Digital …

A monthly column by Harry

Confused about sharpening? So am I, but here is some explanation. There is an example image and some screen shots at
www.flickr.com/groups/marlborough_camera_club/

Can I sharpen my image?

First, the bad news: if your image is out of focus or blurred by motion you cannot get it really sharp. Sharpening works best on images that are as sharp as possible coming out of the camera.

Even when you have the best the camera can do under the circumstances of your shot, the image may look "soft". If this is what you want, from an artistic point of view, leave it alone. Many images, however, benefit from computer programs that give the appearance of sharpening your image.

Sharpening is tricky because it is easily overdone, destroying detail in your image or adding ugly halos along high contrast lines. To make matters worse, viewing the image on a screen needs different sharpening from a large print. Some people do basic sharpening as part of the initial work-flow and then final sharpening just before output, such as printing. I use Lightroom for the initial sharpening and high pass filtering in Photoshop if necessary later. Both these processes can be done in Photoshop Elements, although the full Photoshop does it more elegantly. Here we will use Photoshop Elements.

The initial sharpening is best done on the RAW file, either straight from your camera or converted to a ".dng" file. If you are getting a jpeg file from your camera, then the camera does the sharpening for you before saving the image to the memory card. Much of the image data is discarded in the process of saving the jpeg. If you want more control, use the RAW file.

Open your RAW file in Photoshop Elements Editor (or Lightroom or the full Photoshop but I will give detailed info for Elements). Elements will open a new window on top of the regular editor window. The new window is called Adobe Camera Raw, or ACR for short. The panel on the right has all sorts of goodies. Today we will look at the Detail settings, specifically sharpening. The Detail settings are cunningly hidden under the tiny icon of two triangles, in the grey bar below the histogram. Click on this icon.

Now you see a sharpening section with 4 sliders. To see the effect of sharpening, enlarge the image to about 100% and move the amount slider to 0 and then to 150. To use the other controls effectively we need to know a little more about what is going on.

This sharpening process enhances edge contrast. In other words, the program searches for places where the colour changes rapidly, giving an edge that is significantly lighter on one side than the other. The program then makes the pixels on the lighter side of

the edge even lighter and those on the dark side of the edge even darker. This gives the visual impression of a sharper edge. The four sliders give you control over this process. For now, leave Detail at 25 and Masking at 0.

The Amount slider changes how much lighter or darker the pixels around the edge get. It's easier to see this happening if you zoom out to 400% and look at a nice well-defined edge as you change the Amount slider. If overdone, this can give rise to the ugly halos mentioned above. A setting of 100 often works well for high quality images.

The Radius slider controls how far out from the edge the changes spread. The units here are pixels. With the Amount slider set to 100, move the radius slider from 0.5 pixels to 3 pixels. You will see how the effect spreads out from the edge. If you have a slightly out-of-focus image, you may be able to rescue it to some extent with a large radius. Unfortunately, though, a large radius will destroy some detail in the image and make the ugly halos worse. I tend to favour low radius settings, around 0.8, but it does depend on the image.

The detail and masking sliders control what gets treated as an edge. This is very important if you have a noisy image; you don't want to sharpen the noise. Basically, with the Detail slider you control what gets sharpened and with the Masking slider you control what gets protected from sharpening.

With the amount at 100, the radius at 1, and the Masking at 0, slide the Detail slider from 0 to 100. At 0, only very well-defined edges get sharpened; as the detail setting is increased, finer and finer details are sharpened. By the time you get to 100, there is probably noise getting sharpened, too.

With the detail setting at 100, slide the Masking slider from 0 to 100. The finer sharpening slowly disappears and the noise is much reduced. If you go too far, though, you lose the sharpening of details that you want to keep. I tend to start with settings of 25 for both Detail and Masking but it depends on the image.

Adobe provides a couple of useful tools for adjusting the Detail and Masking sliders. Access these by holding down the Alt key while moving the sliders. The image changes to black-and-white showing the parts that get sharpened in black with the rest in white. This is very helpful for distinguishing between noise and detail that you want to preserve in the sharpening process.

Remember you need to zoom out to at least 100% to see these changes. Remember, too, that you will probably do additional sharpening at the output stage later, so err on the side of caution at this stage.

Notice this is global sharpening. Sharpening specific areas of the image can be done in other ways, and I'll say a bit about this next month.

By the way, ACR is non-destructive so you can always go back and change the settings (if you keep the RAW file) at a later date. So, you can experiment without risk to your image.

Next month I will finish this topic (for now) with a discussion of high-pass sharpening, on jpeg or tiff files.