



## Improved Method of High Pass Filter Sharpening

Many of you are probably familiar with using the High-Pass Filter found in Adobe Photoshop as a sharpening layer when set to overlay mode. It's fast, easy and for the most part works well straight out-of-the-box for most images. A little masking may be to correct any problem areas and voila, you're finished.

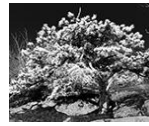
It's those little problem areas that upon closer inspection, especially if image is to be printed large, are occurring throughout the image in less intensity. But they are still there.

I have many times used the blur tool in sharpening layers to reduce some of the inherent noise that the process of sharpening brings by its very nature of operation.

I normally don't use the High-pass method in many larger prints I make because of this increased noise, especially in soft areas like clouds or flower petals.



FINAL IMAGE USED IN SHARPENING ARTICLE



While playing around and experimenting, as I believe there is no better way to improve oneself than to just play around, I came across a method of using the High-Pass Filter and reducing the noise in the smoother areas.

A simple process of creating new layer from your image running the High-Pass Filter. Then performing a Gaussian blur, setting layer to overlay blend mode and then applying a curves layer to this sharpen layer only.

On the right is an image of a High Pass filter applied to the Photo above. It is 2 times the effect and cropped for better visualization.



While the process performed well enough to use as is, I decided to experiment with other settings and processes to see if I couldn't do better.

Since all my image capture is done in RAW format I always used ACR (Adobe Camera RAW) for inputting into adobe Photoshop. For many images I tend to use the clarity slider to increase contrast and I have used this as a starting point for this experiment.

The image on the right is straight from the camera at default settings. You will notice that some of the flowers on the right are slightly blown-out in color. These will be cropped out later as I only need the centre flower.



ORIGINAL PHOTO AT DEFAULT SETTINGS



The image on the right is the photo I used to extract other leaves to balance the final photo with a triangular visual effect. It is important to use the same settings so that they appear to be taken as one element.

I tried 5 different effects with ACR and Photoshop filters and combinations to determine which method performs best.

These are:

- 1) Standard High Pass Filter (HPF) effect (amount setting 2.1)
- 2) Standard with a Gaussian blur of 2.1 to HPF layer and a curves layer applied to this layer only  
 Note: First 2 are copy of layer. The next have image reloaded as a smart object
- 3) Luminance set to 50% in ACR, HPF 2.1, and curves
- 4) Luminance set to 50% in ACR, HPF 2.1, Gaussian blur 2.1 and curves
- 5) Luminance set to 50% in ACR, HPF 2.1, surface blur filter and curves

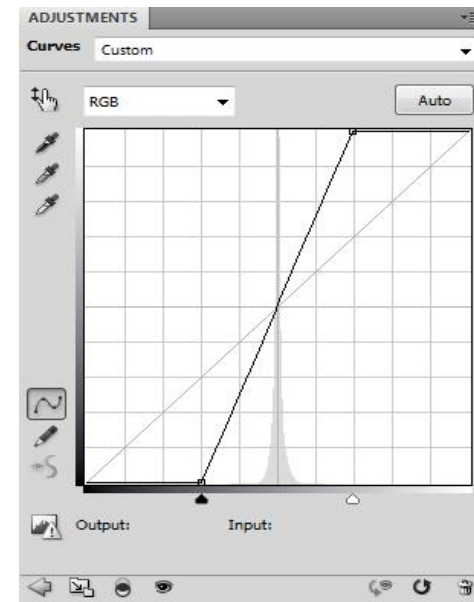
On the right is the curves setting that was used. It may seem extreme but when you look at the overlay layer seen at the top of page 2 you realize that most of the mass is centred around mid-tone grey (128) and very little at the edges. The curve end points are 77 and 177, as you want the mid-point of curve to be at 128 so as to not affect overall brightness.

Originally I had set the Standard version with curves with even tighter points to give more definition. It was changed to this version to better compare images.

The following images show the different effects at different magnification settings.



IMAGE USED TO EXTRACT THE LEAVES ON THE LEFT INTO MAIN PHOTOGRAPH





The following set of images show the comparison with the different settings. In the small magnification it's hard to detect much difference but there are some with stronger veins in the red areas. As these are all high resolution images, do zoom to 200% to see details better.



Default



Clarity 50, HP 2.1



Calrity 40, HP 2.1, Blur 2.1, curves



Luninace 50, HP 2.1, curves



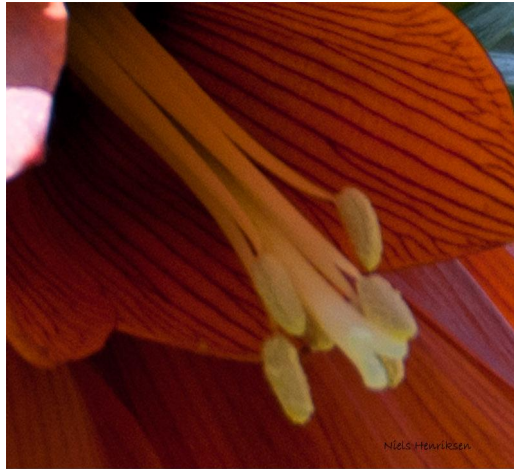
Luminace 50, HP 2.1, blur 1.3, curves



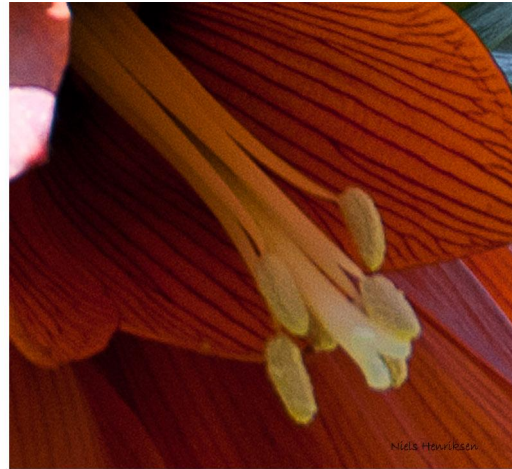
Luminace 50, surface blur, curves



In the next enlargement there are more noticeable effects.



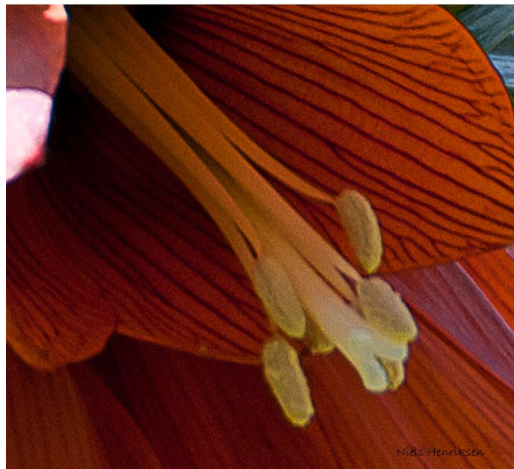
Default



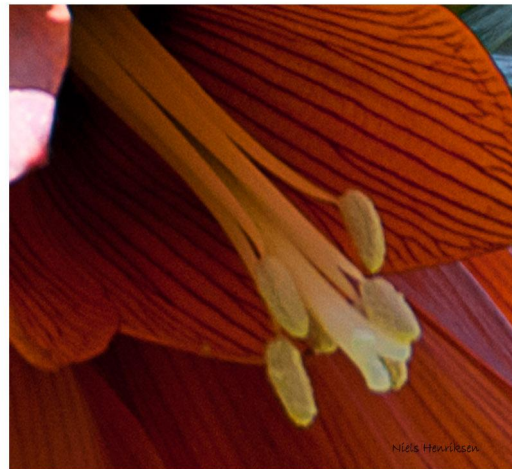
Clarity 50, HP 2.1



Clarity 40, HP 2.1, Blur 2.1, curves



Luminance 50, HP 2.1, curves



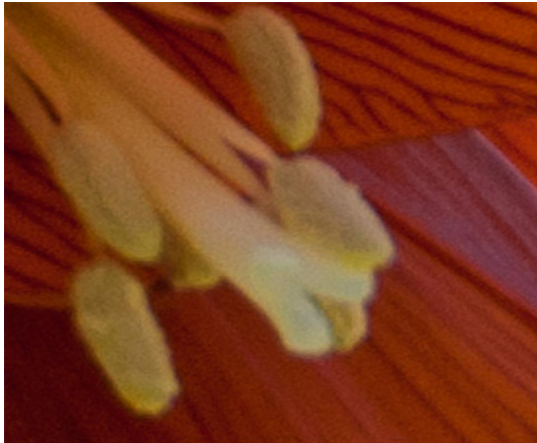
Luminance 50, HP 2.1, blur 1.3, curves



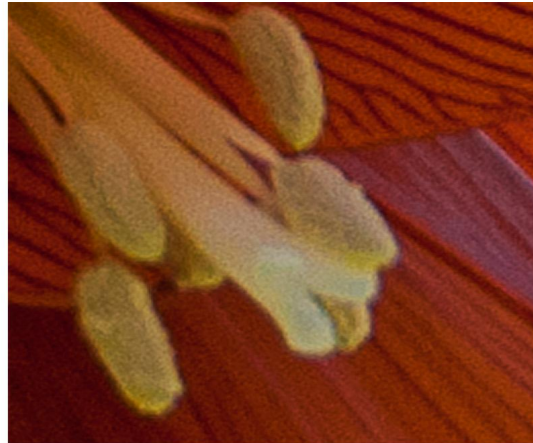
Luminance 50, surface blur, curves



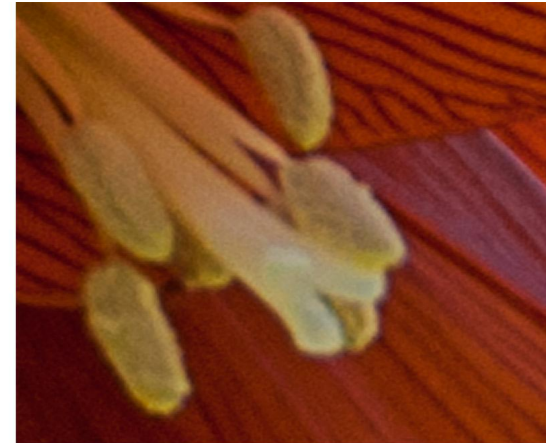
It's not until we get at over magnification that we are able to see the differences in the smoother parts. When you are making large prints these are the areas that you definitely want to examine.



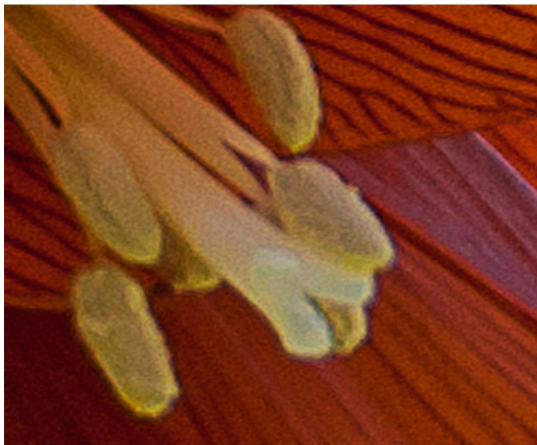
Default



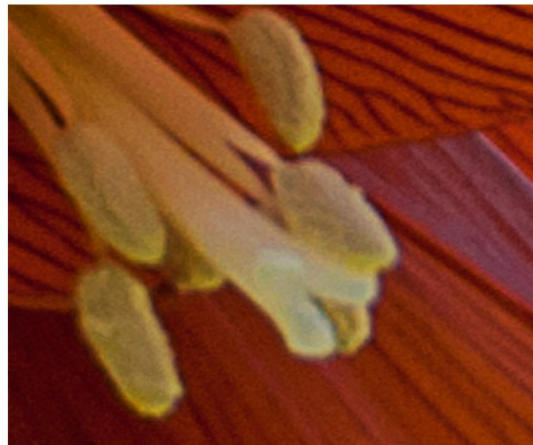
Clarity 50, HP 2.1



Clarity 40, HP 2.1, Blur 2.1, curves



Luninace 50, HP 2.1, curves



Luminace 50, HP 2.1, blur 1.3, curves



Luminace 50, surface blur, curves



At this extreme magnification the default photo looks very soft, but when viewed normally, seems crisp. At least in web versions.

No 1. The Standard HDF pass with clarity on does produce crisper edges but there is significant noise created in the softer sections.

No. 2 With the high pass filter blurred and curves applied there is a noticeable reduction in noise and edges are sharper.

No. 3 The duplicate file loaded as smart object has the luminance settings under noise reduction tab set to 50%. It makes this image appear soft but it's only being loaded as an overlay layer. Once the high pass filter is run, the edges are a little sharper but the noise is not as much as in no. 1.

No. 4 The same as no. 3 but the Gaussian filter is applied and the curves settings used in all the others. In this version the noise is very minimal and the edges are stronger.

No. 5 In this version surface blur was used which has no amount settings as this is used to smooth out surface areas as opposed to transitions. The edges are good but there is some noise.



## Recommendations

When looking at the original photo on a large calibrated monitor method No. 4 comes out as the best, at least for this type of image but No. 2, which is the non smart object method, is a very close second.

It is more work but if combined into an action, whether with modifiable settings or a straight run, it is a nice one-button solution for many but not all photographs.



'Most of our problems with images taken are DOF related. Never still having enough with those wonderful zooms. Only a tripod and patience will give you the depth you need.'



My Camera World



Niels Henriksen Artworks



Author and Photographer Niels Henriksen lives in Ottawa, Canada and shares his passion for photography and all arts in these Web sites:

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