



The Photoshop® Darkroom

Creative Digital Post-Processing

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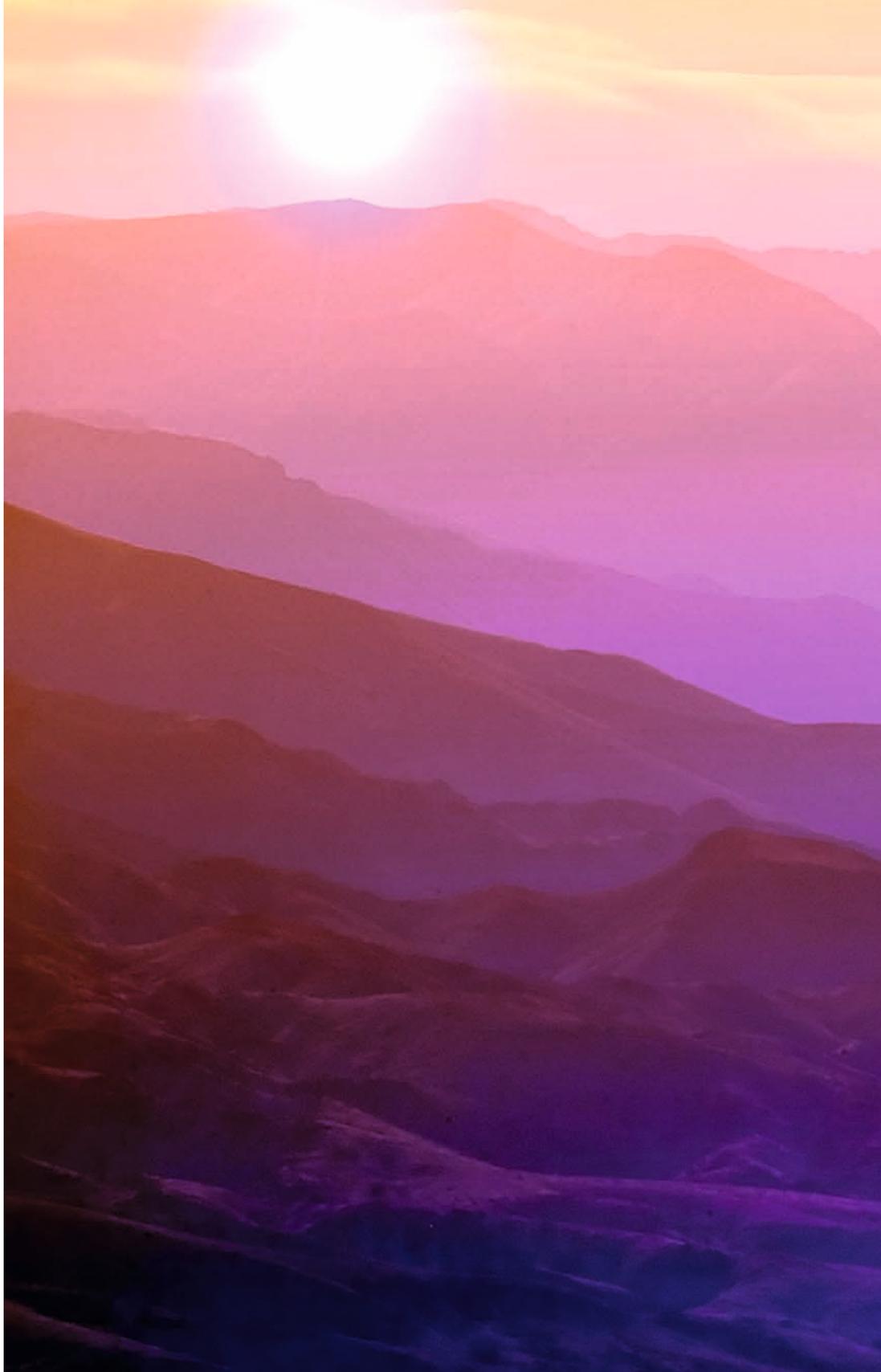
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» Introduction

Art, being bartender, is never drunk. —Randall Jarrell

Working in the darkroom I'd marvel at the moments of magic: the image unfolding under the light of the enlarger, and appearing from nothing on the paper in the tray of developer. The magic when I process a digital image is comparable—but, for me, more powerful.

The Photoshop Darkroom shares these revelations with you: the great moments in which an apparently mundane or dark capture comes alive. Digital photography is one part photography and one part software alchemy: creative post-processing.

A digital photographer who misses the opportunities that come after the photo is taken loses much of the power of the new medium. Therefore, a goal of *The Photoshop Darkroom* is to provide a framework of fundamental techniques you can use to enrich your creative work.

Ansel Adams compared his work to musical composition, saying his photographic negatives were the score and his prints the performance. With a digital photo, the RAW negative is the score, and how you post-process is the performance. *The Photoshop Darkroom* will jump start you on your journey towards peak post-processing performances.

Make no mistake: *The Photoshop Darkroom* is for photographers. Photoshop is a tool, just like the enlarger and chemicals in an old-fashioned darkroom.

Unlike some Photoshop books, in *The Photoshop Darkroom* I don't care about Photoshop except as a tool. Our concern is solely the ultimate image.

This is not a book about the latest bells and whistles in Photoshop. Almost everything I explain can be done with older versions of the program.

Depending on the version of Photoshop and operating system you are using, your functionality and appearance may change a bit from that shown in this book, although the fundamental techniques that I present will not vary.

There's always more than one way to do anything in Photoshop. I make no claim that my way is the only way, or the best: only that my way works. Hopefully, seeing my way will spark your creativity.

In *The Photoshop Darkroom* I am blessed with the perfect co-author (who also happens to be my wife). Like me, Phyllis believes that before explaining something, one has to fully understand it.

For us, a book that encourages learning is about the student's work, not the teacher's. We will have done our job if this book gives you the techniques you need and the creative inspiration to have fun while making potent digital imagery.

Harold Davis







From Score to Performance

» Input devices: Cameras and scanners

What devices can you use?

Before you can work in the Photoshop darkroom, you need something to process—in other words, an image. The usual way you get an image is to take a photo with a camera.

But, think about what a digital camera really is: it is a special purpose computer with a lens on the front and a sensor in the back. However, that sensor really is a special purpose scanner just in the same way that the computer in the camera is a special purpose computer.

What you also need with a digital camera is a way to save the files that result from the camera's capture. Usually, this is a memory card.

There's no reason you always have to use a camera. If you have a flatbed scanner (and this can be an inexpensive one—nothing fancy), you can also use it to scan and capture images.

Getting ready for scanning

Before using a scanner, make sure the glass scanning surface is as clean as possible. Anything that is on the glass will show up in your scan.

Make a black box and put it over the object you are scanning to keep as much ambient light out as possible.

You should also know that there is no depth of field to speak of, so the object that you scan can't be very tall.



An iris ready for scanning



A black box placed over the iris keeps ambient light out

If you're an artist with a tablet and stylus, you could also draw the image you want

"ARTS & CRAFTS" PROJECT

Make your own black box

At an art supply store, buy a piece of black foam board that is 1/4" thick, black masking tape, and an X-Acto knife for cutting the foam board (be careful!).

At home, cut four pieces for the sides of the box: two that are 5" x 8" and two that are 5" x 11". Then cut one piece for the top that is 8" x 11".

Use the black masking tape to put the box together.

Scanning objects

In Photoshop, choose File ▶ Import, and select the scanner from the list.

Use the scanner's software to do a preview scan, cropping in as close as you can to the object. Since the files created by the scanner are very large, you don't want too much extra black area around the object.

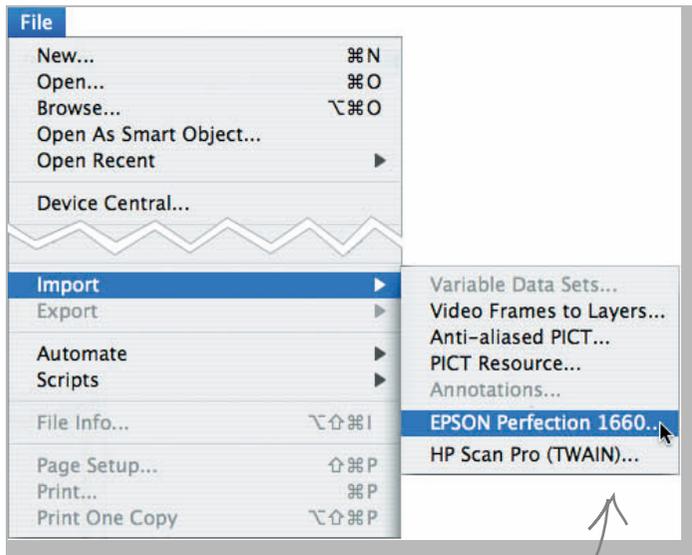
Choose the highest bit-depth and resolution possible (the scanner's software will tell you if you have selected a setting that is too high for the size of the area that is to be scanned). You'll probably end up with something like 48-bit color at 3200 ppi for an image that is a few inches in either dimension.

Your scanner's software might let you adjust the exposure histogram and curves. If you would like, adjust these settings.

Once you have everything as you want it, scan the image. The unnamed image will appear in Photoshop, ready for you to save it.

You need to make sure your scanner's software is properly installed before you can use it in Photoshop

For more about histograms, turn to page 19. Check out pages 194-197 to find out about curves



Choose your scanner from the Import menu

You could also combine a flatbed scan with a photograph using layers and painting. Turn to page 50 for more about painting on layers.

This iris was scanned at 3200 ppi with 48-bit color



» Working in RAW

What is a RAW capture?

A digital RAW file is a complete record of the data captured by the sensor. What makes the concept of RAW a little confusing is that it is a general concept in the sense that there is no one single RAW file format—each camera manufacturer implements the concept somewhat differently. For that matter, the different camera manufacturers name their proprietary RAW files differently: for example, Canon's RAW format files are designated .CRW and .CR2, and Nikon's RAW format files have a .NEF file suffix.

To restate this, each manufacturer's RAW file format amounts to an unprocessed record of the sensor data from a capture encoded into a file.

Note: Adobe has helped to sponsor the open source Digital Negative (DNG) format, which is a manufacturer-independent RAW format. A number of cameras now directly support DNG, instead of or in addition to a proprietary RAW file format. Some photographers like to archive their RAW files in the DNG format, an option that is made more attractive because Adobe makes a RAW file to DNG conversion tool available for free. Note on the Note: My personal recommendation is to archive a copy in the native RAW format of your camera; you may also decide to archive in DNG, but you shouldn't trash your original files.

In film photography, Ansel Adams (who was a pianist as well as a photographer) said that the negative was the score and the print was the performance. In digital photography, the RAW capture is the score and the post-processing is the performance.

If you only saved JPEG files, this is what you would get. The post-processed RAW file is over here



Why do you want to shoot in RAW?

If you set your camera to shoot in JPEG, the most common option other than RAW, you are accepting the computer-in-the-camera's idea of how to process your photo for color, white balance, contrast, noise, and so on. Even worse, you are throwing away all the data in your image except that single JPEG rendition. There's a vast range of exposure and color data in every RAW file that gets trashed forever when the capture is saved as a JPEG. Finally, the JPEG format compression itself involves some data loss.

Is there any downside to shooting in RAW?

RAW files do take up more space than JPEGs, although for a serious photographer this should not be the most important concern, particularly since data storage has become much less expensive in recent years.

In addition, RAW files are *potentiality*: they are not ready to go. They need to be converted to some other format (such as Photoshop's PSD, TIFF, or JPEG) before they are usable.



How do you work in RAW?

Set your camera to shoot in RAW. It's that simple, although usually the default (even for fancy DSLRs) is JPEG.

Most cameras have an option where each capture is done in RAW and converted to JPEG at the same time. This is great because you have a JPEG ready for immediate use (the only downside is that the JPEG file takes a little extra space on your memory card).

When you set your camera to capture in RAW, you should choose the highest bit depth possible (this will depend on your camera). If your camera has

a color space setting, you should set this to a color space with as wide a gamut as possible to get an accurate display on the LCD. Usually this means selecting Adobe RGB rather than sRGB. (sRGB is a garbage lowest common denominator gamut designed for monitors and will limit the range of colors you have available.)

Why your camera doesn't show you the RAW truth

Particularly when you shoot RAW, the LCD version of the RAW capture that you can see on the little screen on your camera is actually a JPEG version

of the image. This is what you would get if you had told the camera to save the image as a JPEG. It's not the actual RAW image. The camera has no way to show you the RAW image. And you have no idea, based on the camera's display, what you really have to work with. You need to open the RAW image in Photoshop to see what you really have.

The preview on your LCD, combined with the exposure histogram that your camera will show you, does give you some idea of the data available in the RAW file. (To find out how histograms work, turn to page 19.)

» Case Study: Converting a RAW photo

STEP 1

Getting RAW files off your camera's memory card and onto your computer

The software for your camera will do this for you, BUT (here's the problem) it will also try to do other things for you at the same time—for example, not give you a choice about where files are saved. The software may also start to process and filter the files.

Surprisingly, few people realize that the memory card in a camera is just a virtual hard drive. What I do is use a *memory card reader* to transfer the images from the memory card to the computer.

To use a card reader: take the memory card out of your camera and put it in the card reader. The memory card then appears on your computer as a drive. (On the Mac it will show up on the desktop. In Windows, you will see it in Windows Explorer.)

Use the Finder on the Mac or Explorer in Windows to copy and paste the RAW image files into a properly named and located folder.

I don't use the software that came with my camera to get the files from the memory card onto my hard drive. Instead I use a memory card reader.

A memory card reader is an inexpensive device that can read flash memory cards and transfer their contents to a computer. If you would like to buy a card reader, you can type "memory card reader" into the Google search box to see a list of suppliers



I use my computer's file system to copy and paste image files

Turn to page 24 for more about naming and locating image files and folders systematically

Adobe Camera Raw (ACR) Plug-in

Make sure you have the correct version of the Adobe Camera Raw (ACR) plug-in installed on your computer. Different versions of Photoshop use different versions of ACR and in some cases ACR doesn't get installed when Photoshop is installed. Go to www.adobe.com/downloads to find the most recent version of ACR for your version of Photoshop and operating system.

STEP 2

» Opening your RAW file in ACR

In the folder where your image file is located, double-click on the image file and it will open in the ACR application window.

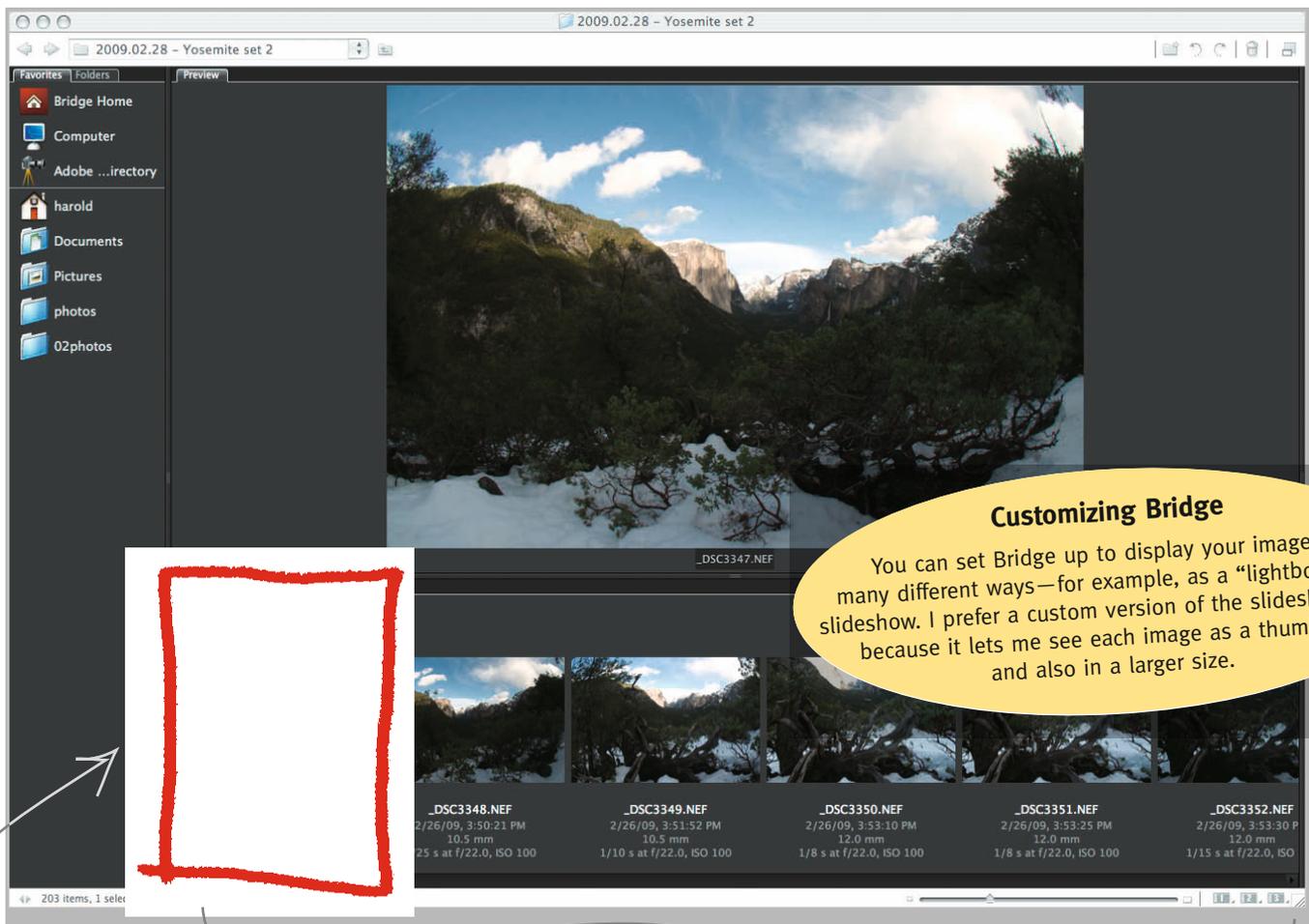
OR

Launch Adobe Bridge, locate the folder containing the image files, and look through your *similars*. All experienced photographers try to shoot similars of any subject they are interested in. These may have slightly different exposure settings, different composition, or may have

Bridge comes with Photoshop and is installed when you install Photoshop

changed over the course of time as light changed. Your first job is to look through these images in Bridge and find the one you want to work on.

After you find the image you want to work on, double-click on the image and it will open in the ACR application window.



This is the best thing to do

Bridge comes with Photoshop and is installed when you install Photoshop

Customizing Bridge

You can set Bridge up to display your images in many different ways—for example, as a “lightbox” or a slideshow. I prefer a custom version of the slideshow view because it lets me see each image as a thumbnail, and also in a larger size.

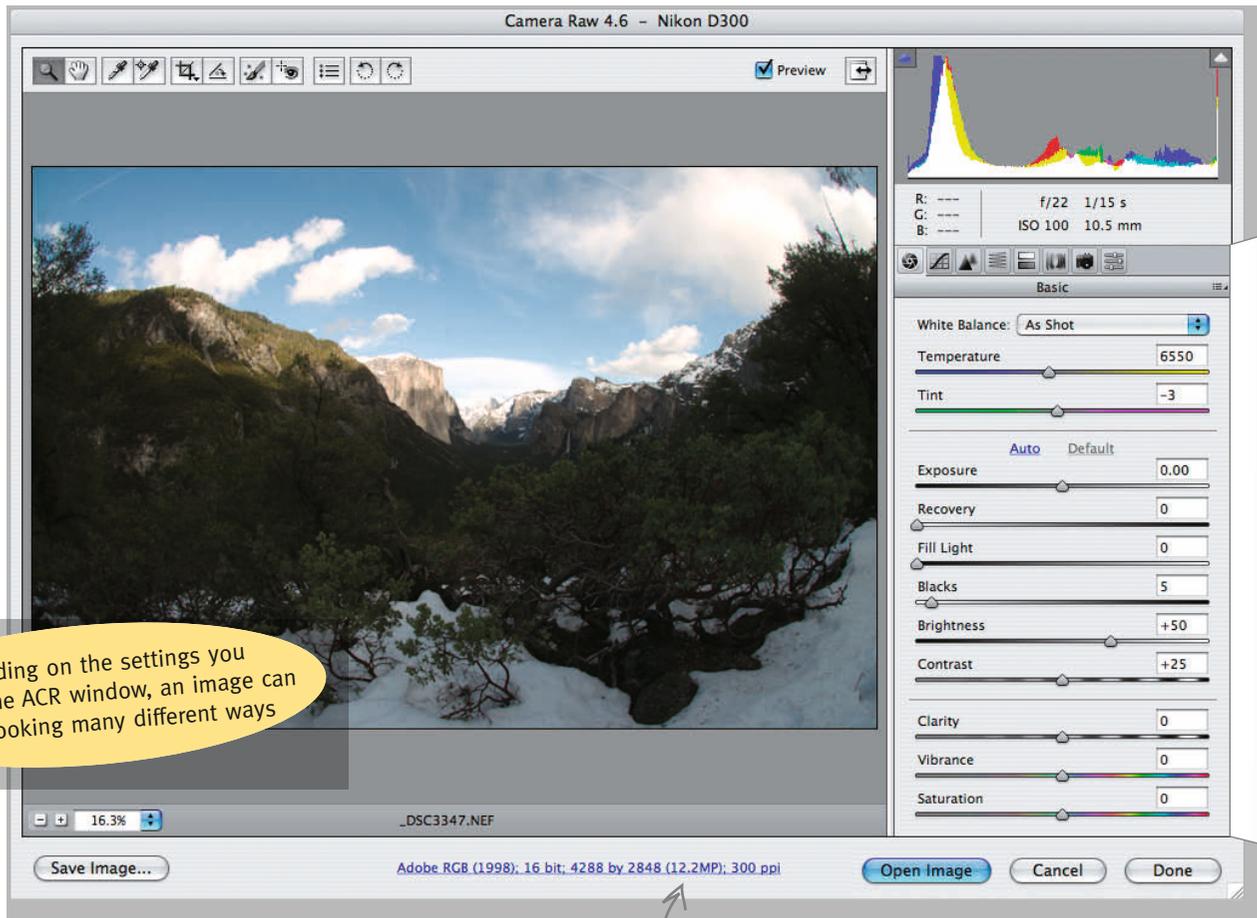
Here's the image I'm going to use

Similars

» Using the ACR application window:
Processing an image

STEPS 3-8

Turn to page 19 for more about histograms and exposure



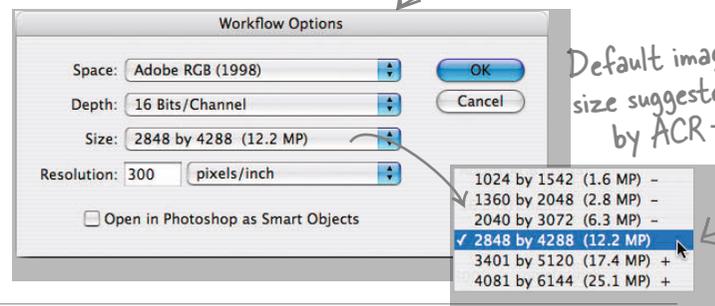
Depending on the settings you choose in the ACR window, an image can end up looking many different ways

Click here to access the Workflow Options dialog

Selecting resolution in the Workflow Options dialog

The best idea here is to accept the native resolution suggested by ACR (as shown with a check next to it). If there's a minus sign to the right of the resolution, this means that the setting down samples the image. You don't want to do this because you will lose image resolution. If there's a plus sign to the right of the resolution, this means that the image is up sampled.

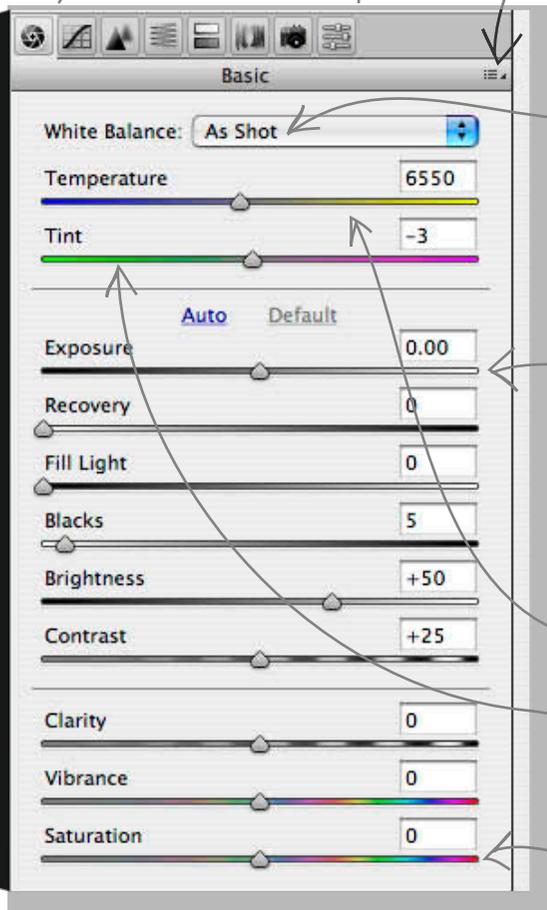
There are certainly times when you do want to decrease or increase the size and/or resolution of an image. However, it's best to do this after you have finalized work on the image (not before).



You can click these tabs to access other kinds of adjustments such as: Tone Curve, HSL/Grayscale, Split Toning, Lens Corrections, and Camera Calibration

This tiny button opens a fly-out menu that allows you to save and load image settings in a separate XMP file (more about this on page 23)

ACR opens with the image set with "As Shot" default values. It would look like the camera-generated JPEG.



STEPS:

3

Use the Exposure slider to adjust how light or dark the image is (pages 18–19)

4

Adjust the white balance of the image using the Temperature slider (page 20)

5

Use the Tint and Saturation sliders to adjust the color of the image (page 22)

6

Save the ACR image settings (page 23)

7

Open the image in Photoshop (page 23)

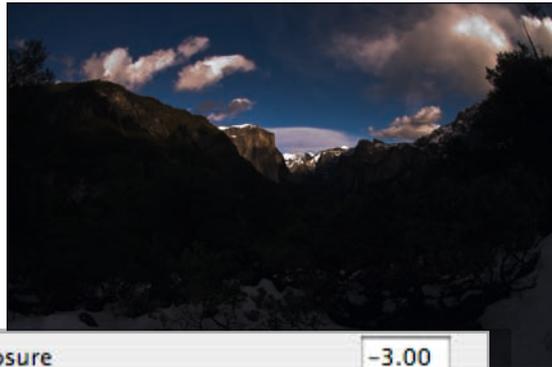
8

Save and archive the image using *Digital Asset Management* (pages 24–27)

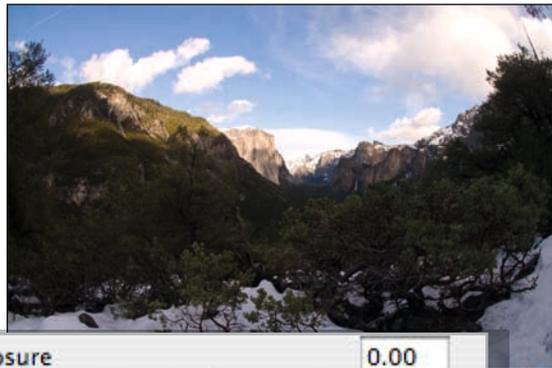
You don't have to do steps 3–5 in any particular order

» Using the ACR application window:
Adjusting exposure

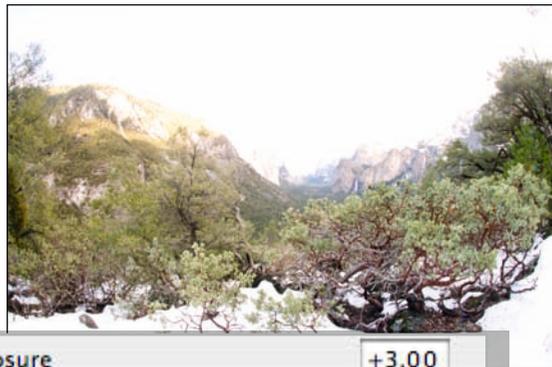
STEP 3



← Exposure -3



← This is the exposure
"As Shot" with
the exposure slider
untouched at 0



← Exposure +3

RAW and exposure range

Within each RAW capture there is an exposure range from -4 f-stops to +4 f-stops. You primarily control this range using the Exposure slider. Often, not all of the entire range is usable. It will usually be too dark or too light at the extreme ends. In addition, in the darker settings there is a great deal of increase of noise in the image.

Photographers know that f-stops are not a linear scale. Each successive f-stop lets in half the light of the preceding f-stop. Therefore, the -4 to +4 f-stop range represented by the Exposure slider is enormous. This is a 2^8 range of potential exposure values: 256 times from darkest to lightest (although as noted not all of these values will be usable).

If there's one thing to point out as the immense power of a RAW capture, it's this vast range of potential exposure values included in every RAW file.

Setting the Exposure slider

Using the Exposure slider is pretty straightforward. When an image opens in ACR, the Exposure slider is set at zero with the image "As Shot." Moving the slider to the right increases f-stops and brightens the image. Moving the slider left decreases f-stops and darkens the image.

Keeping the Sneak Preview over there in mind (using multiple exposures of one image), think about how you want to expose an image. Do you want to process the image so the sky looks good or so the detail in the foreground is visible? You can do both!

Move the slider until the lights and darks of the image are where you want them. There is no specific number or formula that you need to use to get the right exposure. Just trust your eyes.

This is the image "As Shot" as it first appears in the ACR window

The histogram in the ACR window

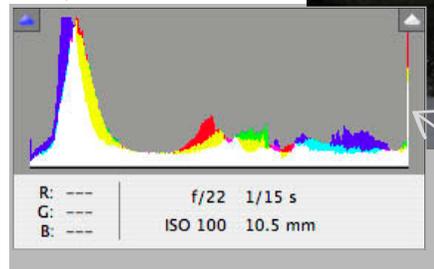
The histogram that appears in the ACR window with an image shows how the light and dark values in the image are distributed when the image was shot. The left side of the histogram represents the darkest areas in the image, progressing across the histogram through the image midtones at the middle of the histogram to the lightest areas of the image on the extreme right of the histogram.

Since the image to the right (shown as it opened in the ACR window on page 16) is largely dark, the histogram that appears in the ACR window with the image is largely bunched over on the left side.

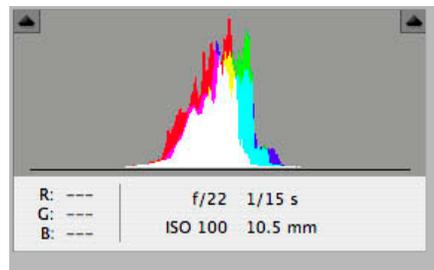
An average correct exposure (such as your camera would generate on Auto) would produce a histogram with a mountain in the middle like this one.

The reason that I tend to expose with histograms that are pushed to the left is that it is easier to rescue underexposed areas of a photo than it is to save blown-out highlights (even though darker images do tend to have more noise).

This large mountain represents all the darker areas in the image



This little spike represents the blown-out portion of the cloud in the image



This histogram shows an average exposure like you would get when your camera is on Auto

Sneak Preview

It's possible to combine several exposures from a single RAW capture using multi-RAW processing, greatly increasing the dynamic range of the composite image. For example, you can have an image that shows both detail in a dark shadowed area and bright sun on a mountainside. Take a look at pages 30–67 to learn more about multi-RAW processing.

The Fill Light, Blacks, and Brightness sliders

There are other sliders on the ACR window that impact overall exposure—the apparent overall lightness and darkness of an image.

In addition to the Exposure slider, I often use three other sliders to control the range of darkness and lightness in an image. They are: Fill Light, Blacks, and Brightness.

Increasing the Fill Light by moving the slider to the right brightens shadow areas. You can increase or decrease the overall strength of the dark areas in an image using the Blacks slider. The Brightness slider increases or decreases the amount of brightness in an image.

STEP 4

» Using the ACR application window: Adjusting white balance with the Temperature slider

Don't worry about in-camera white balance settings! Leave it on Auto!

White balance and your camera

When you set the white balance in your camera, you are telling your camera the color temperature of the light source used to illuminate your subject. The color temperature of light is expressed in degrees Kelvin. For example, 5500 degrees Kelvin is usually the color temperature of daylight towards the middle of the day.

There are two points here. The first is that measuring the color temperature of light is not a simple issue as you will often have light from a variety of sources. In addition, light changes. Daylight towards early evening is very different from daylight in the middle of the day. Without a color spectrometer, you can't really measure color temperature accurately.

The second point is that cameras have an Auto white balance setting. This lets the camera measure the light and do the best it can.

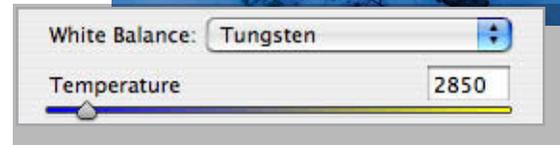
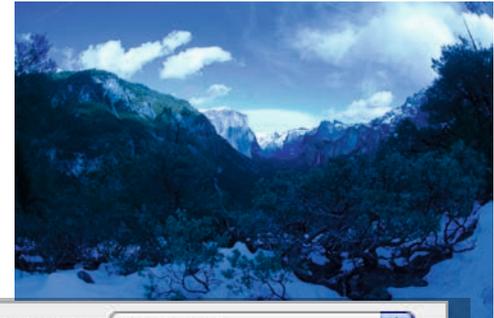
Whatever white balance setting was used to shoot the picture (whether the camera was set on Auto white balance or not) is what shows up in ACR as the default "As Shot" value.

Despite white balance being a huge bugaboo for many photographers, what you set it to in the camera doesn't really matter much because it is completely adjustable in ACR after the fact. The only two things your in-camera white balance affects are the appearance of the image on the LCD screen of your camera and the setting of the image when it first opens in ACR.

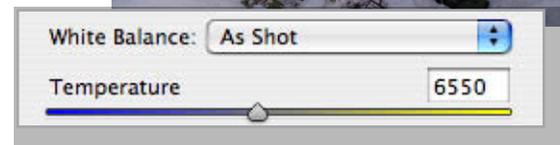
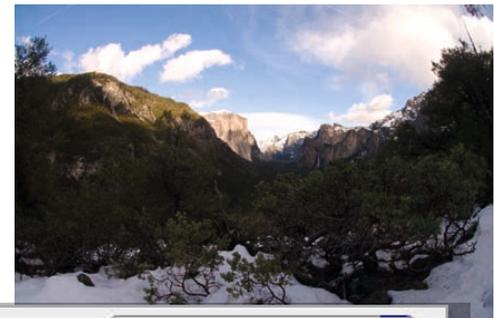
Using the Temperature slider

I suggest using the Temperature slider to make the colors in the image appealing and the way you would like them. Some folks justify this adjustment by saying that they are recreating the scene as it appeared to them, but you don't really need an excuse. Don't worry about the technicalities of accurate temperature measurement and white balance.

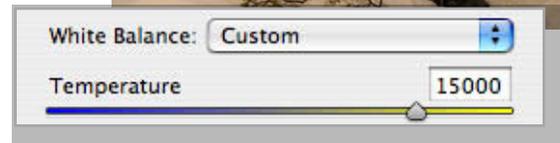
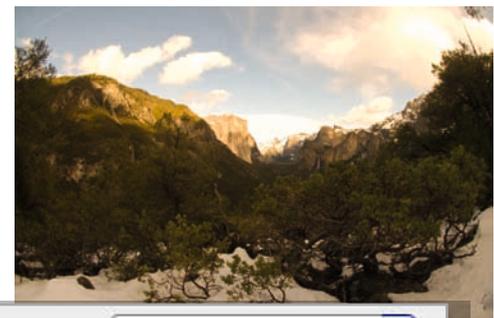
When the white balance of Tungsten is selected from the drop-down list, the color temperature is set to 2850 degrees Kelvin. The image becomes very blue.



The image "As Shot" is 6550 degrees Kelvin.



With a color temperature setting of 15,000 degrees Kelvin, the image gets very yellow.



Color temperature and your camera

The camera's measurement of the color temperature of light assumes that the light is being reflected off an 18% neutral gray surface. If there is a situation where you need to accurately measure

color temperature and white balance, then you should include an 18% neutral gray card (available from photo suppliers) in one of your captures. You can then use the White Balance Tool in ACR to find the exact color temperature by clicking on the neutral gray card in the image.

Here's a seat-of-the-pants trick: if you don't have a neutral gray card (perhaps you are photographing on the top of Mount Everest), any area that is close to the 18% neutral gray value will do in a pinch.



The White Balance Tool can be found in the little toolbar at the upper left corner of the ACR window



Using Flickr to stay organized

After I finish processing images, I take an additional step that is somewhat unusual. I make sure to upload a low resolution version to Flickr (any other photo file sharing service would work as well). Then, I tag each photo with pertinent words or phrases. I can now use the excellent search facilities available on Flickr and the web to find my tagged images. Once I've located an image on Flickr, I can use the date it was uploaded to locate the high resolution source files in my archive. For more about managing your image files and *Digital Asset Management*, take a look at pages 24–27.

How long does it take to process a photo?

When I give workshops, people are sometimes stunned to hear that it can take me hours and even days to process a single photo. This amount of time cannot be justified in a production environment. However, if you look at what you're doing as a creative and artistic endeavour, then it's not really a great deal of time to spend per image.

STEP 5

» Using the ACR application window: Adjusting color with the Tint and Saturation sliders

Using the Tint and Saturation sliders

The Tint and Saturation sliders are the main controls that you have to adjust the overall color of an image.

The Tint slider should be used first because small adjustments of Tint have a dramatic impact. (Note that the Tint slider is located right next to the Temperature slider. If you select one of the White Balance presets from the drop-down list, it may set a Tint setting

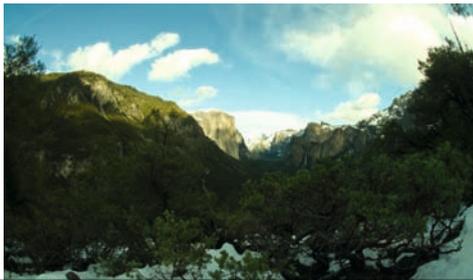
as well as a Temperature setting.)

The Tint slider moves through a color spectrum from green on the left to magenta on the right. Often, I find that I use a Tint setting of about +10. But this is something that depends on the image and your taste. So, you should play with the Tint slider to see what impact it has on your image.

Once you have set the Temperature slider and the Tint slider, it's time to work with the Saturation slider. As

opposed to the Tint slider which changes the color spectrum in your image, the Saturation slider changes the apparent richness of the color spectrum in the image.

While it is all a matter of taste, it is worth noting that the Saturation slider can be overused. Sometimes heavily saturated imagery is done by choice to create a specific effect; however, this kind of saturation can look artificial and unnatural.

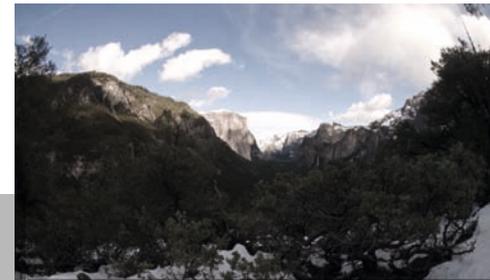


Tint -50

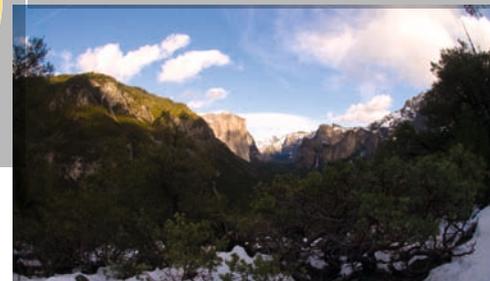


Tint +100

Once you have multi-RAW processing under your belt (pages 30–67), you can use variations in Tint settings so one area of the final composite image has one tint setting while another area has a different setting.



Saturation -50



Saturation +50

Using the Vibrance slider

The Vibrance slider works in a similar fashion to the Saturation slider but primarily operates on low saturation colors. The Vibrance slider doesn't

change colors that are already highly saturated. Much of the time, you'll want to move the Vibrance slider along with the Saturation slider. However, there are some situations where you'll want to

adjust the Vibrance slider without the Saturation slider—for example, increasing the saturation in a photo with people when you don't want to make skin tones look weird.

STEP 6

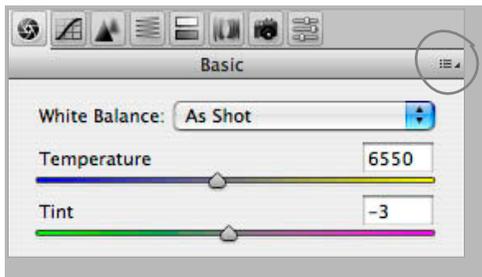
When you choose Save Settings, this dialog opens. I use the "Basic Subset" and then save the settings in the same folder with the image.

Saving your ACR settings

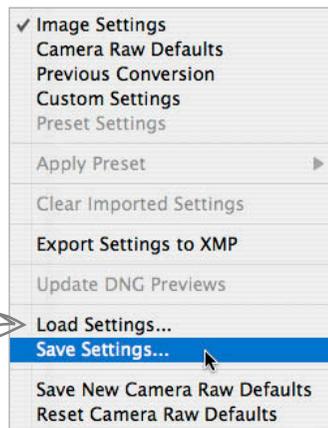
When you finish processing an image, make sure to save the ACR settings. That way, if you have another image you want to process in exactly the same way (or you want to open another copy of the same image), you can just load the settings instead of reinventing the wheel.

To do this, click the tiny button at the right of the ACR window and choose Save Settings from the fly-out menu.

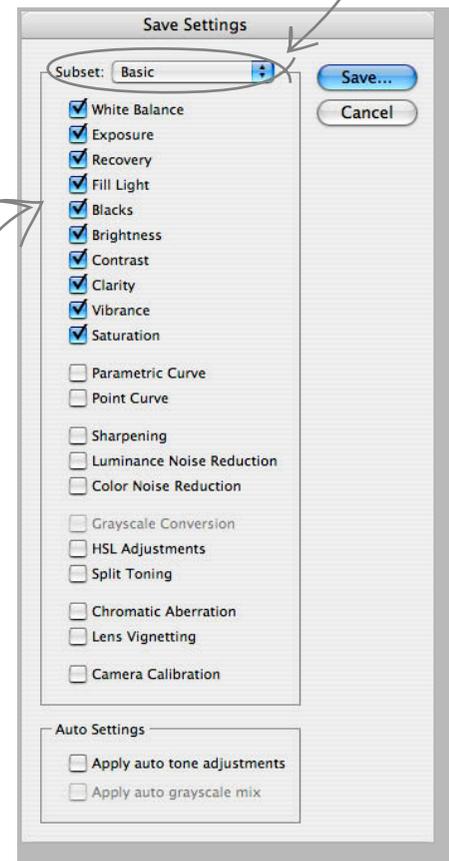
In the Save Settings dialog that opens, select Basic from the Subset drop-down list, then click Save and save the file in the same folder where the image is (so you'll know where to find it again—ACR will try to make you save it in a general settings folder).



Click this tiny button at the right of the ACR window



After you save settings, you can select Load Settings to apply them to another image or to a copy of the same image



No matter how you open an image using ACR, Photoshop will not overwrite the RAW image

STEP 7

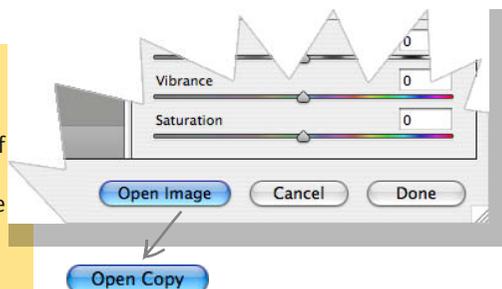
Opening your image in Photoshop

Once you have all the sliders set the way you want them, it's time to open your processed image in Photoshop.

Don't just click the Open Image button, however. If you do that, all the original "As Shot" settings (the way the settings are when the image originally opens

in ACR) will be overwritten with the current slider settings.

What you want to do is open a copy of the image. To do this, hold down the Alt key and notice that the Open Image button at the lower right corner of the ACR window changes to Open Copy. Continue to hold down the Alt key while clicking Open Copy.



Hold down Alt key and the Open Image button changes to Open Copy.

» Digital Asset Management (DAM): Saving your images

STEP 8

Saving files logically

Sure, it's easy to select File ► Save in Photoshop to save the image file you just finished processing. But where are you going to put the file so you know where it is and know whether you have worked on it or not?

In this day and age it's really easy to get overwhelmed with digital information—tunes, videos, images, whatever. When you get inventive and creative with your images in the Photoshop darkroom, the number of versions can really explode. You'll need to set up a file structure that will always be in place so you don't lose images and so you can find various versions.

Over the years, I've created a workflow that lets me logically take care of archiving and versioning my digital files while I process them.

It's not important that you exactly follow my workflow, but it is important that you do have a workflow in place that you follow. If you use a workflow, then you'll be able to let your inspiration and creativity soar.

Organizing files and folders

Check out the folder structure shown in the Finder window below (if you're using a Windows machine, Windows Explorer would look much the same with a tree-type file structure). Set up

something similar to keep yourself organized.

The scheme I use is to create a chronological hierarchy of folders by year. Within each year, each folder is named with the year, month, and date so they are listed chronologically. In addition, I add a few words to the folder name to describe what images are in the folder. This way, if I know the date when I took an image, I can find the related files. The descriptive words let me search by keyword, using a common tool like Finder on the Mac and Search on the main Windows taskbar.

Creating a comprehensive, organized folder structure like this is part of *Digital Asset Management (DAM)*.

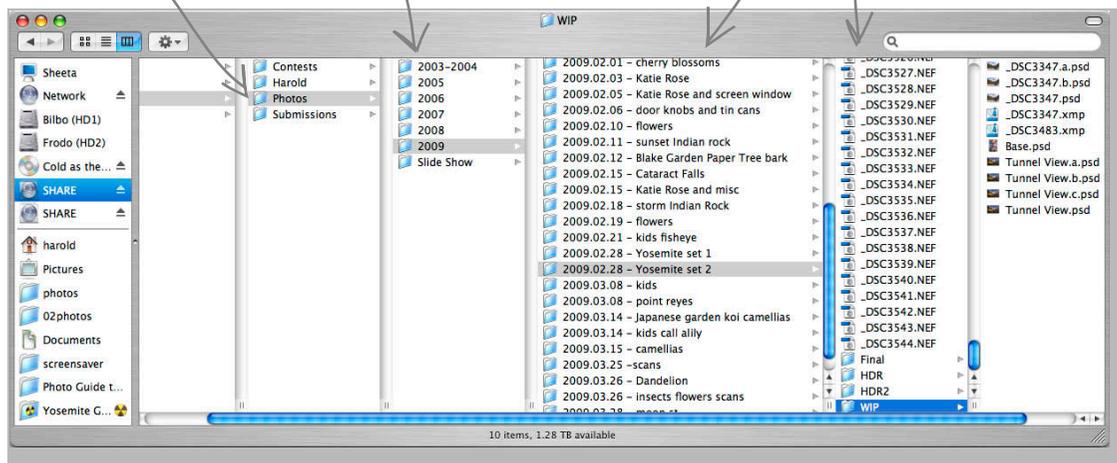
✦ Here's how I have my folder hierarchy set up:

Main photo folder

Folders sorted by year

Folders named by date with a few descriptive words

Here are the RAW images. Also, two folders I always create: Final for Work in Progress and Final for storing finished images.



» Digital Asset Management: Understanding necessary checkpoints

Managing your image files

You may have heard a lot about non-destructive image editing. The idea of non-destructive editing is that your edits are created separately from the original file so that the original itself is never changed. Examples include the separate XMP file that ACR creates from a RAW original and adjustment layers in Photoshop. In these cases, the separate file or adjustment layer is a kind of gloss or annotation. You don't change the original; instead you provide instructions about how the original should be changed.

In some ways, the concept of non-destructive editing has things exactly right. You should never alter an original image file (it's actually quite hard to do this using Photoshop, because Photoshop saves your RAW files as PSD or TIFF files without the ability to overwrite the original file).

However, I don't find that editing with a base image and a stack of adjustment layers on top works for me, because some of the Photoshop

darkroom work I do is quite complex. It simply gets too complicated, and too slow once you have more than 10 layers or adjustment layers in any image stack.

Something needs to take the place of non-destructive image editing. The criteria of this something must meet four points:

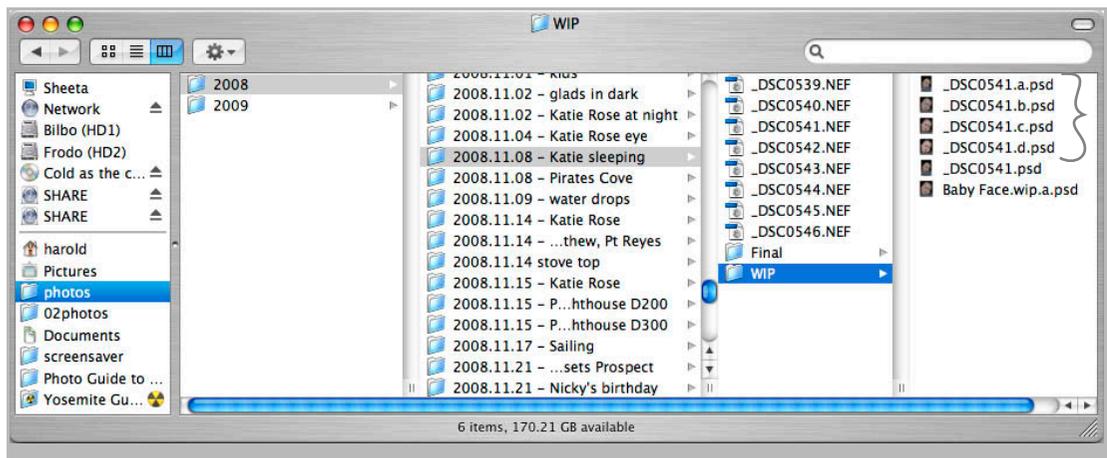
1. The original has to be completely untouched
 2. Every major step during editing has to be saved and archived
 3. It should be possible to track the editing to understand how the results in any of the intermediate steps were obtained
 4. No single file should get so big and complicated as to be difficult to work on. (This, of course, depends on the hardware you are using.)
- Also, as a practical matter, you probably don't want more than 10 layers in any image file.

My answer to this problem is a system of *checkpoints*. Every time I hit a major

step in the editing process, I save a version of the file. Usually the version is multi-layered. As a next step, I flatten the layers so I'm back to a single layer image and then I save a copy under another name. The internal layers (of the prior saved file) allow me to track my progress and let me go back to an earlier "checkpoint" if I need to.

For a typical image conversion, I end up saving 4 or 5 work-in-progress files. Each one of these files contains from 2 to 10 layers. The downside of this is that I take up more hard drive space than if I were using adjustment layers. As opposed to an adjustment layer, each regular layer doubles the image file size. If I was doing this with a single layer document, instead of 4 files with 5 layers, I'd end up with 1 file with 20 layers. The problem is that the 20 layer file, while being more flexible, is too much for most computers to handle nicely (it also doesn't give you a hard checkpoint in case you want to go back to a previous version).

As you work through *The Photoshop Darkroom*, any step that contains a checkpoint will show this icon



I name the file that I save at each checkpoint with a sequential alphabet letter

» Digital Asset Management: Protecting your images

Copyrighting images

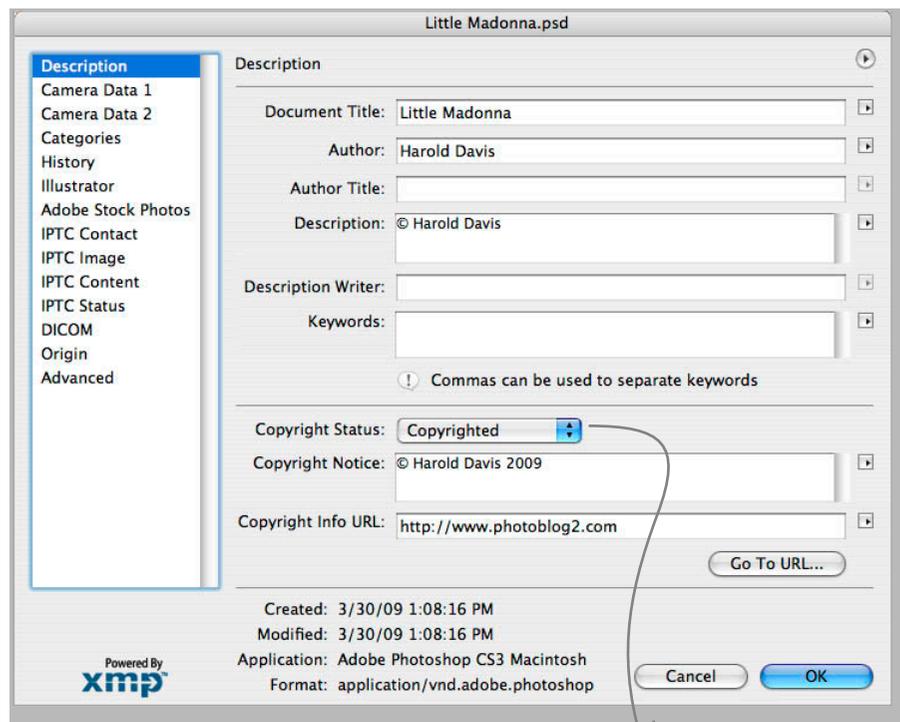
Another part of Digital Asset Management is protecting your images so they are less likely to be used without your permission.

It is possible to add a watermark to your photos as a deterrent to theft. There are several methods you could use to add watermarks to your photos. But my own opinion is that the esthetics of watermarks are obnoxious enough that I don't do it.

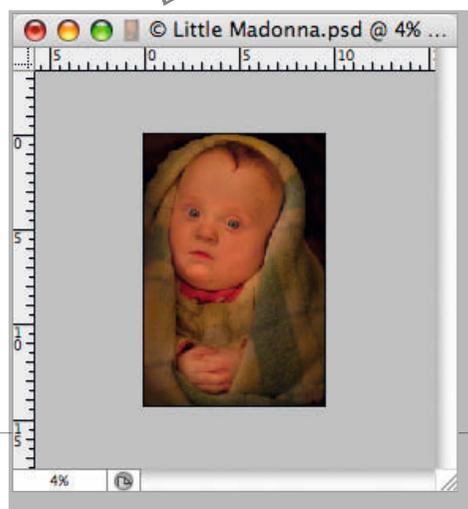
However, there's no excuse for not marking your image as copyrighted in Photoshop. To mark an image as copyrighted, choose File ► File Info. On the Description tab of the File Info dialog, choose the Copyright Status drop-down list and select Copyrighted (by default this is set to Unknown). You should also add a web link in the Copyright Info URL text box. You should enter your name as the Author of the image. One other thing I always do is add my copyright notice to the Description text box.

Once you have entered your info, click OK. The title bar of the image will now show that it is copyrighted.

To add a copyright symbol (©) on the Mac, press Alt + G. For Windows, press Alt + NumLock + 0169



Be sure to select Copyrighted from the Copyright Status drop-down list because the default setting is Unknown



After setting the Copyright Status as Copyrighted and clicking OK, a copyright symbol appears before the file name in the title bar