

Edge Sharpening in Photoshop Elements: Preparing for Print Text and images copyright Paul Skoczylas, all rights reserved

Most people who have worked with digital images, whether from a digital camera or scanned from film, are familiar with the Unsharp Mask filter (USM). This feature provides a great degree of control in sharpening images. Unfortunately, it also has a tendency to sharpen film grain and digital noise, making them more obvious. This is particularly true in even-colored areas, like skies. What I normally want to do is sharpen along edges in my images, making them appear crisper, while leaving areas with less detail (areas where grain and noise can be more visible) unaffected. This article describes an edge sharpening method that can achieve these results in Photoshop Elements. It also includes the steps for Photoshop, if different, in parentheses. Elements also has a menu item entitled “Sharpen Edges”, but unlike the method detailed below, that feature gives the user no control over how the sharpening is done.

While I’m typically satisfied with using USM for web images, I apply the following edge sharpening process to images I’m going to print. This procedure is especially useful when other image editing processes, such as “smart blur” or “selective sharpening” cannot be used to assist in maintaining smooth background elements.

Before starting, I flatten all layers, then crop and resize the image as necessary for the desired output size. This is saved as a separate file; personally, I like to append the output size to the file name. For example, the file abc.psd becomes abc_8x10.psd. Starting with a file containing a single layer and all image data, resized to the desired output size, I begin the edge sharpening process.

Figure 1

The image used as an example is a crop, at 100% magnification, from a picture of a Sandhill Crane. It was captured on Sensia 100 film and scanned at 2800 dpi. Figure 1 shows the image with no sharpening applied.



1. Make one or two duplicate copies of the image layer. I make two copies to maintain the original in case I don't like my results. If you don't want to keep your original, you need only make one copy.
2. With the uppermost copy as the active layer, apply the “Find Edges” filter: **Filter > Stylize > Find Edges**.
3. Remove colors from the adjustment layer. The color can be removed in several ways; perhaps the easiest is to remove color via **Enhance > Remove Colors** (or **Image > Adjustments > Desaturate**). Ctrl+Shift+U

is a Windows shortcut to the same function.

4. Increase contrast in the adjustment layer. Go to levels: **Enhance > Levels** (or **Image > Adjustment > Levels**). In this step we don't care about losing data, we just want the edges to appear very dark and the areas with very little detail to appear very light. Areas with moderate detail can be in between. How I do this depends on the image. Please see the levels enhancement in Figure 2 for the sample image. Figure 3 shows the adjusted layer. The darker an area is in this layer, the more sharpening will be applied later. Several different techniques can be used in this step to clean up the selection and ensure no USM will be applied to unwanted areas later, but these are outside the scope of this article.

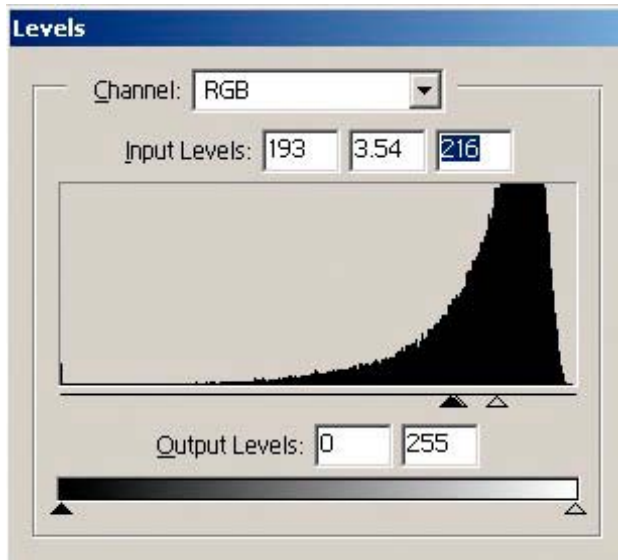


Figure 2: Levels enhancement of adjusted layer



Figure 3: Adjusted layer

5. With the adjusted layer active, select all data (**Select > All** or Ctrl+A). Copy it to the clipboard (**Edit > Copy** or Ctrl+C).
6. Next, I create an adjustment layer, a little trick to get around the fact that PS Elements does not allow layer masks on image layers. It doesn't matter what kind—I normally pick Levels, since it's first on the list (**Layer > New Adjustment Layer**). You don't actually make any adjustments in this layer—it does nothing to the underlying image.
7. Open the Layers palette and **Alt+Left Mouse Button Click** on the white rectangle in the adjustment layer. When you do this, the image on the screen goes blank. Now paste the image from the clipboard (**Edit > Paste** or Ctrl+V). When you do this, the formerly white rectangle in the Layers palette in the section for this adjustment layer shows a thumbnail of the enhanced edges.
8. Turn off the visibility of both the adjustment layer and the layer with the enhanced edges by clicking on the "eye" icon. Now the original image shows through. Make the uppermost layer with that image the current layer.
9. With the Layer palette open, **Ctrl+Left Mouse Button Click** on the thumbnail image in the adjustment layer. You should see a bunch of the "marching ants" which denotes a selection that appears on your image layer.
10. This is an important step, and one that's easy to forget: you must select the inverse of your selection (**Select > Inverse**, or Ctrl+Shift+I).

11. In order to better see the effects of sharpening, you can hide the “marching ants” of your selection. In the view menu, there is an item called Selection Edges, and it will have a check mark beside it. Click on it for the check mark to disappear (**View > Selection Edges** or **View > Show > Selection Edges**). The selection is still active; you just don't see it now.
12. Now open the USM filter (**Filter > Sharpen > Unsharp Mask**). Make whatever adjustments necessary to make the picture look its best. You can probably use settings that are more aggressive than if you were using the USM filter alone. In Figure 4, you can see the effects of settings of 275, 1, 2. If at this point you see the grain being enhanced but not much change in the edges, you probably forgot Step 10 above. The full amount of sharpening is applied to any area in the enhanced edges image which is completely black, no sharpening is applied to areas which are white, and grey areas have sharpening in between. Make sure you deselect the current selection before doing anything else, and reset to show the selection edges again to avoid confusion.



Figure 4

Edge sharpening with settings at 275, 1, 2. For a comparison with general USM application that does not include edge selection, see Figure 5.

13. Delete the adjustment layer and the layer with the enhanced edges. This should leave the sharpened version, or if you opted to keep an original copy as well, the sharpened version plus the original in two layers. You can compare the before and after effects simply by turning on and off the visibility of the upper (sharpened) layer.

The edge sharpening task is complete. For comparison, Figure 5 illustrates the same USM settings except applied to the image globally. The grain in the sky has been enhanced to an unpleasant level, while sky in the edge-sharpened version of Figure 4 is essentially unchanged from the unsharpened version. There may be more detail evident on the crane's head in this version than in the edge-sharpened version, but it comes at the expense of more grain. The balance here could have been adjusted by altering the Levels adjustment made at Step 4. Unfortunately, making that adjustment now means repeating much of the work already done.

Figure 5

Image sharpened with unsharp mask globally at the same settings in Figure 4 (275, 1, 2); edge selection and sharpening technique was not applied. Note how the background noise has amplified from the original (Figure 1).



I will sometimes make another copy of the original image layer and apply USM to that layer in order to compare three versions of the image: the original, the edge-sharpened version, and the globally-sharpened version.

The effort involved in this process may be too much for web sized images, but I have been quite happy with the results I have achieved by using this method on images which I have printed. Despite the number of steps, once I became familiar with using layers in Elements, this process very quickly become intuitive.

These steps can be taken in PS Elements 1.0, and should therefore work in newer versions of Elements, as well as the full version of Photoshop, version 7 or newer. It may also work in some older versions. In the full version of Photoshop, however, there are some simplification steps which are not possible in Elements, so they are not described here.



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