at 240 dpi?
 1. Divide the pixel dimensions by the preferred dpi
 - a. $3888/240= 16.2$
 - b. $2592/240= 10.8$
 2. At 240 dpi, the image can be printed in sizes up to 16.2x10.8 inches
- III. **Screen Resolution-** Screen Resolution can vary wildly from one monitor to the next. Some monitors are 72 dpi; most modern monitors are 96 dpi. That has nothing to do with the printability of an image. A monitor has pixel dimensions just like a digital image does, and these numbers vary based on the monitor, the graphics (video) card driving the monitor, and the screen resolution set by the user of the computer. Monitor screens also come in more than one aspect ratio. A standard 4:3 ratio monitor might have pixel dimensions of 1024 x 768 or 1280 x 960, sometimes higher depending on the monitor and the graphics card. A widescreen monitor may have pixel dimensions like 1280 x 800 or 1440 x 900, sometimes higher.
- IV. **Image Size and Screen Resolution-** In Photoshop, when an image is sized to 100%, that means that one image pixel = one screen pixel. An image that is larger than the resolution of a monitor will not be viewable in its entirety at 100%.

Part Two-Photo Corrections in Adobe Camera Raw

In addition to a huge variety of raw files, Adobe Camera Raw can open dng, jpg, and un-layered tif files; opening the potential for quick and simple editing of these popular file types.

I. To open an image that is not a Raw file in Camera Raw

A. If an image has been opened in Raw before, it will have an XMP file. In Bridge, an image with an XMP file will have one or two round icons at the top right of its space. An image with an XMP file will automatically open in Camera Raw when you highlight it and press Enter, or if you double-click it.

B. If an image has no XMP file, you will have to either right-click and select “Open in Camera Raw,” or highlight it and click the Camera Raw icon near the top left of the screen, or highlight it and press Ctrl = R.

When making changes in Camera Raw, instead of actually changing the image, Camera Raw creates a separate file, the aforementioned XMP file, which tells Adobe imaging programs that when this image is viewed, apply these changes. No change is made to the original image. To make these changes show outside of Adobe programs, like on the Internet or in Windows Explorer the image must be saved by Camera Raw as a different file. This is a form of non-destructive editing.

III. White Balance- Most images with a color cast can be corrected using the White Balance slider.

A. The drop-down menu above the temperature slider defaults to “As Shot” Changing it to Auto will cause Camera Raw to set the white balance to what it thinks looks best. This doesn’t always work out great, but it can get you going the right direction

B. Files derived from a digital camera often have imbedded White Balance presets that can be accessed through the White Balance drop down menu in Camera Raw. If available, there will be a list of presets

1. Daylight- for pictures taken in direct sunlight

2. Shade- for pictures taken outside in the shade

3. Tungsten- for pictures taken under tungsten/incandescent light

4. Fluorescent- you guess...

5. There are sometimes more specialized options based on the capabilities of the camera that made the image

C. At the top left of the Camera Raw interface is the tool pallet, where you will find the White Balance tool (third from left) with which you click on a pure gray, white, or black area and Camera Raw will automatically balance the image so that the target area is neutralized

D. At the top of the Basic menu are the Temperature and Tint sliders.

1. The Temperature slider controls the balance between blue and yellow

2. The Tint slider controls the balance between green and magenta

IV. Other controls in Camera Raw

1. **Exposure-** Controls the lightness and darkness of the image by affecting the darkest of the mid-tones up through the highlights

2. **Recovery-** Very slightly darkens highlights

3. **Fill Light-** Very slightly lightens shadows and the darkest mid-tones

4. **Brightness-** Controls the lightness and darkness of the image by affecting the shadows up through the brightest of the mid-tone range

6. **Contrast-** Controls the distance between the highlights and shadows

7. **Clarity-** Controls apparent sharpness by affecting contrast between pixels

8. **Vibrance-** Controls richness of colors, primarily affects the red and yellow channels

9. **Saturation-** Controls richness of colors and affects full range of colors

V. Camera Raw Tools

1. **Zoom-** Same as in Photoshop, but limited to 400% magnification

2. **Hand-** Same as in Photoshop

3. **White Balance-** Controls color balance by neutralizing black, white, or gray areas as described above in **Section III, Part C** above

4. **Color Picker-** Allows you to select a point at which you may monitor the RGB values when adjusting image settings

5. **Targeted Adjustment-** Adjusts hue, saturation, luminance, and curves of the color range of a selected point in the image

6. **Crop-** Allows you to select an area of the image to which to crop

7. **Straightener-** Levels the image based on a vertical or horizontal selection

8. **Spot Removal-** Removes spots in a fashion similar to a clone stamp

9. **Red Eye Removal-** Red eye removal in people only

10. **Adjustment Brush-** Allows selective adjustment of color, brightness, contrast and much more of an area. Functions as a paint brush

11. **Adjustment Gradient-** Allows same adjustments as the brush and applies them in the form of a selective gradient

12. **Preferences-** Accesses the Raw Preferences dialog box

13. **Rotate Buttons-** Rotates the image 90 degrees per click

When using the Straighten tool, when you select your leveling reference and release the mouse button, the image is leveled based on your selection and the crop tool is automatically selected so that you may make cropping adjustments. If you don't want to have to do all that clicking, start with the Crop tool, hold the Ctrl button and the Crop tool will temporarily turn into the Straighten tool until you select your leveling reference.

VI. Bringing a raw image into Photoshop- Once you have made all of the necessary Raw adjustments, there are a number of things you can do with an image.

1. To close Camera Raw and save those adjustments for later without further affecting the image, at the bottom right of the interface, click on "Done"
2. To create a new jpg, tif, dng, or psd with the corrections you have made applied, at the bottom left of the interface click "Save Image" and follow the instructions
3. To open the image in Photoshop as a simple pixel-based image, at the bottom right of the interface, click on "Open Image"
4. To open the image in Photoshop as a Smart Object (we'll talk about those later) hold the Shift key and at the bottom right of the interface, click on "Open Object"
5. If you're sorry you started the whole mess and want to throw your hands up in disgust and go find another picture to play with, at the bottom right of the interface, click "Cancel"

Whenever you open an image from Camera Raw, or click "Done," the changes you made will be applied to the image's meta-data in the XMP file and the thumbnail in Bridge will reflect these corrections. If, for some reason, you want to open the image in Photoshop without updating the XMP file, hold the Alt key while clicking "Open Image" or "Open Object" and the changes will only apply to the version of the image you open.

Part Three- Cleaning up an image in Photoshop

- I. **Leveling the Horizon or fixing a leaning lighthouse**
 - A. Select the Ruler Tool (third down under the eye-dropper)
 - B. Find the area you want to level, the horizon for example
 1. Click on the horizon near one side of the image and hold
 2. Drag to the other side, stopping on the horizon and release

C. If you are certain you will not need to return the image to its original tilt, click the “Straighten” button in the Options Bar

D. Sometimes you may want to rotate an image temporarily in order to do a bit of retouching, and then return it to its original disposition

1. With the ruler line in place, go to the menu bar and click Image>Image Size and make a note of the pixel dimensions of the image, you will need that info later
2. Once the notation is made, click “Cancel” or press the Esc key
3. With the ruler line still in place, go to the menu bar and click Image>Image Rotation>Arbitrary. There will be a measurement in degrees of rotation in the white field, make a note of it, confirm that the rotation is going the direction you want, and click “OK”

When Photoshop rotates an image, it expands the canvas automatically to accommodate the whole image without cropping. When Camera Raw rotates an image, it crops it down to fit the existing canvas.

4. Once you have done whatever required the rotation, and you’re ready to return the image to its original disposition, go to the menu bar and click Image>Image Rotation>Arbitrary and check to make sure the angle of rotation is still the same, if it isn’t make the correction
5. Change the direction of rotation to the opposite of what you had when you first rotated the image and click “OK”
6. This will return the image to its original disposition and expand the canvas again
7. Select the Crop Tool from the Tool Pallet and, in the options bar, set the height and width to the pixel dimensions you noted from the pre-rotation image. Be sure the numbers you key in register as pixels, not inches.
8. Select the original area of the image and either double-click inside the selection, or press Enter to complete the crop.

II. Replacing colors

A. Select the Color Replacement Brush, hidden under the Paint Brush tool in the Tools Panel

C. Click on the Foreground Color Swatch in the Tools Panel to bring up the Color Picker

D. Select the color you want to use.

E. Click “OK”

F. Set your brush size. You can use either the brush sizes in the option bar, right-click and use the context menu, or use the bracket keys on the keyboard

G. Click in the middle of the target area and begin brushing

H. Don't worry about running over a little, it's easier to fix later than to prevent or to go back and redo.

J. You don't have to be especially careful, the brush will try to affect only those colors very close to the one you originally clicked on.

III. Undoing part of an action- If your brush got out of control, it's easy to fix.

A. In the Tools Panel, select the History Brush tool from between the Rubber Stamp tool and the Eraser

B. Open the History Panel

C. The last few actions should be labeled "Color Replacement Tool"

D. Look back up the list until you find the last action before "Color Replacement Tool"

E. To the left of the label, should be a little empty box, click inside that box

F. You have just told Photoshop that wherever you brush, you want it to look like it did right before you used the Color Replacement Tool

G. Carefully brush over the area that should not have been re-colored

IV. Adjusting Saturation of a specific area with the Sponge Tool

A. Select the Sponge tool, hidden under the Dodge tool from the tool panel

C. In the options bar

1. Set the brush size

2. Set the hardness

3. Set the mode to do what you want, either "Saturate" or "Desaturate"

4. Set the flow

D. Brush over the target area

1. Each successive click will create a cumulative effect

2. If you run over into an area you don't want to you can Undo or use the History Brush tool if you need to

V. Repairing damaged areas with the Rubber Stamp or Clone tool

The Clone Stamp tool allows you to "sample" an area by Alt+clicking (Holding the Alt key while clicking on a spot) and replace another area with the pixels from the sampled area. This tool completely covers the target area with the area from which the sample is acquired. This is different from the Healing Brush tool, which blends the sampled area over the target area.

- A.** Select the Clone Stamp tool from the tools panel
- B.** Set your brush size
- C.** In the Options Bar, the “Aligned” box is usually checked and the Sample menu is usually set to “Current and Below”
- D.** Open the Clone Source panel if you expect to need it
- E.** In the Clone Source Panel, make sure “Clipped” and “Show Overlay” are checked and the Opacity is set properly
- F.** Zoom in fairly close to the target area
- G.** Alt+Click on a spot near the target area.
- H.** Don’t forget about Ctrl+Z and the History Brush if you make a mistake

The “Aligned” option with the Clone Stamp tool and the Healing Brush causes the geographic relationship between the clone source (where you Alt+clicked) and the target area to remain constant so that as you clone different areas the sampled area moves to exactly match the relative position. With the “Aligned” option turned off, no matter where within the image you click, you will always sample the original clone source. When you click and brush, the clone source will follow your brush’s motion identically, but return to the original position as soon as you release.

XII. The Healing Brush and Spot Healing Brush

The Healing Brush tool is applied in exactly the same fashion as the Clone Stamp; but instead of replacing or covering the target area, it blends the sampled area into the target area. The Spot Healing Brush works in a similar fashion, but instead of Alt+clicking to select a sample area, the program randomly selects a near area from which to sample without any input from the user. This really speeds things up when you’re working in a large, un-detailed area like an empty blue sky, or a randomly detailed area like sand or an asphalt street.

XIII. Content-Aware Fill

- A.** Using whatever selection tool is appropriate, make a selection of the area you wish to fill
- B.** Once you’re satisfied with your selection there are two options to do the same thing
 - 1.** In the Menu Bar select Edit>Fill to open the Fill Dialog Box
 - 2.** Press Shift+Back Space to open the Fill Dialog Box
- F.** From the drop down menu, select “Content Aware” and click “OK”

G. To clear the selection you can

1. From the Menu Bar click Select>Deselect
2. Press Ctrl+D

H. Sometimes a tiny bit of clean up may be necessary. You can continue selecting and filling, or use the Clone Stamp or a Healing Brush to touch it up

Part Four: The Unsharp Mask

Most digital images need sharpening if they are going to be printed. Scans tend to be especially in need of sharpening. The act of scanning in general loses sharpness. Scans from prints tend to be the worst victims of this circumstance. Most prints that are scanned are usually older and often faded, which really reduces sharpness; so a scanned image is going to need all the help it can get.

Sharpening is generally the last step in preparing an image for display, so make sure all retouching, re-sizing, cropping and adjusting is complete before sharpening your image.

- I. From the Menu Bar select Filter>Sharpen>Unsharp Mask
- II. There are three aspects to the Unsharp Mask
 - A. *Sharpening*- The amount of contrast added to high-contrast edges
 - B. *Radius*- The size of the area around the high-contrast edges that is sharpened
 - C. *Threshold*- The amount of contrast required between a pixel and a high-contrast edge to determine if it is to be sharpened

When sharpening an image, it is best viewed at 100% magnification. It is all eye-ball work and balancing the amount of sharpening with the radius. As you increase sharpening, you should decrease radius and vice-versa. Threshold should remain low unless you are working with an image that is primarily sharp edges. Watch out for artifacts and harsh contrast, especially on skin tones. Sharpening takes a bit of practice.

Thomas Gartman
P.O. Box 351
Point Harbor, NC 27964
252-573-8648
info@gartmanbeachpix.com