

IMAGE SHARPENING WORKFLOW

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INTRODUCTION

Digital image sharpening is applying a very local contrast increase to make edges look sharper. If done correctly it gives images punch. Done wrongly it creates halos at edges, which look obvious and horrible. It can also exaggerate noise, or reduce the softness of fur, hair or feathers.

Image sharpening is applied at three stages through the development process (often called post-processing). **Capture sharpening** before other processing, **Creative sharpening** after most development, and **Output sharpening** after resizing the image for printing.

CAPTURE SHARPENING

Capture sharpening is subtle sharpening applied to the unprocessed RAW image, at the same time as noise reduction. It removes the effects of the anti-aliasing filter, and is usually undertaken in Lightroom, Adobe Camera Raw (ACR), Capture One or another RAW image editor.

Note that JPEG images never require capture sharpening, as this is done by the camera when it converts the data to JPEG.

Lightroom, ACR and Capture one have automatic Presets for capture sharpening; none for JPEGs and a small amount for RAW images. You can leave things as they are and sharpening will be applied, or you can alter the settings in the Details Panel.

Image sharpening algorithms generally have two controls. An amount control adjusts the increase in luminance contrast (difference between lightness and darkness) at the edge. The radius control affects the distance from the edge that the sharpening is applied. Lightroom and ACR have two additional adjustments to the Amount and Radius, which are Detail and Masking. To see the effects of sharpening view the image at 100% or higher. Holding down the Option/Alt key shows you what is being adjusted more clearly.

Best practice for low ISO (up to ISO 400) is to apply one of two sharpening Presets. If the image is a portrait, then a moderate amount and higher radius setting is recommended. For images where you want to bring out texture and detail, such as landscapes a low radius is recommended along with a higher amount.

My own Presets are as recommended by Martin Evening.

Detail adjustment	Sharpen Detail	Sharpen Portrait
Amount	52	35
Radius	0.5	1.2
Detail	54	20
Masking	8	70
Noise reduction - Luminance	5	5

Vary these as you look at the image at 100%. For a high ISO, noisy image, I would increase both the Masking and the Luminance noise reduction.

Capture sharpening is subtle. To see the effect most clearly, set all the sliders to zero, then apply one of the Presets while looking at the image at over 100%.

LOCAL CREATIVE SHARPENING

Creative sharpening is optional and can be undertaken in Lightroom or Photoshop. It is local sharpening to bring out detail where you want. Blurring can also be undertaken locally to de-emphasise distractions.

Local sharpening can be undertaken with the brush tool in Lightroom, which can be enough if the image will not be transferred to Photoshop. However, Photoshop is a more powerful tool for creative sharpening.

Where creative sharpening is done with Photoshop or other pixel editor, it is at the end of normal development of the master image, before reducing the image to its final size for printing, or as a JPEG. Be careful what you sharpen. It enhances architectural shapes and textures, but will harden soft textures such as hair or feathers.

There are a multitude of different sharpening tools in Photoshop. If you are unfamiliar with these, try high pass sharpening. Create a new stamped layer (CMD + OPTION + SHIFT + E), and name it Sharpen. From Photoshop's menu, Choose Filter > Other > High Pass. Set the radius between 1 and 2. Set the blending mode to Linear Light. A mask added to this layer can be used to paint in the effect selectively.

This method by Alex Crowley finds sharp edges in an image and then you create a mask from these areas. You can aggressively sharpen these leaving the remaining image smooth. This gives great punch and is my preferred method.

STEP 1

Click on the topmost layer. Create a new layer that is a copy merging all the layers below. CMD + OPTION + SHIFT + E. Name this layer Stamped layer. Duplicate it (CMD + J). You will apply sharpening to this layer

STEP 2

Duplicate the stamped layer again, then desaturate this layer. IMAGE > ADJUSTMENTS > HUE SATURATION and desaturate. This new layer is the Temporary Mask Layer.

STEP 3

With this layer active, find its edges. FILTER > STYLIZE > FIND EDGES. The resultant layer will look like a pencil drawing of the image showing just its sharp edges.

Invert this layer. CMD + I

STEP 4

Apply a curves adjustment to refine this layer. IMAGE > ADJUSTMENTS > CURVES. (Don't add a curves layer). Increase the contrast, so the edges and areas you want sharpened are white and areas you don't want sharpening are black.

Apply a slight Gaussian blur to this layer. FILTER > BLUR > GAUSSIAN BLUR. A radius of 0.2 approximately should be selected.

STEP 5

Turn this layer into a mask. Select All (Control/Command + A) and copy it (Control/Command + C).

Then, it needs turning into a channel, so go to the Channels list and create a new channel by using the page ikon. Rename this channel Sharpening Mask. Paste the selection into the channel mask (CMD V). Go back to the Layers pallet and delete the temporary mask layer. You don't need it any more.

STEP 6

Now create the mask from the Sharpening Channel. In the Channels pallet, while holding down the CMD Key, select the Sharpening Channel's ikon. This creates a selection from the channel denoted by marching ants.

STEP 7

With the Selection active, return to the Layers Panel and with the new top layer (Copied Stamped Layer) active click the Add Mask button. (Japanese Flag). Look at this mask by Alt/Option clicking on the mask ikon. The screen will show the areas being sharpened as white, those not being sharpened as black, and the grey areas will have partial sharpening.

Back in the Channels panel, the Sharpening Channel has served its purpose and can be deleted.

STEP 8

Go back to the Layers panel. Now you can sharpen your masked top layer quite aggressively, as you are only sharpening the edges. View the image at 100%. Ensure the layer is selected, not the mask or nothing happens. Smart Sharpening with Amount 400%, Radius 1.4 and reduce noise 4% was used by Alex.

The mask can be modified to ensure sharpening is not applied to distractions by painting on it with a black brush.

OUTPUT SHARPENING

Now you have a developed master image you will want to take further. You could produce:

- Prints of one or more different sizes (A2, A3+, A3, A4, etc.)
- A JPEG file for competition entry,
- A larger JPEG file to match the screen resolution of your laptop or tablet for your portfolio.
- Lodge onto a web page.
- A photobook or slideshow.

Each of these will require the image to be resized differently, and either printed or converted into a JPEG or some other format. Output sharpening should be done after resizing to final dimensions.

Your final processing should be from the original full-sized master image and will create different copies from this. Always use your master file to create each final image file. You will need to save each resized image separately to avoid damaging your master image. I add a prefix to each file name (example _a3 for an A3 size print). Print files can be discarded once you are happy with the printed image.

If you are converting the image to a JPEG, sharpening is done automatically for you. You have a little control (Low, medium, high). Never resize a JPEG more than once – always go back to your master image to create a different sized JPEG. Each time you resize or save a JPEG you are applying the JPEG file size reduction algorithm and are introducing JPEG image artefacts at subject edges. Eventually these will become noticeable.

PROOFING YOUR IMAGE TO THE PAPER TYPE

The first thing to do when printing from Lightroom or Photoshop, is to select the paper size and type, and (in Photoshop) save-as a new name. At this stage view the image with soft proofing turned on, and the paper profile set in the soft proofing option. Adjust the tone and colour of the image, comparing the proof to the original until you are happy. In Photoshop, this is done with two layers, a curves layer, with the blending mode set to Luminosity to correct the tonality, and a Vibrance layer with the blending mode set to Saturation to tweak the colour.

PRINTING FROM LIGHTROOM

Printing from Lightroom's Printing module is easy and intuitive. You size the print in the Page Setup dialog box and can create custom print sizes. Output sharpening is one of the printing options. In the Print dialogue box, as well as paper type and image size, you can choose print resolution in ppi, amount of sharpening (Low, Standard or High) and media type (Matte or Glossy). Lightroom has algorithms that provide optimum sharpening for each situation. You can save the print file if you want to.

PRINTING FROM PHOTOSHOP

If you are printing from Photoshop, you have a huge amount of control of your output sharpening. There are various sharpening filters, and all have variable controls. Photoshop has introduced different sharpening filters over the years, and as a matter of policy, never removes the legacy methods. Given that you should only judge the effect on the final print and not the monitor, that the output sharpening should be different for each combination of paper type, print size and viewing distance, developing your own output sharpening procedures is time-consuming and expensive.

Several Photoshop experts have devised their own methods, and there are several books, just on image sharpening. An example of an output sharpening procedure is given below in the recipe for high pass filter edge sharpening. You can take advantage of the experts' work by using Plugin sharpening applications, such as Nik Output Sharpener, Photokit Sharpener or others. Adobe experts have devised the sharpening used by the Lightroom output sharpeners with their simple controls by these principles. The Nik software is easy to use. Your options are amount of sharpening, paper type, viewing distance.

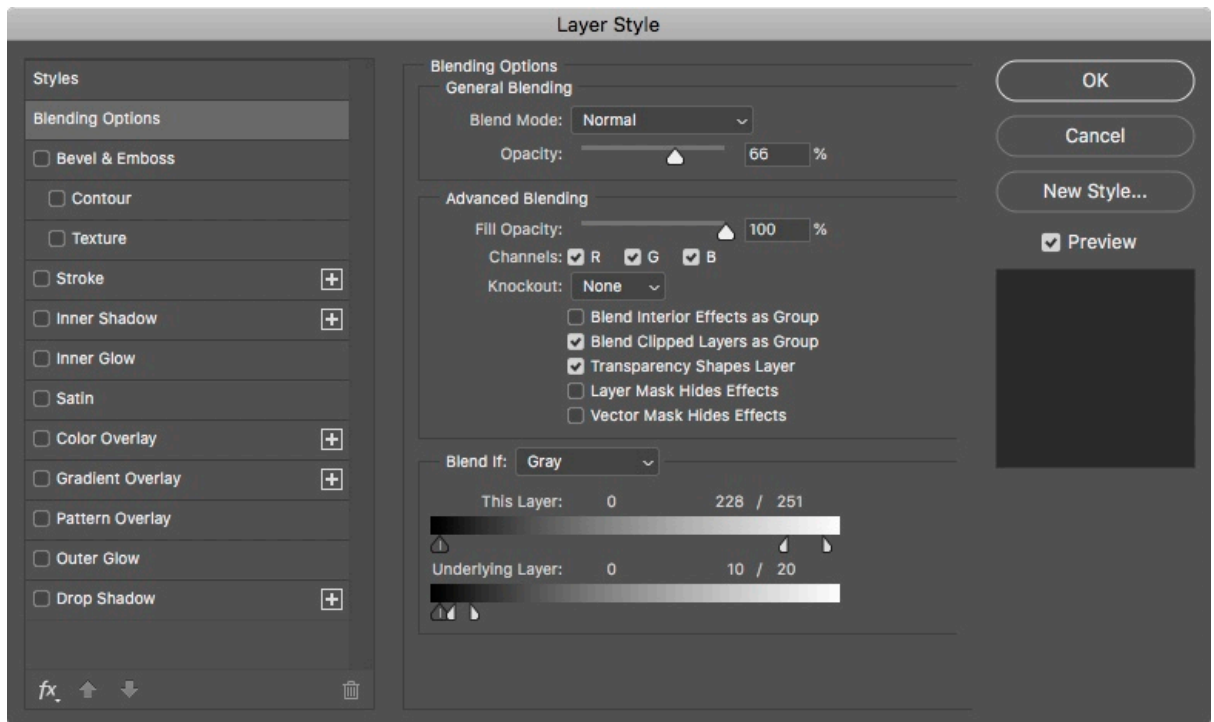
First resize your image to exactly the final print size (Image menu > Image Size). You select length dimensions and pixels per inch. Generally, use 300 ppi for most prints and 240 ppi for large ones. When you click Apply, your image will be resampled irreversibly to new pixel dimensions. Only do this after you have saved the original or it will be lost. Save-as the new file to a new name to avoid writing over your original. It is good practice to flatten this image (Layer > Flatten Image) to save file size. You still have all the layer information in your original file. If you are having the image printed professionally (Fitzgeralds) they may like access to your layers. Check with them first.

I generally use Nik Output sharpener. If necessary, I add a mask to the sharpening layer it creates and paint out on the mask where I don't want sharpening applied with a black brush.

HIGH PASS FILTER EDGE OUTPUT SHARPENING.

This is one of several recipes devised by Bruce Fraser and published by Martin Evening. This is designed for inkjet printing on glossy paper at 300 ppi. This is just one of the recipes used by the Photokit Sharpener application, which was put together by Bruce Fraser and Jeff Schew.

1. Duplicate the background layer (CMD + J). Set layer opacity to 66%. Double-click on this layer's icon to open the Style dialogue options and set the Blend if sliders: This Layer 230 / 250 and Underlying Layer 10/20. You need to hold the option key as you drag the sliders to split them.



2. Apply the Unsharp Mask filter to the layer using Amount 320, Radius 0.6 and Threshold 4. Then go to the menu Edit > Fade Unsharp Mask, change the Blend Mode to Luminosity and reduce the opacity to 70%.
3. Change the Layer blend mode from Normal to Overlay. In the Filter menu, choose Other > High Pass Filter. Apply a radius of 2 pixels.
4. The sharpening layer can be adjusted in opacity to vary the effect.

ALWAYS JUDGE THE EFFECTIVENESS OF OUTPUT SHARPENING ON THE PRINT ITSELF AND NOT THE MONITOR.

BIBLIOGRAPHY

Adobe Photoshop CS6 for Photographers, Martin Evening, Focal Press

Nik Software Captured, Tony Corbell and Joshua Haftel, Wiley

Sharpening, Alex Cowley, Better Photography Issue 76 Winter 2014

Advice from Brett Acie

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