

A professional image editor's guide  
to the creative use of Photoshop  
for the Macintosh and PC

# Adobe® Photoshop® CS3 for Photographers



TUTORIAL  
CD FOR MAC  
AND PC  
INCLUDED

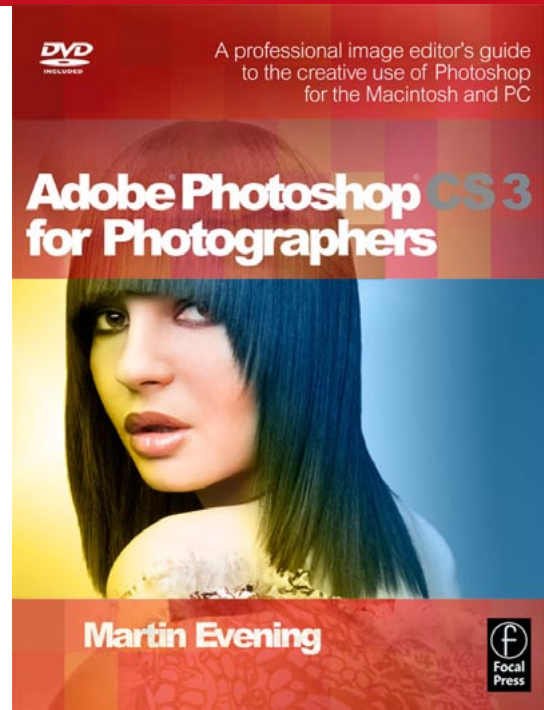
## Martin Evening



Martin Evening's Adobe Photoshop for Photographers titles have become classic reference sources, the only Photoshop books written to deal directly with the needs of photographers. Whether you are an accomplished user or just starting out, these books contain a wealth of practical advice, hints and tips to help you achieve professional-looking results. Adobe Photoshop CS3 for Photographers, is published by Focal Press, an imprint of Elsevier in the Spring of 2007. More information about the book and how to order is available on the book website: [www.photoshopforphotographers.com](http://www.photoshopforphotographers.com).

ISBN: 0-240-52028-9 (old style ISBN)

ISBN: 978-0-240-52028-5 (new style ISBN)



# Camera Raw 4.1 update

**A**lthough many of the changes that took place with the raw processing in the Lightroom 1.1 Develop module were identical to the changes that have taken place in Camera Raw, a lot of readers have asked if I could provide an equivalent Photoshop CS3 Adobe Camera Raw 4.1 update. What follows is a summary of what is new in the Adobe Camera Raw (ACR) interface, where I have taken the text from the Lightroom-news story and repackaged it for Photoshop users.

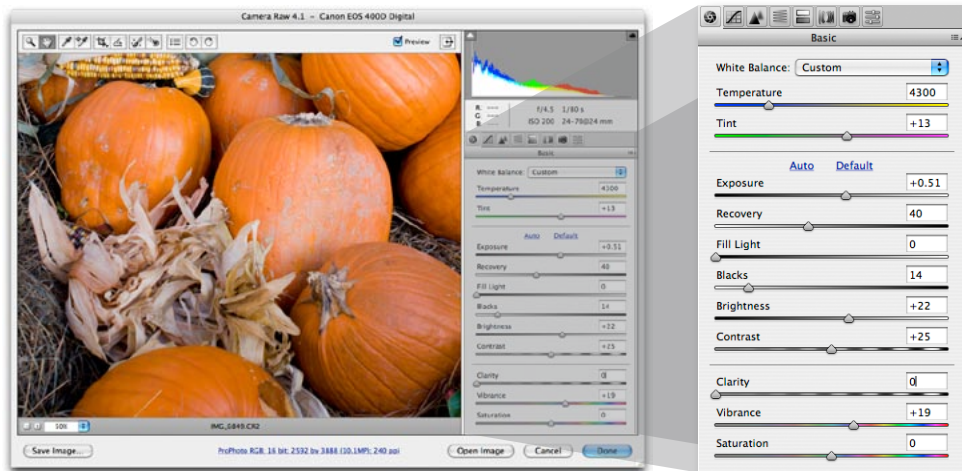
**Important notice**

The contents of this PDF are made available for free on-line distribution, but may not be modified, sold, reproduced or distributed without prior permission from the author.

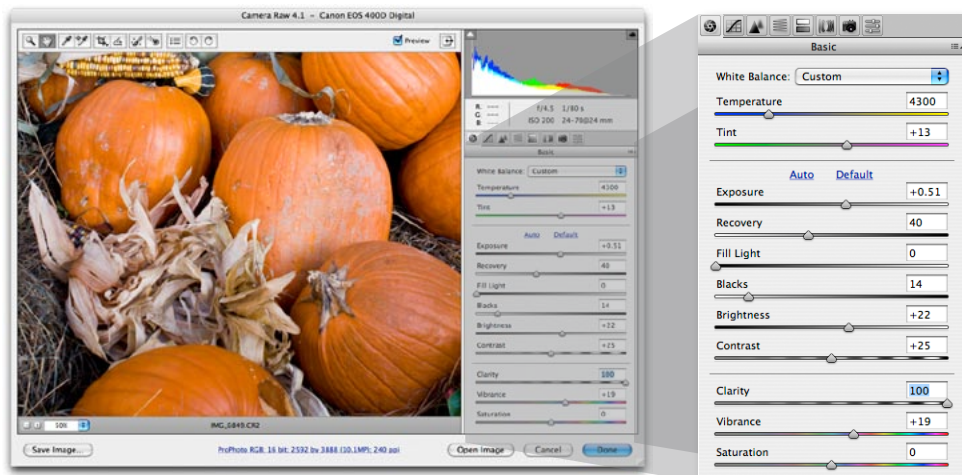
**Clarity slider**

Let's start with the Clarity slider in the basic panel section of the Camera raw dialog. I believe Jeff Schewe campaigned hard to get this particular feature included, and as Jeff himself will tell you, Clarity is a hybrid based on two separate contrast enhancing techniques. One is a local contrast enhancement technique, devised by Thomas Knoll, using a low amount and high radius setting in the Photoshop Unsharp Mask filter. The other is a midtone contrast enhancement Photoshop technique that was originally devised by Mac Holbert of Nash Editions. Those who have bought my most recent book, Adobe Photoshop CS3 for Photographers, can read there the steps Mac used in Photoshop to create this effect. The Photoshop instructions are admittedly quite complex. However, Clarity is now available as a simple one shot slider control in the Basic panel section.

The Clarity adjustment is one that can usefully be applied to a great many kinds of photographs. Mac Holbert originally devised his technique in order to boost the midtone contrast and he found that it helped him to bring out crisper detail in his landscape prints. But I think most photographs can gain from adding a small clarity adjustment.



1 Here is a screen shot showing a close-up 1:1 view of a photograph taken of some pumpkins. A few adjustments have been made to the basic tone controls and sharpening has already been added via the Detail panel section. You don't have to necessarily be viewing the image at 1:1 in order to evaluate the results, but it is usually the best way to work.



2. In this next screen shot you can see how the pumpkins looked after adjusting the Clarity slider. In this example I have taken the slider to the maximum setting in order to show the most dramatic difference between the two. Normally, you would want to start around '10' and try not to overdo the effect. But as you can see, the Clarity adjustment adds a halo edge effect to the midtones only (the shadows and highlights are protected). As you increase the amount, the halos get wider, strengthening the midtone contrast effect and making the midtone areas look sharper. You can see the halos forming as you drag the slider left and right.



## **Sharpening and noise reduction**

Now we'll take a look at the new sharpening controls in ACR 4.1. If you go to the Detail panel you will see there are now four sliders that can be used to control the sharpening. Although these may appear intimidating at first, they are quite easy to work with once you understand what each one does.

## **Capture sharpening for a sharp start**

Before discussing the new sharpening controls in ACR 4.1, I should briefly explain the principle behind capture sharpening and the difference between this and output sharpening.

The Unsharp Mask filter in Photoshop has been around since the very earliest days of the program and has not really changed much since then. As Photoshop has matured our understanding of sharpening and how to best use the Unsharp Mask filter controls has improved and various techniques have evolved that cleverly use the Unsharp Mask filter to its best advantage. In his lifetime, author and Photoshop guru Bruce Fraser, did the industry a great service with his research into Photoshop sharpening. His recipes for optimum sharpening based on whether you were sharpening for input, i.e. 'capture sharpening', or sharpening for output, have done a lot to improve our understanding of how to apply the most appropriate level of sharpening at each step of the image editing and printing process. It is also fair to say that Bruce's research and writing had an impact on the way some of the sharpening controls in ACR evolved. But more of this later.

Capture sharpening is all about adding sufficient sharpening to a photograph in order to correct for the inherent lack of sharpness that most digital images suffer from to a greater or lesser extent. If you shoot using raw mode, then your photographs will arrive untreated as you import them into the computer and they will most definitely need some degree of sharpening. If the photos you import

have originated from a digital camera shot using the JPEG mode, then they will already have been sharpened in-camera. The Detail panel sharpening controls in ACR 4.1 are therefore intended for use with photographs that are raw originals or non-raw files that have not been sharpened yet. The main goal with input/capture sharpening is to correct for the lack of sharpness in an image. Capture sharpening is therefore something that you can evaluate on the monitor (providing you use the 1:1 view setting) and it is all about making the photograph look just sharp enough on the screen. You don't want to over-sharpen at this stage, since that can lead to all sorts of problems later at the retouching stage in Photoshop.

Output sharpening is something that is always done at the end, just prior to making a print. There are no output sharpening options in the Photoshop Print dialog, you either need to use the unsharp mask filter in Photoshop to add some extra sharpening to a resized print version of the image just prior to making the print, or more ideally, use a third-party product like the Photokit Sharpener plug-in Bruce designed for this very purpose. But I am getting ahead of myself here. This section is all about the capture sharpening and what's new and special about the sharpening controls in ACR 4.1.

### **Sharpen preset settings**

As you read the rest of this section it will become apparent what the individual sliders do and which combination of settings will work best with some photographs and not others. Now one of the neat things about Lightroom 1.1 is that it comes with a couple of sharpening presets, and these can be considered a useful starting point when learning how to sharpen in Lightroom 1.1. All you have to do is decide which of these two settings is most applicable to the image you are about to sharpen. But unfortunately you don't get access to these presets when you update to ACR 4.1. So let me instead describe the two basic sharpening scenarios and the settings used in each case, so you can use these to save your own custom ACR sharpen settings.

### Sharpen – Portraits

Figure 1 shows a 1:1 close-up view of a male portrait where I used the following settings:

*Amount:35, Radius: 1.2, Detail: 20, Masking 70.*

This combination of sharpening slider settings is the most appropriate to use for portraits male or female, or any photo where you wish to sharpen the important areas of detail such as the eyes and lips, but protect the smooth areas (like the skin) from being sharpened.



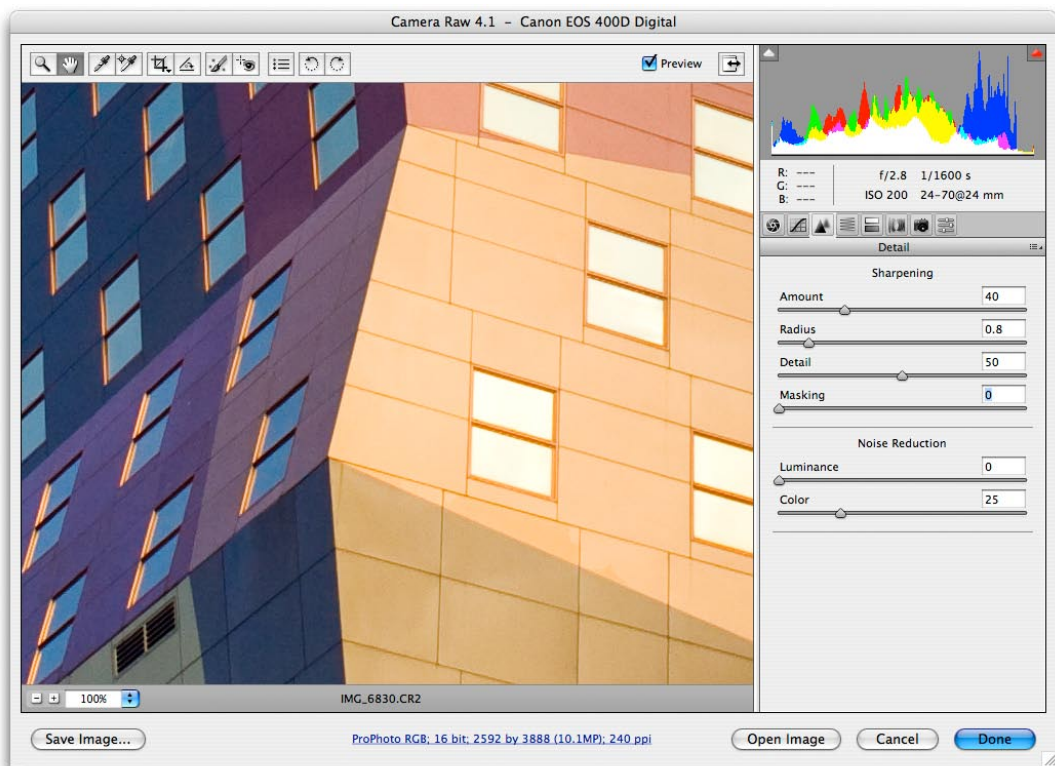
**Figure 1.** An example of the sharpening settings used to pre-sharpen a portrait.

### Sharpen – Landscapes

Figure 2 shows the settings that would be used to sharpen a landscape image, or in this case, an architectural scene. The settings used here were:

*Amount: 40, Radius: 0.8, Detail: 50, Masking 0.*

This combination of sharpening slider settings is most appropriate for subjects that contain a lot of edge detail. You could include quite a wide range of subject types in this category. Basically you would use this particular preset whenever you needed to sharpen photographs that contained a lot of fine edges.

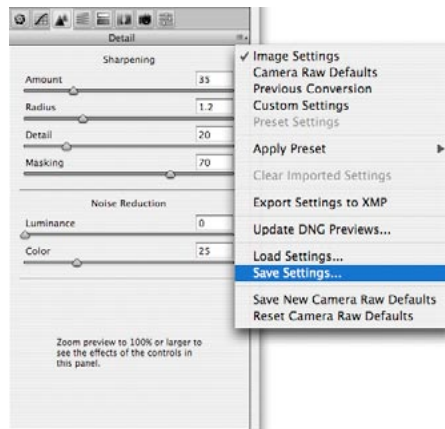


**Figure 2.** An example of the sharpening settings used to pre-sharpen a landscape.

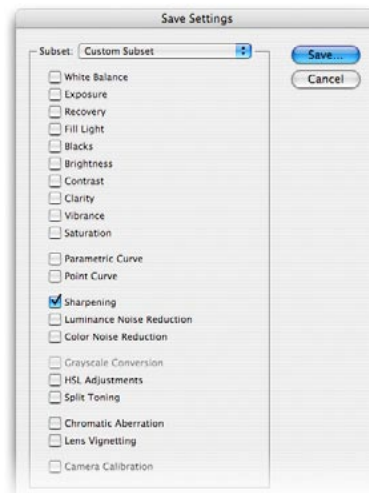


### ***How to save Sharpen settings as presets***

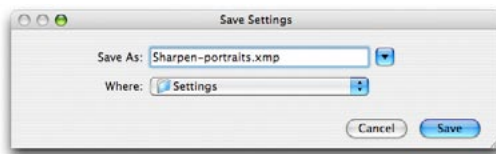
You can save these basic sharpening settings as ACR presets and load either as required depending on what type of photo you are editing. You could try using either of these two settings as a starting point to refine the sharpening effect and stick reasonably close to the settings suggested here. So let me quickly show you how this can be done.



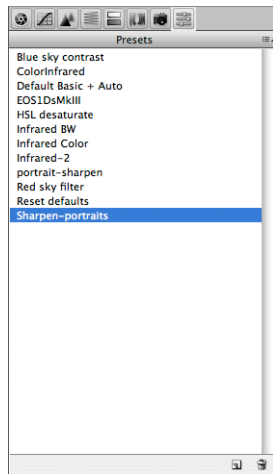
1. After configuring the Detail panel settings for either the Landscape or Portrait sharpen setting shown above, go to the fly-out menu and choose 'Save Settings'.



2. This will open the Save Settings dialog shown here. Check the Sharpening box only and click Save...



- 3.** Now name the setting and leave the save location as is. Don't try to change the location you are saving the setting to. It should be saved to the folder shown here (Settings).






- 4.** When you need to access the saved setting, go to the Settings panel in the Camera Raw dialog and click on a saved setting to apply it to an image. Since the setting here has been saved to apply sharpening adjustments only, if you select a sharpen preset like the one saved here, this will only adjust the sharpening sliders when you apply it to a new image.

### ***Getting to know what the sharpening sliders do***

The two preset settings I just showed you provide a great way to get started, make the most of the new sharpening settings and get improved sharpening without having to understand too much about how the sharpening Camera Raw 4.1 works or what the individual sliders do. If you want to learn more in detail about the sharpening controls, then read on...



### ***Sample sharpening image***

To help explain how the individual sliders work, I have prepared a test image that has been carefully designed to try and show some of the key aspects of Camera Raw 4.1 sharpening. You can access this photograph by following the link in the Figure 3 caption, where you can download a high quality JPEG version of the image.

All the settings in Bridge and Camera Raw settings that relate to JPEGs and TIFFs opening in Camera Raw are (and let's be honest here) rather confusing. However, the easiest way to open a JPEG image from Bridge via Camera Raw is to choose: File ⇨ Open in Camera Raw. Or you can use the    shortcut.

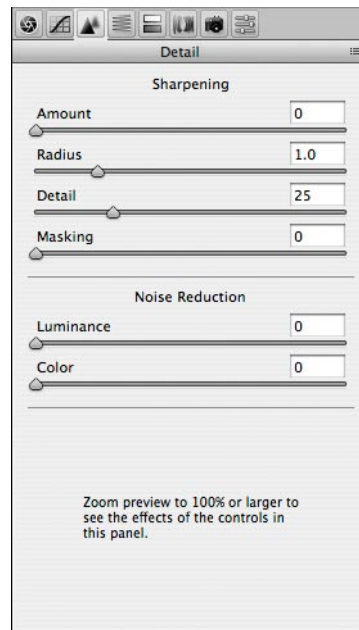
The image shown in Figure 3 was specially designed to demonstrate several key aspects of Camera Raw 4.1 sharpening. The eye and surrounding skin texture allows you to see the effects of portrait style sharpening where the objective is to sharpen detail like the eyelashes, but avoid sharpening the skin texture. Conversely, the patchy texture in the bottom right corner allows you to test the ability to sharpen smooth texture content where you do want to emphasize the texture detail. The high contrast detail content in the left hand section allows you to test the effects of sharpening on fine-detailed image content. And the crisscross lines have been added so as to highlight the effects of the Radius setting.



**Figure 3.** The sample image used in this chapter can be accessed via the following link: <http://photoshopnews.com/stories/images/sharpen-test.jpg>. To open this JPEG photo via Camera Raw 4.1, use Bridge CS3 to locate the test image that you have downloaded and use File ⇒ Open in Camera Raw, or use the  **R**  **ctrl** **R** shortcut to open the JPEG up via the Camera Raw dialog.

***Evaluate at a 1:1 view***



But first things first. When you go to the Detail panel shown in Figure 4 to access the Sharpening slider controls, you will see a warning message that says: 'Zoom preview to 100% or higher to see the effects of the controls in this panel'. So follow the advice here and set the image view magnification in the Camera Raw dialog to 1:1 or higher. And in any case, the grayscale previews I'll be discussing shortly won't work unless you are viewing the image at 1:1 or higher.




**Figure 4.** The Detail panel in the Camera Raw dialog.



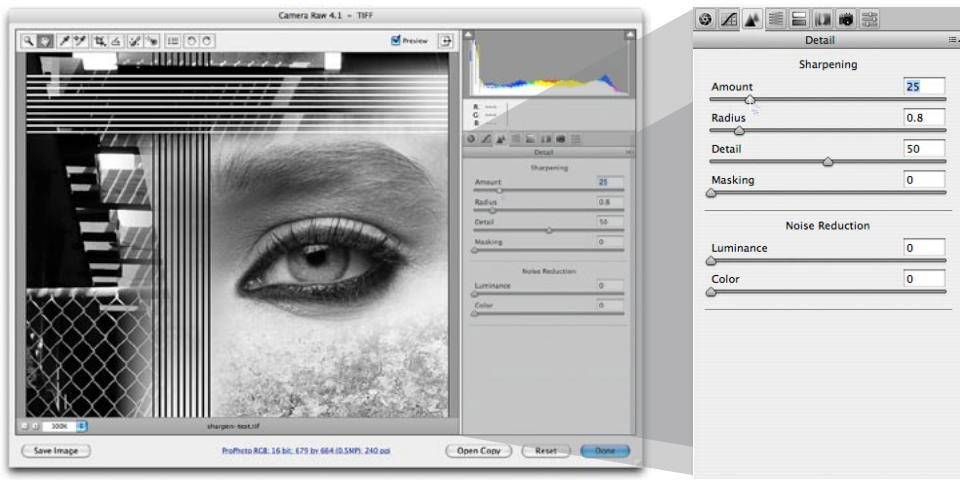
### ***Luminance targeted sharpening***

The first thing to say about Camera Raw 4.1 sharpening is that the sharpening is only applied to the luminance information in a photograph. Camera Raw always filters out the color content when it applies the sharpening. This is a good thing because sharpening the color information enhances any color artifacts and it is the luminance content that we really want to sharpen here. In the early days of Photoshop, people sometimes converted an RGB image to Lab mode and sharpen the Luminosity channel separately. This technique allowed you to sharpen the luminance information without sharpening the color content. More recently (from Photoshop 3.0 onwards), it has been easier (and less destructive) to sharpen in RGB mode and use the Luminosity blend mode to restrict the sharpening to the luminance information. Camera Raw 4.1 does a similar thing here: it filters out the color content when sharpening. For this reason it can be useful to inspect the image in luminance mode when working with the slider. You can do this by holding down the  **alt** key as you drag on the Amount sharpening sliders in the Detail panel. In addition to this you can hold down the same  **alt** key to isolate the effect the other slider controls are having.

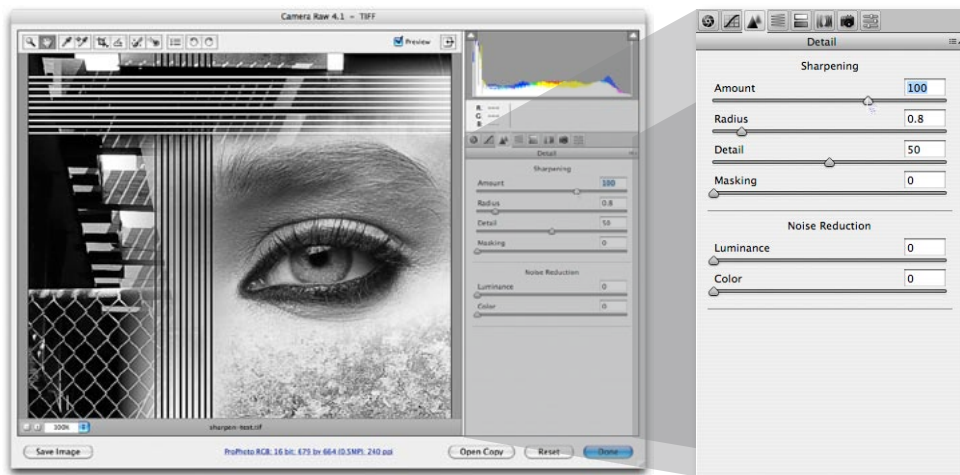
### ***The sharpening effect sliders***

Let's start by looking at the sharpening effect controls: Amount and Radius. These two sliders control the how much sharpening is applied and how the sharpening is distributed. As I mentioned earlier, you can download the sample image shown in Figure 3, open it via Camera Raw, and copy the steps described here. Note that all the following screen shots appear in monochrome because they were captured while holding down the  **alt** key as I dragged the slider controls.

## Amount slider

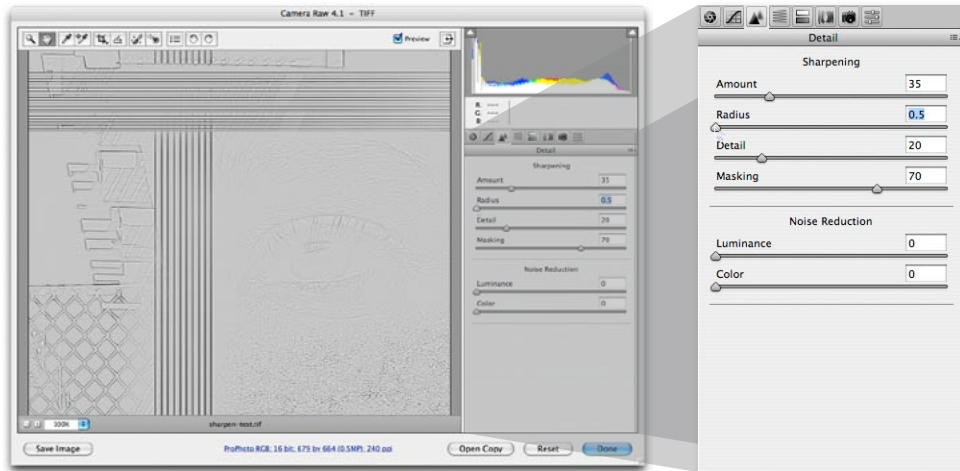


1. The Amount slider is like a volume control. The more you apply, the more you sharpen the image. In this respect it works in a similar way to the Amount slider in the Unsharp Mask filter. The Amount range can go from zero (no sharpening) to 150 (maximum sharpening, where the slider scale goes into the red). The 150 setting goes well beyond the 0–100 range that was available previously, but there is a reason for this: you can use the sharpen suppression controls (described later) to dampen the effect of the sharpening. Although you are rarely going to need to set the sharpening as high as 150, the extra headroom is available should you need it. In this above example you can see what the image looks like using the default 25 sharpening.

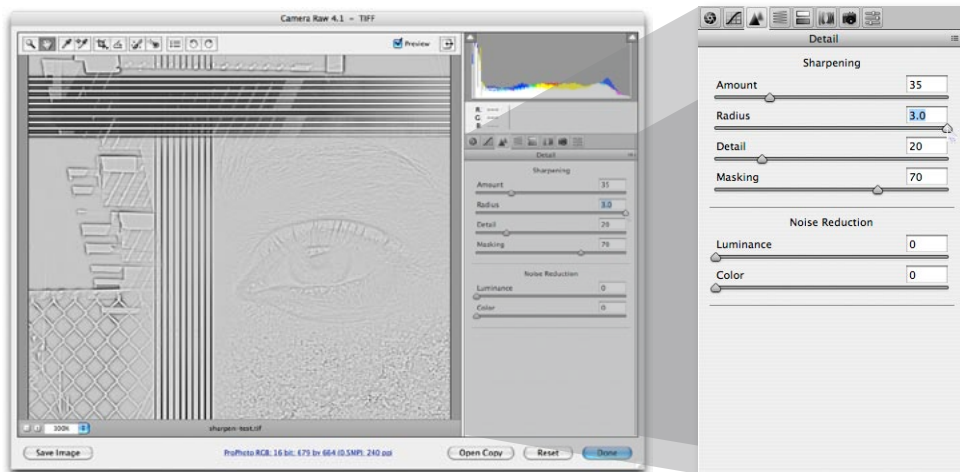


2. As I increase the Amount sharpening to 100 you can see how all the detail in the image looks crisper. But used like this, the Amount slider is a fairly blunt instrument and it is the newly included ability to modify the distribution of the sharpening and filter out the edge halos that makes Camera Raw 4.1 sharpening so special.

## Radius slider



1. For this step and the next I again held down the **alt** key to isolate the effect that the Radius setting would have on the image. At the minimum Radius setting you can see that a small radius will have the greatest effect on the narrow edge detail such as the fence wire in the picture and very little effect on the soft edge detail such as the eye. Notice also the effect the small radius has on the crisscross lines.



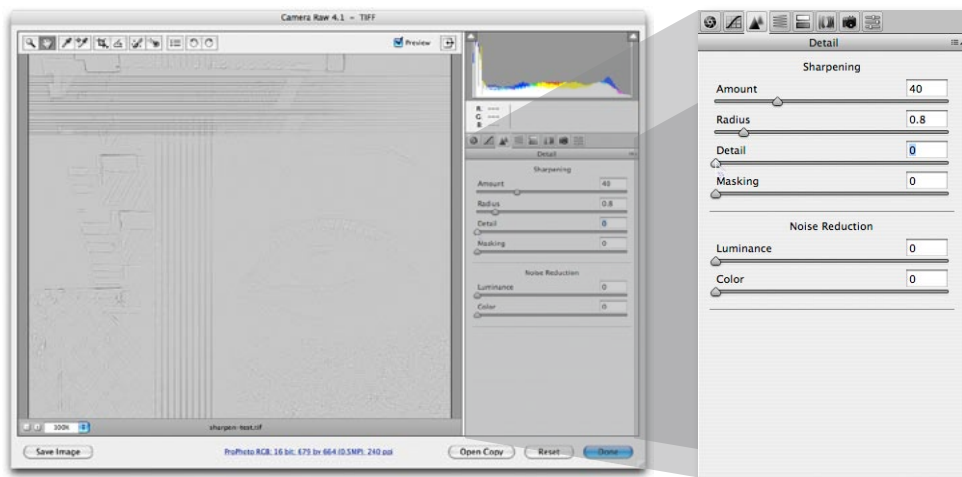
2. When I take the Radius slider to the maximum setting notice how the halo width increases to the point where the halos have less real sharpening effect on the fine edge detail. The sharpening around the wire fence area looks kind of fuzzy, but at the wider setting there is more noticeable sharpening around the eyelashes of the eye and the eye pupil. I have shown you these two extreme settings in order to emphasize the effect Radius can have on an image. In practice you will mostly want to stick to the default setting of 1.0 and vary the Radius according to the image content type (see Applying manual adjustments on page 21).


### ***The suppression controls***

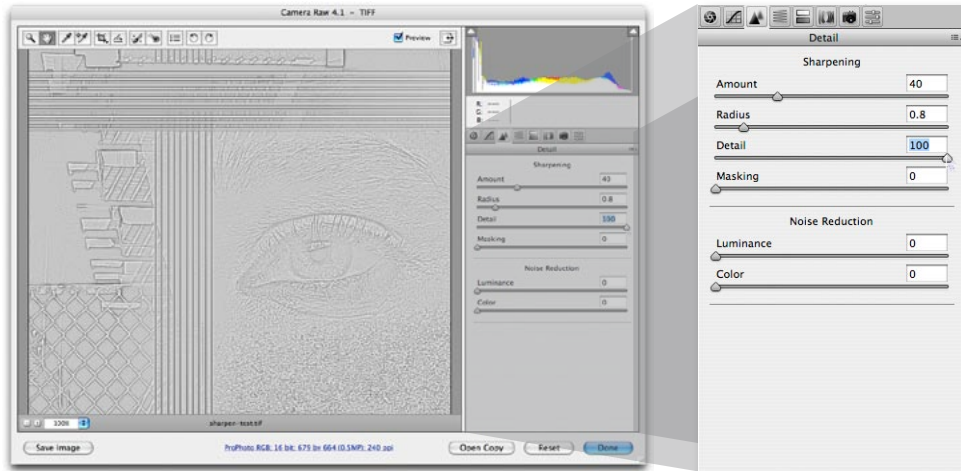
The next two sharpening sliders act as dampening controls that modify the effect the Amount and Radius sharpening settings have on an image.

### ***Detail slider***

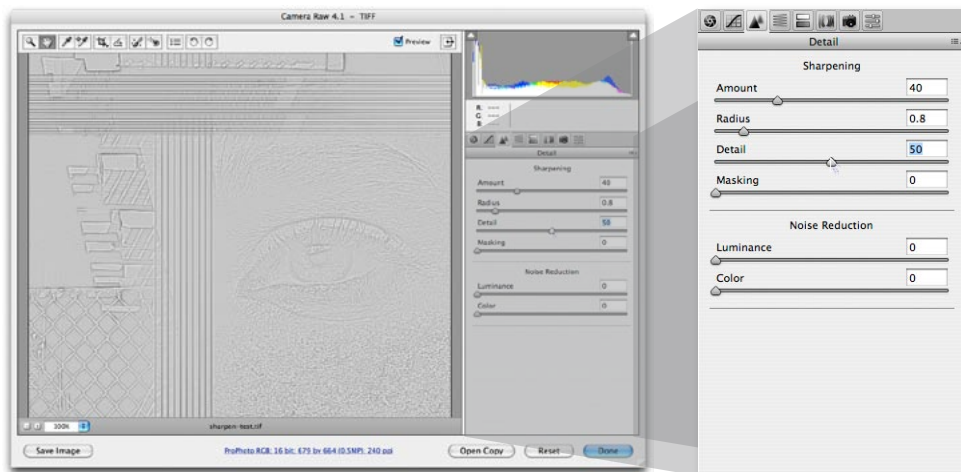
The Detail slider cleverly suppresses the halos effect and thereby allows you to concentrate sharpening on the edge areas. This in turn allows you to apply more sharpening with the Amount slider, adding sharpness to the edges, but without generating noticeable halos around them. A setting of zero will apply the most halo suppression and a setting of 100 will apply the least halo suppression.



1. In this step the Detail slider has been set to zero. I held down the  **alt** key to preview the effect this slider setting adjustment is having in isolation. When the Detail slider is at this lowest setting nearly all of edge halos will be suppressed. The combination of a low Detail setting and a medium to high Radius setting will allow you to apply a strong sharpening effect to bring out details like the eye and eyelashes while suppressing the halos on the smooth skin tones.





**2.** When the Detail slider is raised to the maximum setting, all of the sharpening effect is allowed to filter through, unconstrained by the effect 'Detail' would otherwise have on the sharpening effect. When Detail is set to 100, you could say that the Amount and Radius sharpening settings are allowed to process the image with almost the same effect as the Unsharp Mask filter in Photoshop.




**3.** When the Detail slider is set to a midpoint value between these two extremes, we see how the Detail slider can be used to target the areas that need sharpening most. If you refer back to the two sharpen preset settings suggested at the beginning of this article, you will be reminded that a lower setting of 20 is suitable for portrait sharpening because it will suppress the sharpening more where there are smooth tone areas. A higher Detail setting will carry out less halo edge suppression and is therefore more suitable for emphasizing fine edge detail.




### ***Interpreting the grayscale sharpening preview***

This would be a good point for me to explain what the grayscale previews are actually showing us here. As I have already stated, if you hold down the  **alt** key as you drag on the Amount slider, you see an accurate preview of the cumulative effect that all the sharpening sliders are having on the Luminosity information in an image. But when you  **alt** drag on the Radius and Detail sliders you are seeing a rather different kind of preview, because with these you are able to preview the sharpening effect in isolation.

What does this mean? The more experienced Photoshop users will perhaps understand better if I explain that this is a little (but not exactly) like previewing a duplicate layer of the Background layer after you have just applied the High Pass filter. There is a Photoshop sharpening technique where you apply the High Pass filter to a duplicate of the Background layer to pick out the edge detail and set the duplicate blend layer to Overlay mode. The High Pass filter will turn most of the image a mid gray. When you set the layer to the Overlay blend mode, the mid gray areas will have no effect on the appearance of the photograph, while the lighter and darker areas in the layer will build up the edge contrast. The Radius and Detail  **alt** mode previews are basically showing you the edge enhancement effect as if it were an isolated sharpening layer. And what these previews are showing you is the combination of the Amount, Radius and Detail slider settings in an isolated preview.

### ***Quick summary of the grayscale sharpening previews***

I should also point out that the  **alt** mode previews for the masking slider shows another kind of preview. This shows a preview of the mask that limits the sharpening adjustment.

The best way for me to sum up these different grayscale previews is to get you to imagine the preview of the Amount sharpening adjustment as being like a preview of the composite luminance sharpening effect, and in the case of Radius and Detail, like a preview of a sharpening layer above the image. Think of the masking preview as a layer mask that has been applied to that imaginary sharpening layer.

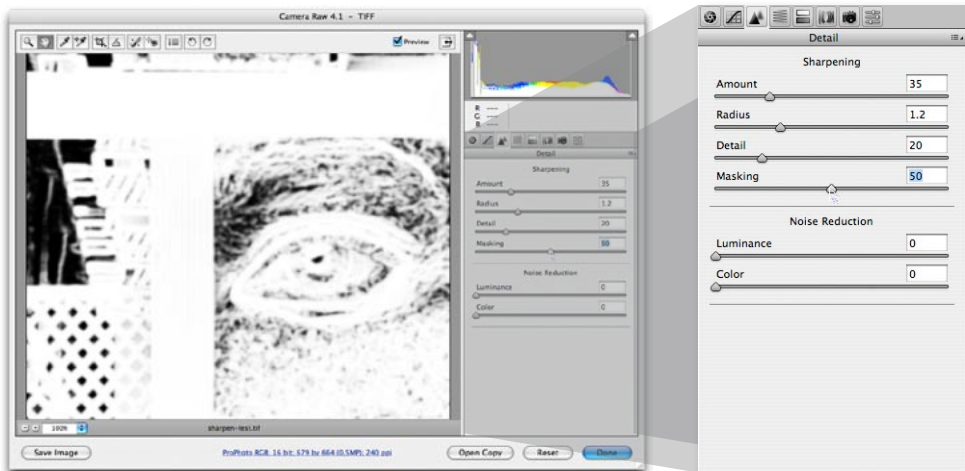
### **Masking slider**

The Masking slider adjustment adds a final level of suppression control and was inspired by Bruce Fraser's written work on his Photoshop sharpening techniques. If you want to read more about Bruce's techniques for input and output sharpening plus his creative sharpening techniques, I highly recommend you check out *Real World image sharpening with Adobe Photoshop CS2* (it is still just as valid if you are working with CS3). The basic concept of the masking control is that you use this slider to create a mask that is based on the image content that protects the areas you don't want to have sharpened.

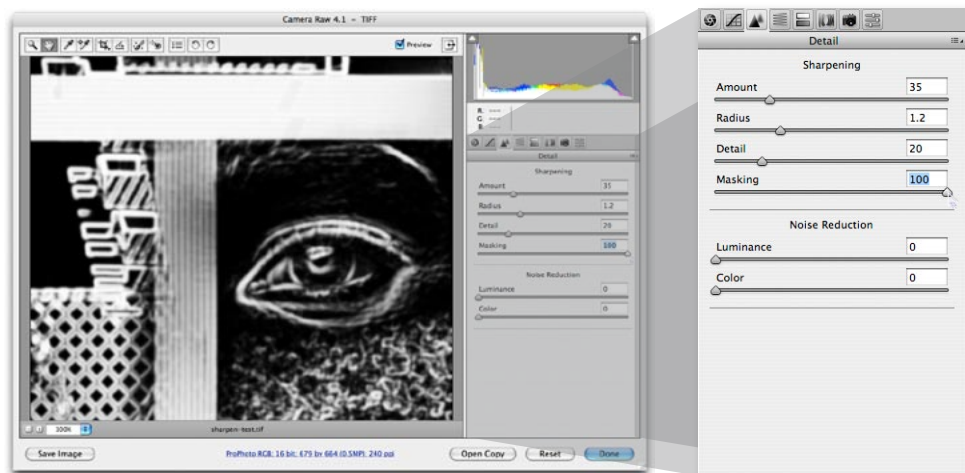
If you take the Masking slider all the way down to zero, no mask will be generated and the sharpening effect will be applied without any masking. As you increase the Masking setting more areas will be protected. The mask is generated based on the image content such that areas of the picture where there are high contrast edges will remain white (the sharpening effect is unmasked) and the flatter areas of the picture where there is smoother tone detail will turn black (the sharpening effect is masked). The image processing required to process the mask is quite intensive, so if you are using an older computer it may seem slow as the preview takes its time to update. But on a modern, fast computer you will hardly notice any time delay.

### **Real World Image sharpening**

Bruce Fraser's book on image sharpening with Adobe Photoshop is available from Peachpit Press. ISBN: 978-0321449917.



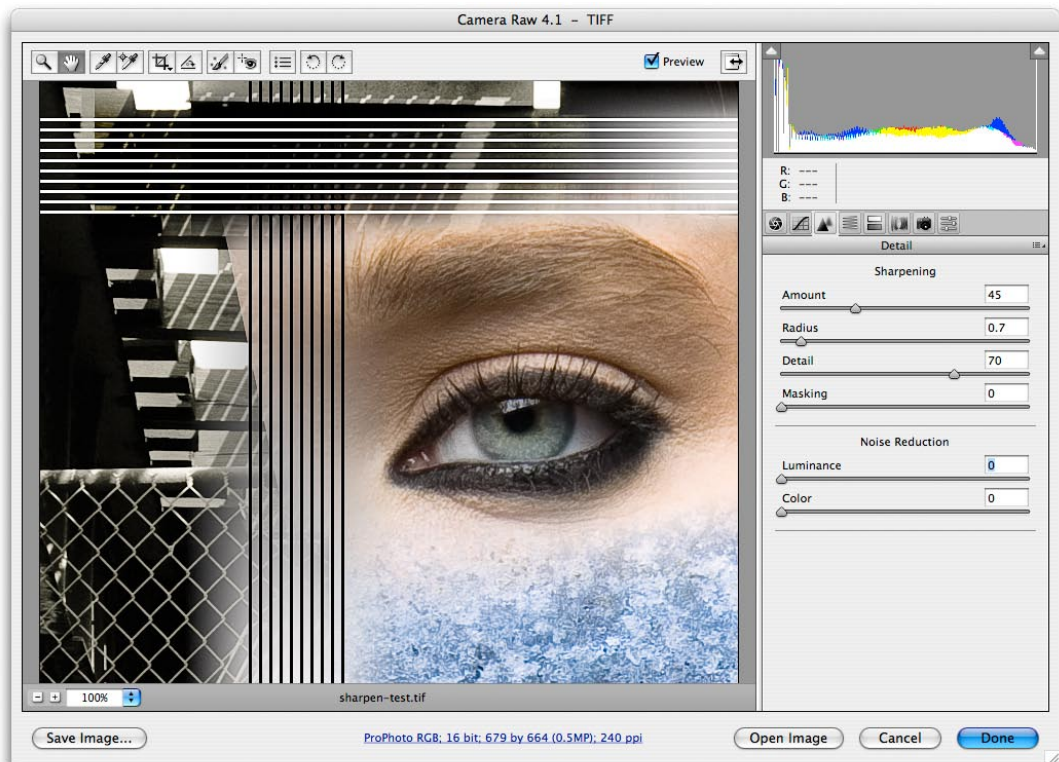
1. In this example, I set the Masking slider to 50 and held down the **alt** key to reveal the mask preview. Again, always remember that the **alt** previews will only work if the image is viewed at 1:1 or higher. At this midway setting you will notice how the flatter areas of the picture are just beginning to get some mask protection such as the skin tone areas around the eye.



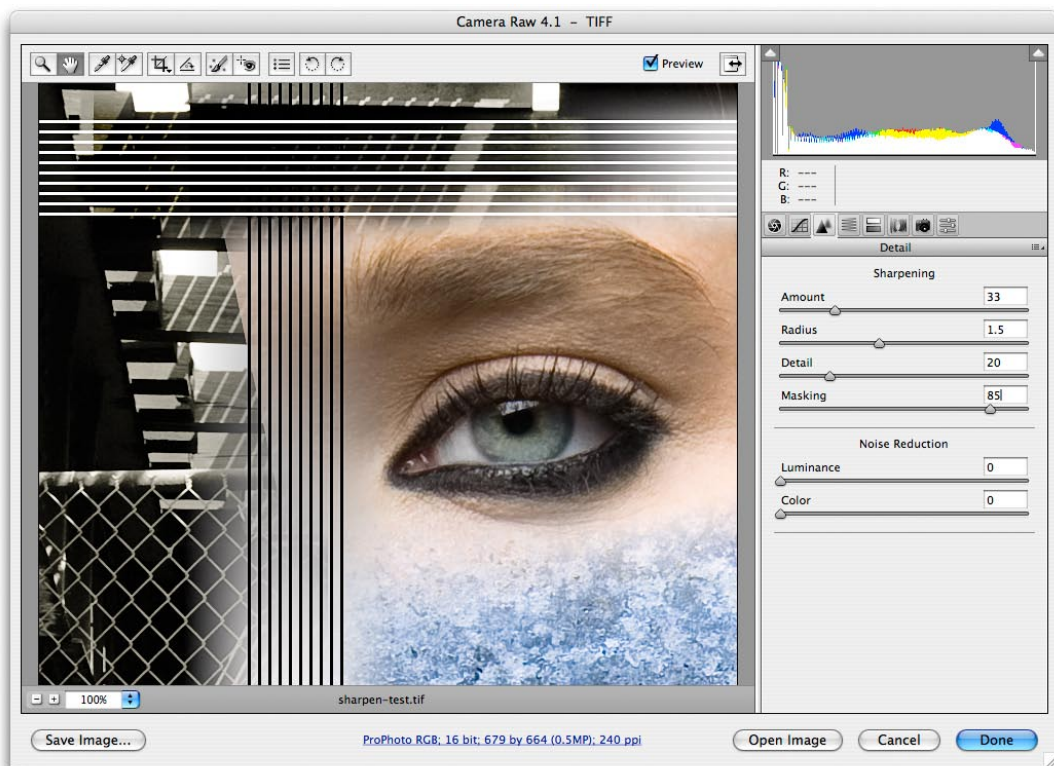
2. As the Masking setting is increased to the maximum of 100 you can see how more of the flatter tone areas are now protected while the high contrast edges are preserved. At this extreme setting, Camera Raw 4.1 sharpening only applies to the areas shown in white. The black portions of the mask are completely protected and no sharpening will be applied in these areas.

## Applying manual sharpening adjustments

Now that I have given you a run down on what the individual sharpening sliders do, let's look at how you would use them in practice to sharpen an image.



1. In this first example I adjusted the Sharpening sliders to provide the optimum amount of sharpening for the fine detail areas. I applied a Radius of 0.7 to add small halos around the edge details and a Detail of 70 in order to limit the halo suppression. And I applied an Amount of 45 to make the fine edge detail nice and crisp. The Masking slider was set to zero, which meant that no mask was used to mask the sharpening effect.



**2.** In this second example I adjusted the Sharpening sliders to provide the optimum amount of sharpening for the soft edged detail around the eye. I applied a Radius of 1.5 to build wider halo edges around the eyelashes, but at the same time I used a Detail setting of 20 to suppress the edge halos. The Radius setting still has an effect on the sharpening, but the Detail slider is nicely suppressing the halo edge effect to produce a smoother looking sharpening effect. The Masking slider was taken all the way up to 85, so that I could target the sharpening on the areas that needed sharpening most, i.e. the details in the eye and eyelashes. You will note that the Amount was set to 33. This is a higher value than the previous default of 25, but this is because the sharpening is being substantially suppressed by the Detail and Masking sliders, so it is therefore necessary to apply a larger Amount setting.

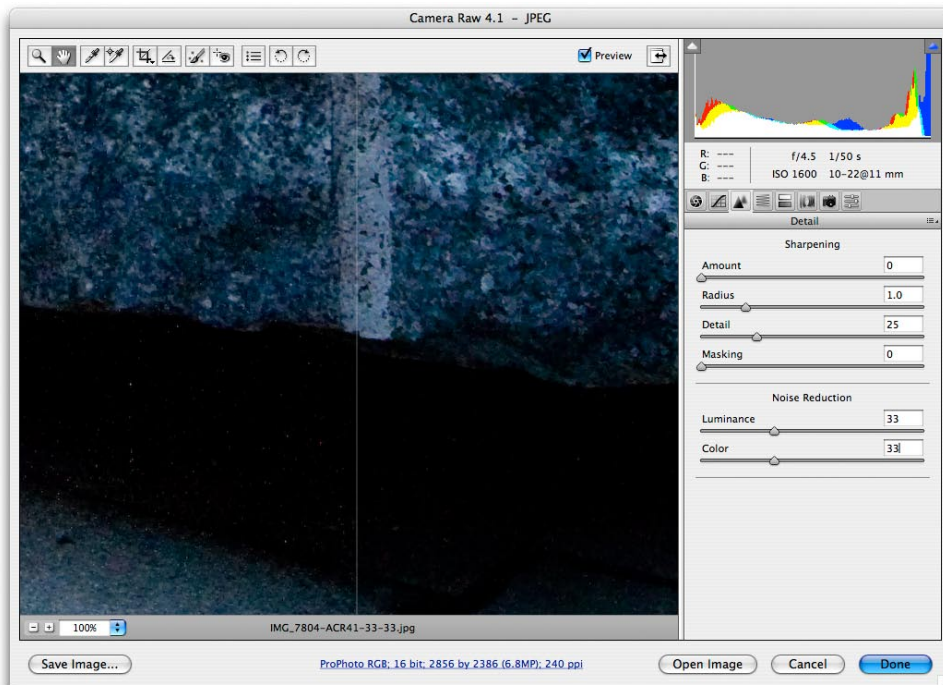


## Noise reduction

The noise reduction in Camera Raw 4.1 has undergone some improvements in this latest update. It may be hard to see what these changes are exactly, but if you compare the slider setting adjustments in Camera Raw 4.1 with those in previous versions of Camera Raw side by side in close up, you can definitely see quite a difference. As with the Sharpening controls, you can only evaluate the effect of the noise reduction sliders by viewing the image at a 1:1 view or higher. In Figure 5 I have shown two versions of a close-up detail of a photograph that was shot using the Canon EOS 400D at an ISO setting of 1600. The left half of the content area shows the Noise Reduction in Camera Raw 4.0 using a Luminance noise reduction of 33 and a Color noise reduction of 33. The right half of the content area shows how the close-up section will look when those exact same settings are applied in Camera Raw 4.1.

## Noise improvements

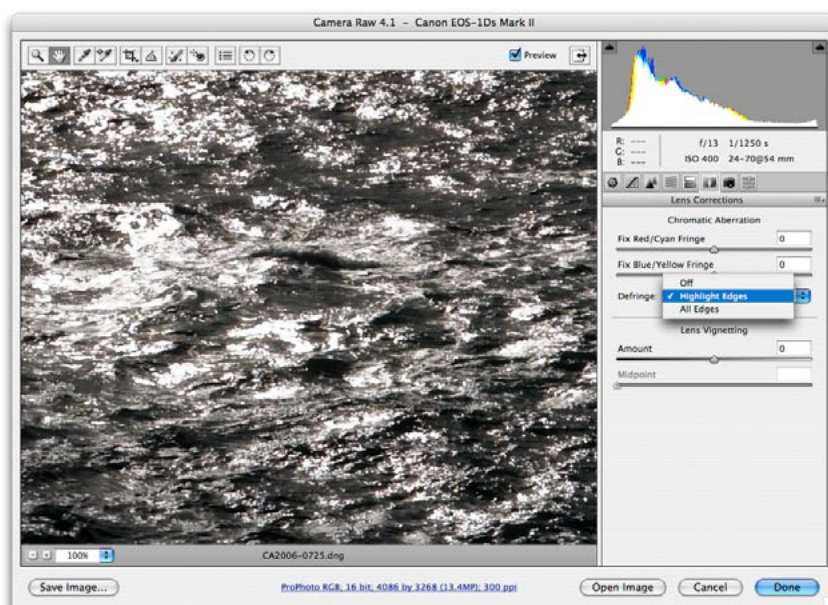
When you compare the settings side there is a distinct improvement in the way Camera Raw 4.1 handles the luminance and color noise. In particular you can see how Camera Raw 4.1 does a much better job of reducing the white speckles in the shadows. The noise reduction in Camera Raw 4.1 may not be as spectacular as Noise Ninja™ or Noiseware™. But it is now considerably more effective than it was before.



**Figure 5.** This screen shot compares the difference between noise reduction in ACR 4 or earlier (left) and ACR 4.1 noise reduction (right).

## Lens Corrections panel

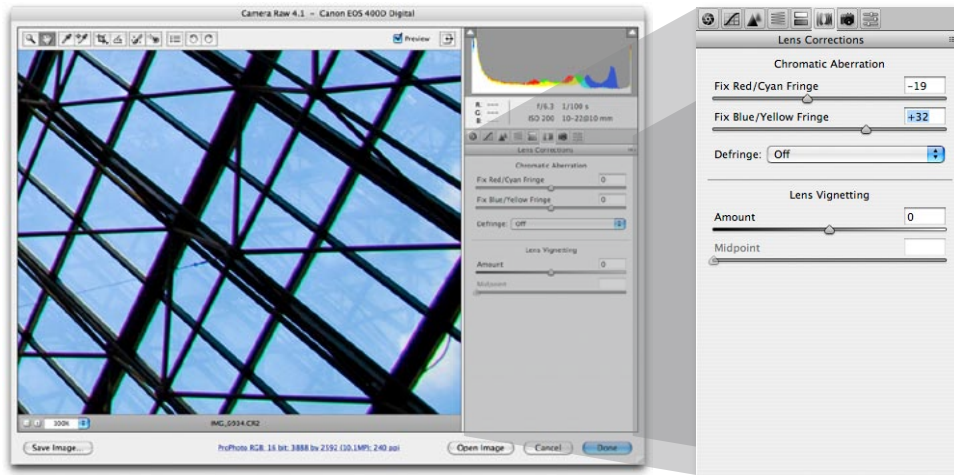
The Lens Correction panel features two new automatic defringe controls. The first one is called Highlight Edges and it is able to correct for the color fringing that you sometimes see in extreme burnt-out highlight areas. This type of color fringing is caused by extreme light exposure hitting the camera sensors, which can overload individual photosites with too many photons. This in turn creates problems in the demosaicing process. The Highlight Edges Defringe option is therefore carrying out a different kind of calculation in order to correct the magenta fringing that is sometimes seen around the highlight edges. I have to say that the effect is really subtle and it has not been easy to find a photograph where one can show a significant amount of difference between the before and after, but Figure 6 shows a picture taken of sunlight reflecting off the sea, that is a typical example of the sort of shot that could benefit from a Highlight Edges correction.



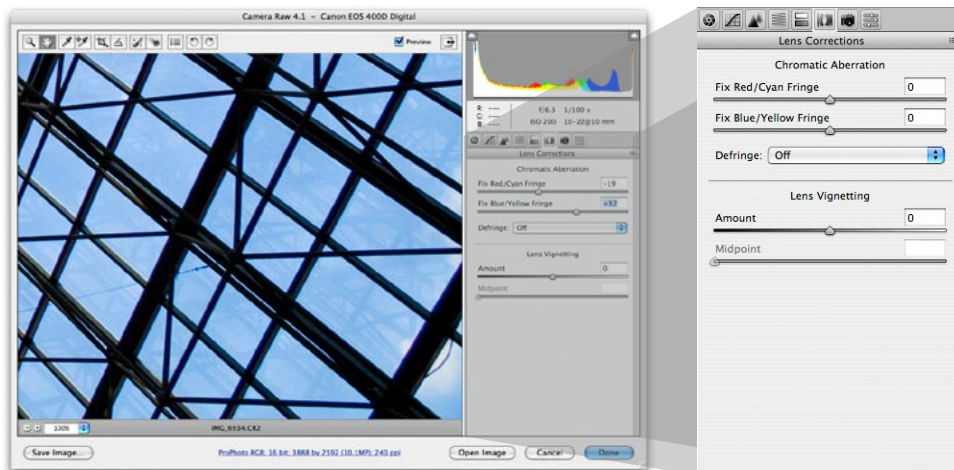
**Figure 6.** The Highlight Edges Defringe command can be used to auto correct extreme color fringing in the highlights.

## All Edges corrections

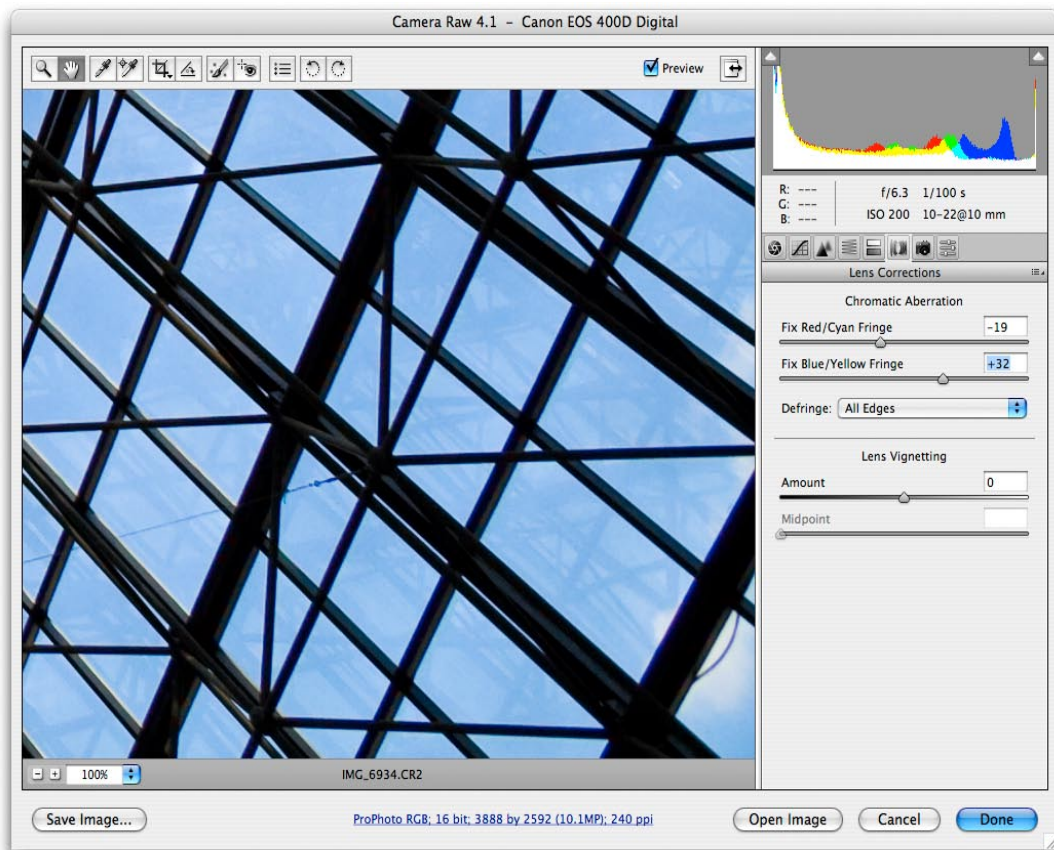
The All Edges correction also offers a rather subtle auto correction, but I do find that it can be useful if you need to improve an image with chromatic aberration that is proving tricky to remove using the manual sliders in the Lens Corrections panel.



1. Here is a photograph where you can see really bad chromatic aberration at the edges of the frame.



2. This image required quite a bit of manual correction and in this example I set the Red/Cyan slider to -19 and the Blue/Yellow slider to +32. This seemed to be the optimum setting to use, but there was still a little bit of fringing around the high contrast edges that I could not get rid of completely.

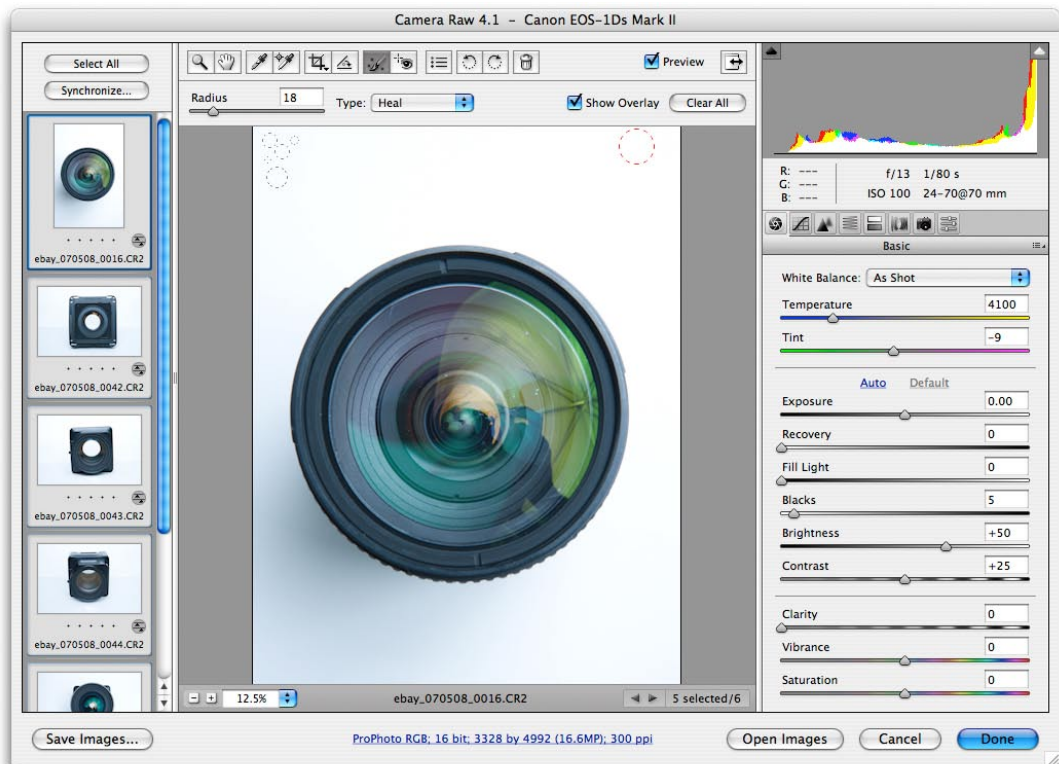


**3.** In this last example I selected the All Edges Defringe option. The difference between this and the previous screen shot may appear quite subtle on the screen, but when you compare the before and after by toggling the effect in Camera Raw 4.1 you should be able to see a distinct improvement. I therefore like to look upon the All Edges defringe setting as a way to polish up the edges and remove the chromatic aberration that the slider settings on their own can't manage.



### ***Synchronized spotting with Camera Raw***

If you are using Photoshop CS3 with Camera Raw 4.1, you can synchronize the spot removal as you apply it! Make a selection of images in Bridge and open them up via Camera Raw (as shown in Figure 7). Now click on the Select All button. This will select all the photos and if you now use the Retouch tool (that's what it is called in Camera Raw) to remove spots from the most selected photo (the one shown in the main preview), the spotting work will automatically get updated to all the other selected images. This is quite a cool new feature that is available in both Camera Raw 4.1 for Photoshop CS3 and the latest version of Lightroom.



**Figure 7.** Here is an example of the Camera Raw dialog being used to carry out synchronised spotting.