

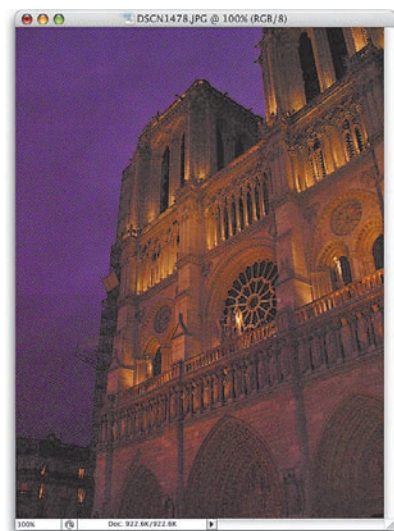


## Dealing with Digital Noise

If you shoot in low-lighting situations, you're bound to encounter digital noise. Is there anything worse than these large red, green, and blue dots that appear all over your photo? Okay, besides that "crazy music" those teenagers play, like Limp Bizkit or...well...Limp Bizkit, is there anything worse? This digital noise (often called "Blue channel noise," "high ISO noise," "color aliasing," or just "those annoying red, green, and blue dots") can be reduced. Here's how:

### Step One:

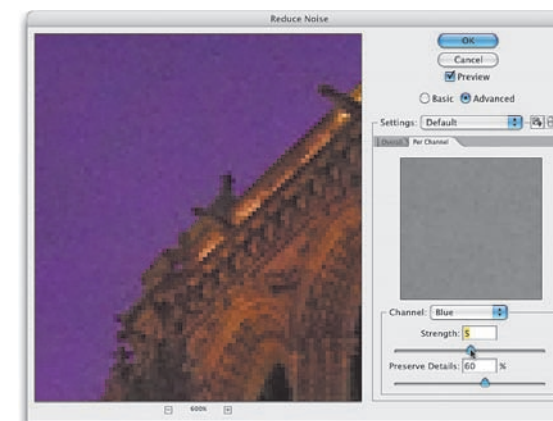
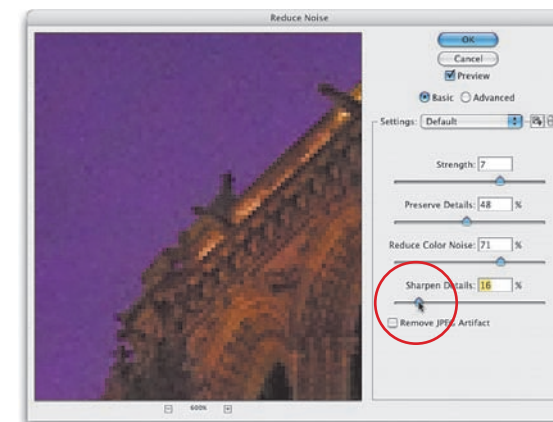
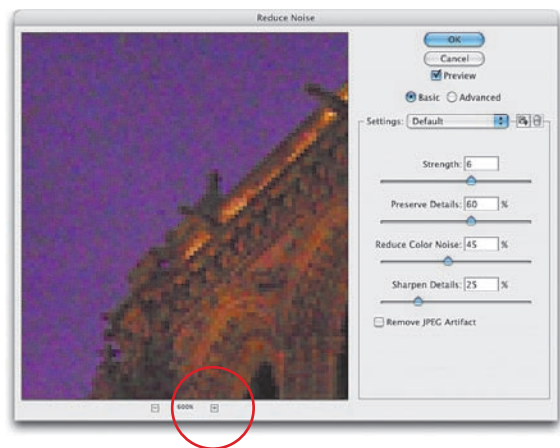
Open a photo that contains visible digital noise. Go ahead and do your color correction, and other adjustments first (like any Shadow/Highlight adjustments, Curves, etc.), because these will sometimes bring out noise in the image too. (In this case, the shot was taken at night with a point-and-shoot camera, and those red, green, and blue dots appear throughout the photo, but are especially visible in the sky. I know, it's kind of hard to see the noise in the small photo shown here, so in the next step we'll zoom in tighter so you can see the noise.)



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### Step Two:

Go under the Filter menu, under Noise, and choose Reduce Noise. When the Reduce Noise dialog appears, click on the Plus (+) sign (that's directly below the preview window) about four or five times to zoom into the sky area. To actually see the red, green, and blue noise pixels, click-and-hold within the preview area. This shows you the original image (before the filter is applied). Release the mouse button, and you'll see how the Reduce Noise filter reduces the noise. This is a quick way to get a before and after: click to see the before—release to see the after.



### Step Three:

This filter seems to work best if you crank up the Strength fairly high (try 7 or 8). You want to find a sweet spot for keeping as much detail as possible, while still getting decent noise reduction, so try setting the Preserve Details slider between 40% and 50%. You want to really work the Reduce Color Noise slider (start between 60% to 70%, and then drag to the right for more reduction but without making the photo noticeably blurry). For Sharpen Details, keep that at no more than 15% to 20% (you'll probably get better results if you use the Smart Sharpen filter next, rather than applying the sharpening here). Click OK to reduce the color noise.

**TIP:** Some digital cameras produce what's called "Blue channel noise," because that's the channel where most of the noise winds up. To reduce that, click on the Advanced option, which lets you reduce noise in individual channels. Click on the Per Channel tab, and then from the Channel pop-up menu, choose Blue. Then, use the Strength slider to reduce noise in just the Blue channel.



Before



After (with color noise greatly reduced using the Reduce Noise filter)



## Fixing Photos Where You Wish You Hadn't Used Flash

There's a natural tendency for people to react to their immediate surroundings, rather than what they see through the lens. For example, if you're shooting an indoor concert, there are often hundreds of lights illuminating the stage. However, some photographers think it's one light short—their flash—because it's dark where they're sitting. So when you look at your photos later, you see that your flash lit everyone in front of you, ruining an otherwise great shot. Here's a quick fix to make it look as if your flash never fired at all:

### Step One:

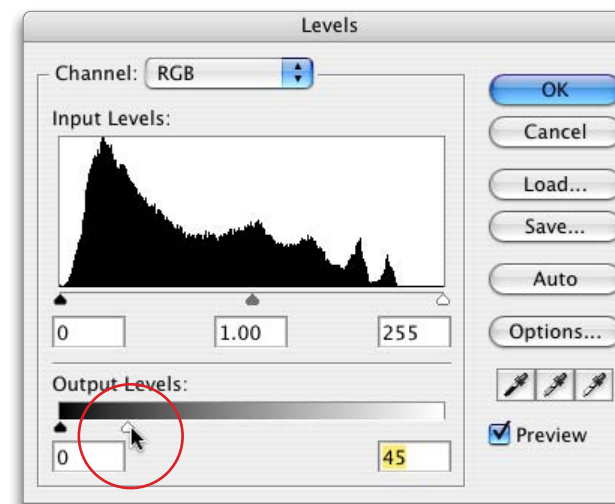
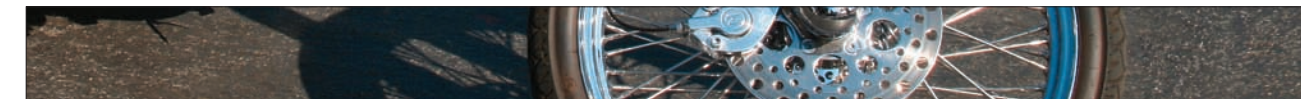
Open a photo where shooting with the flash ruined part of the image (like the image shown here taken at Walt Disney World in Florida. The castle is beautifully lit, and that's all we want to see, not the tourists, although I'm sure they're perfectly nice people). Press L to get the Lasso tool and click-and-drag a selection around the part of shot ruined by the flash (in this case, the crowd on the street, who got lit by an inadvertent firing of the flash).



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### Step Two:

Now we're going to darken this selected area, but we don't want our adjustment to appear obvious. We'll need to soften the edges of our selection quite a bit so our adjustment blends in smoothly with the rest of the photo. To do this, go under the Select menu and choose Refine Edge. When the dialog appears, enter a Feather of 25 pixels to soften the selection edge. (By the way, 25 pixels is just my guess for how much this particular selection might need. The rule of thumb is the higher the resolution of the image, the more feathering you'll need.)



### Step Three:

It will help you make a better adjustment if you hide the selection border (we call it "the marching ants") from view. We don't want to deselect—we want our selection to remain intact but without the annoying border, so press Command-H (PC: Ctrl-H) to hide the selection border. Now, press Command-L (PC: Ctrl-L) to bring up the Levels dialog. At the bottom of the dialog, drag the highlight Output Levels slider to the left to darken your selected area. Because you've hidden the selection border, it should be very easy to match the surroundings of your photo by just dragging this slider to the left. Now you can press Command-D (PC: Ctrl-D) to deselect, and then admire the final image.



Before: The flash is obviously a couple hundred yards short of reaching the castle.



After: The effect of the flash is hidden, saving the shot!

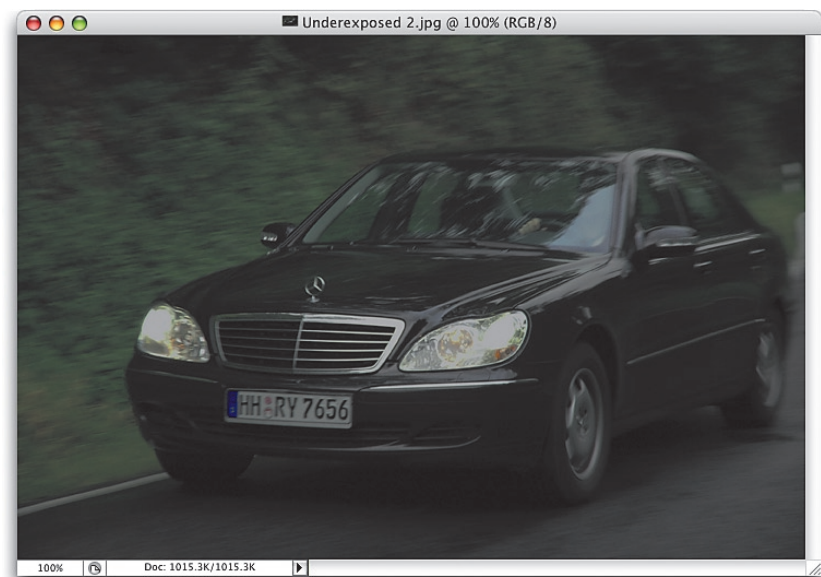


## Using the Exposure Adjustments

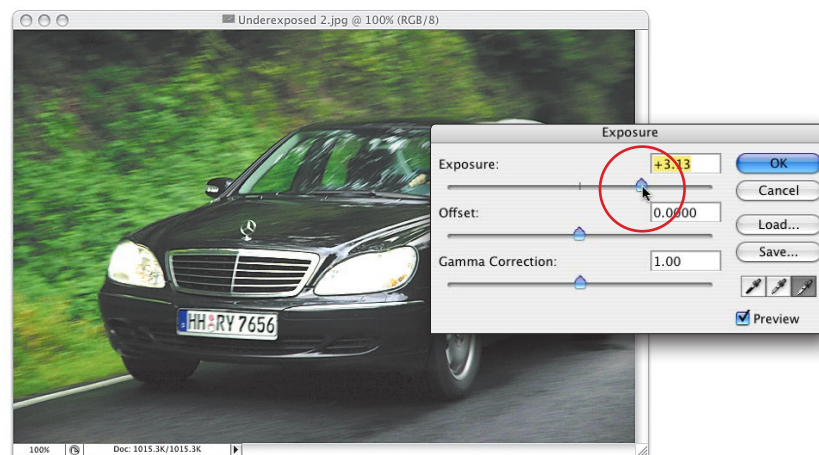
One of the greatest advantages of shooting in RAW format is that you can go into Photoshop's Camera Raw and adjust your Exposure setting after the fact. But if you weren't shooting in RAW, you won't have access to all of the Exposure options (you'd have to try to fix exposure problems using Curves or Levels). There's a dedicated Exposure control that you can use on JPEGs, but it works a little differently than the one in Camera Raw (since it was actually designed for use on High Dynamic Range images, but it still works with regular 8-bit photos).

### Step One:

Open an underexposed photo. Go under the Image menu, under Adjustments, and choose Exposure to bring up the Exposure dialog (seen in the capture in Step Two). While you're there, take a look at the three Eyedroppers—they work nothing like the ones in Levels and Curves—they only affect the photo's luminance, so don't get any cute ideas).

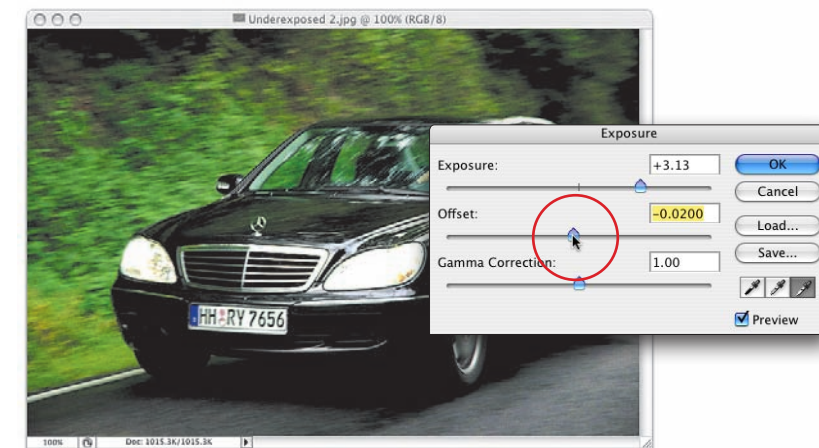


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### Step Two:

The Exposure slider acts like the exposure adjustment on your camera. Dragging the Exposure slider to the right (as we're doing here) mostly increases the photo's highlights, but also opens up some of the midtones as well (kind of like dragging the highlight Input slider in Levels to the left—it moves the midtones slider, too). This Exposure slider will generally do most of the work in fixing your image.



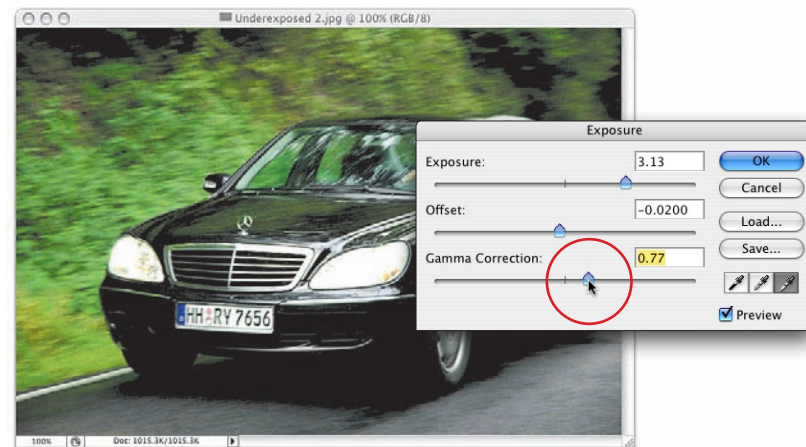
### Step Three:

If you drag the Offset slider to the right (above 0), it kind of works like the Levels shadow Output slider (the one on the bottom-left of the Levels dialog) in that it lightens the overall image. However, if you drag the Offset slider to the left (below 0), it increases the shadow areas without really affecting the highlights (kind of like what the Levels shadow Input slider would do if you dragged it to the right). I know, it's freaky.

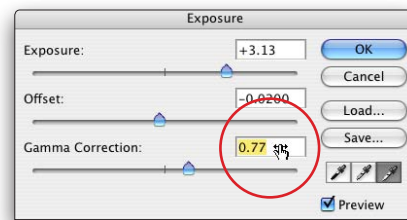
Continued

**Step Four:**

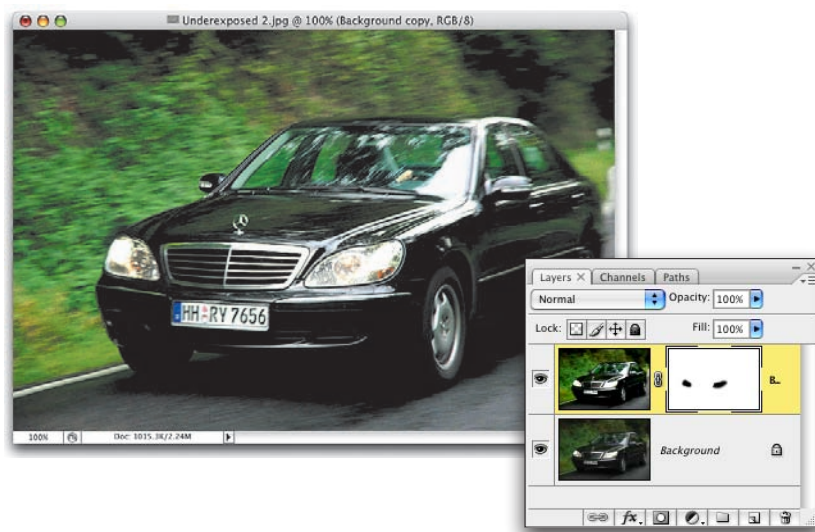
The Gamma Correction slider mostly affects the midtones and some high-lights (kind of like the midtones slider in Levels). Dragging to the right opens up the midtone areas; dragging to the left darkens the midtones.



**TIP:** Moving these sliders just a little can create a big adjustment, so here's a trick to make smaller adjustments: hold the Command key (PC: Ctrl key) and move your cursor over the number field you want to adjust. Your cursor will change into a scrubby slider, and now you can click-and-drag within that field to adjust in smaller increments.

**Step Five:**

When I adjusted the Exposure in Step Two, it blew out the detail in the headlights. Here's how I got around it—I started over. First I duplicated the Background layer by dragging it to the Create a New Layer icon, and then I clicked on its Eye icon to hide it from view. Then, I ran Exposure (set to +1.40) on the Background layer, made the duplicate layer visible again and did Steps Two-Four. Then, I clicked on the Add Layer Mask icon with the duplicate layer active, and using the Brush tool (B), painted over the headlights (in black) to reveal the +1.40 Exposure headlights on the Background layer. Give that a try.



Before



After (using the Exposure feature and adding a layer mask for the headlights)

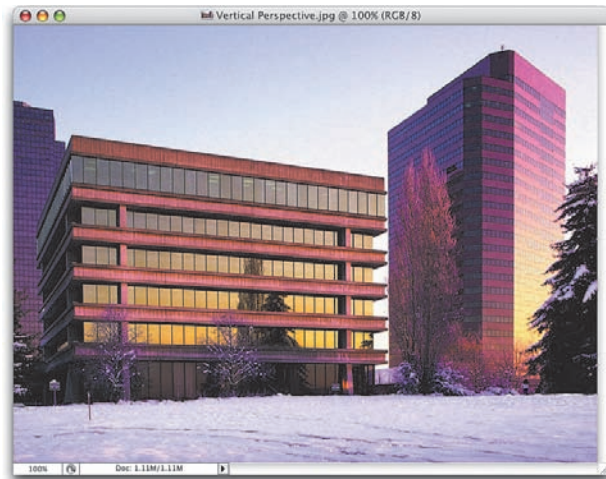


## Repairing Problems Caused by the Lens

In Photoshop CS2, Adobe introduced a new filter that is pretty much a “one-stop-shop” for repairing the most common problems caused by the camera’s lens, including pincushion and barrel distortion, horizontal and vertical perspective problems, chromatic aberrations, and vignetting. Before CS2, you could only fix chromatic aberrations and vignetting if you were shooting RAW, because the fixes only appear in Camera Raw, but now you can apply these quick fixes on JPEG images as well.

### Problem One: Perspective Distortion Step One:

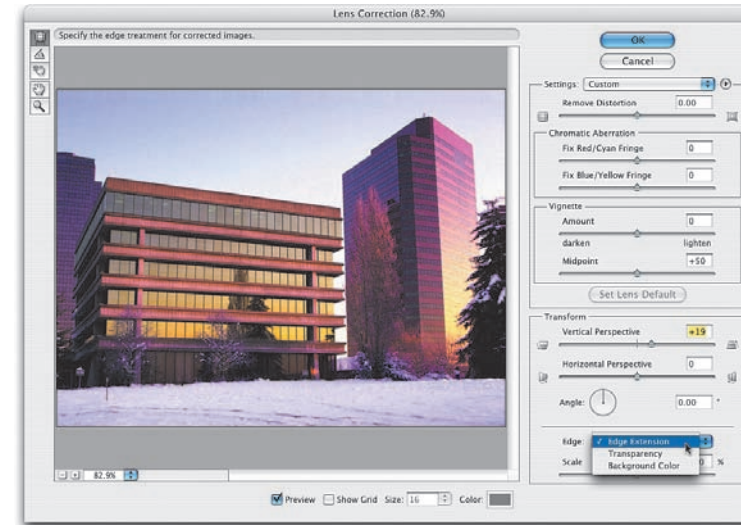
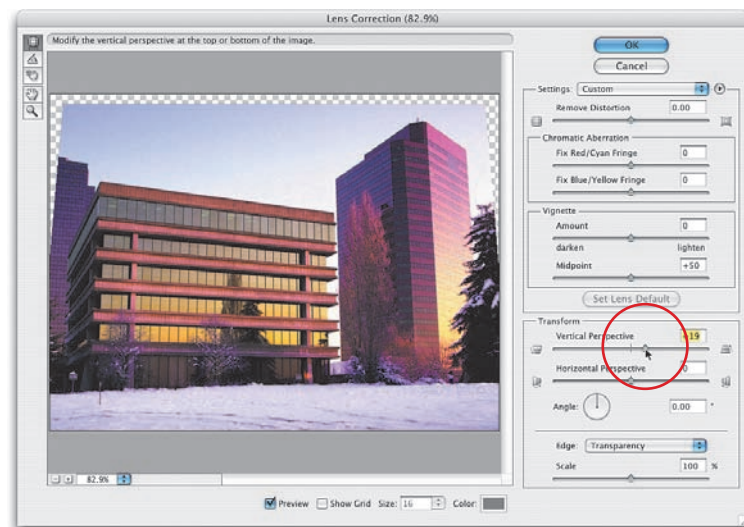
The first problem we’re going to tackle is some perspective distortion. In the example shown here, the bases of the buildings look smaller than the tops (especially the building on the left), which gives the photo an almost a cartoon-like perspective (but believe me, your client won’t think its funny).



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### Step Two:

To fix this problem (caused by the lens), go under the Filter menu, under Distort, and choose Lens Correction. When the dialog appears, turn off the Show Grid checkbox (it’s on by default), then go to the Transform section (near the bottom-right side of the dialog) and drag the Vertical Perspective slider to the right until the buildings start to look straight and not so top-heavy. When you make this correction, the filter pinches the top third of your photo inward, which leaves transparent gaps along the top and upper-side edges of your photo (you can see the checkerboard in these areas).



### Step Three:

The Edge pop-up menu at the bottom of the Transform section lets you decide how to deal with these edge “gaps” caused by the perspective repair. From the pop-up menu, choose Edge Extension, which extends the edge areas of your photo to cover those gaps, and click OK to apply the fix. *Note:* You’ll still need to do some clean-up to hide some of the stretched areas created by the Edge Extension, so just use the Clone Stamp tool (S) or the Healing Brush (J).



Before: The bases of the buildings are smaller than the tops.



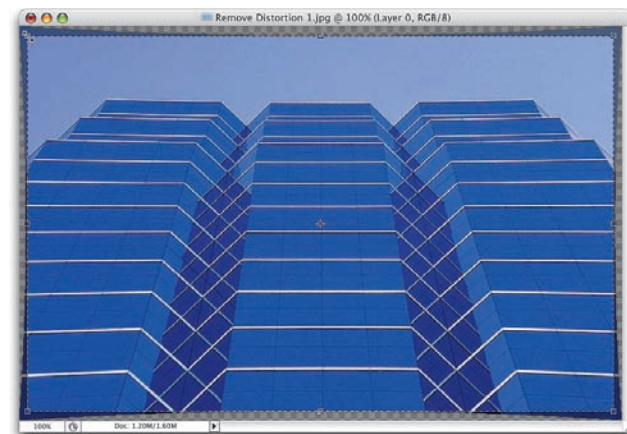
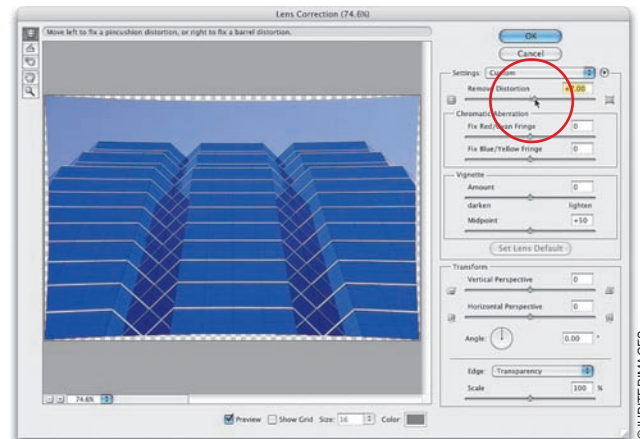
After: The perspective distortion is corrected.

Continued



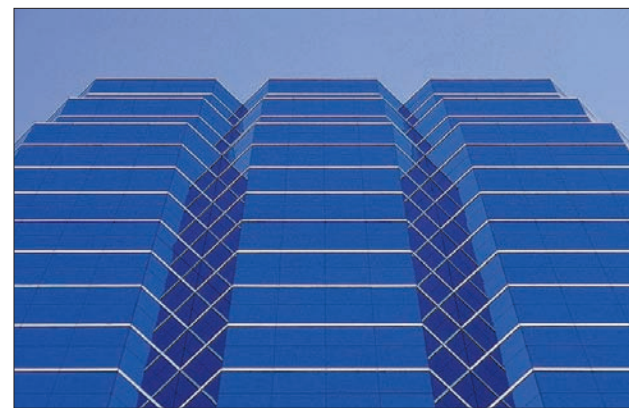
**Problem Two: Barrel Distortion**  
**Step One:**

Another common lens correction problem is called barrel distortion, which makes your photo look bloated or rounded. So, open the Lens Correction filter again, but this time you're going to drag the Remove Distortion slider (in the top right of the dialog) slowly to the right to "pucker" the photo inward from the center, removing the rounded, bloated look. If you want a more visual way to do this correction, try the Remove Distortion tool (it's at the top in the Toolbox on the left). Click-and-drag it toward the center of your photo to remove barrel distortion (or toward an edge to remove pincushion distortion, in which the sides of your photo appear to curve inward). It's hard to make minor adjustments using the tool, so you'll probably wind up using the slider most of the time.

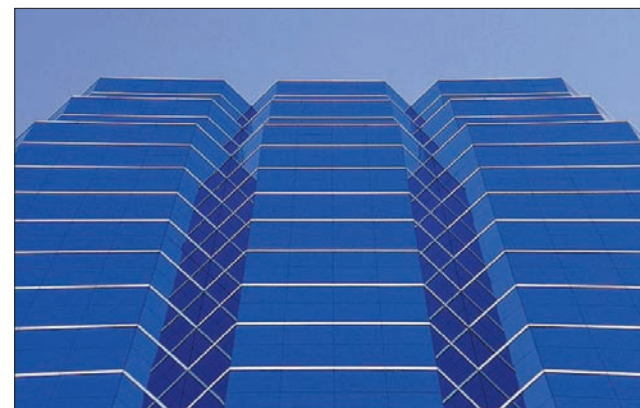


**Step Two:**

When you click OK, the correction will leave gaps around the edges, so get the Crop tool (C) and re-crop the image to hide the missing edges. It's hard to see the difference in the small images below, but try this technique, and you'll see the difference.



Before



After (removing the bloating caused by barrel distortion)



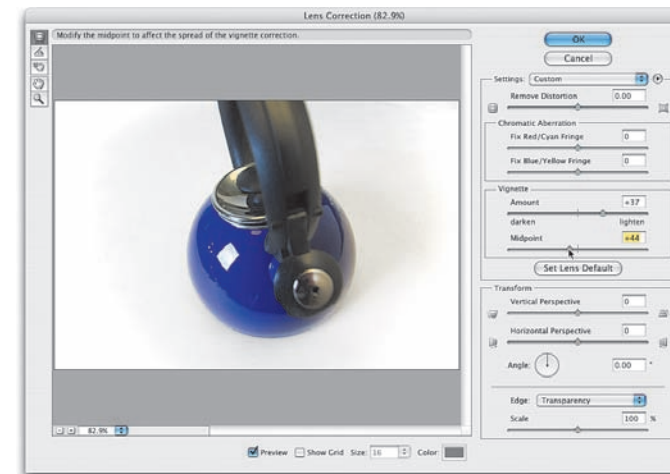
**Problem Three: Lens Vignetting**  
**Step One:**

Vignetting is a lens problem where the corners of your photo appear darkened. To remove this problem, go back to the Lens Correction filter.



**Step Two:**

In the Vignette section of the dialog, drag the Amount slider to the right, and as you do you'll see the edges brighten. Keep dragging the slider until the edges match the brightness of the rest of the photo. The Midpoint slider (just below the Amount slider), determines how far into the photo your corner brightening will extend. In this case, you have to extend it just a little bit by dragging the slider to the left (as shown here), then click OK. *Note:* You can also fix chromatic aberrations (colored-edge fringing). To see what that is and how to fix it using this filter (which works similarly to Camera Raw), check out the "Fixing Chromatic Aberrations" tutorial in Chapter 3.



Before: You can see the dark vignettted areas in the corners.



After: The vignetting is completely removed.



## Saving Blurry Photos

This is a simple technique I came up with that enables you to save a blurry photo from the trash, but you have to know up front—there are limitations. First, it produces a photo that is really only suitable for emailing to friends and family, using in slide shows, or creating a 4x6" print. If you're okay with that, it works wonders. It's based on the premise that everything looks in focus when it's small (for proof of that, see the LCD monitor on the back of your camera, where every photo looks in focus, but when you open the full-size photo in Photoshop, you find out the truth).

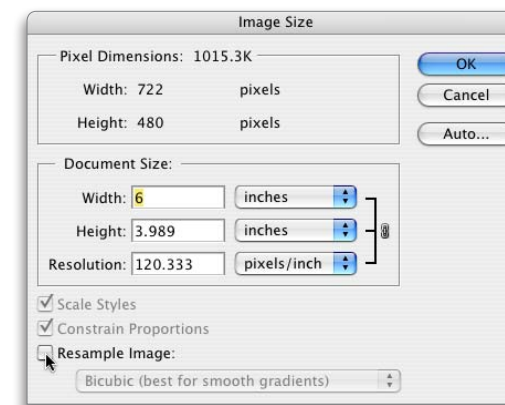
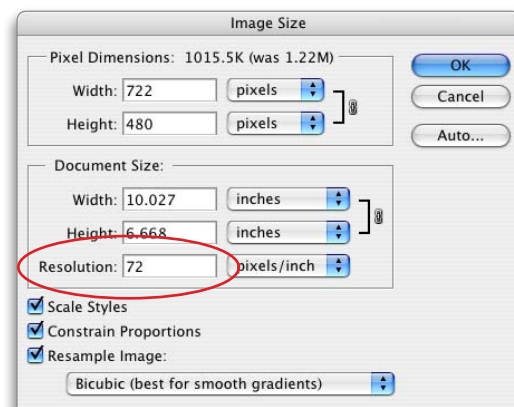
### Step One:

Open your blurred digital image. In the example shown here, I used a blurry high-res image imported directly from my digital camera and opened in Photoshop.



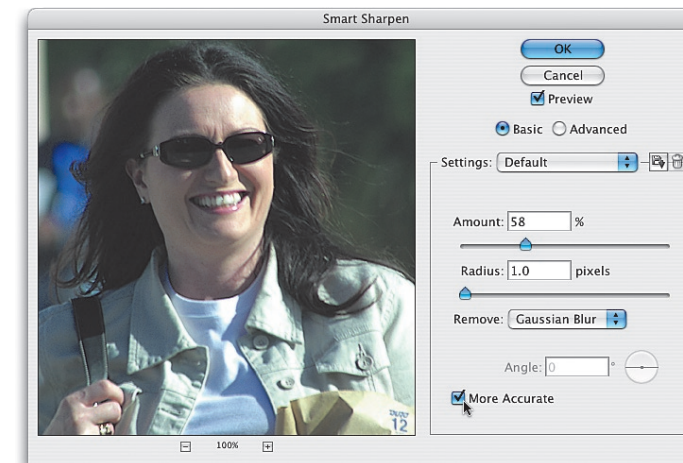
### Step Two:

Go under the Image menu and choose Image Size (by the way, there's a keyboard shortcut for Image Size: Command-Option-I [PC Ctrl-Alt-I]). When the dialog appears, you're going to leave the physical size alone (so it will still be 10" wide), but you're going to lower the Resolution from 300 ppi to 72 ppi, and then click OK. *Note:* If you're already working with a low-res image, you won't need to lower your Resolution setting (sorry, just in case you didn't know that already).



### Step Three:

To get the resolution high enough to print to a color inkjet printer, go back to the Image Size dialog again. Turn off Resample Image and lower the Width to 6" (giving you a 6x4" finished size at 120 ppi in this case).



### Step Four

This is where the Smart Sharpen filter really works wonders. Go under the Filter menu, under Sharpen, and choose Smart Sharpen. When the dialog appears, set the Amount at 58%, leave the Radius set to 1 pixel, ensure the Remove pop-up menu is set to Gaussian Blur, turn on the More Accurate checkbox, and click OK to apply this first level of sharpening. Now, press Command-F (PC: Ctrl-F) to run Smart Sharpen again, using the same settings. This second pass of sharpening really does the trick.



Before: This was one you'd simply delete.



After: Thanks to Smart Sharpen, she doesn't look oversharpened.

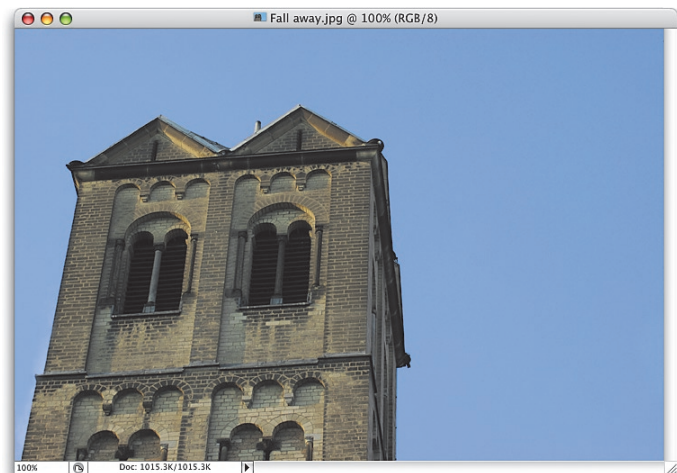


## Repairing Keystoning

Keystoning is often found in photos with buildings or tall objects, where the buildings look as if they're falling away from the viewer (giving the impression that the tops of these buildings are narrower than their bases). The Crop tool has a Perspective function that can be used to fix these distortions, but actually I'm going to recommend that you don't use it, because it doesn't offer a preview of any kind—you're left guessing—so use this technique instead.

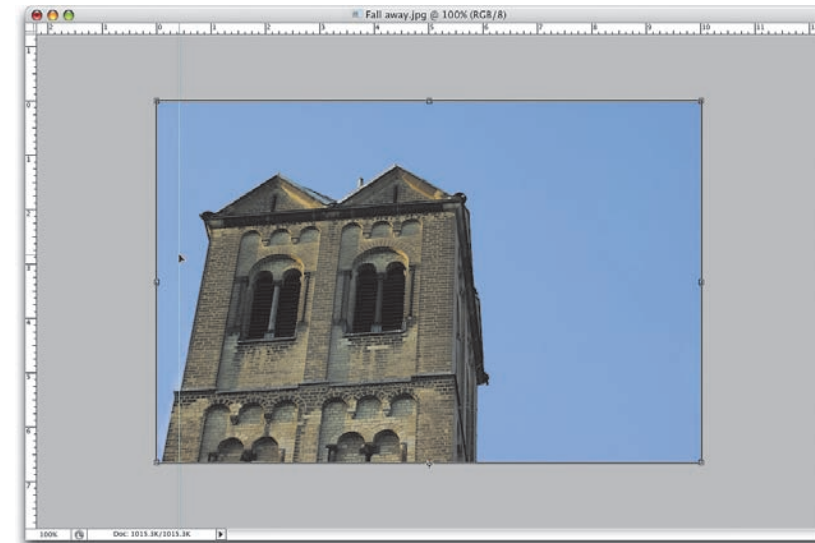
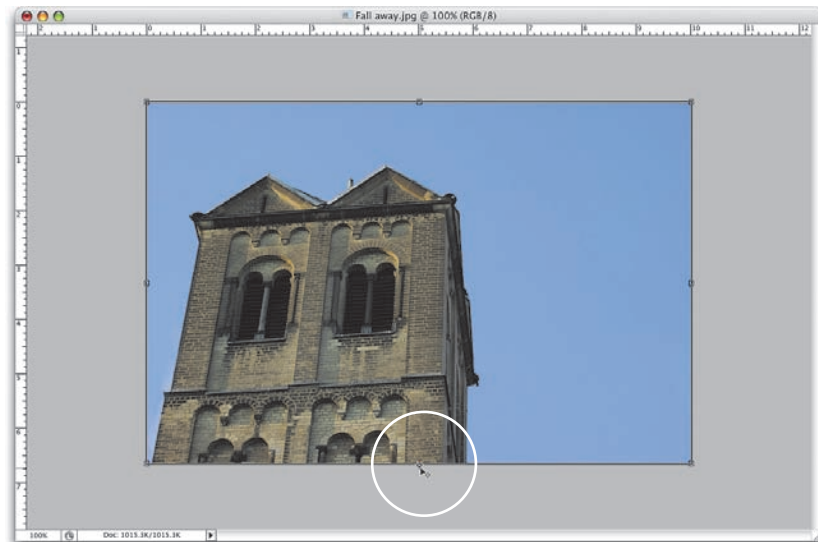
### Step One:

Open an image that has a keystoning problem (such as the photo shown here, taken with a wide-angle lens, where the towers of this old church seem to be leaning away from the viewer).



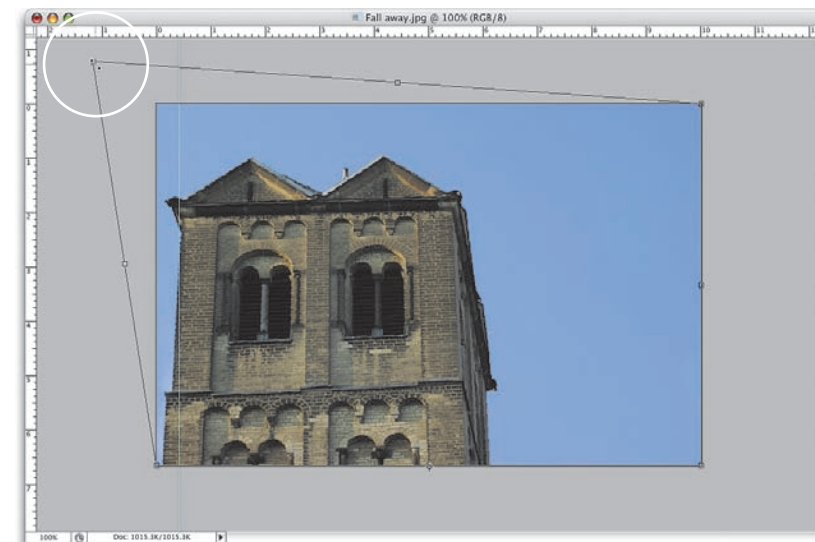
### Step Two:

Press Command-R (PC: Ctrl-R) to make Photoshop's rulers visible. Grab the bottom-right corner of your image window and drag outward to reveal the gray canvas background. Press Command-A (PC: Ctrl-A) to select your entire image, and then press Command-T (PC: Ctrl-T) to bring up the Free Transform function. Grab the center point of the bounding box and drag it straight downward until it touches the bottom-center point.



### Step Three:

Click-and-drag out a guide from the left ruler into your photo (we'll use this straight guide to help us align our building). In this example, I lined up the guide with the left side of the building. Once you add this guide, you can really see how far back the building seems to be leaning and why a keystoning repair is so necessary.



### Step Four:

Once your guide is in place, hold the Command key (PC: Ctrl key) and drag the top-left corner point of the bounding box upward and to the left until the left side of the tower touches your guide. It already looks better, but if you look at the line that separates the different levels (under the windows), you can see it's still tilted upward, so you'll have to fix that next.

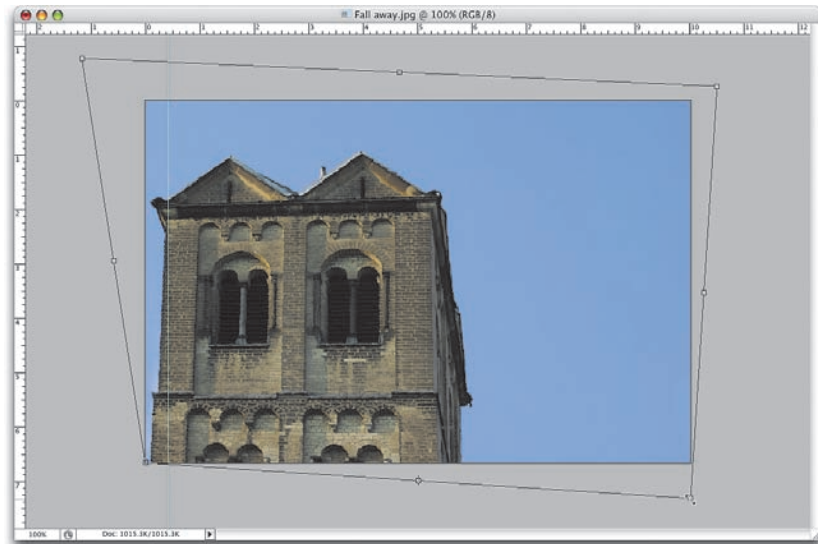
*Continued*





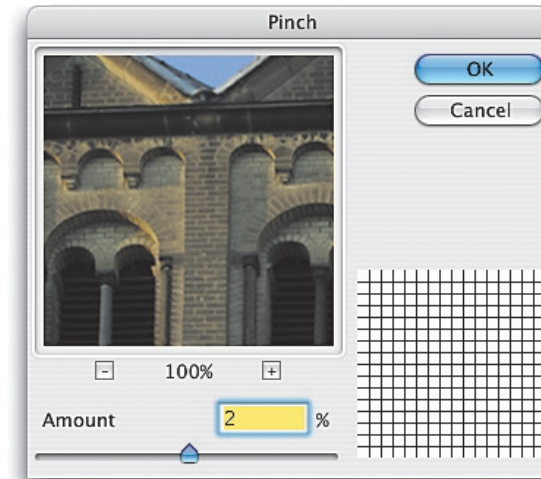
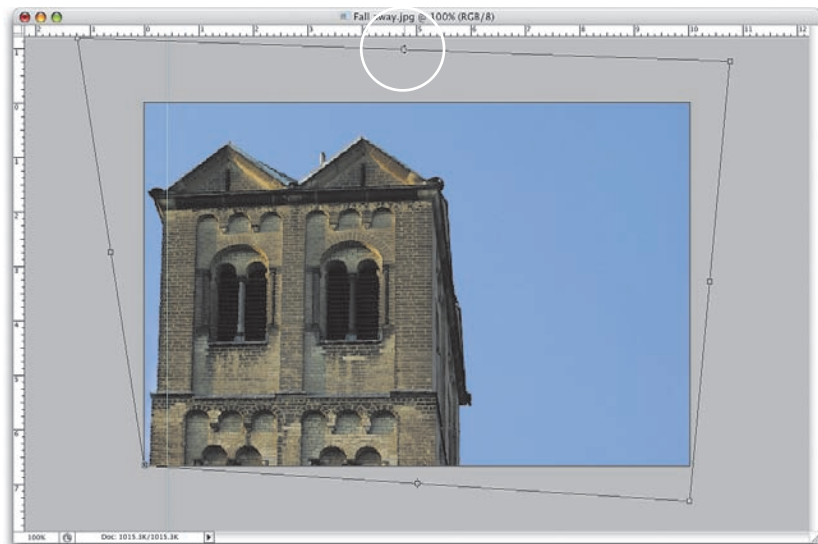
**Step Five:**

To make that edge straighter, drag the bottom-right corner point down a bit (don't forget—keep holding down the Command/Ctrl key). You might also have to drag the top-right corner point upward, just to get the building looking a little more flat.



**Step Six:**

Making all these corrections can sometimes make your building look a bit “smushed” and “squatty” (my official technical terms), so you can release the Command/Ctrl key, grab the top-center point, and drag upward to stretch the photo back out and fix the “squattiness” (again, technically speaking).



**Step Seven:**

When the photo looks right, press Return (PC: Enter) to lock in your transformation. (Note: By repairing this problem with Free Transform, you saw an onscreen preview of what you were doing, which the Crop tool's Perspective feature doesn't offer.) Now, if after making this adjustment, the building looks a bit “round” and “bloated,” you can repair that problem by going under the Filter menu, under Distort, and choosing Pinch. Drag the Amount slider to 0% (toward the center of the slider), and then slowly drag it to the right to increase the amount of Pinch, while looking at the preview in the filter dialog, until you see the roundness and bloating go away. (In this case, I used 2% for my Amount setting.) When it looks right, click OK to complete your keystoneing repair.



Before: The tower appears to be “falling away.”



After: The same photo after repairing the perspective distortion (known as keystoneing).



## Cloning Away Unwanted Objects

The Clone Stamp tool has been the tool of choice for removing distracting or other unwanted objects in photos for years now. Although the Healing Brush and Patch tool in many ways offer a better and more realistic alternative, there are certain situations where the Clone Stamp tool is still the best tool for the job. Here's an example of how this workhorse removes unwanted objects:

### Step One:

A photo of a palm tree on a tropical island near a shutter window is usually not a bad thing. But then when you see that palm, it's usually not as ratty-looking as the one shown here. In fact, it looks so ratty (and the light is so unflattering on it), I think it would look better if it weren't there at all (and what luck—this is a chapter about removing unwanted objects). So our project, in short, is to cut down that palm tree. Digitally.



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### Step Two:

Press S to get the Clone Stamp tool. In the Options Bar, click on the thumbnail to the right of the word "Brush" and choose a medium, soft-edged brush in the Picker. Now, Option-click (PC: Alt-click) in an area of ocean just to the left of the palm. This is called "sampling." You just sampled some ocean, and in the next step, you're going to clone that ocean area over the part of the palm tree to the immediate right. (By the way, when you sample, that little "target" cursor appears, letting you know you're sampling.)



### Step Three:

Now move directly to your right and begin painting with the Clone Stamp tool. As you paint over the palm frond on the left side of the tree, the ocean you sampled is cloned right over it, so it looks like the palm has disappeared. Paint a little in this area to get a feel for how the Clone Stamp works (at least, if it's your first time cloning; if it's not, then you know what to do—start cloning over that palm).



### Step Four:

The key technique to remember here is to sample just to the left of the palm (sampling in the sky and ocean), then move straight over to the palm. Now, in the captures shown here, the little "plus-sign" cursor (the area where you sampled) is just to the immediate left of the circular brush cursor (where you're painting now). By keeping them side-by-side like that, you're making sure you don't pick up patterns or colors from other parts of the photo that would make your cloning look obvious. In the next step, I'll intentionally sample from the middle-left side of the photo, and then move to the top and start painting. Then, you'll see how obvious it looks when you don't sample near the area you're trying to cover.

**TIP:** There's a trick to cloning that horizon line and keeping it straight. See the next tutorial called "Removing Things in a Straight Line."

*Continued*

**Step Five:**

Look at the plus-sign cursor (near the middle left of the palm). That's where I sampled, but instead of moving directly to the right to clone a nearby area, I moved my brush to the top (just under the horizon on the right of the palm) and started painting. Look how much darker (and obvious) the cloning looks. That's why you have to paint *very* close to where you sample. If not, it's a dead giveaway.

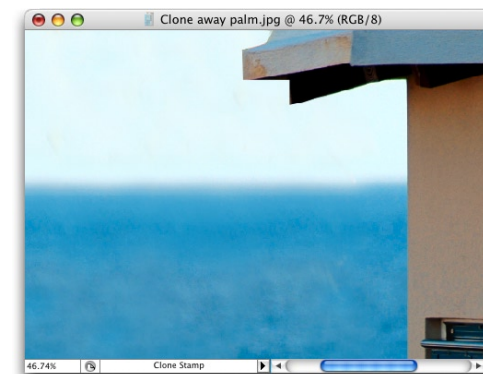
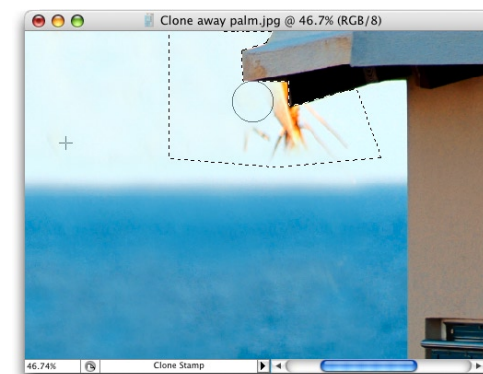
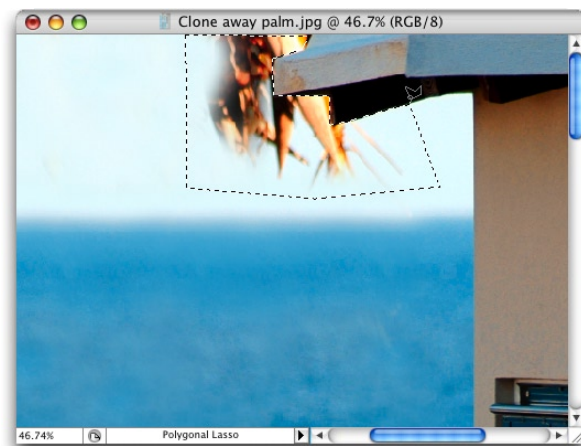
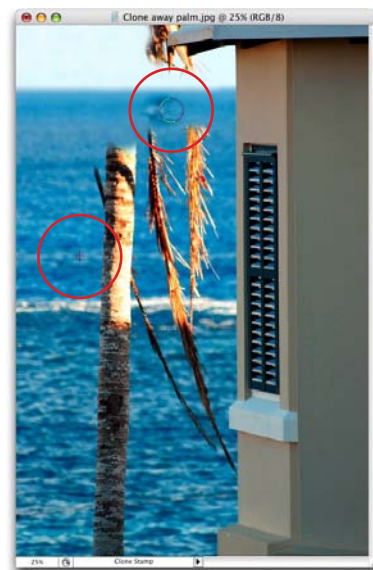
**TIP:** Sample often (by Option/Alt-clicking) in different but nearby areas so that your cloning appears random, therefore avoiding repeating patterns in the waves, for example.

**Step Six:**

Use this same technique of sampling to the left of the palm, painting over the trunk and palm fronds to the right of where you sampled, until the trunk and fronds are gone, except the tricky part at the top where the fronds meet the roof.

**Step Seven:**

To keep from cloning over the roof, you'll need to put a selection (a barrier) around the remaining palm fronds in the sky area. Since you can only paint inside the selected area, you don't have to worry about cloning away the roof. First, press Z to get the Zoom tool and zoom into the palm and roof area. Now press Shift-L until you have the Polygonal Lasso tool. Click along the straight edges of the roof to draw a straight-lined selection (like the one shown here) that traces around the roof edge, around the palm fronds, and returns to where you first clicked on the roof.

**Step Eight:**

Now, get the Clone Stamp tool again, sample the sky to the left of your selection, move over to the right inside your selection, and start cloning away the fronds. You can clone right up to the edge of the roof without worry, because you can't paint "outside the lines" thanks to that selection you created in the previous step. *Note:* The sample point will be outside the selected area, and that's fine—you can sample from anywhere.

**Step Nine:**

Keep painting (cloning) until the rest of the palm fronds around the roof are gone. Then, you can deselect by pressing Command-D (PC: Ctrl-D). Now, after all that, I hope you like the image better without the palm, as it took less than five minutes to remove it. If not, just go under the File menu, choose Revert, and that butt-ugly palm will come crashing back into your photo, ruining an otherwise uninspired image.



Before



After



## Removing Things in a Straight Line

This is an incredibly handy little trick I learned from Rich Harris, who contributes some great tutorials to our magazine, *Photoshop User* ([www.photoshopuser.com](http://www.photoshopuser.com)), and I've found no better way to clone away objects that need to be straight (like horizons, walls, etc.). Thanks to Rich for sharing this technique with us.

### Step One:

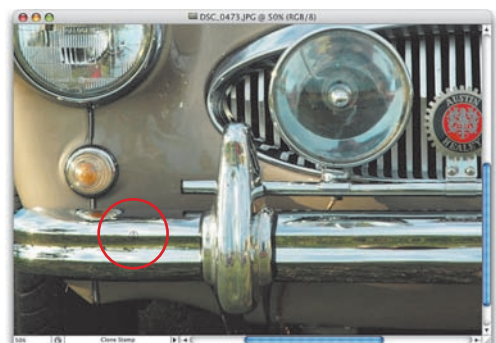
Press S to get the Clone Stamp tool, and then press-and-hold the Option (PC: Alt) key. Take a look at your cursor (shown here enlarged in the white box). See the horizontal line in the center of the circle? That's the key. You must position the cursor's center "target" line on the straight edge that you want to clone in your image (in this case, the top edge of a car's front bumper). With the Option/Alt key held down, click once when the target (called the "sample cursor") is aligned on the edge in your image.

### Step Two:

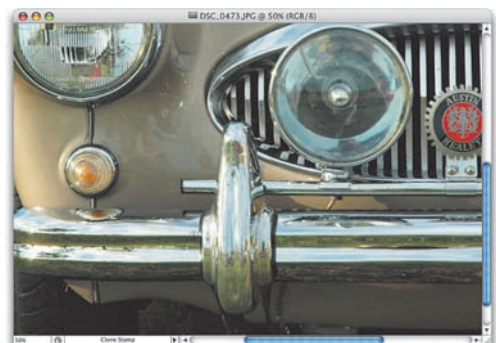
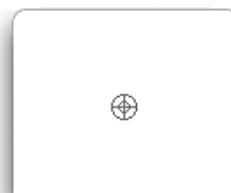
Now drag directly to the right while pressing-and-holding the Option/Alt key, but don't click. With this key held down, align the sample cursor's horizontal center line with the bumper's edge.

### Step Three:

With the horizontal line positioned along the edge in your photo, release the Option/Alt key and start cloning. As you clone, paint along the same straight line. It's all about making sure that the cursor's horizontal line is aligned with the edge in your image *before* you start painting.



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## Covering Unwanted Elements

If there are just one or two annoying things that are messing up your otherwise lovely photo, here's a quick way to get rid of them, while maintaining maximum texture and authenticity (because you're using another part of the photo to cover what you don't want visible, so the grain, texture, and well—everything—is right on the money).

### Step One:

In this example, we have a charming "old-world" door, but the plastic "16" house number pulls the charming "old-world" feel right out of the photo. So... the plastic numbers have to go. I could use the Patch tool (it's isolated, right?) or the Clone Stamp tool, but this method makes the removal perfect because you're actually going to cover the "16" with a chunk of the wall above it, which is an even more realistic fix and is as fast as, if not faster than, the alternatives.



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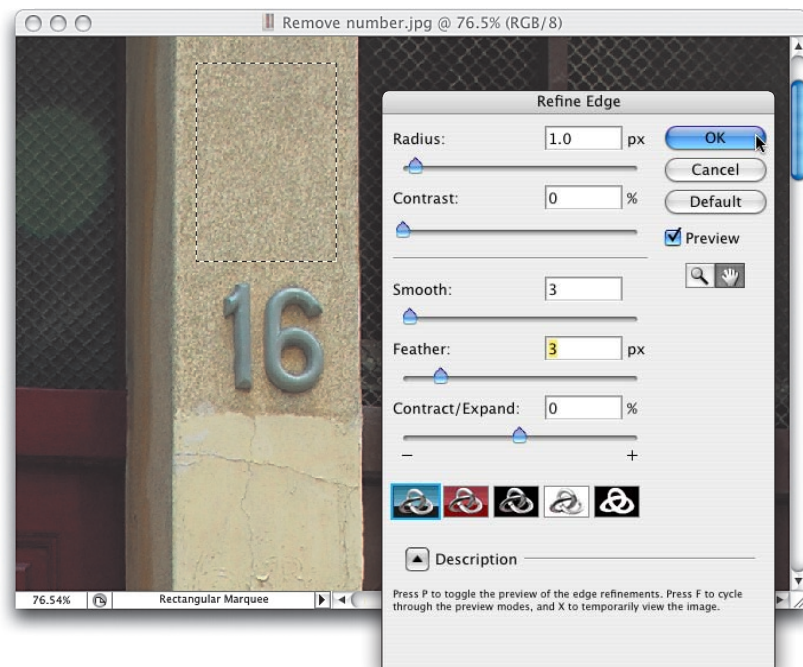
### Step Two:

Press Z to get the Zoom tool and zoom in on the area with the offensive plastic numbers. (I bet they got those at Euro-Home Depot.)

Continued

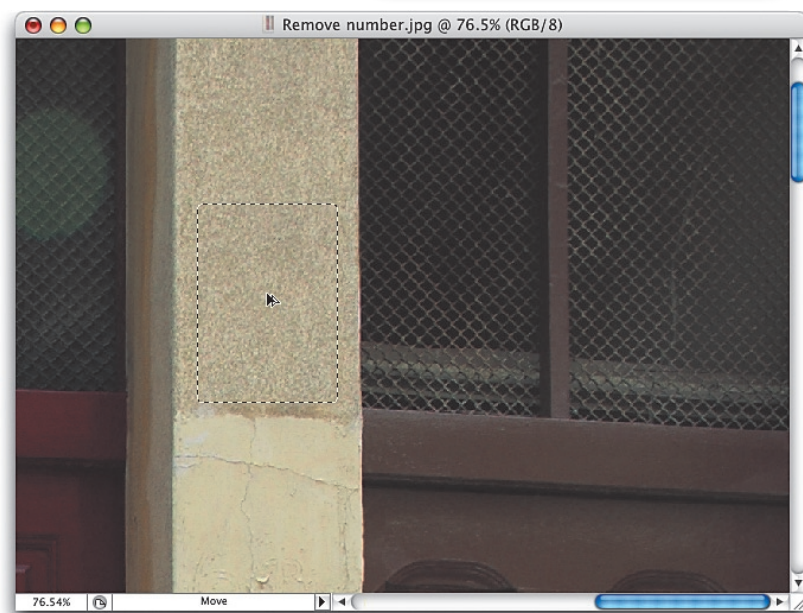
**Step Three:**

Press M to get the Rectangular Marquee tool, and drag out a selection around the “16.” Then, click in the selection and drag it straight above the number, sliding right up the wall. Now, you’ll need to put a feather on your selection so the edges will be soft and blend in perfectly, hiding the fact that you did anything to the photo at all. So, go under the Select menu and choose Refine Edge. When the Refine Edge dialog appears, enter 1–3 pixels (depending on your percentage of zoom) for the Feather and click OK.



**Step Four:**

Now, holding the Command and Option (PC: Ctrl and Alt) keys, drag the selected area straight down. This makes a copy of the selected area, so you’re really dragging along a copy of the rectangular chunk of the wall. That area fits perfectly over the plastic numbers (it fits perfectly because you first created that selection by dragging it over the numbers, remember?). By the way, you won’t see any harsh edges to give you away because you feathered those edges in the previous step.

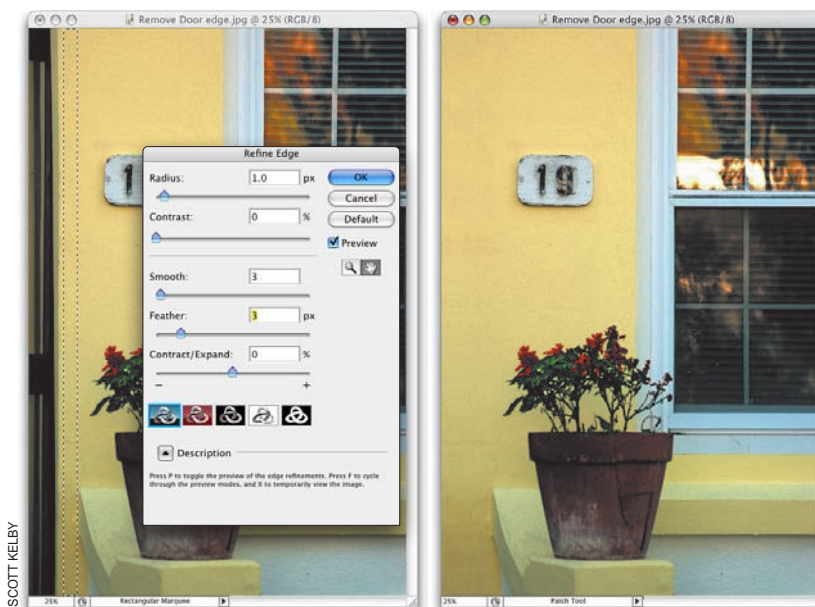


**Step Five:**

Now, when you press Command-D (PC: Ctrl-D) to deselect, the numbers will be gone, and your removal will be right on the money. Here’s a before and after. You can see what a difference removing that one little area made. I probably would go one step further and zoom in on the center of the red door. Then, using the same technique, I’d remove the letter “A” and peephole from the top center of the door. (That way, I’m removing any hint to the possibility of “old-world” crime that peepholes suggest.)

**Step Six:**

Here’s another application of the same technique. On the left side of the photo there’s a distracting doorjamb, and the easiest fix (without re-cropping and shrinking the width of the photo) is to extend the wall to cover the doorjamb. Get the Rectangular Marquee tool, and draw a tall, thin rectangular selection from the top to the bottom, and then feather your selection (under the Select menu, under Refine Edge).



**Step Seven:**

Hold Command-Option (PC: Ctrl-Alt) and the Shift key (to keep it perfectly in line as you drag), and drag the selected area of the wall to the left. You’ll have to drag several copies of the thin wall selection to cover the doorjamb. Also, if you see any repeating pattern when you’re done, just get the Patch tool (Shift-J), draw a selection around that area, drag the selection into a clean area, and then press Command-D (PC: Ctrl-D) to deselect.



## Removing Spots and Other Artifacts

In Photoshop CS2, Adobe added the Spot Healing Brush tool, which is just about *the* perfect tool for getting rid of spots and other artifacts. (By the way, the term “artifacts” is a fancy “ten-dollar” word for spots and other junk that wind up in your photos.) Believe it or not, it’s even faster and easier to use than the regular Healing Brush, because it’s pretty much a one-trick pony—it fixes spots.

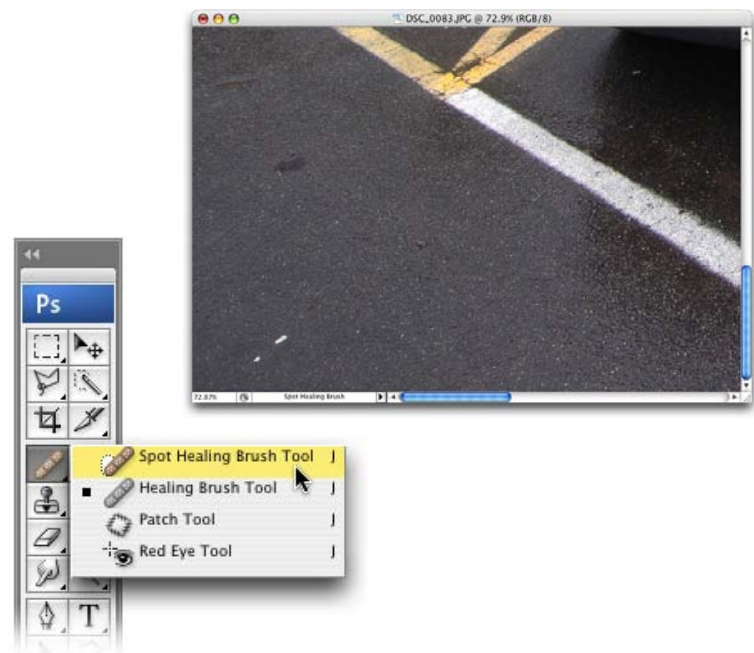
### Step One:

Open a photo that either has spots (whether they’re in the scene itself or are courtesy of specks or dust on either your lens or your camera’s sensors). In the photo shown here (featuring my son Jordan, posing with a Slik Carbon Fiber tripod with a Slik AF2100 trigger-style ballhead; you have to admit, he has great taste in tripods), there are all sorts of distracting little white spots on the pavement.



### Step Two:

Press Z to get the Zoom tool and zoom in on an area with lots of spots (in this case, I zoomed in on the lower left-hand corner of the image). Now get the Spot Healing Brush tool from the Toolbox (or just press the letter J).



### Step Three:

Position the Spot Healing Brush directly over the spot you want to remove and click once. That’s it—you don’t have to sample an area or Option/Alt-click anywhere first—you just move it over the spot and click—the spot is gone.



### Step Four:

You remove other spots the same way—just position the Spot Healing Brush over them and click. I know it sounds too easy, but that’s the way it works. So, just move around and start clicking away the spots. Now you can “de-spot” any photo, getting a “spotless” version, in about 30 seconds, thanks to the Spot Healing Brush.



Before



After



## Removing Distracting Objects (Patch Tool)

Okay, if the Clone Stamp tool is so great, why should you even use the Patch tool? Two reasons: (1) it's faster, and (2) it's better—much better—because it keeps more of the original texture and the fix looks more realistic. Okay, so why not use the Patch tool all the time? Because it has a major limitation: it only does a great job of removing things that are isolated all by themselves. When your object gets near the edge of another object (or the edge of your image area), it doesn't work worth a darn. So you'll see how it works, why it doesn't always work, and a great trick for making it work most of the time (with some help from the Clone Stamp tool).

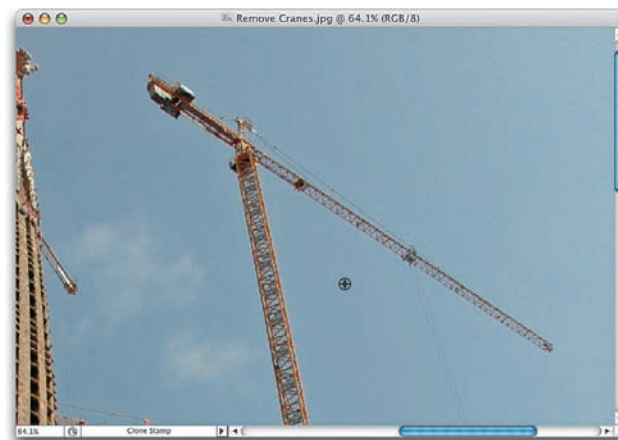
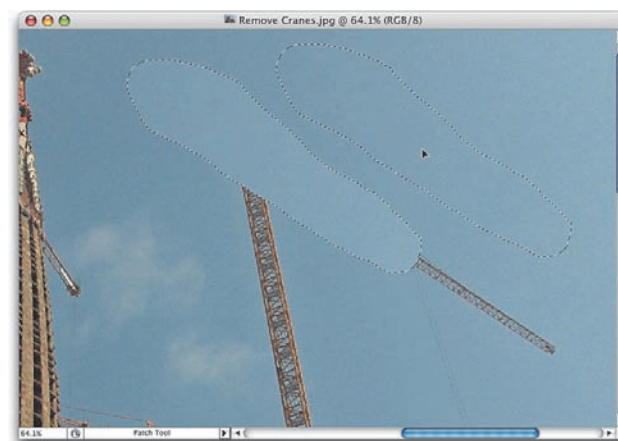
### Step One:

Here's a photo of the magnificent La Sagrada Familia church in Barcelona. There's quite a bit of construction going on (as you can see), and since I'm not a photojournalist, I don't want to see all those cranes that detract from Gaudi's amazing architecture. So, we're going to use the Patch tool (and a little bit of the Clone Stamp tool) to remove all those cranes from the skyline.

### Step Two:

First we'll look at how the Patch tool works, and then you'll see what the limitation of the Patch tool is. Start by pressing Z to get the Zoom tool and zoom into an area you want to remove. Press Shift-J to get the Patch tool (or look under the Spot Healing Brush in the Toolbox), and draw a selection around something you want to remove. At this stage, the Patch tool works just like the regular Lasso tool, so click-and-drag to make a freeform selection like the one shown here.

**TIP:** If you need to add to your selection, press-and-hold the Shift key, or to subtract from your selection, press-and-hold the Option (PC: Alt) key.



### Step Three:

Once your selection is in place, click your cursor inside the selected area (the cursor will change to an arrow) and drag the entire selection into an area of the photo that has a similar texture and color (like I have here, where I dragged into some open sky).

### Step Four:

When you release the mouse, the Patch tool's selection snaps back to its original location (where you first drew it), and it erases what was there. Ahh, now you see the problem: where the edges of the selection meet the rest of the crane, it's all smudged. As bad as it looks here, believe it or not, this is pretty mild compared to what often happens when the area you're patching isn't isolated. The Patch tool only gives you a clean patch-job if you can drag a selection around the entire object without hitting an edge.

### Step Five:

Undo this patch-job by pressing Command-Z (PC: Ctrl-Z), and then deselect by pressing Command-D (PC: Ctrl-D). Now we'll try getting around that limitation: Press S to switch to the Clone Stamp tool, and Option-click (PC: Alt-click) to sample an area below the crane.

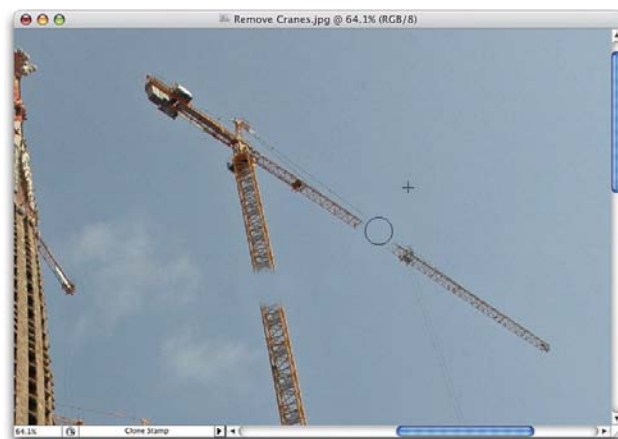
*Continued*

**Step Six:**

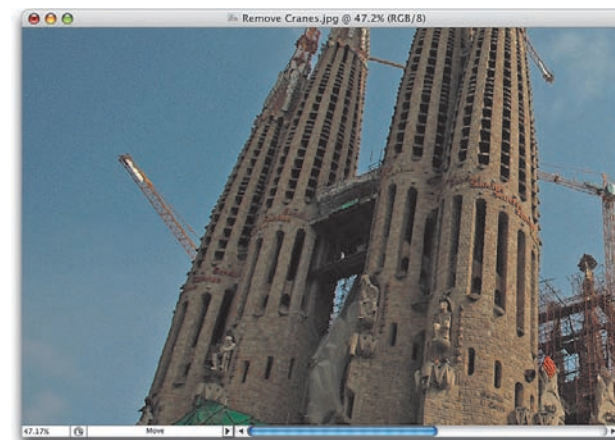
Move the Clone Stamp tool to the left (right over the center of the crane) and clone the blue sky you sampled, putting a break in the crane.

**Step Seven:**

Now do the same thing on the right side of the crane—sample a nearby area by Option/Alt-clicking, and then clone over a middle section of the crane. By doing this, you've isolated the top of the crane—it's no longer connected to the ends of the crane, which means now you can put a selection around the top of the crane using the Patch tool, totally encircling it without touching any edges.

**Step Eight:**

So now it's time to repeat Steps One and Two: get the Patch tool, put a selection around isolated parts of the crane, and then click in the center of your selection and drag to an open area of sky near the crane. *Note:* Use the Zoom tool to zoom out if needed.

**Step Nine:**

When you release the mouse button, it snaps back, creating a perfect patch—with perfect texture—and no smudged edges. It's a precise, seamless fix using this new trick! Just press Command-D (PC: Ctrl-D) to deselect.

**Step Ten:**

Getting rid of the top-right side of the crane is simple because it's now isolated—just draw a Patch tool selection around it, drag the selection into a different area, let it snap back, and—BAM—it's gone!

**Step Eleven:**

Alright, are you ready for a little more of a challenge? Take a look at the crane on the left of the image. It's right up against one of the towers. Now what? You do the same thing; it just takes one extra step to ensure you don't accidentally clone over some of the church (I'll show you the trick for that in the next step).

Continued



**Step Twelve:**

First, use the Zoom tool to zoom in tight on the area where the crane meets the church. Press L to switch to the regular Lasso tool and trace along the edge of the church where the crane comes out. It sounds harder than it is, but because you're only tracing for about an inch, it's easier than you'd think. Trace along the church edge, drag to the left to select part of the crane, and then click back to where you first started your edge selection, creating a selection like the one you see here.

**Step Thirteen:**

When you make a selection like this, you're basically putting up a fence, because now any cloning you do with the Clone Stamp tool will appear only inside that "fence," so it's impossible to accidentally erase part of the church (in other words, you can't paint outside that selected area—only inside it). So, get the Clone Stamp tool, Option/Alt-click in the sky near the edge of the church, and clone in the sky over the end of the crane.

**Step Fourteen:**

Once you've pressed Command-D (PC: Ctrl-D) to deselect, zoom out a bit with the zoom tool. Now, switch to the Patch tool and draw a selection around the crane (since there's now a break between the church and the crane). Then, click inside the selection and drag your Patch tool selection into an open area of sky.

**Step Fifteen:**

Release the mouse button, and once your selection snaps back to remove the crane cleanly, deselect by pressing Command-D (PC: Ctrl-D). You're going to continue to use this same technique of isolating parts of the crane and drawing a Patch tool selection around them until all the cranes are gone. Again, could you have used the Clone Stamp tool for the whole process? Yes. Would it have taken you longer? Yes. Would it have looked blotchier and more obvious that things were removed? Probably. The Patch tool is just that much better, so if you can find a way to use it (like we did here), you're better off in more ways than one.



Before



After

## Removing Things in Perspective

Until Photoshop CS2's introduction of the Vanishing Point filter, cloning away things in perspective was one of the hardest removal tasks of all. Luckily, this incredibly cool filter not only simplifies removing things in perspective, it actually makes it fun. In fact, this is one of those filters that's so amazing, you can wind up spending hours cloning away things that have no business being cloned away. Don't say I didn't warn you.

### Step One:

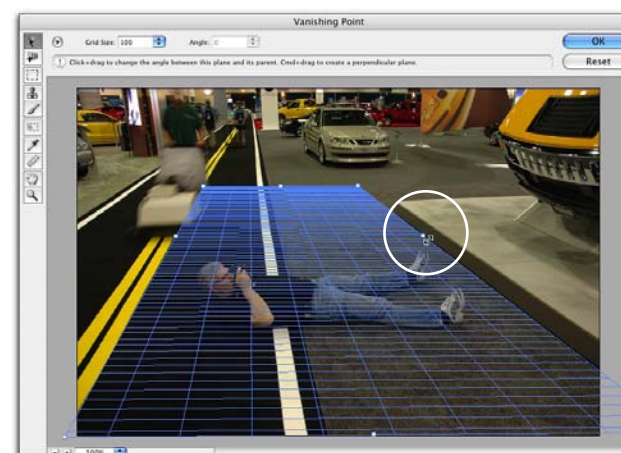
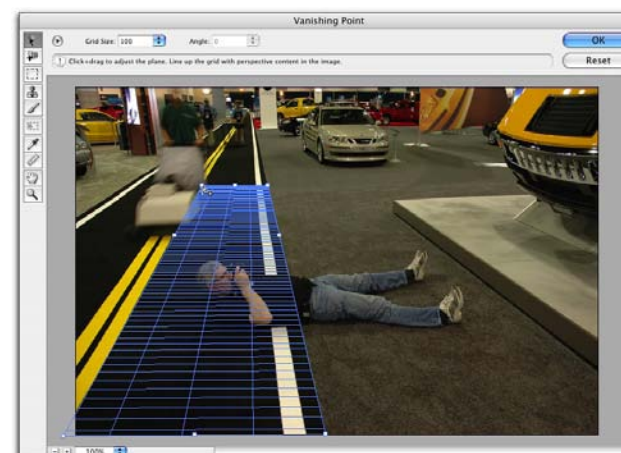
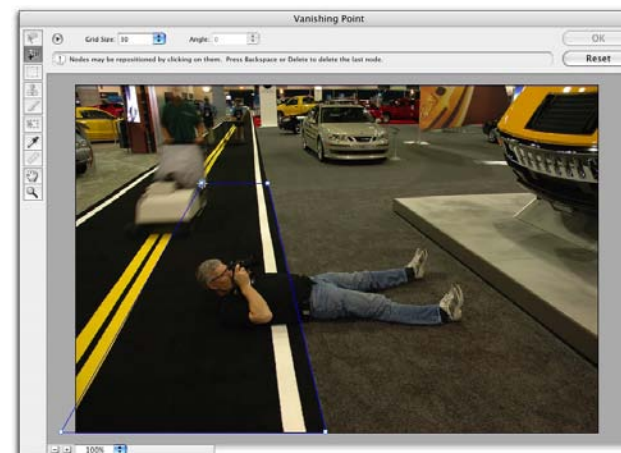
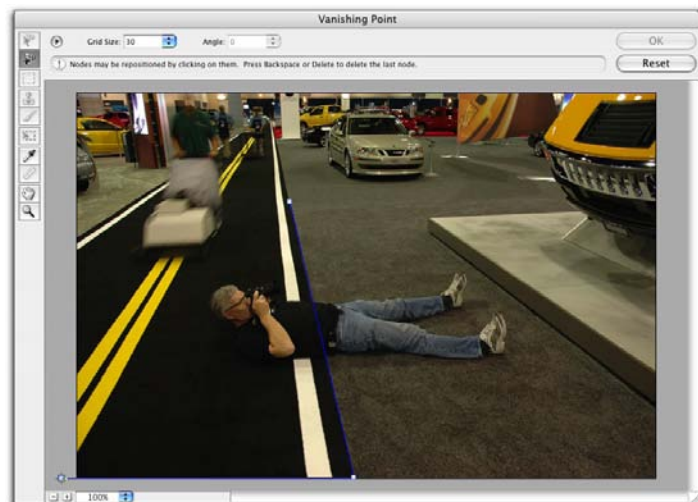
Here's a photo of my buddy Dave Moser. We were shooting the International Car Show on press day (which is why you only see cleaning crew in the background), and Dave was lying on his back shooting a Hummer H2 that was positioned on an angle. Where's Dave's tripod, you might ask? I asked the same question, but apparently Dave doesn't mind camera shake (kidding). Anyway, since he didn't use a tripod, he should be cloned out of this photo to hide the evidence. Start by clicking on the Create a New Layer icon in the Layers panel so we can do our cloning work on a new blank layer.



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### Step Two:

Go under the Filter menu and choose Vanishing Point (it's near the top). First, you have to define the angle of perspective by drawing with the Create Plane tool (C). (Don't let the fancy name throw you—you use it pretty much like you would the Polygonal Lasso tool.) Just click where you want to start, and keep clicking at angles to create your selection. (Here, I clicked halfway down the road along the carpet's edge, clicked at the end of the carpet at the bottom of the image, and then clicked again where I thought the road's yellow line would end.)



### Step Three:

Use the tool to trace down the yellow line. You can pretty much see what's going on here—I'm simply tracing the area that has the perspective angle of the photo.

**TIP:** When you're placing these points far away (like I am here), you can temporarily zoom in to make sure you're aligning them correctly by pressing the letter X.

### Step Four:

When you reach the original point you started with, a blue grid will appear. Well, hopefully it's a blue grid. If it's blue, it means you drew it correctly, and Vanishing Point is happy with you. If it's yellow, it means that you're close, and it may work, but you'd be better off switching to the Edit Plane tool (V) (it looks like an arrow) and adjusting your points until they turn blue. If your grid outline turns red, it's a bad grid (your perspective isn't right), and you'll need to tweak the points until it's right.

### Step Five:

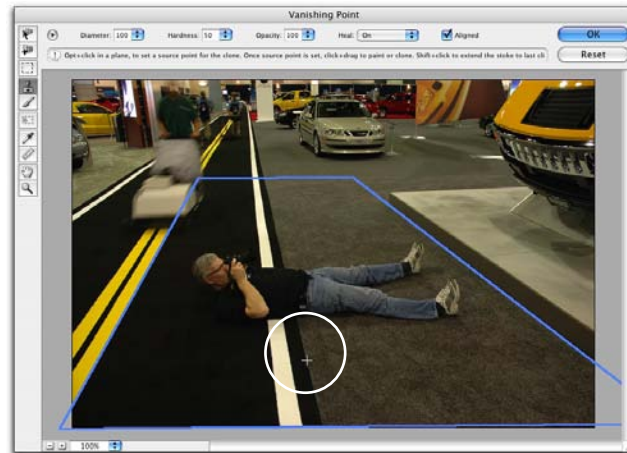
Once your blue grid is in place, you can stretch it to cover the object you want to remove. Just click on one of the center points using the Edit Plane tool, and drag in the direction you want the grid to spread. In the example shown here, I grabbed the right-center point and dragged it over to the right until Dave's legs and feet were covered.

Continued



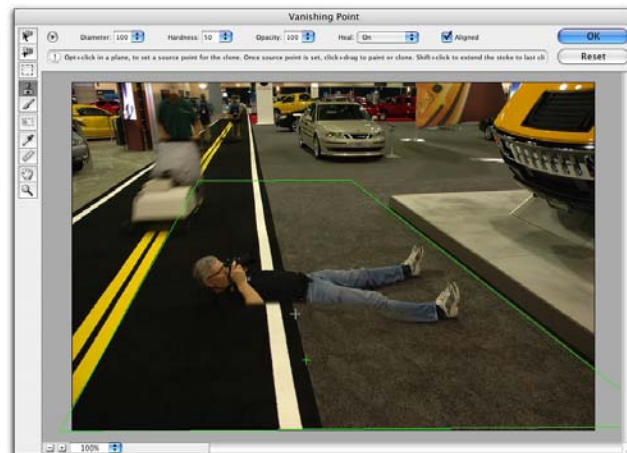
**Step Six:**

Press S to switch to the Stamp tool (it looks like the Clone Stamp tool), and the grid in the center will go away, leaving just the blue outline to show the boundaries of the grid. Option-click (PC: Alt-click) on a straight line in your image (if possible) to help you line things up. In this case, I Option/Alt-clicked on the line where the black and gray carpets meet.



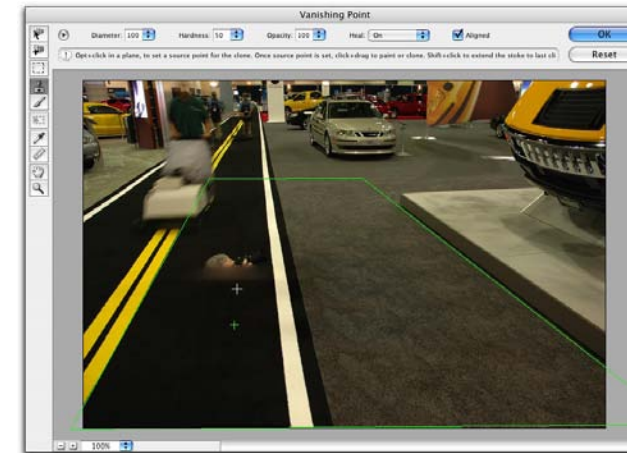
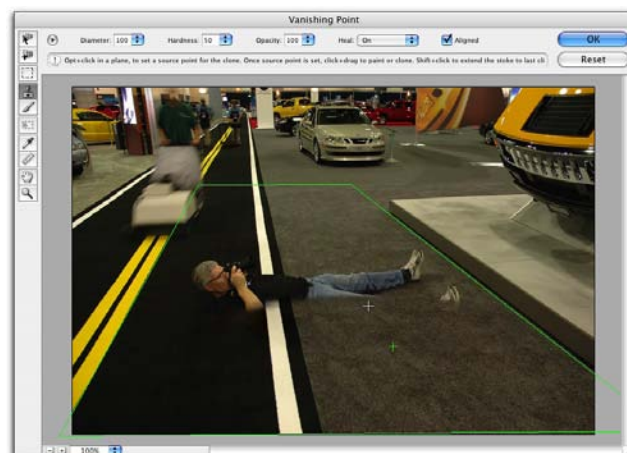
**Step Seven:**

Now, just move up that line and click-and-drag to start painting. As you do, the unwanted object (Dave) is removed, and the cloning automatically adjusts for the perspective. In this example, you can see how the white line automatically shrinks as it moves away.



**Step Eight:**

Like the regular Clone Stamp tool, if you paint too far, it starts cloning over itself (meaning it's picking up other objects) so just paint a little bit (say 1/2" or so); then move to a different area, Option/Alt-click again, and this time clone over the legs. Again, just clone away a little of his legs at a time—don't try to remove them all at once, or you'll start cloning objects back in.



**Step Nine:**

Continue using this technique to clone away other unwanted areas. Remember to Option/Alt-click several times to keep the retouch looking random, and to keep from “repeat” cloning. When it looks good to you, click OK in the dialog. Since the cloning will appear on a separate layer, you can adjust it or easily erase any extra areas using the Eraser tool (E) (if you cloned too large an area, for example). With the perspective right on the money, Vanishing Point works wonders.

**TIP:** If you notice any repeating patterns in your cloning, just click on Layer 1, get the Patch tool (Shift-J), draw a selection around one of the repeating patterns, drag the selection into a new area on that layer, and the repeating pattern will be removed. Press Command-D (PC: Ctrl-D) to deselect.



Before



After

## Removing Backgrounds

I figured I'd include probably the most-requested masking task—removing someone from a background while keeping hair detail. We use Extract for this, and even if you've used Extract dozens of times, there's a trick near the end that is so simple, yet so incredibly effective, it will change the way you use Extract forever, or my name isn't Deke McClelland.

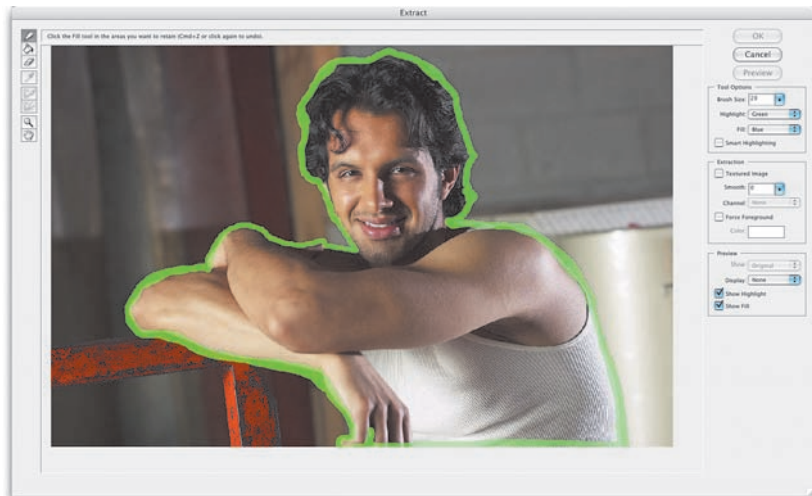
### Step One:

Open the photo containing a person (or an object) that you want to extract from its background. Go under the Filter menu and choose Extract (it's the first filter from the top).



### Step Two:

This brings up the Extract dialog. Press B to get the Edge Highlighter tool (it's the top tool in Extract's Toolbox and looks like a marker), and trace the edges of the object you want to remove. As you trace, leave half the marker border on the background and half on the edge of the object you want to extract.



**TIP:** Use a small brush size when tracing areas that are well defined (like along the shirt), and a very large brush for areas that are less defined (such as flyaway hair). You can change the brush size by holding down the Left Bracket key to make it smaller or the Right Bracket to make it larger.



### Step Three:

After your Highlighter edge is in place, you now have to tell Photoshop what parts of the photo to retain when extracting. This is pretty simple—you just press G to switch to the Fill tool (it's the second tool from the top in Extract's Toolbox and looks like a paint bucket), and click it once inside the Highlighter edge border you drew earlier. This fills the inside of your highlighter border with a blue tint.



### Step Four:

If the blue tint spills out into the rest of your photo when you click the Fill tool, that means your subject isn't completely enclosed by the edge border. If that happens, just press Command-Z (PC: Ctrl-Z) to undo, then take the Edge Highlighter and make certain there are no gaps at the bottom or sides of your border. Now you can click on the Preview button to see how your extraction looks.



### Step Five:

It's time to take a good look at the photo and see if Extract did what you really wanted it to. Namely, did it work on the hair, which is the hard-to-select area? If it worked, then click OK because fixing the rest of the photo is a breeze, as you'll see. Even if parts of his clothes are dropping out, or there are dropouts in his face, hands, etc., don't sweat it—as long as the edge of the hair looks good, go ahead and click OK to perform the extraction and your image will appear on an editable layer (Layer 0).

Continued



**Step Six:**

Now that the extraction is done, it's "fix-up" time. Here, you can see dropouts (slightly transparent areas) in his hair, a few little spots in his shirt, and a couple of little spots in other places. Start by simply duplicating the layer. That's right, just press Command-J (PC: Ctrl-J). The mere act of duplicating the layer will fix about 90% of the dropouts in your photo. It sounds weird, but it works amazingly well, and when you try it, you'll be astounded. Press Command-E (PC: Ctrl-E) to merge these two layers.



**Step Seven:**

For the rest of the dropouts, press Y to get the History Brush tool and simply paint over these areas. The History Brush will paint those missing pieces back in because it's really an "undo on a brush." So, if part of your subject drops out, use the History Brush to paint it right back in. You can usually fix the dropouts in about two minutes using this technique.



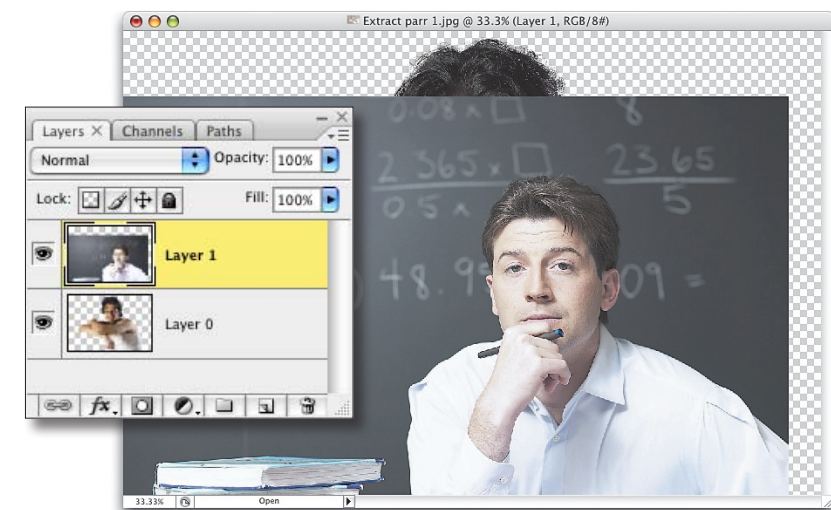
**Step Eight:**

During the fix-up stage, I'm painting over dropouts along the man's shoulder. As you see, using the History Brush paints the original image back in.



**Step Nine:**

Next, open the photo that you want to use as a background behind your extracted person. It's best to drag this background photo onto your extracted-person document, because as long as you work in the same document where you extracted, you'll have access to the History Brush for your extracted image. That way, if you see a dropout when you bring in the background, you can return to that layer and quickly touch it up with the History Brush. So press V to switch to the Move tool, and drag-and-drop this photo on top of your extracted image. The background will appear on top of your extracted image on a separate layer (Layer 1) in the Layers panel.



*Continued*



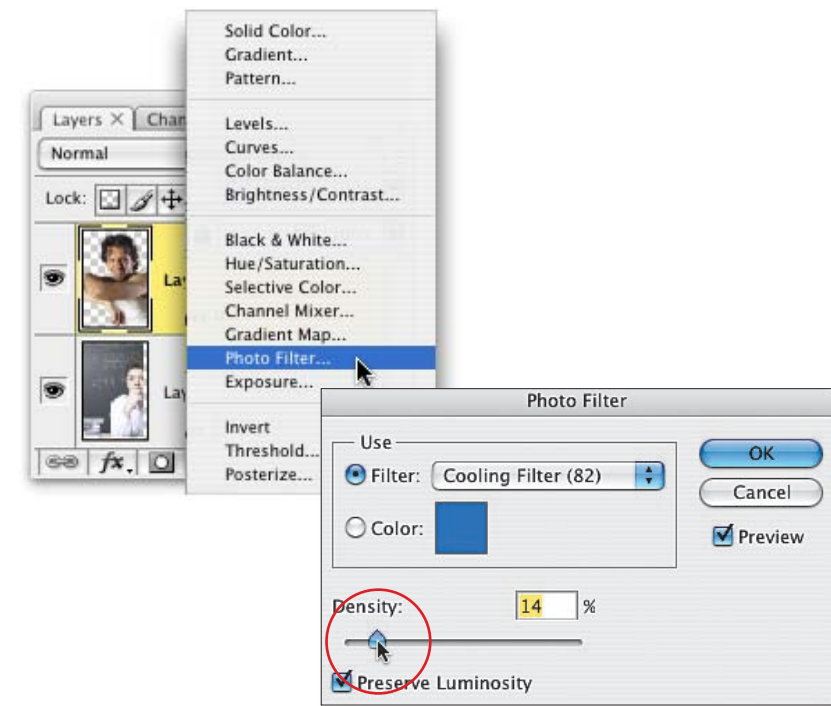
**Step Ten:**

In the Layers panel, drag the layer with your background photo (Layer 1) beneath the layer with your extracted photo, putting your extracted person in front of the background (as shown here, where the man in the background photo is partially covered by the extracted man). Using the Move tool, position this background layer until your extracted person appears where you want him. Then, you'll usually have to switch to the Eraser tool (E) to erase any leftover "junk" outside his hair, along his shirt, etc., but you can usually clean up these leftovers pretty easily once you see them over the background.



**Step Eleven:**

In this example, because I only want part of the background to appear, I'm stuck with a lot of empty space and unneeded areas. Press the letter C to get the Crop tool, drag a cropping border around the areas you want to keep, and then press Return (PC: Enter) to crop the photo down to size. Now that the photo is cropped, a new problem is visible—his skin tone looks too warm for the bluish background we've placed him on (and this is something you'll deal with often when combining photos—the tones have to match to look realistic).



**Step Twelve:**

To cool down his warm skin tones, make sure the top layer is active in the Layers panel, and then go under the Create New Adjustment Layer pop-up menu at the bottom of the Layers panel and choose Photo Filter. These Photo Filters replicate the traditional screw-on lens filters used with film cameras to accommodate bad lighting situations.

**Step Thirteen:**

In the Photo Filter dialog, you can choose a filter from the Filter pop-up menu (like the Cooling Filter [82] I chose here), or choose to fill with a solid color. You can also control the Density of the effect using the Density slider (I lowered it to 14%). Click OK and the warm areas are cooled, so your subject's flesh tones now better fit the background image you dragged him onto.



The original photo



The subject extracted, placed onto a different background, re-cropped, and his tone cooled to match the new background.