



This modified excerpt from "Digital Photography: Expert Techniques," O'Reilly Media 2004, has been condensed for Professional Photographer.

The best advice I can give any digital photographer who needs the best quality image is to shoot in RAW mode.

All professional DSLR cameras and most prosumer digital cameras have the ability to capture RAW files that can be read by the Adobe Photoshop CS Camera Raw plug-in. Why RAW?

- RAW files record everything the image sensor sees—billions of shades of color.
- You can decide on your color balance post capture. You don't even have to choose between daylight and tungsten when you set the camera, and if your light source gives off some funky mix of colors, you can take care of that post-capture, too.
- Your adjustments to RAW files (highlights and shadows, sharpening, noise reduction, and others) will not damage or compromise the original image data. You can *always* go back to the original state, even if you're working on the original file instead of a duplicate.
- RAW files contain enough color and brightness information to cover a dynamic range of about 5 f/stops, depending on the camera sensor, firmware, and the manufacturer's proprietary RAW format.

Before shooting RAW

Camera sensors tend to block up in the highlights (with the possible exception of the Foveon sensors used in

Working in [the] RAW

Tutorial: Preparing RAW files in Photoshop CS

the Sigma SD9 and 10 cameras and the new 12-megapixel sensor in upcoming Fuji FinePix S3 Pro), so it's generally a good idea to underexpose by about one-half stop. If your camera provides settings for over-/under-exposure, set it to -1/2 stop when you're shooting in any of the automatic modes. If you have time, shoot a test shot, then check it on the camera's

LCD preview monitor. Turn on the histogram to see if there's a significant rise in the pixel count on the right side of the screen (Figure 1).

Camera Raw workspace

Figures 2 and 3 show an example of a RAW file image as it came from the camera, and how it can be corrected with

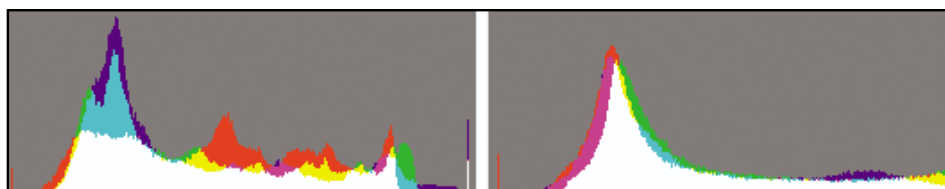


Figure 1: Your preview monitor's histogram should look more like the one on the left than the one on the right.

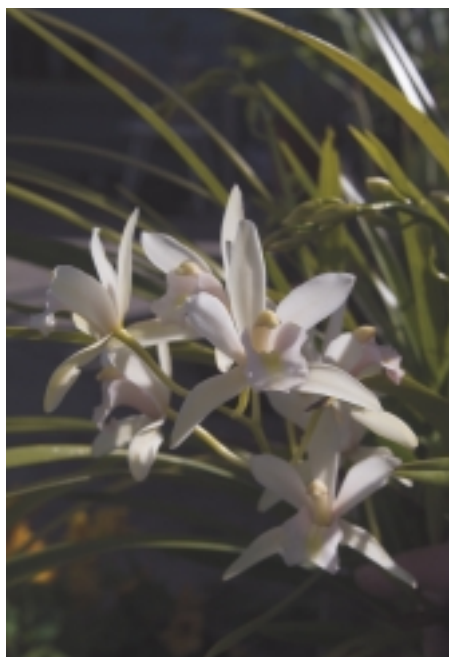


Figure 2: An image file with no adjustments from its RAW state.



Figure 3: The image adjusted to include the range of colors we want see.

the Photoshop CS Camera Raw plug-in.

Adobe Photoshop CS Camera Raw is by far the most widely used application to interpret RAW images. It handles RAW files in a more versatile and friendly manner than any other interpreter I've seen. It's much faster than the run-of-the-mill interpreter, and it handles RAW files from a variety of cameras, so it's probably the only one you need. (View the list of supported cameras at www.adobe.com; when support for new cameras is added, you can download upgrades for free.)

Workflow

When Adobe introduced the Camera Raw plug-in for Photoshop 7, hordes of photographers went, "Aha! This is how Ansel Adams *wished* he could work." First, you can work with RAW files right in Photoshop. Second, after about 10 minutes of reading and dragging sliders, you can figure out what the interface controls do and how to use them. **Figure 4** (below) shows the basic Camera Raw interface.

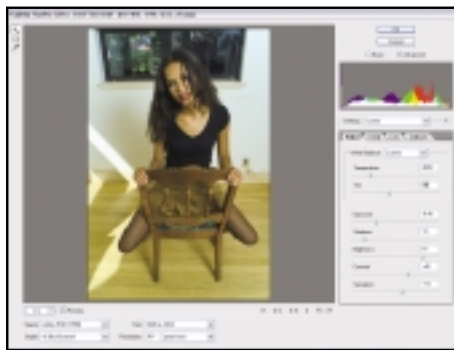


Figure 4: The Photoshop Camera RAW workspace.

Here's the routine most pros will want to follow, give or take a few strokes, for interpreting the RAW file before moving on to Photoshop CS to complete the rest of the job.

1. Open the Adobe Photoshop CS file browser and navigate to the folder with

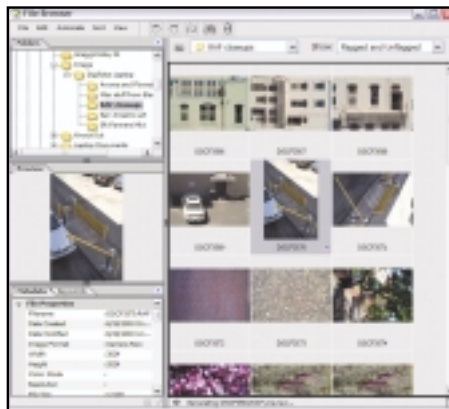


Figure 5: The Photoshop CS file browser, loaded with RAW files in the large thumbnail view.

your downloaded RAW files (**Figure 5**). Because RAW files are so large, it might take a while for all of the thumbnails to appear

2. Click the appropriate Rotate icon, the curved arrows at the top of the palette, to turn any vertical images to the proper position, or use the keyboard shortcut: cmd/ctrl-[(counterclockwise); cmd/ctrl-] (clockwise). Rotate commands in the file browser don't affect the file itself, but it makes it a *lot* easier to judge the photograph.

3. RAW files are very large, so get rid of losers before the task of sorting becomes a lifetime project and your disk space is needlessly taken up. Just highlight the image and press the delete key.

4. Use Automate>Batch Rename... to assign the images abbreviated filenames that describe the subject by category, name, and an alpha character for each different point of view on the same subject (**Figure 6**).

5. To open an image in the Camera Raw dialog, double-click on it or highlight it and press return/enter.

6. Choose 16 Bits/Channel from the Depth pull-down menu. In 16-bit color you can make your exposure corrections

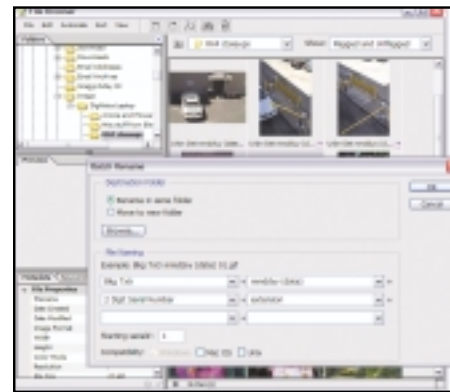


Figure 6: The Batch Rename dialog

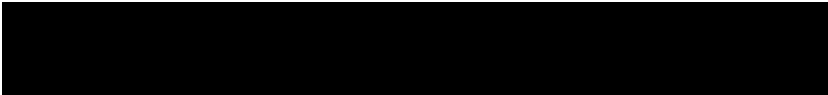
in Photoshop *before* you have to throw out all that data by reducing it to 8-bit mode. You'll notice that transitions between shades are significantly smoother when you adjust exposure in this mode.

7. In the Photoshop CS version of Camera Raw, the histogram is always visible. If you're using Photoshop 7, check the histogram box at the lower right of the preview window. The histogram shows the distribution of pixels in the image over the full range of brightness—a great aid in judging the brightness levels.

8. Choose the Adobe RGB (1998) color space from the Space pull-down menu (**Figure 4**). If you must convert to sRGB later for Web display or other on-screen applications, do it *after* you've done everything else.

9. From the Size pull-down menu, choose the largest image size the program permits for your camera. Any adjustments or retouching you do will be less obvious if you start with a large image. You'll also be less likely to destroy image information than you would in repeatedly having to enlarge and reduce (resample) the image.

10. Set the resolution to 300 ppi if



most of your images go to print, or 240 ppi if they go to a color inkjet printer for display. If you also create Web images, don't worry about size right now; you'll be drastically resampling and optimizing them at a later stage. If you're not sure what the final destination will be, stick with 300 ppi.

11. Set the brightness for the brightest significant highlight area by pressing opt/alt and dragging the Exposure slider to the right until a light spot appears on the background. The smaller the light spot, the better. The preview image becomes much brighter at this stage.

12. Set the darkness of the area that you want to appear solid or near-solid black by pressing opt/alt and dragging the Shadows slider until dark areas start to appear against the white background.

13. Steps 11 and 12 are suggestions for getting to the best starting point to ensure maximum detail in both highlights and shadows. If you later decide that you want deeper shadows or washed-out highlights, you can always change these settings. I recommend making these interpretative adjustments after you've made all the others suggested here. Also, some interpretative tonal adjustments will work better in Photoshop, depending on the effect you want and the tools you want to use. Much more information about this is available in "Digital Photography: Expert Techniques."

14. Drag the Brightness slider to adjust the midtones until you like what you see. There is no scientific guide for this setting; it's a matter of personal taste.

15. Play with the Contrast and Saturation sliders. They give you a lot of interpretative leeway.

16. Sharpness and Smoothness default to a setting of 25, but I prefer to reduce them to about 10. You may want to experiment a bit to find what you like. The idea is to lower these settings so you can better control edge sharpness and noise (smoothness) in Photoshop using more sophisticated tools.

17. Finally, zoom in to 100% using the Zoom pull-down menu at the bottom left of the Preview window.

And that's it! Click OK to export the image as you see it in the Preview window. Or, if you want to start all over again, press opt/alt and click the Cancel button when its label changes to Reset. □

Ken Milburn is a digital artist and award-winning photographer who has been involved in computer graphics, multimedia, and digital photography since 1980.