Photoshop CS for Restoration and Retouching

Practicing and improving your imaging skills is an ongoing process and just as we better our restoration and retouching techniques Adobe Systems is also constantly refining and improving Photoshop. With each new release of Photoshop people wonder, "do I really need to upgrade?" or "I just figured out how to do something and now the software is being changed again". That frustration is understandable, as we prefer to work with the known, but the release of Photoshop CS will make your restoration and retouching work better and more efficient. The following chapter addresses the most important features in Photoshop CS so you can get back to work without missing a single mouse click.

- Preferences, Automation, and Keyboard Shortcuts
- Viewing and Organizing Files
- Improved Camera RAW
- Working in 16-bit
- New Color and Tone Correction Tools
- Improved Healing, Patching, and Redeye Reduction

Numerous books have been released that address Photoshop CS in great detail. In this overview, I'll point out the most important features for photographers and retouchers, presented in the order you would see them when working with Photoshop CS for the first time – from preferences and automation to working with Adobe Camera RAW to fine-tuning files with the new shadow/highlight and color correction features.

> *Note: Sections of the following addendum are excerpted and quoted by permission from "Real World Digital Photography, 2nd edition" by Katrin Eismann, Sean Duggan, and Tim Grey for Peachpit Press, November 2003, the Adobe Help pages, and www.imagingrevue.com*

Preferences and Custom Keyboard Shortcuts

Photoshop CS requires a fast computer with a lot of RAM. On the Macintosh platform you'll need a G3, G4, or G5 running OS 10.2.4 or later Adobe recommends OS 10.2.6 or 10.3. On the PC you'll need Intel® Pentium® III or 4 processor Microsoft® Windows® 2000 with Service Pack 3 or Windows XP. Adobe recommends a minimum of 192 MB of RAM for either platform, but I recommend a minimum of 512 MB since adding more RAM is the best way to increase Photoshop performance. Visit http://www.adobe.com/products/photoshop/main.html for complete system requirements.

There are a lot of preferences, and I won't be discussing each one in minute detail. Many of them are specific to tasks and workflows that are more for graphic design and web-related fields. Instead, I'll address the most important new preferences (figure 11.1) in Photoshop CS that impact the work of restoration and retouching professionals.

figure 11.1

The General Preferences

General Preferences Settings

- **Image Interpolation** refers to the method by which new pixels are created or existing pixels are thrown away when an image is sized up or down. Choosing an interpolation method here will affect how interpolation is done when you change the size of an image with Image Size or scale a piece of an image with the transform options. Photoshop CS introduced two new interpolations schemes Bicubic Smoother and Bicubic Sharper. For upsampling images (making them larger) Smoother is the better choice. Sharper provides the best results for downsampling (making an image smaller). All of the interpolation options are available in the Image Size dialog (Figure 11.2), and can be chosen for specific images as the need arises.

figure 11.2

Choose an interpolation method in the Image Size dialogue before scaling an image up or down.

For my general interpolation setting I choose Bicubic and when I am scaling images up or down I select the best interpolation for the task at hand - smooth for upsizing and sharp for downsizing images. In the past some photographers used the 'Step Up' method made popular by Fred Miranda to size images up in 10% increments. With the new interpolation schemes there is no need to go through this slow process any longer.

The new image interpolation algorithms are available in the main Photoshop CS preferences and the Image Size dialog. If you choose to scale an image larger or smaller using the Free Transform tool, however, there is no way to specify and interpolation method and the default one will be used.

- The **History Log** allows you to save a record of your activity in Photoshop, or the specific steps you applied to an image. You can choose to save this information to a file's metadata, to a separate text file, or both. The details can be restricted to basic session information, which simply records when you open and close a file; concise, which tracks session info plus keeps a record of every step you perform; and detailed which tracks session info and keeps a surprisingly detailed record of every thing you do to an image, including specific settings used for filters, color correction and other tools. If you want to remember what you have done to an image, the detailed option can be very useful. Additionally, the History Log is a fantastic way to keep track of how long you're worked on an image and can be useful for client billing and production management.

File Handling

- **Ignore EXIF sRGB tag.** Color tags are used to give meaning to the color numbers in a digital image so that the appearance of an image will be consistent on different color-managed computers. Some digital cameras will automatically tag their images with an sRGB color profile, even if you have specifically chosen Adobe RGB in the camera's setup menu. While the sRGB profile may represent a correct interpretation for the images a camera produces, it is just as likely to be no more than a "default" tag by the camera that does not necessarily reflect the best way to interpret the colors in an image. If you determine that another color profile, such as Adobe RGB or ColorMatch RGB works better with the images from your camera, you can use this preference to have Photoshop ignore the sRGB tag contained in a camera's EXIF data.
- **Ask Before Saving Layered TIFF Files.** In the old days of Photoshop 6 or earlier, only Photoshop's native PSD format could save layers. Now the club is not so exclusive and as the TIFF specification has matured, it, too, has developed the ability to support layers. This is really only an issue for those who may be using TIFF files in page layout programs. In the past, some layout applications would get downright cranky if they encountered a layered TIFF. Photographers and production artists would also use the TIFF format for the flattened (non layered) images that were placed in the layout program and reserve the PSD format for the master layered image. The different file formats were another way to keep it clear that the correct, non-layered file was placed in the page layout. Although the ability of programs like InDesign to handle layered TIFFs and PSDs is allowing modification to the previous workflow of only using non-layered TIFFs, such changes are being adopted slowly. If you want a reminder that you're saving a layered file in TIFF format, turn this option on. I leave it off.
- **Enable Large Document Format (.psb).** This preference is new to Photoshop CS and it allows you to save very large files (300,000x300,000 pixels) that were not possible in earlier versions. The previous 30,000 pixel limit is still the largest size that can be saved using the PSD format, but larger files can now be saved as TIFF (up to 4GB) or the new PSB format, or in Photoshop RAW (which is not the same as Camera Raw and I recommend you avoid it) with no file size limit. This new format and the new image size limits are not backwards compatible with earlier versions of Photoshop. The number of people who have a need for such gargantuan files is very small. If you feel compelled to stitch together 97 6-megapixel photos into a single, monumental image, however, then this is where you need to go to make that possible.

- **Maximize PSD File Compatibility.** This option has been around in Photoshop under a variety of names for several versions, and it controls whether Photoshop will include a hidden, composite layer along with the regular layers when you save a file. The composite layer is essentially just a single layer that represents what the image would look like with all the visible layers flattened. This preference is primarily for people who need to use their layered PSD files in other applications that claim to read PSD files, but that really need that composite layer in order to do so. The main problem with this option is that the extra composite layer will make your file size much larger – up to 33% larger - than it needs to be. While this is not much of an issue with small files, it can quickly become a big issue with larger documents. If you're only working on your images in Photoshop, then I feel that you should leave this off and save some disk space.
- **Version Que** is used in conjunction with Adobe Illustrator, Acrobat, InDesign, and GoLive. Allowing you to track, find, share, and edit images from within each application. If you're just using Photoshop, Version Que will not play a role in your production, but if you use the other Creative Suite applications and / or work in a production team it can be a real life saver to identify which file is being used where and who changed it last.

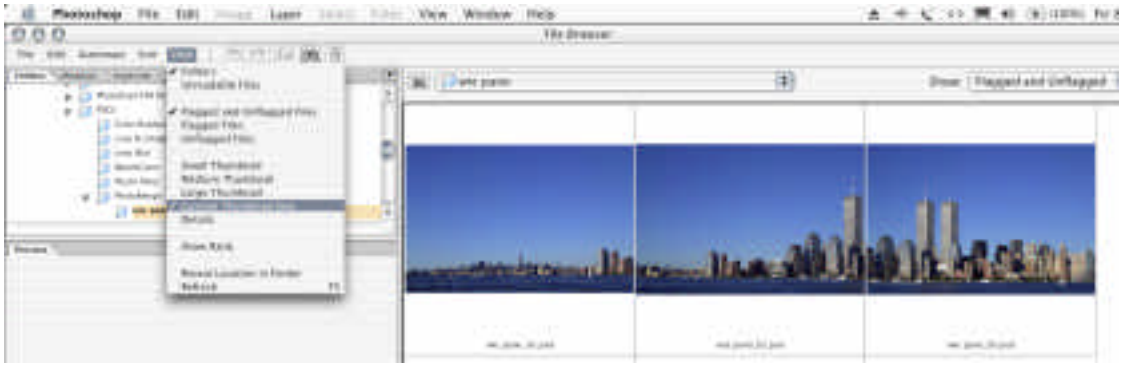
File Browser Preferences

The File Browser has been completely reworked in Photoshop CS and it is an essential feature for digital photographers to view, edit, and organize files. Working with the File Browser is addressed later in this chapter.

figure 11.3

The dedicated File Browser Preferences.

- **Do Not Process Files Larger Than…** If you have certain folders that contain really large image files and you don't want the browser to get bogged down in generating high-res previews and thumbnails, then you can specify a file size cap here.
- **Custom Thumbnail** Size allows you to determine how large image thumbnails should be. After typing in a value you'll need to tell the File Browser to use the custom size thumbnail. Within the File Browser window choose View > Custom Thumbnail Size (as seen on the following page) and Photoshop will create large thumbnails according to your specification.



After determining the custom thumbnail size in the Preferences > File Browser, use the pull down menu to 'tell' Photoshop to display thumbnails with the custom size.

- **Allow Background Processing.** This tells Photoshop to grab onto any extra available processing power and use it to generate previews and thumbnails for the selected folder of images, even when you are not currently working in the File Browser, or in Photoshop. This is very useful for setting the File Browser up to work on a large folder of new images before you actually start browsing the files. I like to target the folder in question and then work on other tasks (or just go have dinner) and when I come back, all the thumbnails and high quality previews are ready for us.
- **Keep Sidecar Files with Master Files.** The sidecar files contain the additional information about images that is generated by the File Browser. The default is for this to be turned on and it allows that such data be moved, copied, deleted, renamed or batch renamed along with the associated image files. I suggest leaving this on.

Improved Automation

Photoshop CS includes improved automation settings accessed in File > Automate, File > Script, and in the File Browser Automate menu. You can automate and batch process individual images, folders of images, all open images, or best of all images selected in the File Browser thumbnail pane.

From File > Automate

- Crop and Straighten automatically straightens crooked scans (figure 11.4 a and 11.5) and separates multiple scans into individual documents. For the best results make sure that multiple scans are not touching one another and that there is at least 1/2 inch between each image.

figure 11.4

The automatic Crop and Straighten duplicates the file and then straightens it.

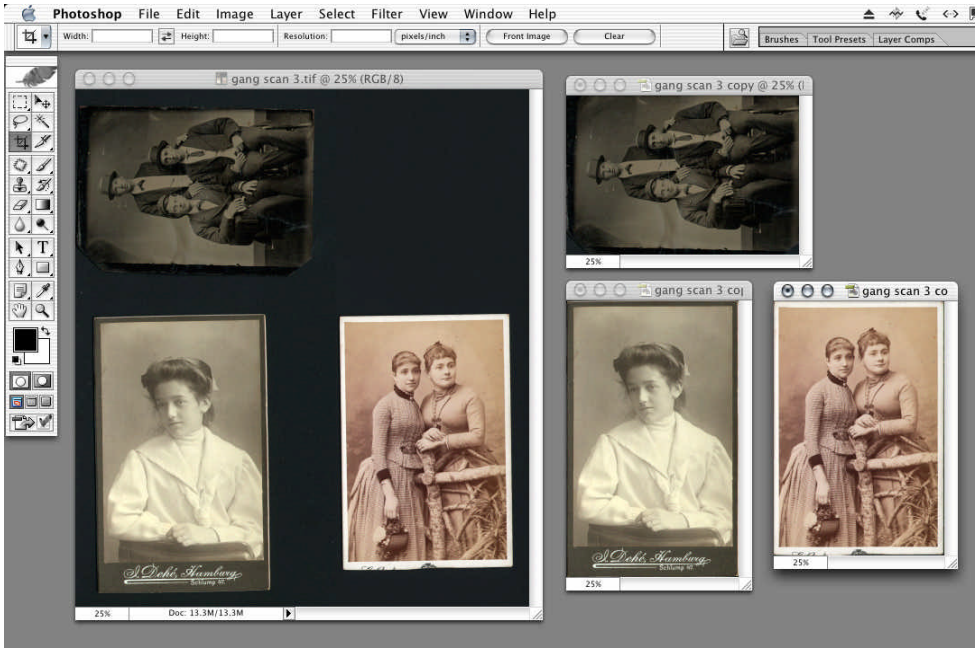


figure 11.5

The automatic Crop and Straighten duplicates and separates gang scans into individual files.

From File > Script

- Photoshop now supports in Windows any scripting language that supports OLE automation, such as Visual Basic. In Mac OS, you can use Applescript. These languages are not cross-platform but can control multiple applications such as Adobe Photoshop, Adobe Illustrator, and Microsoft Office. You can also use Javascript on either platform. Javascript support lets you write scripts that will run on either Windows or Mac OS but can only control Photoshop. Photoshop includes a script editor and debugger for Javascript, but for other scripting languages you must use external tools to edit and debug the scripts.

  Four scripts are included with CS and Export Layers to Files is especially useful. Visit www.russelbrown.com to download a script that automates Adobe Camera RAW, allowing you to open and save the same image into a variety of destination folders and file formats. It is designed for photographers and designers who need to process large numbers of images, quickly and efficiently

From the File Browser

- Apply Camera RAW Settings applies saved or previously used camera raw setting to selected images in the File Browser without opening them.
- PDF Presentation allows you to create a simple slide show that you can email to a client or use for on-screen presentations. This option does not replace dedicated presentation packages such as Microsoft PowerPoint or Apple Keynote, but in a fix I've used it to create quick slideshows with basic transitions. Sound and movies are not supported.
- Contact Sheet 2 lets you make a page of thumbnails of images. The two improvements are that you can now determine how much space is between the individual images and that there is a 'Rotate for best Fit' meaning images will be rotated to waste the least amount of paper.

- Online Services is a direct link to on-line photo finishers such as Shutterfly or Ofoto allowing you to order prints directly through Photoshop CS.
- Photomerge does two things – it stitches images into panoramas (figure 11.6) and it allows you to merge two exposures of one scene to extend the dynamic range. When using Photomerge for panoramas do not check 'Keep as Layers' as this negates the advanced blending required to merge panoramic exposures. When merging two camera exposures, for example a landscape you photographed (using a tripod) and exposed one frame for the sky and one frame for the land – click 'Keep as Layers' so you can fine-tune the exposure merge with a layer mask.

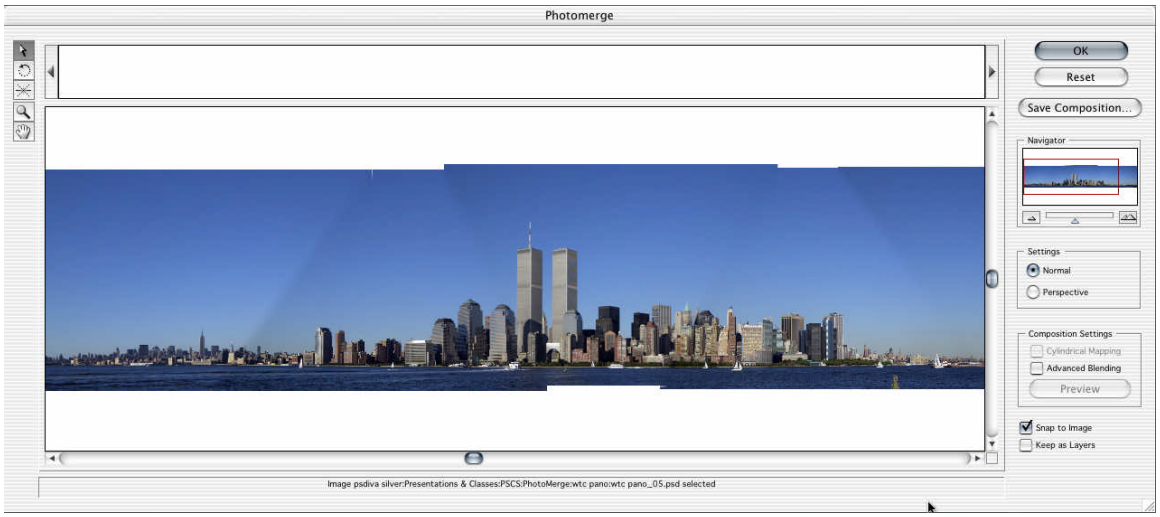


figure 11.6

Use Photomerge to stitch panoramic images and to merge multiple exposures.

- Picture Package has been in Photoshop for quite a while, but in CS you can fine-tune the layout with the template creator and editor as shown in figure 11.7. To set up a custom layout click on the Edit Layout button and drag and scale the images into position. Once you have your custom template, make sure to rename it and click on save.

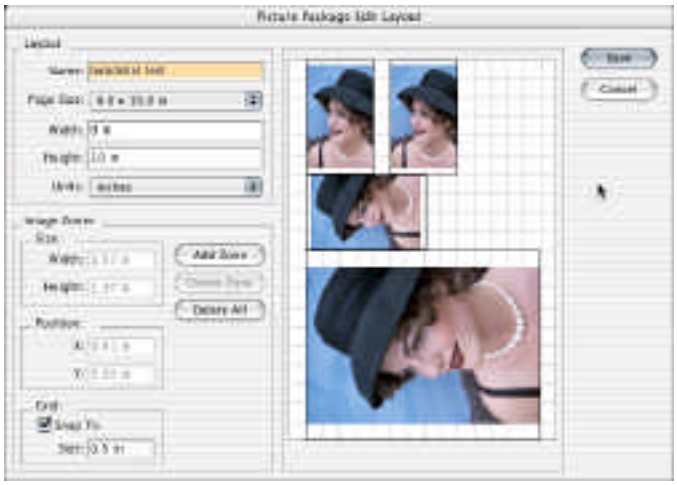


figure 11.7

Customizing Picture packages.

· Web Photo Gallery has brand-new web templates that include client feedback fields as shown in figure 11.8. This is a fantastic addition for the studio or location shooter to show a remote client a day's work with an area for client feedback.

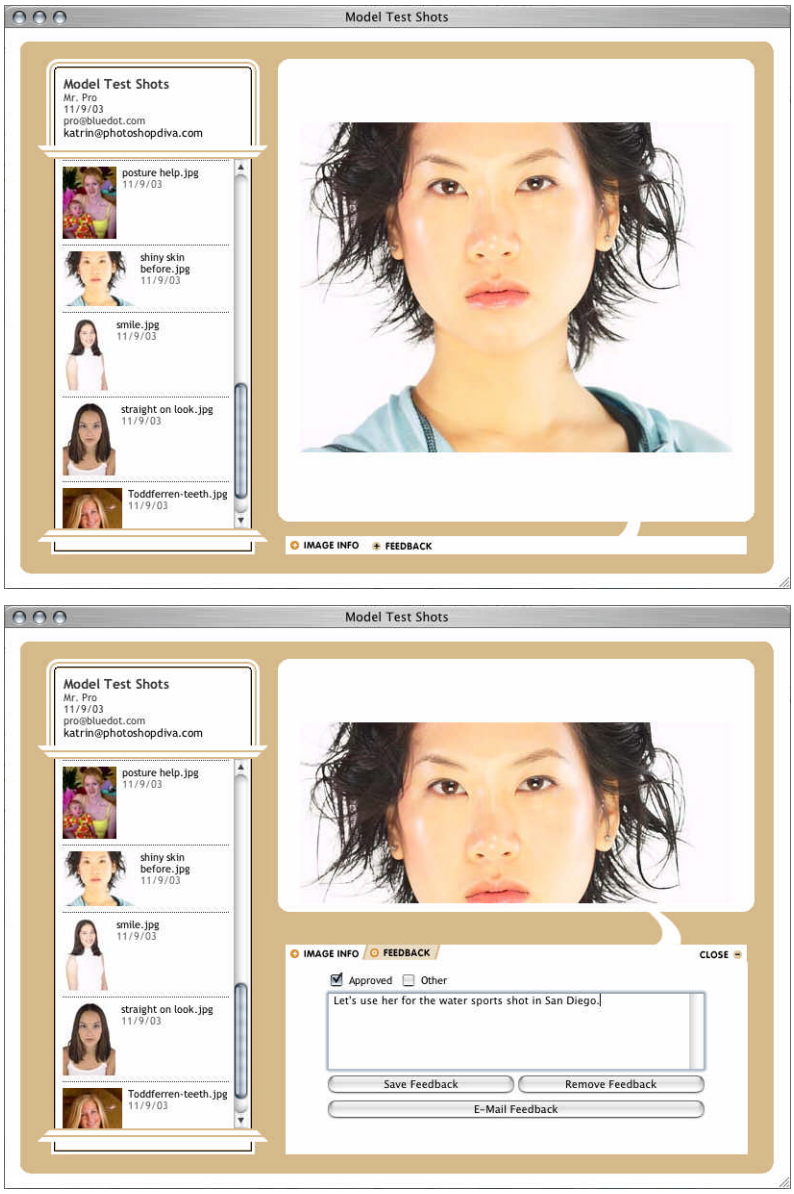


figure 11.8

New web templates include areas for client feedback.

Custom Keyboard Shortcuts

Photoshop provides a set of default keyboard shortcuts for commands and tools as addressed in Chapter 1 "Photoshop Essentials". However, you can customize keyboard shortcuts to match your personal preferences and to enhance your workflow. You can change individual shortcuts within a set, and define your own sets of shortcuts.

1. Choose Edit > Keyboard Shortcuts.

2. Choose a set of shortcuts from the Set menu at the top of the Keyboard Shortcuts dialog box (Photoshop Defaults is the only option until you create a new set).
3. Choose a shortcut type (Application Menus, Palette Menus, or Tools) from the Shortcuts For menu.
4. In the Shortcut column of the scroll list, select the shortcut you want to modify. For example, how often have you accessed the Image Size or the Unsharp Mask filter? These would be ideal candidates for a shortcut.
5. Type a new shortcut. After you make changes, the name in the Set menu is suffixed with (modified).

If the keyboard shortcut is already assigned to another command or tool in the set, an alert informs you that another command or tool has the shortcut. Click Accept to assign the shortcut to the new command or tool, and to erase the previously assigned shortcut. Once you have reassigned a shortcut, you can click Undo Changes to undo the change, or click Accept and Go to Conflict to go to the other command or tool and assign it a new shortcut. When you have finished changing shortcuts, do one of the following:

1. To discard all changes and exit the dialog box, click Cancel.
2. To discard the last saved change without closing the dialog box, click Undo.
3. To return a new shortcut to the default, click Use Default.
4. To export the displayed set of shortcuts, click Summarize. You can use this HTML file to display in a Web browser.

Viewing and Organizing Files

How you see files when they are in folders or how they are displayed in Photoshop is something some may take for granted. But if you work with a lot of images everyday, knowing which file is where and seeing the area of the image you need to evaluate without a lot of clicking, dragging, and zooming is a very important functions.

The File Browser

For digital photographers the File Browser is an essential, cannot live without feature. After downloading images use it to edit images by ranking, rating, choosing, renaming, adding captions and copyright all without opening the files.

The File Browser is made up of six primary panes: folder, preview, keywords, metadata, thumbnails, and the controls that run along the top of the browser window. Arrange the tabs to your liking. I prefer to have a large preview and keep the text elements of the browser smaller as seen in figure 11.9.

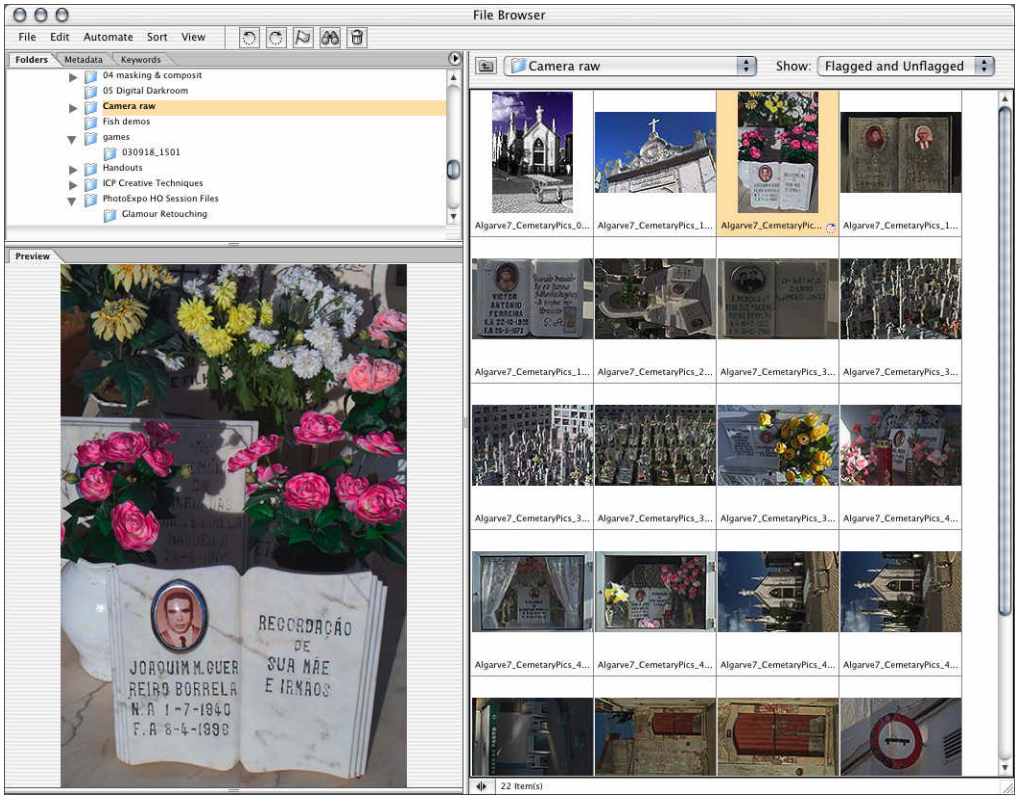


figure 11.9

The File Browser allows you to view and organize images without having to open the images.

Tip: To view a folder of images in the File Browser drag the folder onto the File Browser Preview button on the Options bar as seen in figure 10.

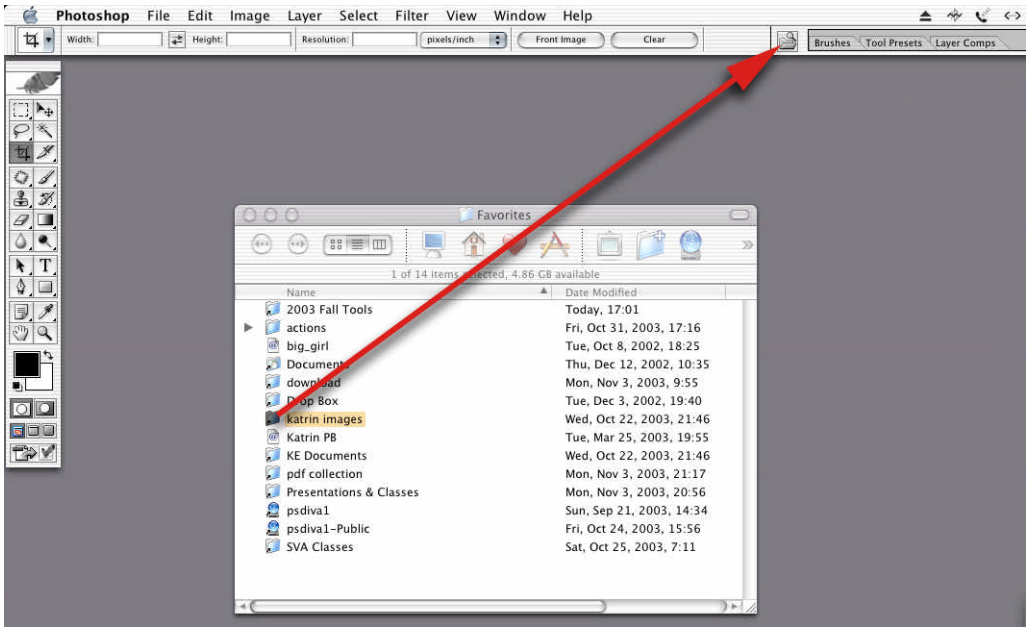
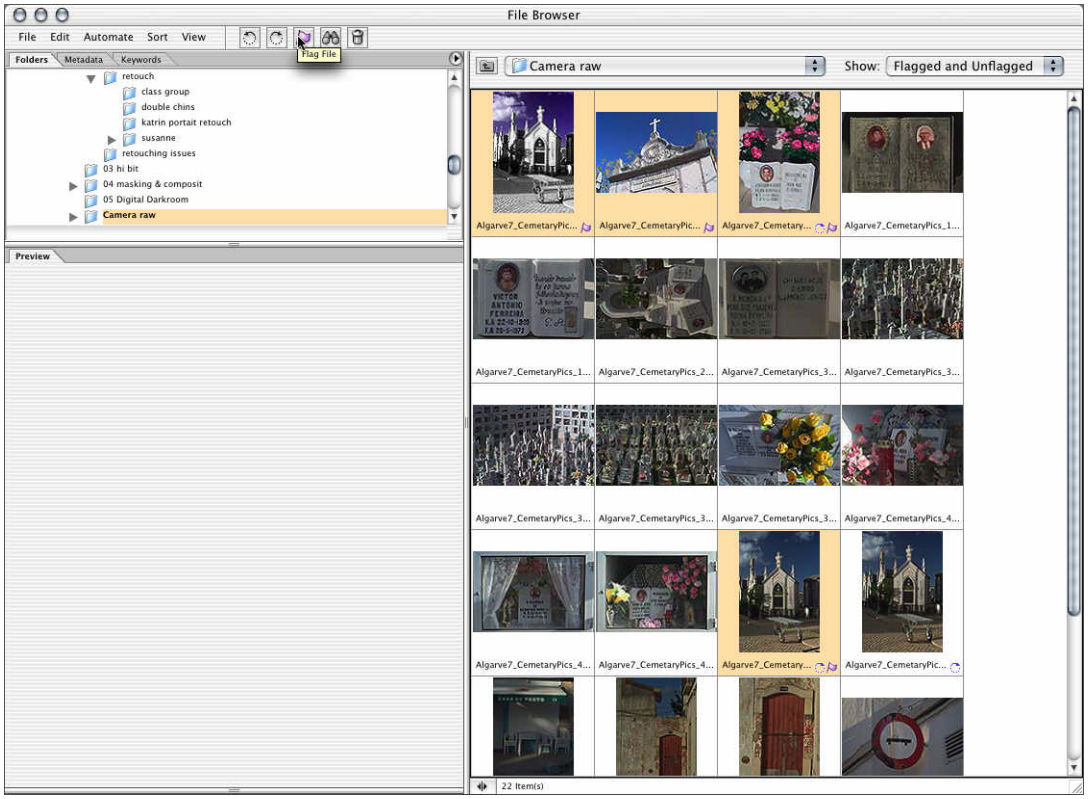


figure 11.10 **Drag a folder to the File Browser icon to view its contents.**

Working with Thumbnails

Use the File Browser to view your initial scans and digital camera captures and to:

- To delete outtakes, select them and click the “Delete File” button at the top of the File Browser or press the Delete key. If you have the palettes visible on the left of the File Browser window, you can click on an image to get a preview for closer evaluation.
- Rotate images by selecting the individual or group of images that need to be rotated and then click the button at the top of the File Browser window to rotate files clockwise or counter-clockwise. Or use the quick key (command + right bracket) [control + right bracket] to rotate 90 degrees clockwise and command key (command + left bracket) [control + left bracket] to rotate 90 degrees counter clockwise.
- Flag images by clicking on them and clicking on the flag button. Flagging is an efficient aid to hide and reveal images very quickly. After flagging let’s say the keeper, select View Flagged from the pull down menu on the right hand side of the File Browser menu. This is a great way to do an initial edit of a photo shoot, which you would then follow by ranking each image.



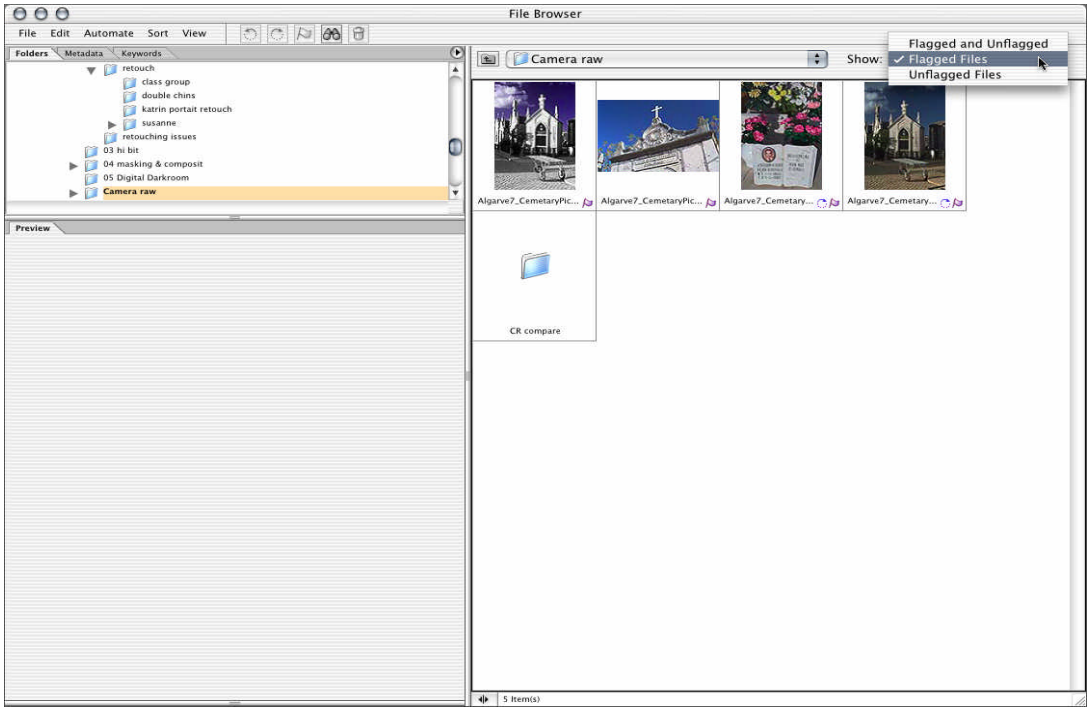


figure 11.11

Flagging files is an efficient method to sort and view a folder of images very quickly.

- Rank images to assign a relative importance to an image. For example, all your favorite images could be given the rank of "A", with second-best images getting a "B". This feature has improved in Photoshop CS to offer more flexibility. Instead of offering a single letter grade for your images, you can assign any code to the image as a rank. Since you can sort images by rank, I recommend using a numeric or alphabetical ranking, but you can use words or any other code system you like.

  Keep your ranking system as simple as possible. While it might be tempting to score your images on a scale of one to one hundred, this only adds tremendous complexity. Instead, I recommend using a simple system with limited choices. For example, you could rank on a scale from one to five, with one being best.

  The ranking feature in File Browser provides an excellent way to fine-tune the editing of your images. Instead of simply sorting them between those you'll keep and those that get deleted via flagging, you can score each image by assigning a rank. You can then use the rank to sort your images and simplify the process of grouping your favorite images.

- Metadata is the additional information about the photo stored with the image file. Digital cameras include a tremendous amount of information about the capture conditions in the metadata for each image. While I don't generally use metadata for editing our images, it can be helpful for deciding between two images. For example, for action subjects I might select the image with the fastest shutter speed, all other factors being equal. It is also helpful to see what camera settings were used to capture a particular image. The data recorded includes the camera used, the lens focal length, metering mode, and whether the flash fired, among other data. The information is displayed on the Metadata palette in the left pane of the File Browser window, and reflects the capture data for the currently selected image.

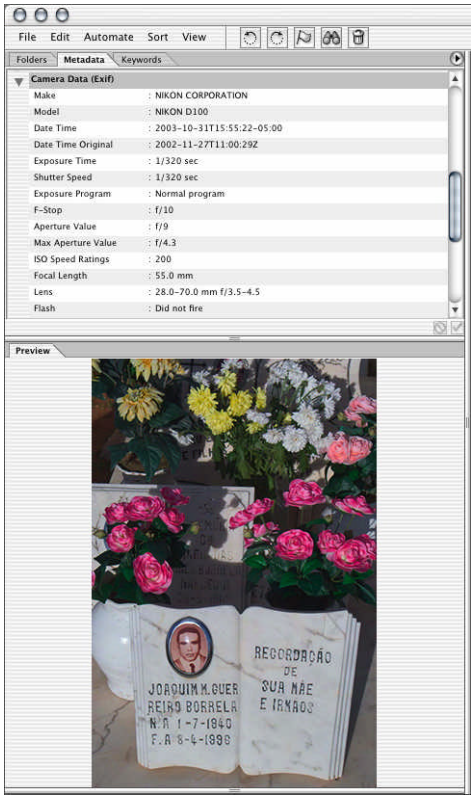


figure 11.12

Useful metadata is embedded into every digital camera exposure.

- Photoshop CS supports XMP (eXtensible Metadata Platform) and IPTC (International Press Telecommunications Council) protocol, which allows you to add captions and image tags that are cross-platform, compatible and accessible by professional image cataloging software. Select File > File Info to view, modify, and save this information.

Tip: Embed your copyright into every one of your scans or digital photographs.

1. File > File Info and in the description area add your copy copyright as seen in figure 13.
2. Click on the fly-out arrow (upper right hand corner) and save your copyright setting. In this example I named it Katrin brief.
3. Once you have saved setting you can embed your copyright in images within the File Browser without opening them. Select one images or all images and in the File Browser menu choose Edit > Append Metadata and drag over to the saved setting as seen in figure 11.14.

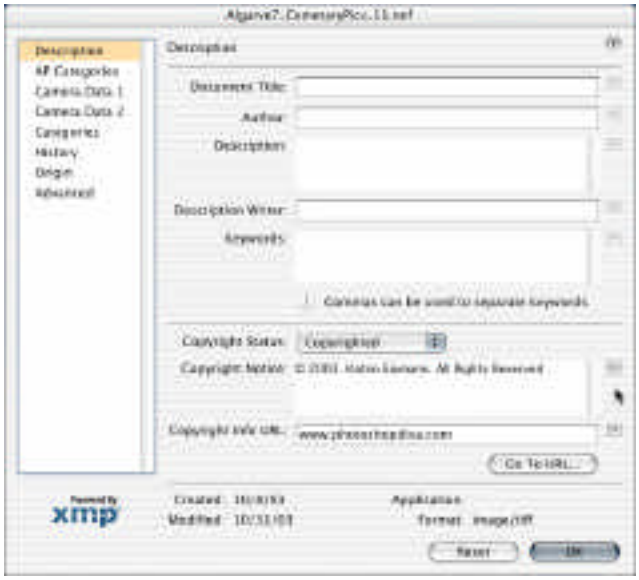


figure 11.13

Creating and embedding copyright notice is both easy and important.

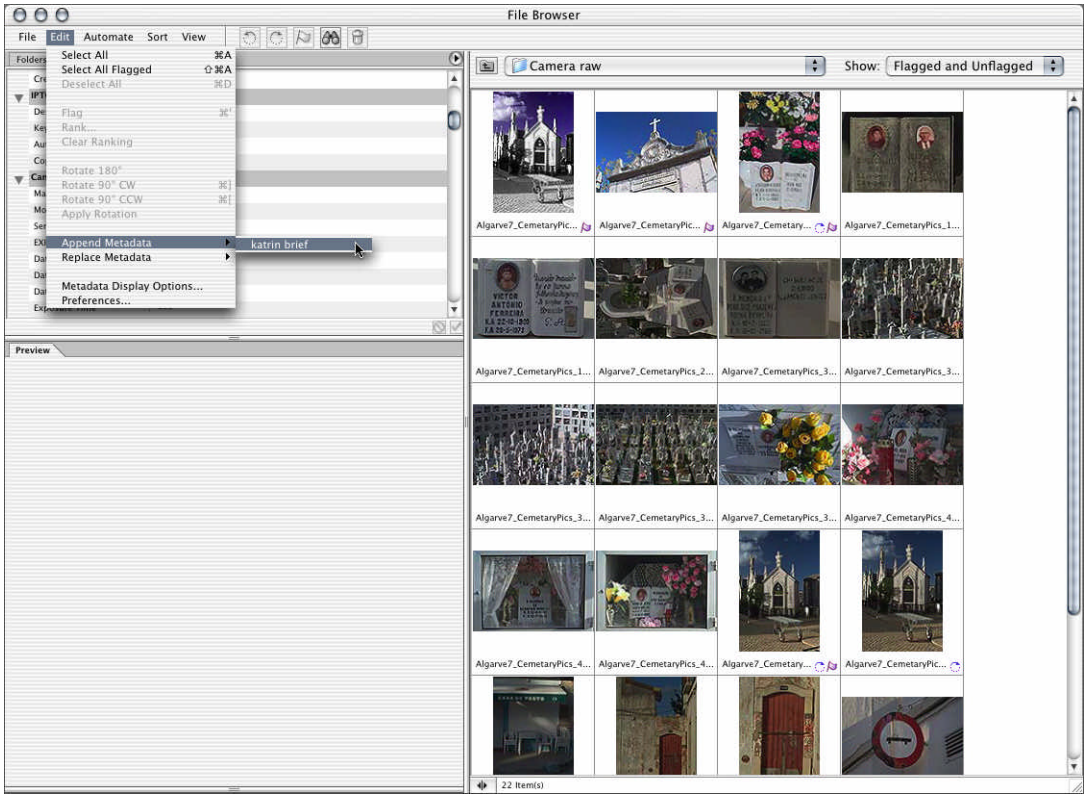


figure 11.14

Embedding copyright via the File Browser.

Embedding your copyright in Photoshop does not replace registering your images with the US Copyright Office www.loc.gov/copyright/

- The File Browser provides a basic keyword feature that allows you to assign keywords to images and search for images that have one or more keywords assigned to them. The Keywords palette allows you to categorize your keywords into keyword sets, and then create keywords within those sets, providing a way to categorize your keywords. For example, under the Event category you could include the Birthday, Graduation, or Wedding keywords. You can create new keyword sets by clicking the New Keyword Set button at the bottom of the Keywords palette. You can create new keywords within a keyword set by clicking the New Keyword button at the bottom of the Keywords palette.

  To assign keywords select the images in the File Browser. Then click on the box to the left of the keyword you want to assign, and a checkmark will be placed to indicate that the keyword has been assigned to the selected images. If you want to view the images that have been assigned a particular keyword, right-click on the keyword in the Keywords palette and select Search from the shortcut menu. The search criteria will automatically be set to look for images with the keyword assigned, so you can click the Search button to locate the images with that keyword assigned.

- The batch rename feature of the File Browser allows you to build complex filenames and then either rename the files in the current location or move the renamed images to a new folder that you specify. The first step is to select the files you wish to rename, and then select the Batch Rename option from the Automate menu.

- The Batch Rename dialog allows you to select up to six parameters for the file name. Since you'll want to include an extension for the filename, you have five parameters to specify for the filename itself. For example, you can specify a prefix based on the photo trip, such as the client name. You can then add the date of the image by specifying one of the date format options. For the third parameter you can place a dash or underscore character, followed by a serial number ranging from one to four digits in the fourth parameter. The available options provide tremendous flexibility in the naming of your files, and the process can be done quickly and easily.

  If you are using the File Browser for editing your batches of images and eventually put the final images onto a DVD or CD, you'll want to take advantage of the Export Cache feature. By selecting Export Cache from the File menu in the File Browser, the thumbnail data for the current folder will be exported to that the image folder. If you then move the folder or put the files onto a DVD or CD, you won't need to wait for the thumbnails to be generated when you browse the images in File Browser. The data files will provide instant access to the thumbnails for faster review when finding the image you need.

Tip: Similar to moving slides about on a traditional light table – you can click and drag a file into a new position by grabbing it and moving it to a new place in the File Browser thumbnail pane and releasing the mouse.

In Photoshop 7 I rarely used File > Open to open files and with the File Browser in Photoshop CS there is even less reason to ever open a file without seeing it as a thumbnail in the File Browser again.

Viewing Files

In Photoshop CS Adobe has made it easier to access, view, and compare open files. One of the smallest changes is one that many users requested – all open files are listed at the bottom of the Window menu as seen in figure 11.15. On a more productive note: how many times have you needed to compare and select the best photograph or scan from a number of files? This often involved juggling, arranging, zooming, and a lot of scrolling to be able to compare the same part

of one image with another. In Photoshop CS you can tile, zoom, and match file locations with ease.

figure 11.15

All file names are listed under the Window menu.

To compare files:

1. Open all images you need to inspect and Select Window > Arrange > Tile
2. Activate one file and zoom in to the area or detail you are interested in as seen in figure 11.16.
3. Select Window > Arrange > Match Zoom and Location and all files will jump to the exact same location and zoom as seen in figure 11.17.
4. To scroll through all images at once (!) press spacebar + shift and Photoshop CS will synchronize scroll though all open documents as shown in figure 11.18.

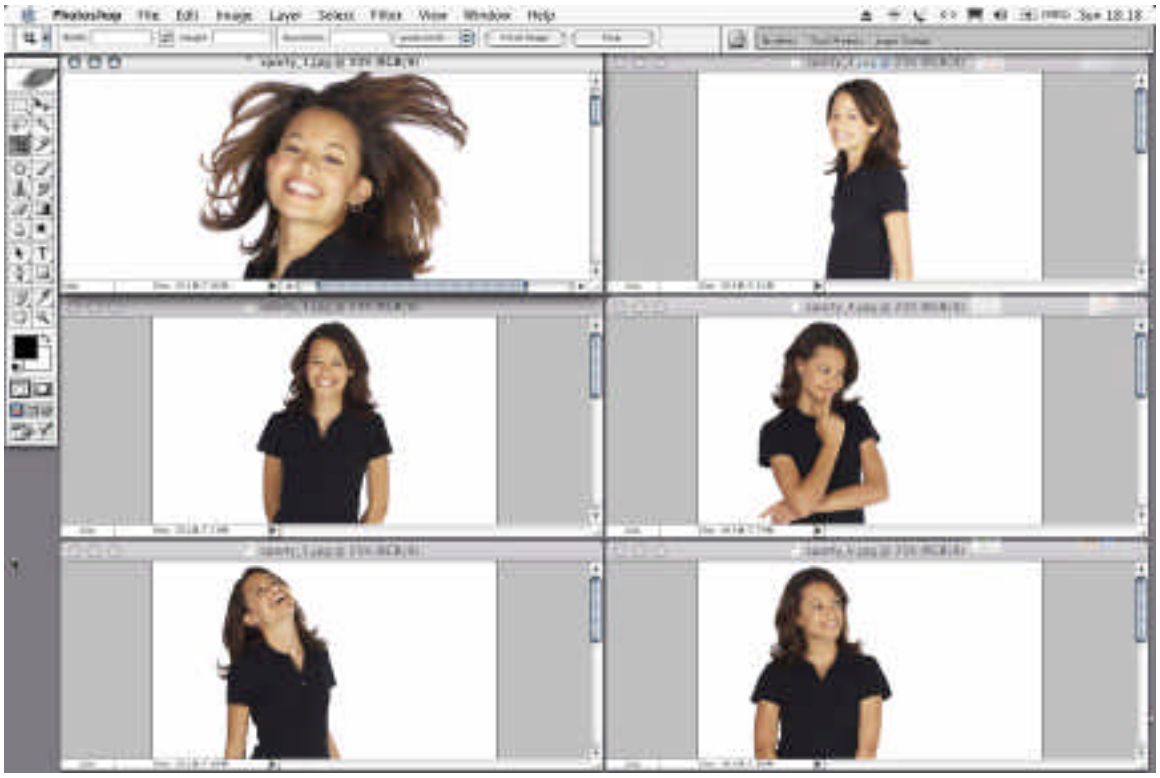


figure 11.16 After tiling the open files, zoom in on one (above) and then choose View > Match Zoom and Location (below in figure 11.17).

Figure 11.18

Press space + shift to scroll all open images in sync.

Getting into the Corners

When working in full-screen mode you can now pull the image with the hand scroll tool anywhere on the desktop as seen in figure 19. This is a fantastic feature for restoration work to get into the corners to easily repair them.

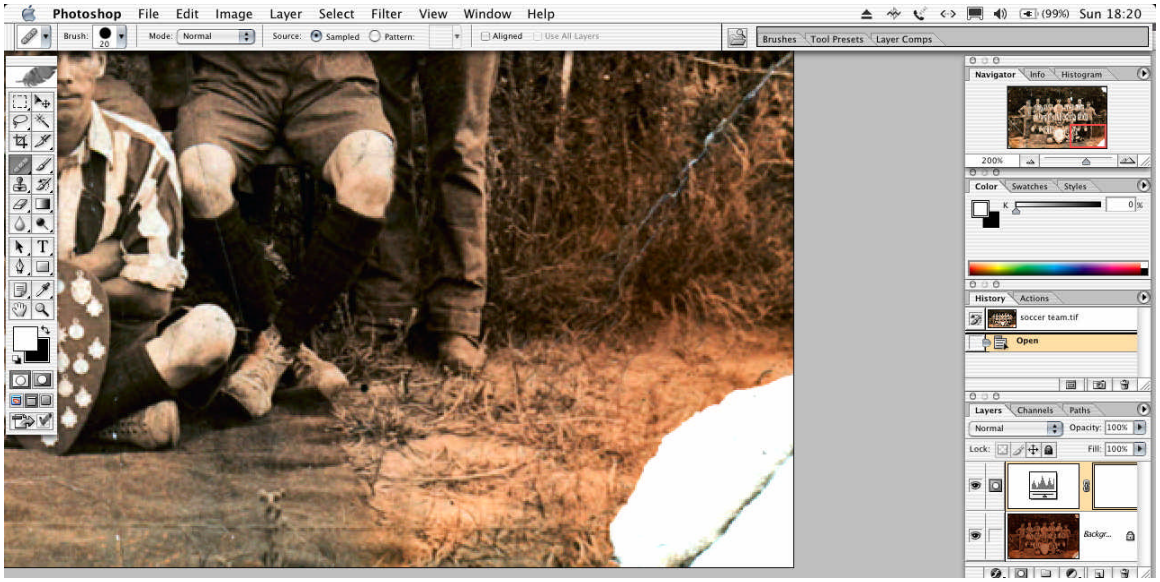


figure 11.19

When working in full screen mode use the space bar to position the file anywhere on the desktop.

The Histogram Palette

The importance of the histogram in editing digital images has resulted in Photoshop's histogram feature being upgraded and given its very own palette. Before Photoshop CS, the only way you could see a histogram for the image you were working on was to either open the Levels dialog, or open the histogram dialog in the Image menu. In that dialog, however, you could only inspect the histogram and then close the dialog. You could not work on an image while viewing the histogram display at the same time.

All of that has changed with the new Histogram palette (figure 11.20), which is much more than just placing a histogram display within easy reach. You can have it in view at all times and see that how your edits are affecting the histogram in real time. Tonal information can be displayed for the entire image, or for a selected layer or an adjustment composite. In the latter mode, you can click on each layer in your layer stack and the Histogram palette will display a different histogram for each of your adjustment layers, representing the effect that each layer is having on the image.

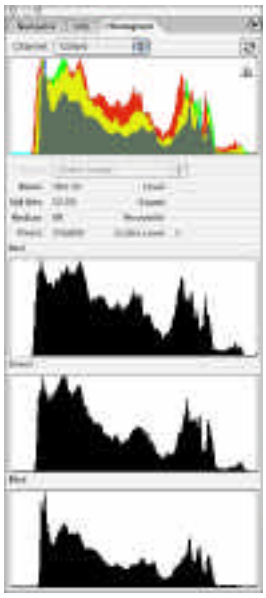


figure 11.20

The Histogram palette in expanded view.

Depending on the size of your monitor, or whether you have dual monitors, you can choose to display a compact version of the palette that just shows the graph of the histogram itself; and expanded view which shows a larger histogram along with more detailed information; or a full view that shows four separate histograms for the composite and the individual color channels. Since the Histogram palette is always basing its display on the current cached version of the image it provides a convenient button (two curved arrows) for you to update the histogram from that actual image data. Andrew Rodney explained the specific settings of the Histogram palette on www.imagingrevue.com

- Cache Settings: Because all edits in Photoshop could affect the histogram, a cache is in effect whereby the screen resolution of the current document is used to calculate the histogram. Calculating a full resolution histogram from the entire image after every

edit and operation would slow CS down tremendously. So, just like the Adobe Camera RAW histogram, the histogram palette is normally based on a downsampled version of the image. When any operation takes place, the cache kicks in indicated by a small triangle seen in the upper right of the composite histogram. Clicking on that triangle or using the Uncache Refresh menu item allows Photoshop to produce a fully calculated histogram. For very precise editing, this is usually a good idea. Note that the "Use Cache for Histogram" preferences (command / control K) are for the Levels Histogram and not this Histogram palette.

- Compact / Expanded View: The Histogram palette has two sizes and the expanded size is really the way to go assuming you have the monitor space.
- All Channel View: This allows all the color channels to be seen below the composite channel, a handy and new way to view histogram data. Again, assuming monitor real estate isn't an issue, it's very handy to have all the color channels seen.
- Show Statistics: This produces statistical data as the user moves the cursor over the histogram much as the older and now removed Histogram dialog provided. Clicking and dragging an area in either the composite or individual color channels will produce statistics on all selected (highlighted) pixels.
- Show Channels in Color: Like the preference that allows the channels palette to show individual channels in their respective color, this option shows the histogram channels their actual colors, as seen in figure 1.
- Source popup menu: This popup allows the user to view the Histogram of a selected layer. Target the layer you wish to view if more than one is in a file.
- 16 bit: The Histogram can't show a true 16 bit Histogram. Each level in the file is drawn in the Histogram so what is always seen is 256 levels. Had a true 16 bit Histogram been possible, you'd need a display the size of a small wall to show 65,000 odd levels! The "Level" read out in statistics always provides a zero to 256 scale.

The new Histogram palette is a great way to keep an eye on what's happening to your file as you edit. Keep in mind that precise clipping of pixels will only be visible when the cache is off so clicking on the double circle icon or triangle icon in the upper right of the palette is something you might want to do from time to time. For precise clipping control, Levels using the Alt / Option drag on the black and white input level sliders is still the way to work.

Improved Camera RAW

My preferred method for converting RAW captures is the Camera Raw interface in Photoshop. This was offered as an optional plug-in for Photoshop 7, and is now included as part of Photoshop CS. It provides tremendous control over the process of converting your images, and also offers an efficient workflow. To convert RAW captures, you simply open them in Photoshop as you would any other image file, and the Camera Raw dialog will automatically be displayed so you can fine-tune the adjustments to the image in the conversion process.

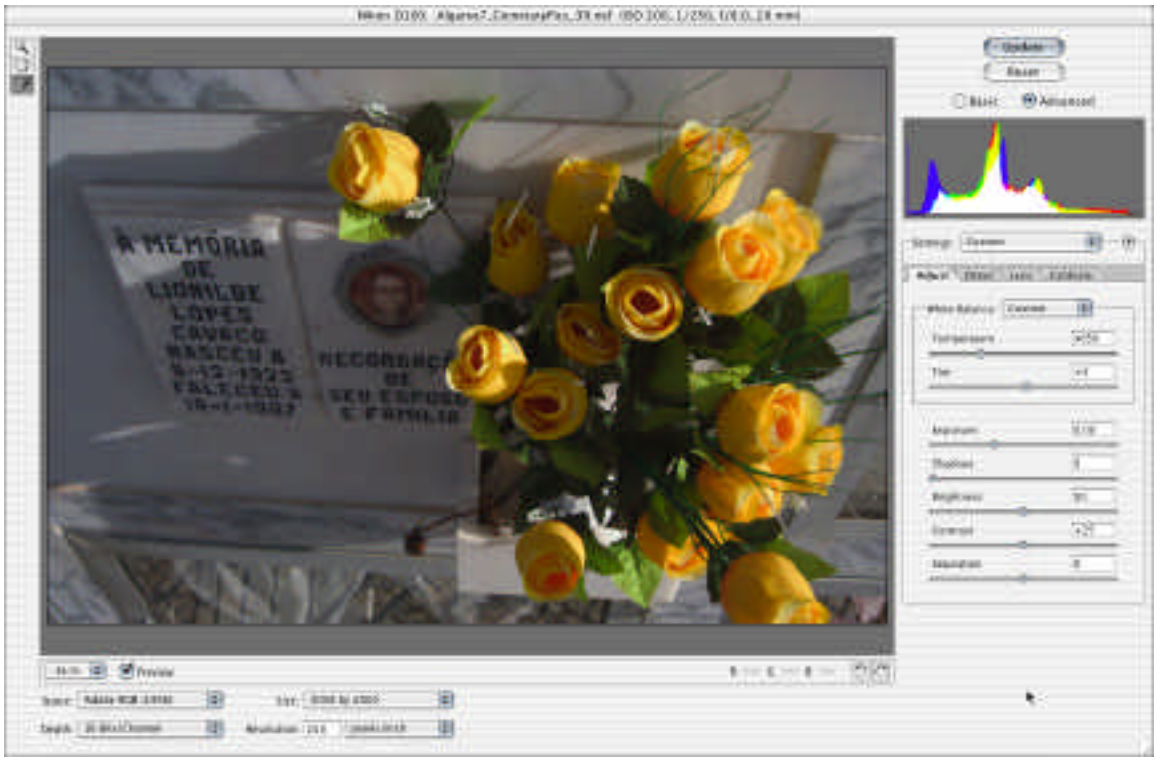


figure 11.21

The Camera RAW interface offers a great deal of control.

Basic settings

- The navigation controls in the upper left hand corner provide the same functionality of the Zoom and Hand tools in Photoshop, making it very easy to focus on particular areas of the image as you fine-tune the adjustments to be applied in the RAW conversion process. These tools function exactly as they do in Photoshop, including the ability to double-click the Zoom tool to view the image at 100%, and double-click the hand tool to size the image to fit the window and hold the space bar to scrub through an image. In the lower left hand corner, use the pull down menu to view an image at an exact increment. When judging sharpness or color artifacts it is best to view the file at 100% view.

- Just as the digital camera histogram is invaluable when capturing images to ensure proper exposure, the histogram and clipping display in the Camera Raw dialog are critical for ensuring that you aren't clipping highlights or shadows when bringing files into Photoshop.

  As Lee Varis explained in the on-line forum www.imagingrevue.com, "The clipping display for Exposure and Shadows is based on the way Photoshop does the threshold command. When you move the Threshold slider to the right, towards the highlight end of the scale what you see is the image turning black until the very last, brightest area is still white - that represents the lightest thing in the image or the first thing that will "clip" to white when you move the Exposure slider to the right. The lightest region will be different in each of the channels based on the colors of the image. When you add these "clipping displays together you get the expected additive colors (white or 255 in the red channel is "red" in RGB, 255-R + 255-G = yellow) On the shadow side the Threshold command shows the last region to turn "white" as you move the slider to

the left – it's exactly the opposite! So... one more time, the shadow slider is showing you the darkest area in a channel based on the Threshold display - if an area is black in one channel only, then it is white in the other two channels (if red and green are "white" or 255 each, then you see yellow where the blue channel is black) You're displaying the regions that are still black when everything is clipped to white in the display. In order to display the color of the clipped channel you'd have to invert the display for the Shadows slider clipping.

When the highlight slider shows:

White = 255 in all three channels
Red = 255 in the red channel
Green =255 in the green channel
Blue=255 in the blue channel
Cyan=255 in the green and blue channels
Magenta=255 in the red and blue channels
Yellow=255 in the red and green channels

When the shadow slider shows:

Black = 0 in all three channels
Cyan=0 in the red channel
Magenta=0 in the green channel
Yellow=0 in the blue channel
Red=0 in the green and blue channels
Green=0 in the red and blue channels
Blue=0 in the red and green channels

- The white balance adjustments in the Camera Raw dialog consist of two sliders and a list of preset options. Because the white balance adjustments are not applied to the actual image during a RAW capture, the changes are only applied in the conversion process. Therefore, you can adjust the white balance settings with the same result as if you had used those settings for the original capture.

  If you used the wrong white balance preset in the camera, you can select another option from the dropdown list. The default is to leave the settings as they were photographed. Because of the control provided during the conversion, I simply capture all images at the automatic white balance setting and then fine-tune them as needed.

  If a white balance preset doesn't provide the perfect adjustment for the image, fine-tune the Temperature and Tint sliders. The Temperature slider controls the overall white balance setting for the image. Moving the slider to the right will result in an image with warmer colors (yellows and reds), as though it was captured at a higher temperature setting. Moving the slider to the left will result in an image with cooler colors (blues and greens), as though it was captured at a lower temperature setting. You can also fine-tune the overall color in the image with the Tint slider, which shifts the image between green and magenta.

The Tonal & Color Adjustments tonal adjustment options provide excellent control over the brightness and contrast of the final image, as well as the saturation as discussed here:

- The Exposure adjustment allows you to produce a linear shift in brightness. The unit of measure is Exposure Value, which is what photographers would think of as the number of stops of exposure compensation. Because this is a linear adjustment that affects the brightness of all pixels in the image, it is possible to clip highlights or shadows of your image. It is important to watch the Histogram display as you adjust this setting. The Exposure control would typically be used to adjust images that are significantly over or under exposed.

- The Shadows slider functions the same way the black point slider in the Levels dialog does. It allows you to define a black point for your image, so that you can maximize contrast in the final image. You can get a preview of where detail is being clipped by holding the Alt (Windows) or Option (Macintosh) key while moving the slider. As you move the slider, you can see what color channels are losing detail based on where the color appears. When black appears, it is an indication that those areas of the image have been clipped to pure black.
- The Brightness slider allows you to adjust the overall brightness of the image, similar to the control provided by the Exposure slider. The only difference is that the Brightness slider will not clip highlights or shadows, but will instead compress the tonal information at the ends of the tonal range as you make adjustments. It is therefore a safer adjustment tool, although it doesn't provide the range offered by the Exposure slider. It can be thought of as behaving like the middle tone slider in the Levels dialog.
- The Contrast slider adjusts the contrast in the middle tones of your image. Highlights and shadows will not be clipped by this control. It therefore operates similar to creating an "S" curve to enhance image contrast.
- The Saturation slider allows you to fine-tune the saturation of colors in the image. As with the Hue/Saturation dialog in Photoshop, it is important not to increase saturation too much or you will produce artificial looking colors and lose detail in highly saturated areas of the image.

All in all, I use these controls to bring a good image into Photoshop, where I then use adjustment layers and selections to fine-tune the final look of an image.

Detail Settings

Click on the detail tab to adjust image sharpness and apply smoothing and noise reduction.

- The Sharpness setting allows you to apply some sharpening to compensate for the loss of sharpness that occurs in the digital capture process. I find that the default value of 25 is excessive for most images. Our preference is to set this to the zero and apply our own sharpening using the Unsharp Mask filter or to use Pixelgenius Photokit Sharpner www.pixelgenius.com.
- Luminance Smoothing and Color Noise Reduction both target noise in your image, breaking down the adjustments between luminosity variations and color variations. If you have noise in your images due to high ISO setting, long exposure, or other factors, these controls can help minimize that noise. The Color Noise Reduction setting can also be used to minimize Moiré patterns.

Advanced Settings

Clicking the Advanced radio button in the Camera Raw dialog adds the Lens and Calibrate tab to the available camera RAW controls to correct chromatic aberration and vignetting.

Lens tab

- Camera RAW corrects chromatic aberration where due to lens failure the size of each color channel is slightly different. This results in no color problems in the center of the frame, but color fringing away from the center of the image.

  The controls for adjusting this chromatic aberration are split into an "R/C" slider that controls fringing between red and cyan, and a "B/Y" slider that controls fringing between blue and yellow. These controls will not affect the center of the image, but will affect the area outside the center, with maximum effect in the corners of the image.

- The vignette controls allow you to compensate for images that have darker outer edges - particularly the corners - that are darker than the rest of the image. The Vignetting Amount determines how much lightening or darkening is applied to the edge of the image, and the Vignetting Midpoint slider determines how large an area will get adjusted.

Calibrate tab

- The calibrate section provides a variety of controls designed to compensate for inaccurate camera profiles. Camera Raw includes profiles for supported cameras, which describe the color behavior of the cameras. If you feel the canned profile is not providing optimal results you can fine-tune these controls to tweak the profile. Included controls are Shadow Tint, which controls the color temperature in shadow areas, as well as hue and saturation adjustments for each of the color channels. These controls are only recommended for advanced users who are very familiar with the use of camera profiles.

Output Settings

On the lower left of the Camera Raw dialog are settings that affect the output of the final image file.

- The space pull-down menu specifies the *target* color space profile that the file will be opened into. Generally, this should be set to the same value as your Photoshop RGB working space. If you want to use a color space that's not listed in the Space menu, choose ProPhoto RGB, and then convert to the working space of your choice when the file opens in Photoshop.
- The Depth dropdown allows you to select between 8 bits per channel and 16 bits per channel. I strongly recommend working with 16 bits per channel, as it provides the maximum amount of information in the final file. If you immediately convert the image to 8-bit, you are eliminating much of the benefit of capturing in RAW mode to begin with. If you convert the image to a 16-bit file, you will be able to maintain much smoother gradations of tone and color in your images. Working in 16-bit is addressed shortly.
- The Size option provides the ability to change the size of the image in the conversion process. As Bruce Fraser wrote on a www.imagingrevue.com, "If you look solely at the interpolation, with no sharpening, or with ACR sharpening applied equally to both, there's very little difference between upsampling in ACR and upsampling using Bicubic Smoother. ACR upsamples on the raw data because that's all it has to work with, not because there's any inherent superiority in doing so. The new interpolation options in Photoshop CS—Bicubic Sharper and Bicubic Smoother—are pretty awesome. All this applies only to Photoshop CS and the new Bicubic Smoother. In Photoshop 7, I'd do the upsample using ACR."
- The Resolution setting will not affect the actual output size of the image, but only the default output resolution setting for the file. This can simplify your workflow if you need to prepare images for print. For example, you can set this to the resolution you use for printing your images, and the file will be set to that output resolution.

Working in 16-bit

Previous to Photoshop CS working with hi-bit files was an exercise in tenacity that often bordered on the absurd as I jumped through work around hoops to maintain hi-bit data integrity. Now in Photoshop CS hi-bit files support layers (figure 11.22), numerous filters, painting, gradients, and shapes, and even the type layers. If you use a digital camera that

shoots into the RAW file format or a scanner that delivers hi-bit files, consider taking advantage of this new feature on images where the highest quality is required. For example, I use hi-bit files for all of my fine-art work, glamour portraits, and on high-key images where the tonal differences are so subtle that every single bit of tonal information needs to be maintained.

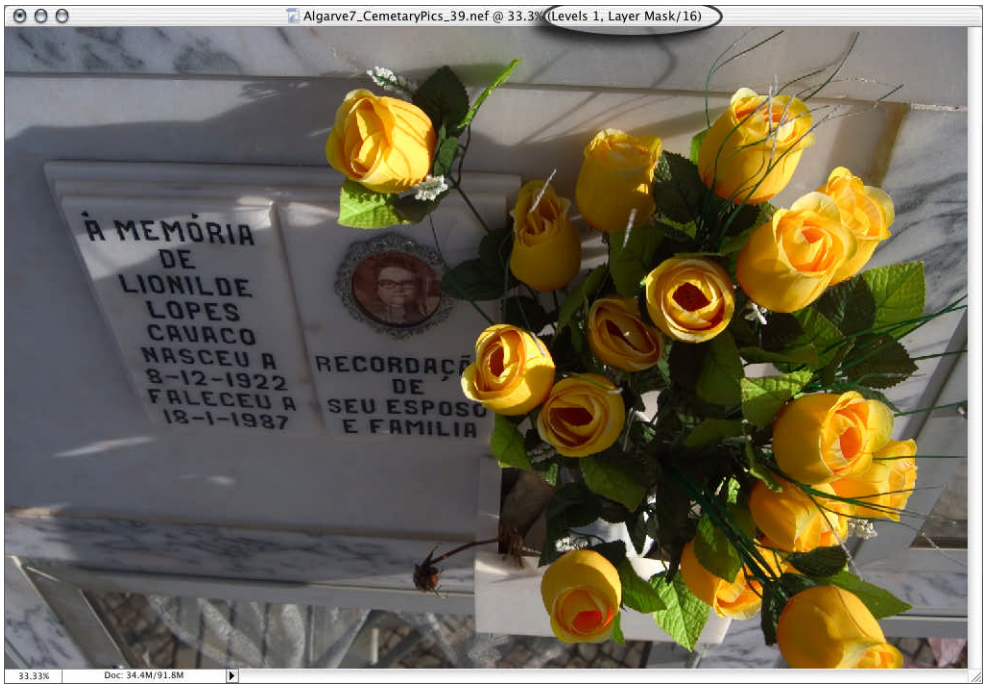


figure 11.22

The number 16 on the right hand side of the file name signifies high bit files.

The downside to working in hi-bit is that your files will be twice the size – meaning a 10 Mb scan will automatically become a 20 MB file – implying the need for larger hard drives and more RAM. Also, there is no advantage to converting an 8-bit image to 16-bit in the hope to improve image quality. It won't work and it will clog up your hard drive. To take full advantage of the new hi-bit capabilities in Photoshop CS always start with true hi-bit files from digital cameras or scanners.

New Color and Tone Correction Tools

Sometimes I am simply amazed at the improvements the Adobe engineers create with each release of the application. With Photoshop CS they have once again amazed me with a number of features – especially the new Shadow / Highlight correction and Photo Filter controls.

Shadow/Highlight

The Shadow / Highlight command is a fantastic feature to correct shadows in a well-exposed image, silhouetted images due to strong backlighting, correcting subjects that have been slightly washed out because they were too close to the camera flash, and to open up under-exposed images. The Shadow / Highlight command does not just lighten or darken an image, it lightens or darkens based on comparing and taking into account the surrounding pixels in the shadows or highlights. In figure 11.23 you see a photograph that I took in silhouette and figure 11.24 shows how much detail that Shadow / Highlight brought out.

figure 11.23

Poorly exposed original (above) and (below) the shadow/highlight brought out image details quickly and well.

Tip: The Shadow/Highlight feature is not an image adjustment layer and must work on actual pixels. To avoid degrading the file, always duplicate the background layer (figure 11.25) before accessing the Highlight/Shadow command. This will give you the added flexibility of being able to use layer opacity and layer masking to fine-tune the corrections.

figure 11.25

For the best results, duplicate the background layer before accessing Highlight/Shadow controls.

Image > Adjustments > Shadow / Highlight opens up with a simple interface set to fix images suffering from backlighting problems. Clicking on 'Show More Options' offers a tremendous amount of controls including:

figure 11.26

The additional options allow for precise control and image improvements.

- Tonal Width controls the range of tones in the shadows or highlights that are modified. Move the slider to the left or right to decrease or increase the Tonal Width value. Smaller values restrict the adjustments to only the darker regions for Shadow correction and only the lighter regions for Highlight correction. Larger values include more tonal regions (such as adding the midtones) that are being adjusted. A value of 100% produces a linear effect; for Shadow correction, deep shadows get modified the most with no correction to bright highlights and half the shadow correction to midtones. The tonal width requirements will vary from image to image. Specifying a value that is too large for a given image might introduce halos around strong dark to light edges. The default settings attempt to reduce these artifacts. These halos may occur when the Shadow or Highlight Amount values are too large; they can also be reduced by decreasing these values.
- The Tone Width default is set to 50%. If you find that you are trying to lighten a dark subject but the midtones or lighter regions are changing too much, try reducing the Shadow Tone Width towards zero. Then only the darkest regions will be lightened. On the other hand, if you need to brighten up the midtones as well as the shadows, increase the Shadows Tone Width toward 100%.
- Radius controls the size of the local neighborhood around each pixel that is used to determine whether a pixel is in the shadows or highlights. Moving the slider to the left specifies a smaller area, and moving it to the right specifies a larger area. The optimum local neighborhood size depends on the image. It's best to experiment with the adjustment. If the Radius is too large, the adjustment tends to brighten (or darken) the whole image rather than brightening the subject only. It's best to set the radius to be roughly the size of the subjects of interest in the image. Experiment with different Radius settings to obtain the best balance between subject contrast and differential brightening (or darkening) of the subject compared to the background.
- Color Correction allows fine-tuning of the colors in regions of the image that have changed. This adjustment is only available in color images. For example, if you increase the Shadows Amount slider, you will bring out colors that were dark in the original

image. You may want these colors to be more or less vivid. Adjust the Color Correction slider to give the best results. In general, increasing values tend to produce more saturated colors and decreasing values produce less saturated colors.

Since the Color Correction slider only affects changed portions of the image, the amount of color variation depends on how much or little Shadows or Highlights Amount is applied. The greater the correction made to the shadows and highlights, the greater the range of color correction available. The Color Correction slider applies subtle control over the darkened or lightened colors in the image. If you want to change the color hues or saturation over the whole image, use the Hue/Saturation command after applying the Shadow/Highlight command.

- Brightness adjusts the brightness in a grayscale image. This adjustment is only available for grayscale images. Moving the Brightness slider to the left darkens a grayscale image, and moving the slider to the right lightens a grayscale image.
- Midtone Contrast adjusts the contrast in the midtones. Move the slider to the left to reduce the contrast and to the right to increase the contrast. You can also enter a value in the Midtone Contrast text box. A negative value reduces contrast, and a positive value increases contrast. An increase in Midtone Contrast adjustment produces greater contrast in the midtones while tending to darken the shadows and lighten the highlights.
- Black Clip and White Clip specifies how much of the shadows and highlights will be clipped to the new extreme shadow (level 0) and highlight (level 255) colors in the image. Larger values produce an image with greater contrast. Be careful of setting the clipping values too large, as this will lead to reduced detail in the shadows or highlights as the intensity values get clipped and sent to pure black or white.

Color Match

The Match Color command matches colors between multiple images, between multiple layers, or between multiple color selections. It also lets you adjust the colors in an image by changing the luminance, the color range, and neutralize a colorcast. It is an ideal feature for when you need to match the color feel of a series of images.

Note: The Match Color command only works in RGB mode.

To match the color between two images:

1. Open all images that need to be matched and select Image > Adjustments > Match Color as seen in figure 11.27.
2. Use the source pull down menu to select the reference image (figure 11.28).
3. Adjust luminance, color intensity, and fade options as needed to match the portraits as seen in figure 11.29.

figure 11.27

Open one or more images that need to be matched.

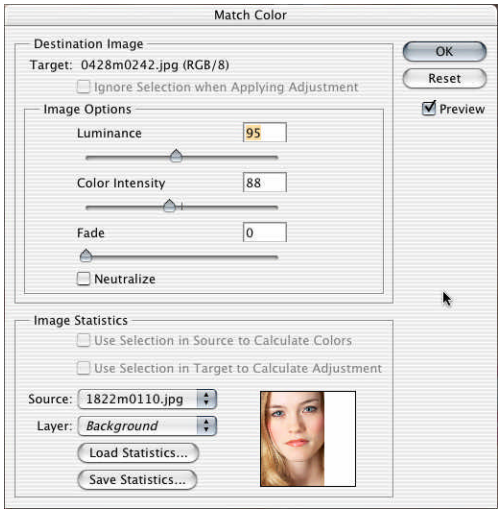


figure 11.28

Select the reference image via the source pull down menu.

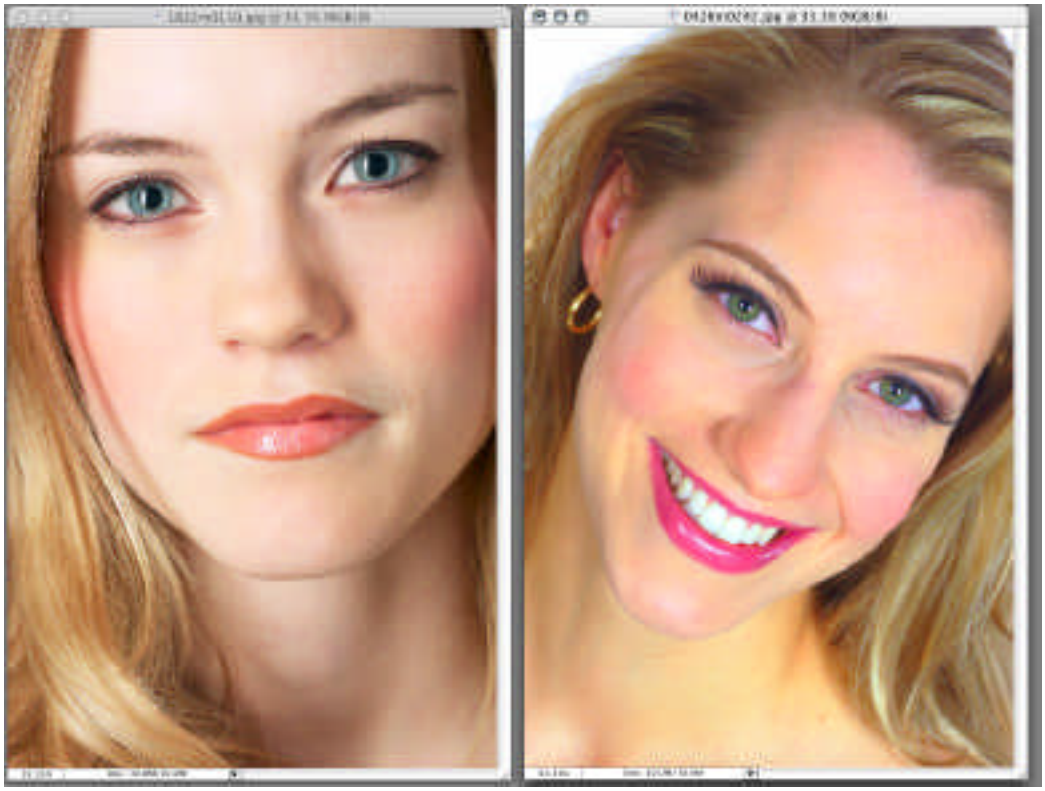


figure 11.29

After Match Color the portraits are much more similar.

The additional Match Color can also be used to transfer the interpretive color palette form one image to another or to another selected area of an image. In the example seen in figure 11.30 and 11.31, I was asked to match the holiday wrapping paper to the golden feel of the holiday decoration by:

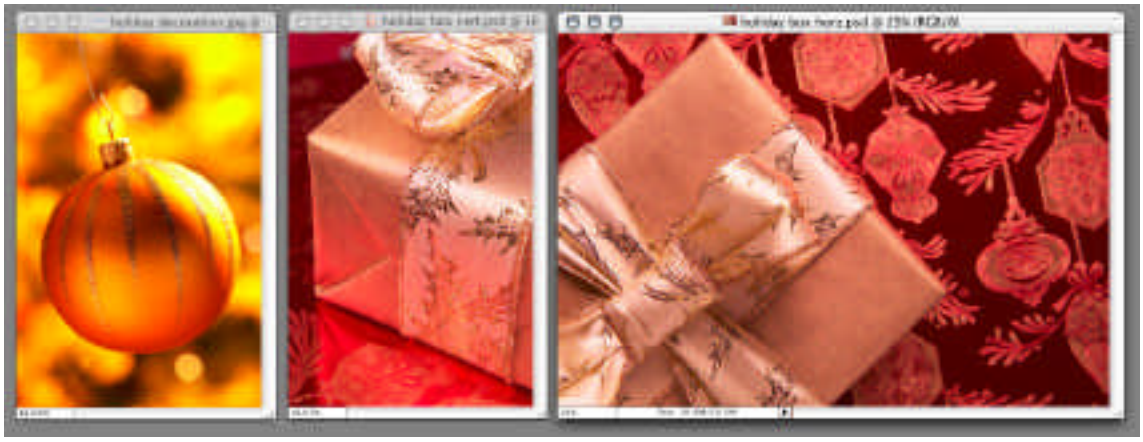


figure 11.30

The red wrapping paper needed to match the gold of the holiday decorations.

figure 11.31

After Match Color the colors have been harmonized.

1. Selecting the holiday wrapping paper with the Pen Tool and creating a selection, which I saved into the alpha channel (figure 11.32).

2. I activated the mask and selected Image > Adjustments > Color Match and targeted the holiday decorations as the source as seen in figure 11.33.

3. I repeated this procedure on the second image and the graphic designer was thrilled with the color continuity of the images.

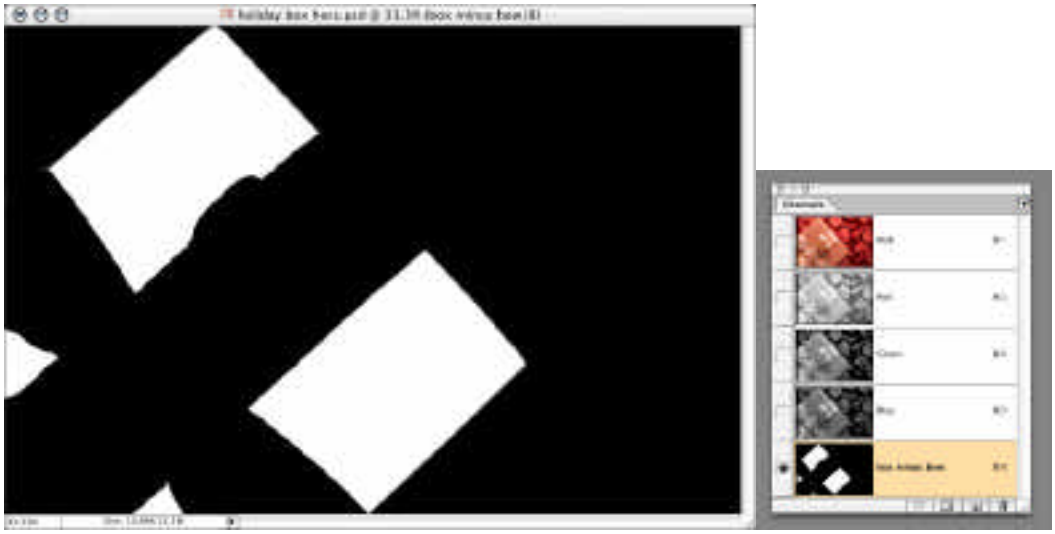


figure 11.32

Saving a selection into an alpha channel of later use.

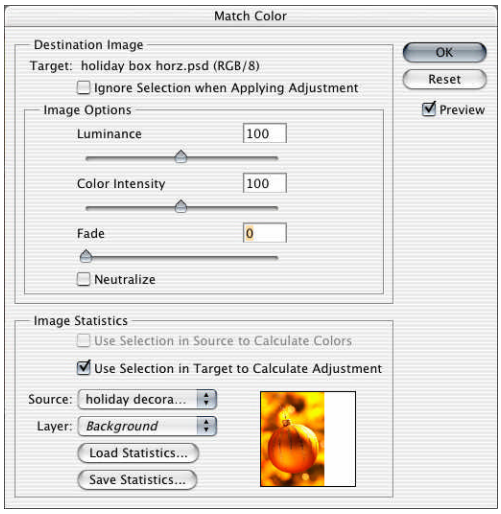


figure 11.33

Match Color respects selections.

Color Replace

Color Replace is a fantastic feature that maps a color or shades of colors onto another image or selection. For example, a photographer shoots a series of sports wear clothing. A few weeks after the shoot it turns out that a certain color jacket will not be available for sale. Rather than reshooting the photos of the jacket, which would be an expensive and time-consuming endeavor, the photographer could use Color Replace to select the correct color and apply it to correct the jacket color. In the example shown here a client asked me to change the dress on the right from orange to green, to match the layout as seen in figure 11.34;

figure 11.34

The layout on the left and the original file on the right.

1. Roughly Marquee the area to be changed and Layer > New Layer > Layer via Copy to place the orange dress area onto a new layer as seen in figure 11.35.

2. Image > Adjustments > Color Replace and I used the eyedropper to select the orange dress. Holding down the shift key while sampling with the eyedropper adds to the selection. Adjust the fuzziness to add soft transitional areas to the selection as seen in figure 11.36.

3. Click on the replace color picker square and use the eyedropper to select a replacement color either via the Adobe Color Picker or in this case I clicked on the green dress in the designer's page mock-up (figure 11.37).

5. Adjust the luminance and saturation to finesse the color to match the scene as seen in figure 38.

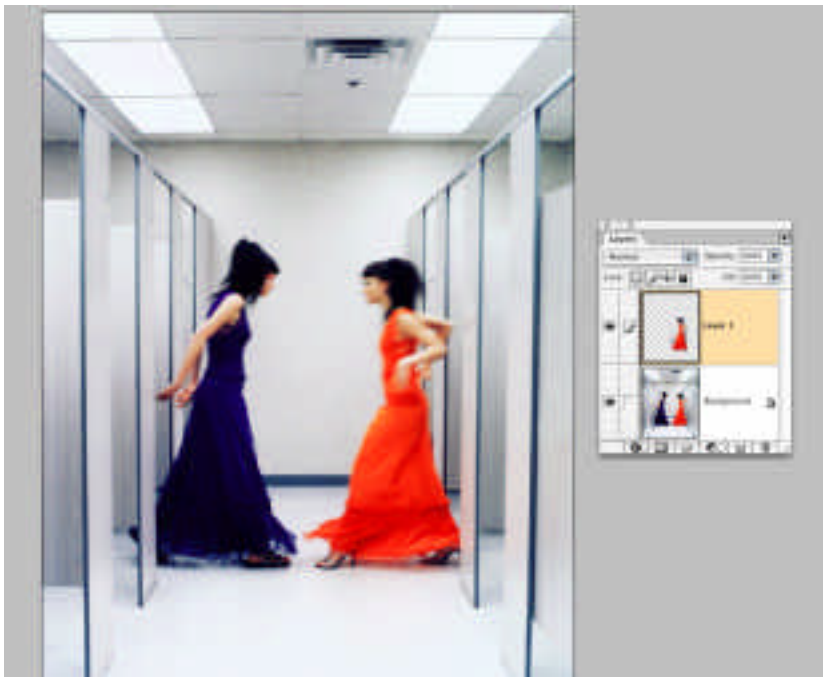


figure 11.35

Selecting and placing the part of the image that needs to be changed offers both control and flexibility to adjust the changes.

figure 11.36

Fine-tuning the initial color based selection.

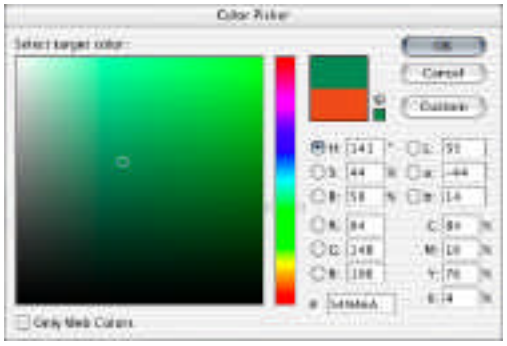


figure 11.37

Selecting the replacement color.

figure 11.38

Fine-tuning the replacement color.

Due to the long shutter speed and motion blur in the image there is still a bit of orange peeking though the file. I uses the new Color Replacement brush (discussed later in this chapter) to refine the edges as seen in the before and after close-ups seen in figure 11.39.

figure 11.39

After using the Color Replacement brush to fine-tune the soft transitions.

Photo Filters

How often have you picked up your photos from the photo store only to be unhappily surprised by the color? You think back to the scene and don't remember the shadows being blue or that the room light was orange while you were taking the pictures. Your eyes see light as neutral i.e. they balance all light to white. But color film can't adapt to the light – it captures the light as it really is. Meaning on a bright sunny day the shadows will turn out blue figure 11.40 or images may seem to warm if photographed early in the morning. Professional photographers use color conversion and light balancing filters while taking color photographs to compensate for undesired color casts that working at certain times of day (corrected file figure 11.41), at higher altitudes, or in artificial lighting situations may cause. Additionally, photographers use warming or cooling photo filters to subtlety enhance a photo's mood or color rendition.

figure 11.40

The shadows are too blue.

figure 11.41

After used Photo Filter to warm the shadows.

Which Filter to Use and When

The Photo Filters in Photoshop CS mimic the filters that professional photographers use to correct for color temperature contamination and shifts. The two primary types of color compensation filters are warming and cooling. The warming filters are orange to amber in color and subtract blues and cyan. The cooling filters are blue in color and subtract red, green, and yellow.

- The 85 filter is a warming filter. Amber in color; use it to accentuate the warm rendition of a sunset or sunrise and to enrich skin tones.
- The 81 filter is a milder warming filter. Pale amber in color; use this filter to remove blue tones in photos taken on overcast days or to clear up bluish shadows in sunny scenes. It is also ideal to add warmth to portraits.
- The 80 filter is a cooling filter. Blue in color; use it to correct pictures with strong yellow to orange colorcasts created by taking the picture in tungsten or candlelight.
- The 82 filter is a milder cooling filter. Use it for waterfalls or snow scenes to turn them slightly blue, emphasizing the coolness of the subject.

Making the Shadows Neutral

The picture of the Portuguese church was taken on a bright, fall afternoon and the shadows are too blue and unattractively cool. To compensate for this I used the Photoshop Photo Filter Adjustment layer.

1. Layer > New Adjustment Layer > Photo Filter
2. Click the Filter radio button and select Warming Filter (81) to neutralize the blue shadows.
3. Adjust the density slider – in this example I used a density of 20%.
4. Changing the layer blending modes can accentuate the correction color correction effect and by changing the blending mode to overlay, softlight, or hardlight you can achieve excellent results very quickly as seen in figure 11.43.

figure 11.43

Image corrected with the 81 filter at 20% density set to softlight blending mode.

Since the Photo Filters are Image Adjustment Layers you have the additional advantage of being able to adjust their strength with the layer opacity, layer blending modes, and control where the corrections take place with layer masks.

Improved Healing, Patching, and Redeye Reduction

The introduction of the healing engine in Photoshop 7 was a huge improvement for restoration and retouching professionals. In Photoshop CS you can heal onto an empty layer, which helps to reduce unnecessary file size bloat.

1. Layer > New > New Layer
2. Activate the Healing brush and click on 'Use All Layers' in the options bar (circled in figure 11.44).
3. With the new layer active, option / alt click to define good texture information and paint with the healing brush. Photoshop will place all of the repairs onto the new layer, which allows you to erase let than optimal healed areas and start over again without having to redo a lot of work. Figure 11.45 shows you what the image look like as you are working and 11.46 shows just the 'Clean-up' layer.

figure 11.44

Make sure to check 'Use All Layers'

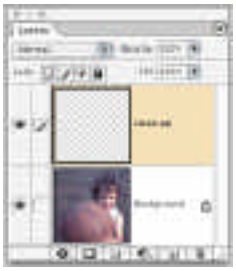


figure 11.45

As you are working you will not see the separate layer.

figure 11.46

The isolated 'Clean up' layer.

- The patch tool now shows the area that the patch tool is accessing to calculate the repair. After selecting the area to be patched, drag the selection to good image information and keep an eye on the original selection to match the repair with good image information.
- Nested under the Healing brush is the Color Replacement brush. This is a useful tool to quickly remove red eye caused on on-camera flash or to clean up color artifacts and discolorization.

To remove red eye.

1. Duplicate the background layer and zoom in on the eye or area to be repaired (figure 11.47).
2. Select the Color Replacement tool and choose a brush tip from the options bar that is smaller than the red area of the eye.
3. In the options bar make sure that Color is selected. For the Sampling option, choose Once to erase only areas containing the color that you target. For the Limits option, select Discontiguous to replace the sampled color wherever it occurs under the brush. Drag the Tolerance slider to a low value (around 30 percent) to replace only the few colors very similar to the pixels you click.
4. Typically, black is a good choice, but you could try other colors to more closely resemble a person's eye color. To choose a color, click the foreground color swatch in the toolbox. In the color picker, choose a color that looks good, and then click OK.
5. Click once on the color you want to replace in the image. Drag over the red with black to repair the image to achieve the results seen in figure 11.48. If all the red isn't removed, try increasing the Tolerance level in the options bar to correct more shades of red.

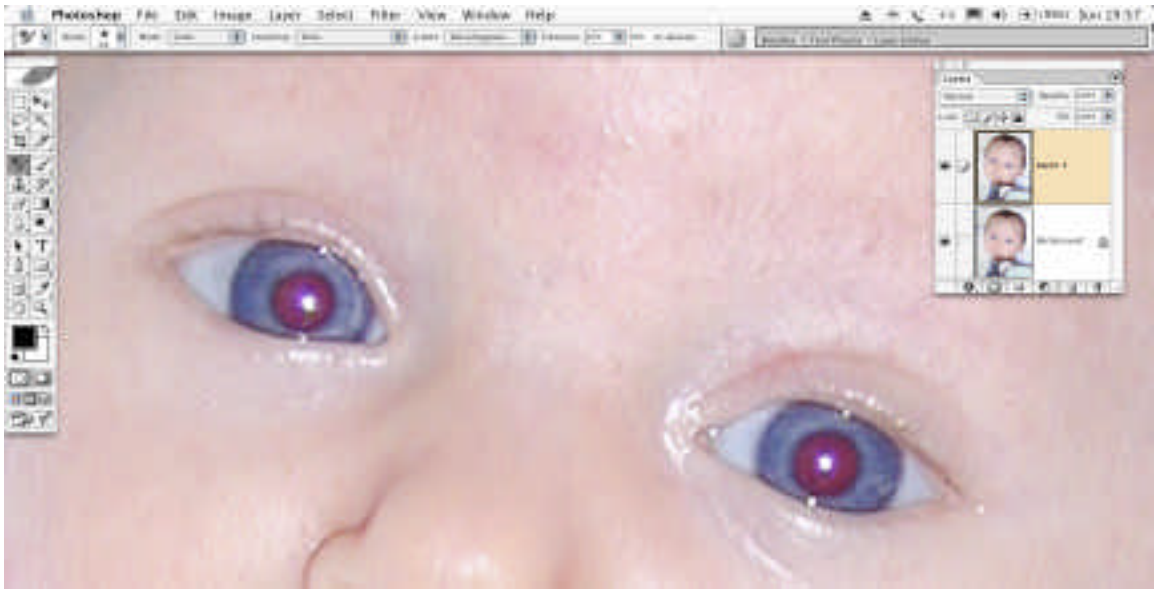


figure 11.47

Before redeye removal

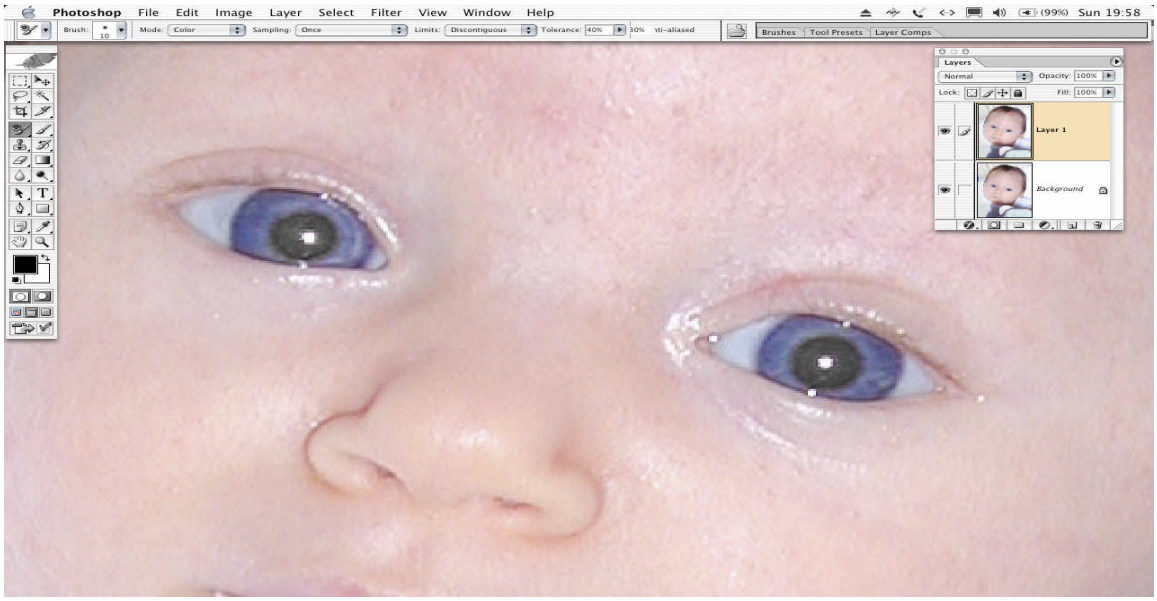


figure 11.48

After redeye removal.

Closing Thoughts

In addition to the broad-brush stroke approach of this addendum, Photoshop CS includes many smaller but not less important improvements: a New document interface, support for video professionals, a photo-realistic Lens Blur filter, Layer Comps to organize and view layers, nested layers, a Filter Gallery interface, type on a path functions, and an intriguing 'How to' function that lets you write tips and techniques that will appear in the Photoshop Help menu.

All in all, the Photoshop CS offer powerful and subtle features to help you improve and create images. No one is suggesting that you take bad pictures on purpose – but now you will be able to improve those photos that didn't turn out the way you expected.