

Camera Raw:

1. A file type composed of data coming directly from the camera's sensor with little or no manipulation by the camera's built-in programming as opposed to jpeg which is modified and compressed by the camera before being sent to the memory card.
 - a. Think of it as X's and O's coming right off the sensor
 - b. Your computer by itself can't see this kind of file or represent it on your monitor.
 - c. So why would you want to use a file you can't see to take a photograph you want to see.

2. Advantages of using camera raw
 - a. You get more information from your camera into the file.
 - i. JPEG = 4.8 MB
 - ii. Raw = 19.3
 - iii. Can I see the difference - yes (well sort of)
 - b. I used to think you can do more adjustments more easily to raw files than you can with jpeg, but now you can open jpegs in the raw converter in CS 3 and do the same adjustments that you can with raw files.
 - i. Exposure
 - ii. White Balance
 - iii. A myriad of other optimization adjustments that you can do when converting your raw file or jpeg that I will cover in a bit.
 - c. You don't get the auto adjustments in the camera that you do with jpegs.
 - i. The camera may make adjustments to the photo such as adding contrast, adjusting color balance, adding sharpness etc that you may not like but can't then get rid of.
 - ii. Jpegs will look better right out of the camera than raw
 - d. Lack of compression artifacts – made up pixels.

3. Disadvantages of using camera Raw.
 - a. You need a camera raw converter to see the pictures, you can't see them just using windows
 - b. You need a raw converter specific to your camera, not just your camera brand.
 - c. You can't take your memory card to walgreens to get pictures made if you just use raw files (take raw + jpeg, get the jpegs printed and don't tell anyone).
 - d. Because the raw files are larger than the jpegs and are uncompressed, they take up a lot more storage room on your memory card and hard drives than jpegs.

4. When not to use Raw files
 - a. When taking lots of pictures and having a deadline: PJ, sports, events, weddings?
 - b. When you don't want to spend time doing post processing at the computer
 - c. When the pictures don't demand the utmost quality such as family snaps.

5. When I like to use raw files
 - a. When you are unsure about exposure and/or white balance.
 - b. When you have time to and want to achieve the best quality output
 - c. When you wish to do extensive modification to lighting, color balance, exposure, white balance or do lots of cloning, filters or contemporary stuff.
 - d. When you will be opening and closing the same file lots of times – jpeg artifacts – you can avoid this by changing your jpegs to a lossless file type eg tiff or psd
 - e. When you want to make your best B&W images

6. What do I need to use Raw files
 - a. You need a camera that takes raw files, some point and shoots do not, most everything else does.

- b. You need a software program that supports your specific camera. These programs (called raw convertors are camera specific and new cameras may not be supported by some software programs at first.)
- c. Your new camera will come with a program to convert its raw files but it may be slow and not have all the features of programs such as Adobe camera raw included in photoshop.
 - i. May take a while for the third party programs to catch up: photoshop, elements, paintshop pro, camera one etc

7. How do I convert raw files

- a. Camera sends raw file to Card
- b. Card is downloaded either by camera wire or card reader to computer hard drive.
- c. You still can't see the picture in my computer
- d. You must use some software, a raw file converter, to read the file so you can see it.
 - i. I use CS3 and bridge for this
 - ii. Double click on a raw file in bridge and it opens in Camera Raw in photoshop
 - iii. If you want to open multiple pictures in Camera Raw select them in bridge by cntrl clicking, then double click on any one of them.
 - iv. CS 3 is the first version of photoshop in which you can process jpeg and tiff files in Camera Raw but you won't have all the advantages of a raw file.
- e. Now you can see it but it is still not a normal file like a psd or tiff file.
- f. It is however the time you can make substantial adjustments to your file and then save it as a tif, psd or jpeg file

8. Making adjustments in camera raw

- a. Set preferences for camera raw
 - i. Color space - probably adobe camera raw
 - ii. Bit depth - 8 or 16 bit
 - iii. Resolution – I always use 300 ppi.

- iv. Size – It comes up at the size dictated by your camera's megapixel count and I never change it because I don't know a reason to change it.
 - v. Smart objects – smart objects are layers that contain image data from raster or vector images such as Photoshop files. Smart objects preserve an image's source content with all its original characteristics, enabling you to perform nondestructive editing to the layer.
- b. Adjusting the white balance
- i. As discussed last month, we need to be concerned about the white balance of a photo, which means taking into account the color of the light lighting your picture and adjusting something to make the picture look right. It could be the film you're using, it could be selecting a white balance icon in your camera or setting your camera to auto white balance.
 - ii. Shooting in raw provides several ways to make a white balance adjustment.
 - iii. Camera Raw initially shows you the photo with the white balance as shot.
 1. Click on the white balance pop up and choose any of the preset white balance options, maybe the one closest to the light you were having light the photo.
 2. You can fine tune your initial choice by adjusting the temperature slider to the right to warm it up or to the left to cool it down.
 3. Finally you can just go to the temperature slider and adjust it to suit your fancy.
 4. Any of these adjustments to raw files are nondestructive in that when you save it you save a new file with the adjustments done and still have the unadjusted raw file you can go back to if you need to. If you save a jpeg after adjustment, the changes are permanent. But you could save your adjusted jpeg as a tif file and have your original jpeg as a backup.
 5. Another way to adjust your white balance is to click on the white balance tool at the top of the window (eyedropper). Then you move that to an

area that is light grey in the photo (or should be) and click. The white balance is then automatically set but still can be tweaked with the temperature slider.

c. Adjusting the Exposure

- i. Click on the exposure slider and slide it either way to increase or decrease the exposure.
- ii. You want to avoid clipping, or making the highlights pure whites or the shadows or dark areas pure black because you lose detail in those areas when you do.
- iii. Clipping is indicated by the triangles in the top corners of the histogram – (what is the histogram) These triangles are black until clipping occurs and then turn the color of the clipped color or white if all colors are being clipped
- iv. To see where highlight clipping occurs, press the alt key and click and hold the exposure slider. This turns the image black and shows clipping in what ever color is being clipped or white if all colors are being clipped.
- v. Another way to see clipped areas is to click once on the little triangle at the top of the histogram and clipped highlights will show up as solid red in the image.
- vi. So if you have clipped highlights you can reduce exposure by sliding the exposure slider to the left. The problem is this often makes your photo too underexposed.
- vii. With CS3 however you have an additional control that didn't exist in previous versions and that is the recovery slider. You can slide the recovery slider to the right and the brightest clipped areas are reduced. You can do the press alternate and hold trick with the recovery slider also or you can click on the highlight warning triangle and get the same effect
- viii. Now we can work on the shadow areas by using the blacks slider. By sliding the black slider to the right we can increase the amount of black in the darkest area of the photo and sliding to the left opens up or lightens the shadow areas. If you have a really washed out photo you

may want to start with the blacks instead of the exposure slider because increasing the blacks usually increases the saturation of the photo.

- ix. The press alt and hold trick also works with the blacks slider but the screen turns white and clipped areas are black or various colors. The left clipping triangle also works and shows with solid blue where things are going to solid black in the photo.
- x. The next slider down is the brightness slider. Think of it as adjusting the midtones. We have already adjusted the highlights and shadows so usually there isn't much to do with the mid tones.
- xi. That covers the exposure adjustment segment pretty well except for the fill light slider. That can be used to open up the shadows a bit especially in backlit photos.

d. The clarity slider

- i. This slider is new in camera raw 4.1 and is there to add punch to your photo. Nevada Weir at the Minneapolis N4C convention said this slider is like a drug, she uses it to the max all the time.
- ii. Zoom the photo to 100% to see the effects better and slide the slider to the right until you start to see little halos in the picture and then back off a bit.

9. Cropping and Straightening

a. Cropping

- i. Click and hold on the crop tool to get preset cropping ratios.
- ii. Choose custom to get exact sizes. You can crop by inches, pixels, centimeters or a custom ratio.
- iii. If you need to crop a number of photos all the same you can open all of them in camera raw and select all with the select all button and then crop the one on the screen and they will all be cropped the same.
- iv. (Try this for making digital files for projection or digital slides)
- v. This all works with jpegs and tiffs opened in camera raw but if you save them without changing their names you will lose the uncropped version and not be able to return

to it. With camera raw files you can click done and go back later and you will see the crop lines still preserved in the photo and you can still adjust them.

b. Straightening

- i. Click on the straighten tool then click and drag a line along what you want to make level (like the horizon).
- ii. When you let up on the mouse button a cropping border is created and rotated to make that line level.
- iii. When you open this in photoshop the cropping border will disappear and the picture rotated to where you wanted it.

10. Editing Multiple photos at once

a. Method One

- i. Go to bridge and open one of the pictures you want to edit in Bridges camera raw by pressing control R or going to the file menu and selecting “open in camera raw”
- ii. Make all the edits you want and when you are done click done.
- iii. You are returned to bridge. Press and hold the control key and select all the pictures you want to apply those edits to then right click (mac control click) on any one of them and a contextual menu appears.
- iv. Select develop settings and then previous conversion and all of your edits will be applied to all of the selected photos.
- v. You can go back and remove the settings from any of the photos if you decide they don't look good. Just select the ones you want to change back and go to the develop settings menu again and select clear settings.

b. Method Two

- i. Control Click to select all the photos you want to edit. Then press control R to open them all in camera raw.
- ii. Click on any of the thumbnails to select one to edit and make your edits.
- iii. Next click on the select all button then the synchronize button.

- iv. This brings up a menu from which you can select which edits you want applied to the rest of the photos, or which edits you don't want applied.

11. Sharpening in camera raw

- a. Open a file you want to sharpen and click on the detail icon.
- b. As you can see by default a small amount of sharpening is automatically applied when you open raw files, not jpegs or tiffs. This can be turned off but who wants to?
- c. Zoom the photo to 100% so you can see the effects of sharpening. Otherwise you won't think it works.
- d. Obviously drag the amount slider to the right to set the amount.
- e. The radius slider works like in photoshop and sets how far out the sharpening is applied.
- f. The next slider is the detail slider which helps bring out texture and detail.
- g. The masking slider controls which edges get sharpened. With it set to zero everything gets sharpened, when it is set to 100 only the most obvious edges are sharpened.
- h. You can see this by pressing the alt (option) key and watching as you move the slider. This works with all the sharpening sliders.

12. Noise reduction in camera raw

- a. It doesn't work very well.
- b. Try Noiseware Professional from Imagenomics

13. Camera calibration

- a. Used to fix a persistent color cast added by your camera. Click on camera calibration and drag on the sliders to correct the color cast.
- b. Then go to the fly out menu (arrow in upper right of the camera calibration dialog) and choose Save New Camera Raw Defaults. Then each time you open a file from that camera the corrections will be applied.

14. Double processing in camera raw.

- a. This is a neat trick that is kind of a poor man's HDR using both camera raw and Photoshop.

- b. Open a picture with a lot of contrast in camera raw. You can use jpegs for this but we will be pushing the exposure up and down a lot and you could more easily get banding or abrupt changes in colors or other artifacts with the less data provided in jpegs.
- c. Move the exposure slider and recovery slider to make the background or in this case the dome properly exposed or so it looks good to you. Then click open.
- d. Go back to bridge and open the same picture again in camera raw and this time move the exposure slider to the right to make the foreground lighter and looking better. Again click open.
- e. Now you have two exposures of the same photo both on the screen in photoshop. Press V or click on the move tool so you can drag and drop the lighter version on top of the darker version. Very important – while you are moving the lighter version hold down the shift key so that when you release it the two versions are perfectly aligned. That’s called pin registered.
- f. Now we have to talk about layers a little. Layers are like sheets of clear vinyl or cellophane. Your original picture is on the bottom sheet called the background. You can add additional sheets over the background to modify it. In this case we are adding a lighter version of the same image on top of the background. This will make all of the combined image look lighter but we only want part of it to look lighter so we place a black mask on the top layer to hide it. This is a magic mask though because even though it hides the top layer you can still see through it to the bottom layer.
- g. Then you have two layers in the layers palate with the lighter version on top. Make sure this layer is selected then alternate click on the layer mask icon to place a black mask over the lighter version.
- h. Then bring up the Brush tool by pressing B or clicking on the brush icon and select a soft edged medium sized brush. Then press D to set your foreground color to white.
- i. Having done all that when you paint with white on the black mask it reveals the lighter version underneath so you can see the better exposed foreground.

15. Double processing with smart objects

- a. Open your image in camera raw and make your initial edits then instead of clicking open, press and hold the shift key and the open image button becomes the Open Object button.
- b. Click the Open Object button and your image opens as a smart object with a layer in the layers palette with an icon in the thumbnail indicating it is a smart object.
- c. For our purposes we need two layers that we can process individually. If we just duplicated the first layer they would be linked and any changes to one would affect the other.
- d. To get around that you need to right click just to the right of the layers name to open a dialog and choose New Smart Object via Copy.
- e. Now double click on the duplicate layers thumbnail and it will open in camera raw and you can make adjustments and add a layer mask and paint in the darker foreground as in the previous method.

16. Black and White Conversion (use 055)

- a. Click on the HSL/Greyscale icon and then turn on the convert to grayscale mix tab.
- b. There is an auto adjustment applied by camera raw which is ok but not the best for most pictures.
- c. You can adjust the individual colors with the sliders and pop back and forth between the color and B&W versions to see which colors you want to adjust.
- d. You can also go to the basic tab and adjust the exposure and you can go to the Tone Curve icon and click on the Point Curve tab and choose strong contrast.
- e. If that isn't enough snap you can nudge the right upper curve up and the lower left curve down.

17. Split Toning

- a. This can be done to both B&W and color but is usually done with B&W.
- b. The idea here is to tone the highlights one color and the shadows another color.
- c. Take your B&W conversion and click on the split tone icon which is fifth from the left.

- d. Press and hold the alt key and slide the highlights slider to select for the highlights that you like and then let up on the alt key. Then move the saturation key to where you want it.
- e. Do the same with the shadows slider pressing the alt key and select a hue for the shadows, then let up on the alt key, and again move the saturation key.
- f. You can then affect the valance of the tint using the balance slider.
- g. You can use this to make a duotone effect by putting the same tint in both the highlights and the shadows.

18. Odds and Ends and other little things

- a. Edge vignetting
 - i. Lens correction icon
 - ii. Slide the slider for lens Vignetting
 - iii. Slide the midpoint slider to increase the size of the vignetting.
- b. Adjusting individual colors
 - i. Go to the HSL/Greyscale tab
 - ii. Go to hue and adjust sliders
 - iii. You can also go to the saturation and luminance sliders for further manipulation.
- c. Simple retouching
 - i. Click on the retouch tool (brush 7th from left)
 - ii. Move your cursor over the spot you want to get rid of and drag a circle out to just cover that spot.
 - iii. When you release the mouse button a second circle to show the area that was used to repair your spot appears.
 - iv. If you don't like that spot just move your circle to the second spot and drag it to another nearby spot that looks better to you.