

Pacific New Media

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Digital Imaging Workflow in Adobe Photoshop

All color and tonal correction editing should be done in a non-destructive manner, that is not directly on the underlying pixels. Editing images in Adobe Photoshop is inherently destructive, which means you lose pixel information unless you follow one of two methods of image editing:

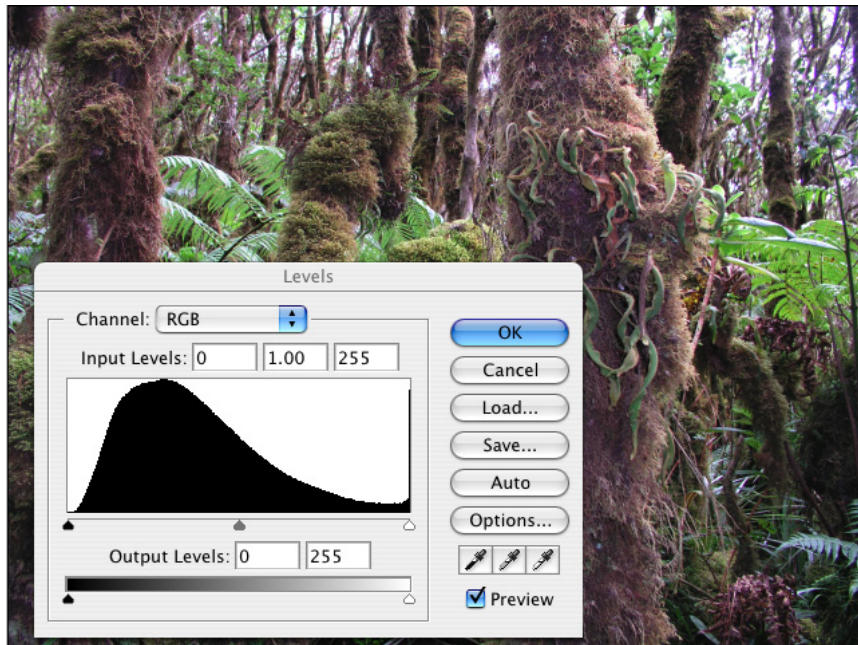
1. Using Adjustment Layers for image correction.
2. Using Adobe Camera RAW or Lightroom for image correction, which writes "instructions" to the file for editing purposes and does not change the underlying pixel information until output.

1. Create Duplicate layer either from the layer menu or from the new page icon at the bottom of the layer palette. Drag the background layer to the new page icon (directly to the left of the layer palette trash). Your background layer is your original image. You can return to the integral, unchanged image at any time if you do not like the changes you have made to the duplicate layer.

2. Enhance Dynamic Range

A vibrant photographic image generally has a full range of tones, from small areas of complete black to small areas of complete white.

Create an Adjustment Layer for Levels either from the layer menu, the adjustment palette, or the black/white circle icon at the bottom of your layer palette. Check histogram to ascertain dynamic range of tonal values. If the histogram information does not extend to the black or white point, move the black point and white point to the first appearance of shadow or highlight density respectively in the histogram. Move the center slider to adjust the density. Moving the black or white sliders changes the contrast of the image. Moving the center slider changes the density of the image.

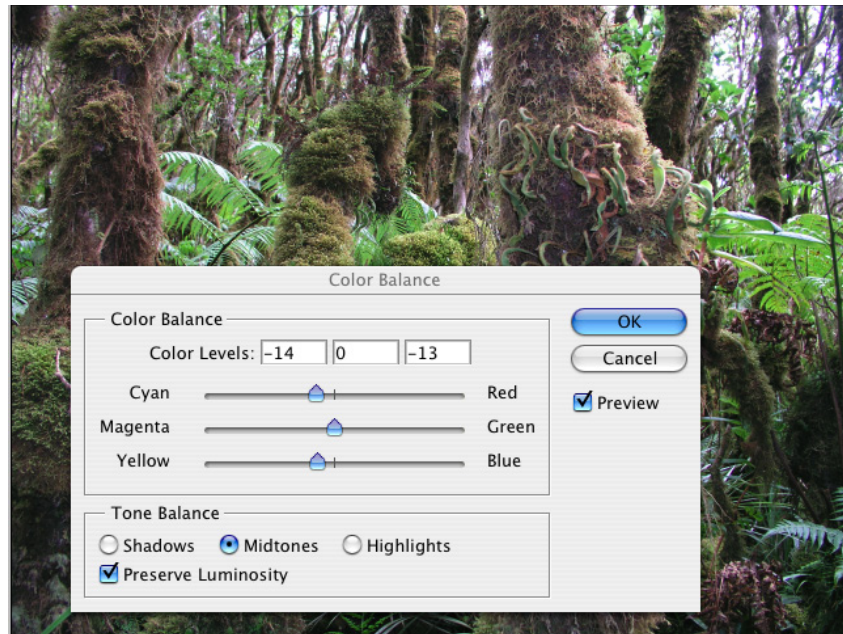


For 8 bit images, do not use the levels control under the image menu>adjust levels. Do not use the brightness/contrast control on the image menu>adjust brightness and contrast for major changes; use only for small, fine-tuning changes. Banding of the image may result with a degradation of pixel information and clipping of tonal values, with a corresponding loss the subtle tonal gradations of the image. This is very important for 8 bit images. For 16 bit images, photographed in RAW mode, you have enough pixel information to edit the image without degrading the pixels. Using adjustment layers is preferable in either case, however, since you can return to the adjustment layer to make changes at any time.

For 80% of your images, you can use image>adjust>auto color to correct your color and dynamic range at the same time. This will work if there is a neutral value, i.e. grey or white somewhere in the image.

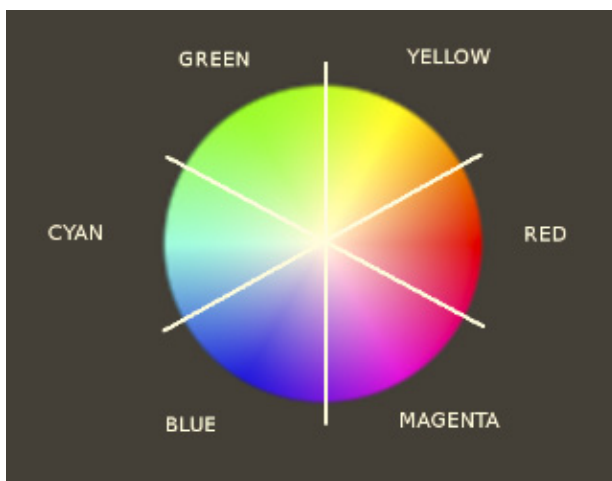
3. Correct Color Cast

Most digital capture chips, scanners, and traditional photo processing leave a color cast of varying degrees over some (i.e. highlights or shadows) or all of your image. Photographing at altitude or on the water, or in non-standard lighting conditions can also lend a color cast to the image. These color casts must be removed to reveal the inherent colors of the scene.



For color cast corrections, create an adjustment layer for Color Balance, using the black/white circle icon at the bottom of the layer palette. Adjust sliders in varying amounts to remove any color cast. Always begin with whatever color cast is in predominance and gradually build to the more subtle changes. For example if both blue and magenta are in excess, determine which color is most dominant and correct that first.

There are three areas you can change separately: midtones (entire image), shadows, or highlights. Leave Preserve Luminosity button ON to minimize tonal changes due to color corrections.



If you are NOT familiar with color correction of photographs, please refer to the color wheel. If any color is in excess, subtract that color or add its opposite.

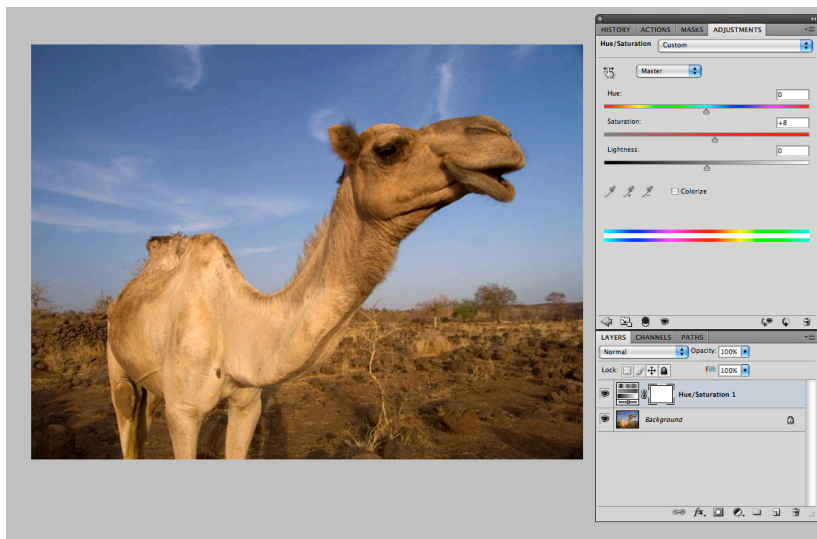
4. Hue and Saturations Adjustments

Hue = Color itself, i.e red, green, orange, etc.

Saturation = Intensity of the color

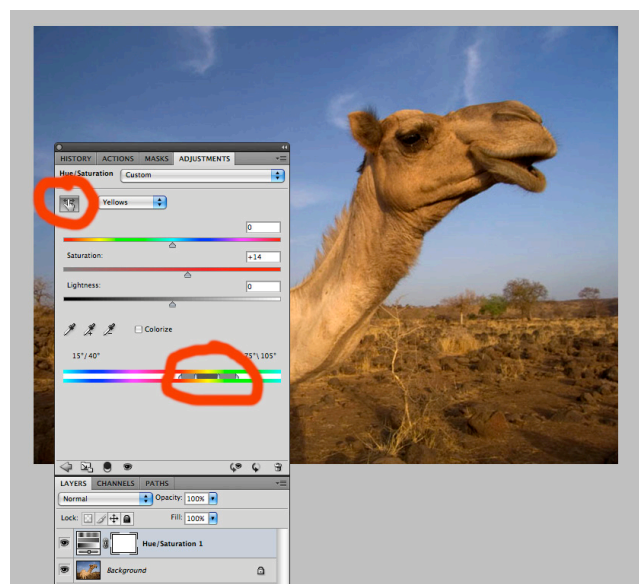
Value = How light or dark the color is; how much light does it reflect?

You can change the hue and saturation of your image, either globally (the entire image, or locally (parts of the image) using the Hue/Saturation Adjustment Layer.



Make an Adjustment layer for Hue/Saturation and move the sliders as needed. Be careful not to give too much color saturation. It is a common problem and the sure sign of a beginner at PS.

To target particular color areas and make changes ONLY to those colors. Click on the hand tool (circled) and select (using the eye dropper that appears, click in the image) the color range you want to change. That color range will be shown on the color scale at the bottom of the palette (also circled). You can adjust the sliders outward or inward to select more or less of that particular color range. Then, adjust main sliders for hue or saturation and you will see that ONLY the colors that you selected will change, leaving the rest of the image unaffected.



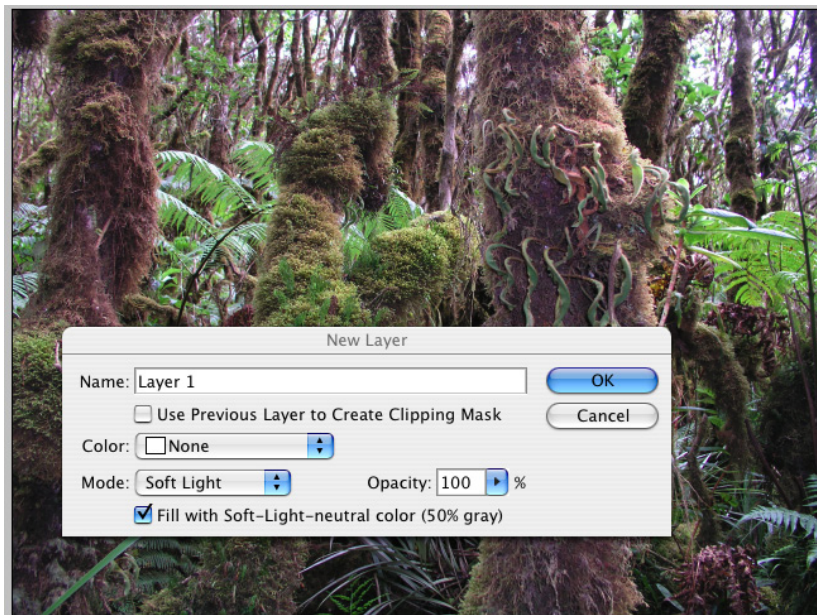
5. Image Enhancement

A wide range of tools are available in Photoshop to enhance your image. Chief among these tools are dodging and burning (making selected areas of your image lighter or darker. For example, in a back-lit portrait, you may want to lighten a face that is heavily in shadow, or you may want to darken a sky that is too light.), enhancing or changing color over all or part of an image, and adjusting perspective

Dodging and Burning

To dodge and burn, DO NOT use the dodging and burning tools in the Photoshop toolbox. While these tools are central in a photographic darkroom, they tend to create hazy and vague areas of tone and color in Photoshop. A much better method of dodging and burning is as follows:

- Make a new layer from the layer menu or layer palette submenu. Choose mode>overlay. For a less pronounced, softer effect, use the mode>soft light instead of mode>overlay when creating your new layer for burning and dodging. And check the radio box to fill with soft-light neutral grey. Now, select the brush tool from the toolbox a brush size large enough to burn or dodge the area you wish to lighten or darken. VERY IMPORTANT: In the brush submenu, choose a very low opacity. I use anywhere from 5-15%. Any more may create obvious areas of inconsistent tone.



- Make sure your foreground and background color swatches are set to their defaults: black and white. To LIGHTEN parts of an image, paint with white using the brush tool on the area you wish to lighten. To DARKEN parts of an image, paint with black on the area you wish to darken. Continue painting until you have achieved the quality of tonality that you desire. This is non-destructive to the image; you are painting on a layer that you can trash and re-do at any time.

Enhance Color

To enhance color, as stated above, create an adjustment layer for Hue/Saturation. This adjustment allows you to edit the three properties of any color: hue, saturation, and value. And further, it allows you to edit these properties over the entire image or in selected channels of any of the additive and subtractive primaries. For example, if you want the reds or the yellows or the greens to have greater saturation, choose the channel you desire and increase the saturation. Remember to use this tool with restraint, else your images may look exceedingly unnatural.

Adjust/Change Perspective

Photoshop allows you to easily adjust or change perspective problems such as key stoning, when your lens is not precisely parallel to the subject, or barrel distortion common with extreme wide-angle lenses.

Create a duplicate layer of your image from the layer menu or layer palette submenu. Edit transform effects cannot be employed to the background layer.

Go to edit>transform>perspective to change perspective. Move handles as needed.

Go to edit>transform>distort or skew to change the proportions of line and shapes. Move handles as needed.

Go to edit>transform>scale to change the size of an object on a layer. Hold down the SHIFT key to constrain your changes, that is to maintain the proportions but to change the size.

6. Retouch and Correct Imperfections

Removing dust spots, intruding elements, and retouching skin tones are all within the capabilities of Adobe Photoshop.

Clone tool = grafts pixels from one part of an image (the source) to another (the destination.) Best tool for dust spots and removing interfering elements.

Healing Brush tool = blends pixels from the source to the destination. Best tool for retouching skin tones. Pixels from the source are blended into pixels from the destination, insuring smooth retouching. Ideal for skin tones and removing wrinkles, blemishes, and skin imperfections. Use with restraint. Removing ALL wrinkles and blemishes looks unnatural and is a sure sign of a Photoshop novice.

To use the clone or the healing brush tool, select pixels that closely match in both color and tonality the area you wish to retouch or remove. Select a brush size from the tool sub-menu (directly under the main Photoshop menu) that is equivalent to the area that you want to clone. A brush slighter larger than the imperfection is often ideal, since you want to avoid the blurred look of “painting” the pixels.

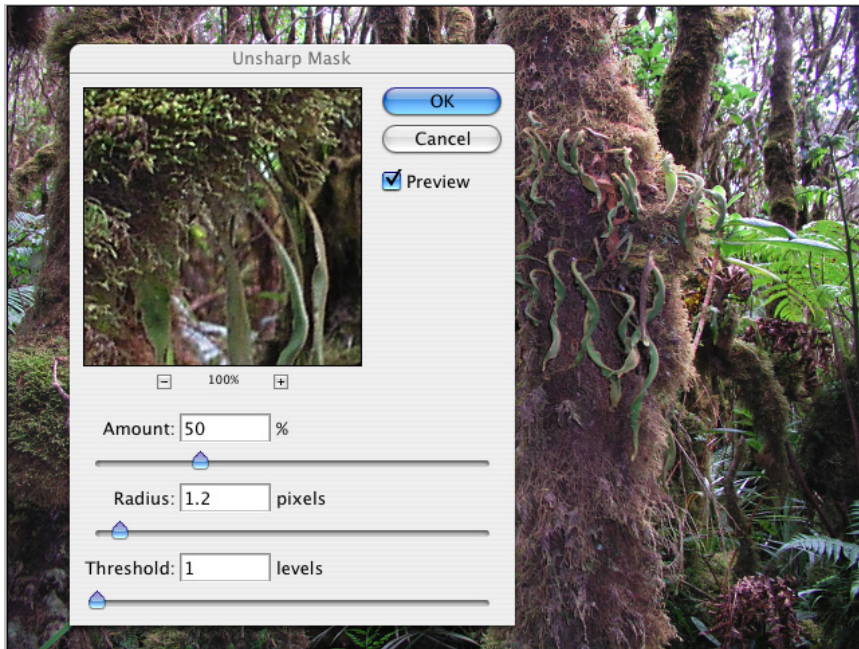
Option-click your source point. Let go of the option key and move the cursor over the area you want to retouch. Click on the area and you will see a crosshair (your source point) and your cursor location (your destination point). The pixels from the source area will replace the pixels in the destination area. Make certain you are working on the content layer (your duplicate background image) and not one of your adjustment layers.

7. Sharpen

Sharpening is the final step in the digital imaging workflow. All image editing changes may affect sharpness of the image. Therefore, you employ sharpening AFTER all the other steps are complete.

Unlike film, most digital capture chips and scanners do not create optimum sharpness in the image. You must sharpen the image manually. However, many cameras, esp in jpg mode, have a sharpness control built in to the camera settings. Since many images are over sharpened, see if your camera has sharpness built in, and turn it off or turn it down. It is far better, allowing for more control, to sharpen your images as desired in Photoshop.

Remember. Sharpening an image is sharpening the pixels. An extremely out-of-focus or blurred image cannot be made sharp in Photoshop. An image that is slightly blurred



from camera motion or slightly out-of-focus can be helped with the sharpening tools in Photoshop. But all images made with digital capture chips generally need some degree of sharpening.

To Sharpen: You should sharpen on your background copy layer. Select the background copy layer and go to the main Photoshop menu: Filter>Convert for Smart Filter. By sharpening on a smart filter, it is dynamic, which means that, similar to an adjustment layer, you can go back and change or refine the sharpening at any time. After converting for Smart Filters, Go to the main Photoshop menu filter>sharpen>unsharp mask. Use an amount of 50-100%, a radius of 1-2, and a threshold of 1-4 for most images. The higher the resolution of the image, the greater your sharpening needs to be. For higher resolution images, use greater numbers on the controls.

Many photographers have their own favorite methods and formulas for sharpening. Experiment and find what works for you. My own preference is to under sharpen rather than over sharpen. I usually begin at an amount of 100% - 150% and a Radius setting of .75-1.2. Too much sharpening creates a “posterized” effect and reduces the subtleties of tonal gradation and color relationships in the image.

For portraits, use a larger Threshold setting; for landscapes a smaller Threshold setting.

8. Prepare image for print or web

Controls for adjusting your image size and resolution are found in the Photoshop menu under image>image size

For most print purposes, you need a target resolution of 300 dpi. Use Tiff or native Photoshop format.

For web or for disseminating images in email, use a resolution of 72dpi, the resolution of most computer monitors. Try to create a file size of under 500kb when sending images over email or placing on a website. Use jpg format. Change size of image if needed to meet the target file size.

For print work, that is taking your image to a printing press, use twice the line-screen of your printer:

Newspapers are 65-75 lpi X2 = 130-150 dpi

Brochures, newsletters are often 100-125 lpi X2 = 200-250dpi

Magazine reproductions are often 150 lpi X2 = 300 dpi

Art books can be up to 200 lpi X2 = 400 dpi

Remember this is for a 1:1 reproduction. For scaling your image up, multiply the target resolution by the percentage you are scaling the image.

For example, going from a 4X5 transparency to an 8X10 print is four times larger. If you need a target resolution of 300 dpi, you need an actual resolution of 1200 dpi (300dpi X4 = 1200dpi) since you are scaling your image up by 400%.

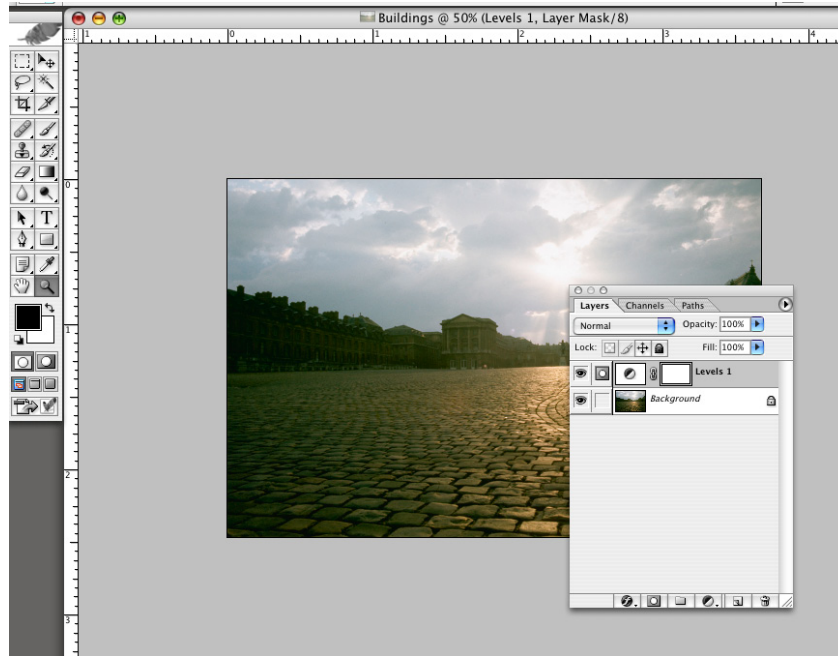
9. Burning and Dodging with Layer Masks

One of the most powerful features of Photoshop in editing images is found in the layer mask feature built into the adjustment layers. Using masks is a highly flexible way to provide selective controls to your image: advanced burning and dodging, color corrections and enhancements, etc.

Black = conceals changes

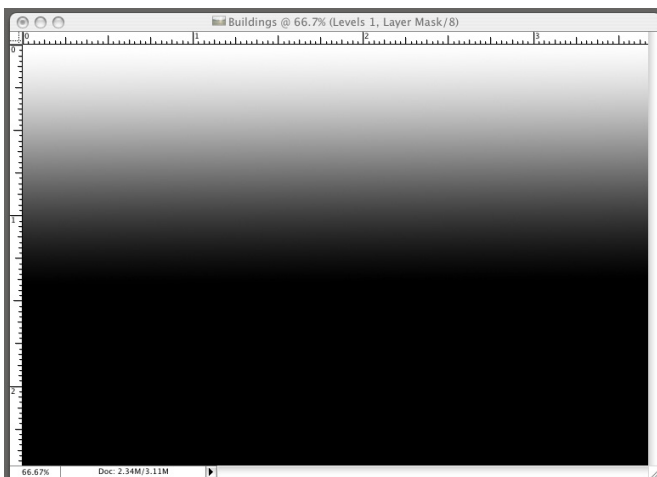
White = reveals changes

When you create a mask on an adjustment layer, where the mask is black, you are protecting that portion of the image from any changes. Where the mask is white, you are affecting changes on the image according to the adjustment layer you have selected, i.e. levels, or color balance, curves, or hue/saturation.



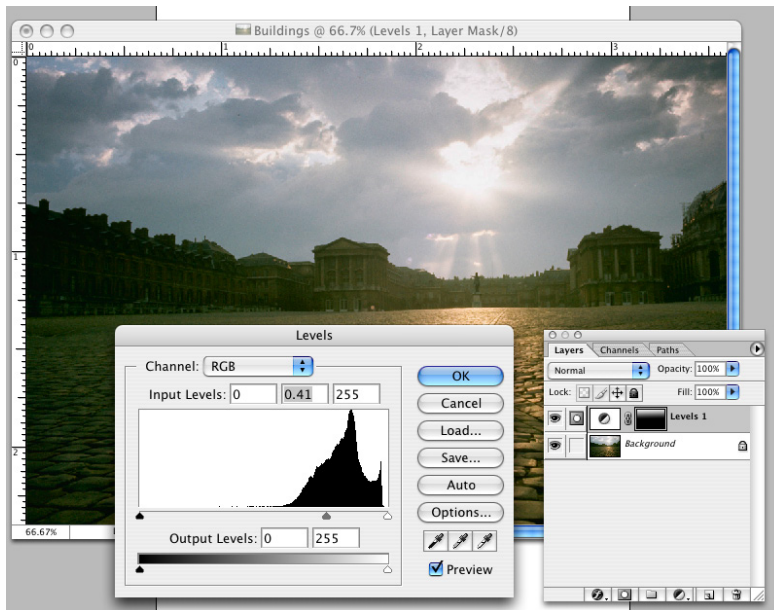
In the above image, we see one of the limitations of photography. The buildings are correctly exposed, but the sky is too light, lacking dimension.

To create a layer mask, make an adjustment layer for levels and do not adjust the levels. Simply press OK and create the adjustment level with no changes to the image. Examine the adjustment layer. The icon on the left is the levels control; the blank box on the right is a layer mask.



Option-click the mask itself and you will have a window with a white box on your screen. This is your mask. Where there is white, your level control will affect the image. Right now, the entire box is white. The entire image would be affected if we run the levels control.

To affect the sky only, we need to create a black and white mask, where the building areas are black (protected) and the sky area is white (revealed). Use the linear gradient tool and draw a black to white gradient where the bottom 2/3 of the image is black and upper 1/3 of the image (where the sky is located) is white.



Now, click back on the background layer and bring your image back into the window. Notice that the layer mask now shows the black to white gradient. Double-click on the levels icon on the adjustment layer and move the center slider. You will see that the sky alone is affected due to the levels control being filtered through the layer mask.

Any method of applying black and white to the layer mask will work: the linear or radial gradient tool, the paintbrush, or using individual channels. This represents a highly flexible method of burning and dodging your images.

Adobe Camera RAW

Adobe Camera RAW and Adobe Bridge and separate application programs embedded within Photoshop. Camera RAW processing is designed for RAW images, created with your camera's RAW setting. RAW files are not edited in any way within the camera. A RAW file is precisely as the digital chip receives it from the light reflected from the scene. All settings -- white point, exposure, sharpness, saturation, color space -- are made after the initial camera exposure in the RAW software. RAW files hold considerably more color and tonal information than jpg's and are 16 bit color depth, which allows considerably more editing options than jpg's. For the highest quality images, RAW is the choice of most professionals.

Camera RAW images must be post-processed in the RAW software following exposure. The Adobe Camera RAW software can process RAW files as well as jpg's and tif's. Due to the ease and intuitive interface of the RAW software, many image-makers process their jpg and tif files in the RAW software as well.

The Front page of the RAW processing palette is shown below. Adobe Camera RAW is so powerful and feature-rich that it has 8 pages of controls. The basic controls are found on the first page: Histogram, white point, exposure for highlights and shadows, highlight and shadow recovery, brightness and contrast, clarity and saturation, resolution and color space. Generally, controls in Adobe Camera are employed from left to right and up to down in terms of your workflow.

