

# Upfront



BY CANDY CUENCO

## AND THE LIST GOES ON...



A digital camera that *only* takes digital pictures is unheard of these days. In fact, even the most entry-level of models—the point-and-shoot cameras—don't even live up to their name. How else do you explain a 10-megapixel (10MP) camera for \$299 that can alter the colors of your images directly in the camera? Or, how about a 6MP WiFi-enabled camera for \$300, which means you can send your images directly to a printer or to your computer from anywhere, anytime? Then, there are cameras designed to shoot objects that will be on sale on eBay, a digital SLR that can shoot in Infrared, and cameras that will even let you perform some basic editing functions like red-eye correction and cropping.

If you're thinking of buying just a camera, good luck. Today's generation of digital cameras offer so much more than just point-and-shoot capability; in terms of shooting, editing, printing and sharing. And the prices! You will not believe how much camera you can get for so little money these days.

To help you wade through the myriad of choices, we created yet again our annual Digital Camera Buyer's Guide (p. 18) that lists 200 of the most current models by price, along with some of their most important specs. Take this handy guide with you when you're comparison-shopping at your local electronics store, or even when shopping online. Not surprisingly, many of the newer models fell within the \$300 to \$600 range, which is good news for those of you who are looking for more features packed into an affordable camera package. Plus, our \$900 and above category is getting more crowded, which makes us believe that an increasing number of you, our readers, are looking to upgrade to a higher-performance camera or a digital SLR. We're well aware of the fact that the more money you intend to spend on a camera, the more likely you're going to do more research, so be sure to check out our story called, "The DSLR Advantage" for a complete discussion on what to look for in a DSLR. ■

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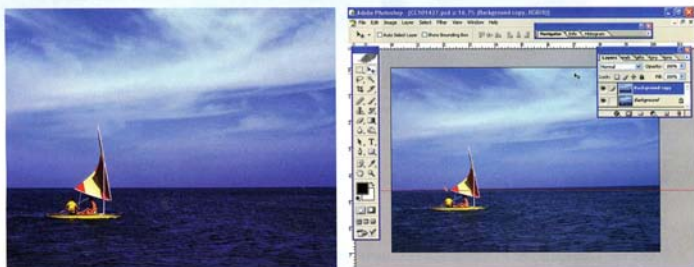


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# Easy Fixes

## BASIC PHOTOSHOP TRICKS



Using Photoshop's Guide Tool and Rotate Canvas command, the horizon is leveled in this image of a sailboat on the ocean.

BY PETER SMOLENS

It's a rare moment when you can take a digital image directly from the camera or scanner and create a presentation-quality print. Most digital images need to be manipulated. Just like in traditional photography, exposure must be corrected and imperfections must be removed.

Once you get the image into your computer, there are some basic steps you should take to convert that raw image to be ready for presentation. The result is what photographers commonly call the master image. Like the solid foundation, do these steps and you will always have a good image to print or display; miss any of the steps and, like a house of cards, the image will fail!

### BEFORE EDITING

Decide how much pixel structure (the digital information that makes up the image, commonly called resolution) your image will need. If you set the resolution too low, it will affect the quality of the image later during the resizing. Without enough resolution when you enlarge the image, interpolation will start to appear. When resolution is set too high, you'll waste pixel structure and hard drive space. Images for the Web need to be only 72

dpi (dots per inch). To print your image, the resolution needs to be set to at least 300 dpi.

Deciding what needs to be corrected before you even begin will save editing time. Evaluate the image for exposure by looking at the histogram (Window > Histogram or Image > Adjustments > Levels in Adobe Photoshop CS 2). A good image has pixels across the entire range. Make notes of all the imperfections you see.

Before making any changes to your digital image, make a working copy of the image. This is as simple as using the Save As function in your image-editing program, then saving the image under a different name. This way you will always have a baseline image for comparison purposes.



Fig. X. Here is an original image of baby swans with errant blades of grass interfering with an otherwise nice image.

Depending on your import process, your image will come into your computer in a specific format. While making your first save, you should be able to convert the image to the photo-editing software default format. In the case of Photoshop, you should save the image with the extension of PSD.

**UNDERSTANDING LAYERS**

Now that you have a plan, we can create the master image. Use the Layers palette to create a duplicate of the image. Layers are one of the keys to the power of Photoshop. Each layer in an image can be edited in a separate component that overlays and modifies any image below. Starting with the original image located on the bottom, or Background Layer, most changes you make will be done on separate layers. These changes are on layers above and affect the image below. To make a copy, open the Layers palette. Click and drag your background layer to the Create New Layer icon at the bottom of the Layer palette (second icon from the right). Make all your changes to the duplicate layer, leaving the background layer pure.

**Re-SIZE & Crop**

In traditional darkrooms, you would raise or lower the enlarger head to fill the paper easel. In the digital world, re-sizing is done in the Image Size dialog box (Image > Image Size). Use the re-sizing command to convert the image to the proper size. This is also the time to do some basic cropping of the image, such as correcting the horizon lines that might not be level.

For example, our boat on the water appears to tilt. By using the rotating command (Image > Rotate Canvas > Arbitrary) you can correct the image along with some creative cropping to make the skyline flat. One tool to assist you is the Guide Tool (View > New Guide). This tool provides a straight vertical or horizontal line as a guide.

**ADJUST CONTRAST**

With the picture at the correct size, use your editing program's tonal manipulation features to help correct an

improperly exposed photo. If your photo is too dull, you can increase brightness and contrast. This is not a cure-all for bad photography, but correcting the exposure will help bring out the elements of the image that you want to highlight.

Although you can use the Levels command in Photoshop (Image > Adjustments > Levels) directly on the image, most Photoshop experts suggest a different method. By creating an Adjustment Layer (Layer > New Adjustment Layer > Levels), you can make corrections to the image without affecting the actual image layer. In the middle of the Levels dialog box is the actual histogram, a graph that represents the tonal value from dark to light of the image. If the histogram goes from one end of the graph to the other that means the image contains a pure white and a pure black tone and covers the entire spectrum of tonal range—a rare feat! Often, corrections are needed to achieve this goal.

Below the histogram are three arrows. If you move the left arrow to the left edge of the histogram, that will make the darkest tone in the image black. If you move the right arrow to the right edge of the histogram, that will make the lightest tone in the image white. You might not want a pure black and/or pure white tone in every image, but that's a good place to start.

Since the black areas in your image are critical to contrast and color, and highlights make a photo lively, you need to set these early on in your image processing. To help while using the Levels command, press Alt/Option while moving the left (black) slider. The screen will go white (black threshold screen), and as you move the slider to the right, then you'll begin to see colors and blacks show up.

When they start to appear, release the Alt/Option key and view the image. On most photos, you'll want solid black somewhere, but in some images, such as a foggy day or soft-focus flowers, this would ruin the image.

Do the same for highlights. Use the Alt/Option key with the right (highlight) slider. See where the white threshold screen appears.

Next, use the middle arrow to adjust the mid-tones to your liking. Move the middle arrow to the left for lighter midtones and to the right to make the midtones darker.

*continued on page 90*



Fig. 7. After using the Clone Stamp tool, a clean image is achieved, with a focus on the swans without the interference of the grass.



When using Photoshop's Clone Stamp tool, the mouse's pointer on-screen becomes a circle to define your source mark.



## Easy Fixes

from page 89

Another way to adjust the mid-tones is to use the Curves command (Image > Adjustments > Curves). Although the Levels mid-tone slider can be used to set mid-tones, Curves provide more control and can offer better tonal gradations (contrast). If you're unfamiliar with Curves, click on the center angled line in the middle of the graph in the dialog box. Drag up to lighten mid-tones and down to darken them. In some cases you might want to set two or more points to darken the low end of the mid-tones and lighten the upper end of the mid-tones.

### ADJUSTING COLOR BALANCE

Image-editing programs also allow you to control the colors. Some programs provide options to "quick fix" common photographic flaws with just a click of a button, while others provide you with more control over how much "correction" is given to the image, allowing you to make basic repairs and improvements to the colors in your image.

To change colors in Photoshop, create a Color Balance Adjustment Layer (Layer > New Adjustment Layer > Color Balance), use the sliders there to adjust the amount of red/cyan, green/magenta, and blue/yellow. Just experiment with the sliders until the image looks right to you.

Another way you can adjust the color is in the Levels command. At the top of the Levels window is the Channel drop-down menu. It defaults to RGB—all three—image channels, red, green and blue. But, you can click on the menu and select individual channels, too. Using the same method as before, the right slider brings out highlights of the channel's color and the left slider deepens the channel's color richness. Moving the middle

slider will lighten or darken the middle tones. Always go by what looks best to your eye.

Once you have the colors the way you want them, click OK to save this Adjustment Layer. Next, modify the image saturation using a Hue/Saturation Adjustment Layer (Layer > New Adjustment Layer > Hue/Saturation). The Hue slider lets you change the overall color. The Saturation slider will increase your image's color richness. Use it carefully: It's rare that an overall adjustment needs more than 10 to 15 points of change.

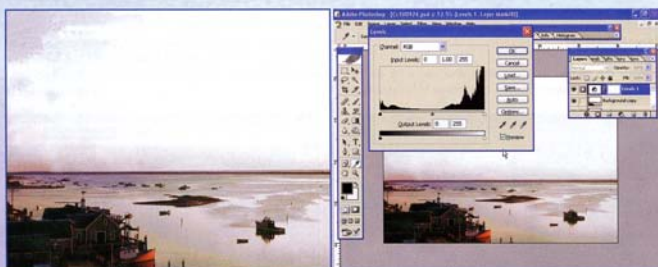
Just like in traditional darkrooms, dust is still a problem. From the glass of your scanner to the image sensor of your digital camera, expect to find dust spots on your images. While removing dust spots from a traditional negative/print used to be a pain, it's fairly easy with Photoshop. Two tools work well to correct this problem: The Clone Tool and the Healing Brush.

### CLONING

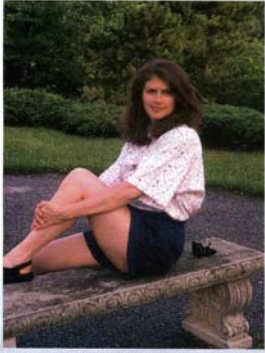
The Clone Stamp tool (the rubber-stamp icon in the Tools palette) will help you to remove small dust specks, scratches, and other small problems by copying one section of an image and placing it over another section of the image. The process in the image world is called "cloning."

For example, in my picture of the baby swans, I helped nature a bit. In the original picture, some stray pieces of grass got in the way. Using cloning to correct imperfections in the image, I was able to present a clean image that focused on these beautiful baby swans and made it appear the swans were out in front of the tall grass without interference.

Using the Zoom tool, enlarge the section of the image you want to correct. Click on the Cloning tool. The pointer will change to a circle. To change the style and size of the cloning brush, right-click and move the slider.



Adobe Photoshop's Levels adjustments are used on this image of the Chatham Fishpier on Cape Cod, MA. The end result is seen on the article's opening spread.

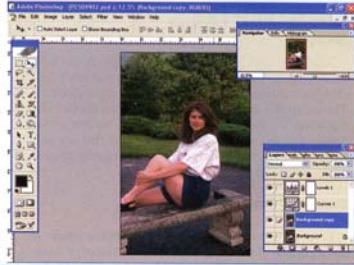


Position the pointer to the place in the image to be used as your source. Hold the Alt/Option key and click. This will define your source mark. Move the circle to the destination area of the image. Click to paint the pixels from the source to the destination.

For example, in the baby swans picture and using the cloning tool, I removed the stray pieces of grass in my original image (Fig. X). The result is a clean image (Fig. Y) without interference.



The Cloning tool in Photoshop is used to remove the stray pieces of grass in this image of Nauset Lighthouse on Cape Cod, MA.



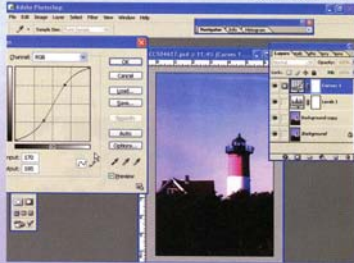
This screen shot shows the Layers palette of a completed image, indicating the Background Copy, and Curves and Levels Adjustment Layers.

**HEALING BRUSH**

Photoshop 7 introduced the Healing Brush (the Band-Aid-like icon in the Tool palette) and it works like the Clone Stamp tool. Instead of copying the source area, when you click, the tool copies the texture of the source area and applies that texture to the target area. This texture blends with the existing pixels in color and brightness of the new area for a smoother transition—very handy for people-pictures.

By sampling the source area's textures, when used correctly, the Healing Brush is the best retouching tool available. But, you have to be careful when using this tool. Sometimes the result of sampling from the target area is not what you expect, introducing colors and textures you did not expect. One way to avoid this is to be very selective in determining your source area.

*continued on page 92*



The Curves dialog box in Photoshop is used to adjust the mid-tone exposure in this image of Nauset Lighthouse on Cape Cod, MA.

## Easy Fixes

from page 91

The new Spot Healing Brush (which is in both Photoshop CS2 and Elements 3) lets you just touch and click your cursor on a spot, and it magically disappears. The key to this tool is to size it correctly (use the Options bar below the menus to make it close to the size of the defect) and to use it multiple times if the first try isn't right (don't Undo between clicks). A hard-edged brush works quite well with spots.

### DODGING & BURNING

Level adjustments are applied to the entire image. If just a portion of the image needs to be lightened or darkened, you can use the Dodge and Burn tools. The Dodge tool lightens the area, and the Burn tool darkens the area. You can adjust the size of the tool, and its "strength." This is one case where there is no Adjustment Layer. Instead, create a Duplicate Layer (Layer > Duplicate Layer). This will keep your dodging and burning separate from the previously done corrections.

### SHARPEN

Once you've got the image just the way you want it, the last step is to sharpen it. Sharpening should be done at the end of the process to minimize some adjustment problems. Remember, sharpness is very subjective and "optimum" sharpness will vary. Noise is one element that can be adversely affected if sharpening is done too early. The best sharpening tool in Photoshop is Unsharp Mask. In spite of its name, it provides a great deal of control over sharpness. To use the tool, zoom the image to 100 percent and open Unsharp Mask (Filter > Sharpen > Unsharp Mask). There are three sliders in the Unsharp Mask window: Amount, Radius, and Threshold. Depending on whom you ask, you'll find all sorts of formulas for these numbers.

The Amount slider determines how much sharpening you will apply to the image. Start with an amount of 100 percent. Depending on detail, move the slider carefully, watching the edges in the image. Usually, you'll want

something in the 100-percent to 200-percent range in a program that goes to 500 percent. If the image develops a glow or becomes too grainy, you've overdone the sharpening. It's better to err on the side of too little than too much.

The Radius slider shows how far the program will look for an edge to change in order to make its effect work. Start with a 1- to 2-pixel range to be most effective. You can tweak this by adding decimals to the number, such as 1.3 or 1.5. Again, watch out for over-sharpening, which shows up as rings of white around edges and might make the image look too harsh.

The Threshold slider looks for contrast differences along the edge. The lower the setting, the sharper the effect. However, the Threshold setting becomes very important when you have grain or noise in an image. A low Threshold setting will cause the program to sharpen that grain and noise. If your image has a grain problem, a Threshold between 5 to 12 works well to minimize the problems. Then, you'll have to increase the Amount setting. It will take some experimenting to get the feel for the best combination of the controls. Mastering the Unsharp Mask will give you more control than the basic "sharpen" tools, and your pictures will show immediate improvement. Don't over-sharpen. You can tell when an image is over-sharpened when it loses some of its subtle tonalities and starts to look harsh. Another sign of over-sharpening is when halos appear around strong contrasts in your photo (you can see them in the preview box if you move your cursor over the photo and click on a contrasty edge; it will appear in the preview).

Photoshop CS2 has a new sharpening tool called Smart Sharpen. This tool works to sharpen while minimizing halos. Its limitation is that it doesn't have a Threshold setting, so noise can be adversely affected. Now that you have your image in the best possible shape, you're ready to print. We have just covered the basics. In the digital darkroom there is so much more. We can take that image and move to the enhancement stage of image development. ■

### LINKS

• Adobe — 800-833-6687; [www.adobe.com](http://www.adobe.com)



Unsharp Mask is used to enhance this final image of a young girl photographed in back light.



The Unsharp Mask dialog box in Photoshop uses slider controls to adjust Amount, Radius and Threshold.