

## Unsharp Masking of RGB and CMYK Files.

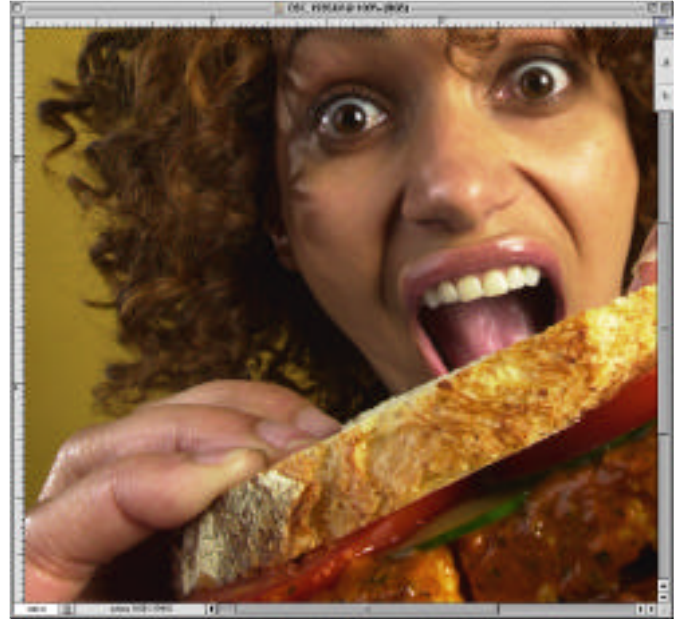
USM (unsharp masking) is used to improve the quality of printed pieces. **It should be applied to an image after the file has been cropped and sized to its final size.** If an image may be re-purposed, say, from a printed piece to a web application, or from a 40"X50" trade show display to a 2"x2" magazine pix, it is best that a copy of the original unsharpened file is sharpened for the re-purpose. Each of these applications will require a different amount of sharpening. You should not expect the amount of sharpening applied to a 300 ppi image to have the same effect on a 72 ppi image.

It's best not to sharpen in RGB mode. Avoid it as it blurs color and detail. Go to Image → Mode → Lab Color. Then go to the Channels palette, click on the Lightness channel and then use the unsharp mask. A color image will appear B&W when the Lightness channel is selected as the "a" and "b" color channels are ignored. This way you are sharpening the image data, whatever that means, and not messing with the color.

Here's some detailed info if you have trouble sleeping at night:

1. Open an image (RGB or CMYK) and zoom in to 100% (actual pixels). Its fine to switch to Lab space and then back again when done.
2. Go to Filters → Sharpen → Unsharp Mask.
3. Select an amount of sharpening that is appropriate for the image. This could be as little as 50% or as high as 200% depending on the subject matter and image resolution. Over sharpening creates an unpleasing edge effect, a thin, bright halo around higher contrast edges. Select an amount that "crisps up" the image without creating bright haloes on edges. The Radius setting for a 300 ppi file is generally set to 0.7-0.9 pixels. For a 72 ppi image it may be 3 to 5 pixels. The Threshold is set most often to 0 levels. To view the effects of changes to any of these settings, click the preview checkbox on and off.
4. Apply USM by clicking OK.
5. Go to Edit -> Fade. At the dialog box choose mode: luminosity, and use the slider to achieve the level of sharpening you desire. Preview changes by clicking the preview checkbox. Click OK to finish.





Here is an image with no sharpening on the left and with the sharpening applied on the right. Why it is called unsharp masking is one of those great mysteries of life.

To return to the original colorspace go to Image → Mode and choose the space that corresponds with that of the original. To maintain color consistency in your image before and after sharpening the colorspace of your file should match the workspace in the Color Settings dialog box. If the original file is an Adobe RGB (1998) file and the RGB workspace in the Color Settings dialog box is Adobe RGB (1998) then with Image → Mode → RGB color your file will return to its original colorspace. If the RGB workspace in the Color Settings dialog box is set to something other than your file's colorspace then Image -> Mode -> RGB color will convert your file to the colorspace selected in the Color Settings setup with unpredictable, and most likely, unwanted color shifts in your image. To avoid this, make sure the workspace in the Color Settings dialog box matches the colorspace of your file.

Another method used on an RGB file that will remain in RGB space or be converted to CMYK:

1. Open an RGB image and zoom in to 100% (actual pixels).
2. Go to Image → Mode → Lab color.
3. Go to Channels and highlight the Lightness channel.
4. Go to Filters → Sharpen → Unsharp Mask. The parameters discussed above apply to this method also. Select your settings, preview the changes, and apply USM.
5. Go to Image → Mode → RGB color. Again, "RGB color" is the workspace governed by selections made in the Edit → Color Settings dialog box. Care should be taken to not inadvertently convert your file to an unwanted colorspace.

Once sharpened, the RGB file can be converted to a CMYK colorspace. The file should not be resized, however.

Yet another method of sharpening, good for CMYK images of people, particularly skin tones, is to:

1. Open a CMYK image and zoom in to 100% (actual pixels).
2. Go to Channels and highlight the black channel.
3. Apply sharpening appropriate for the image you are working with to that channel
4. Go to Channels and highlight the Cyan channel.
5. Toggle between the individual channels and the composite CMYK to view the effect.
6. You may also use a lesser amount of sharpening to the M and Y channels. If you are working on a face, the reason not to put any or a little sharpening in the M&Y channels is because these channels represent most of your caucasian skin tones. For darker skin tones you may wish to use a feathered mask to not over sharpen darker faces.

This PDF touches on sharpening files. There are other methods that digital imagers use with success. These are presented here to help guide you. In short, **always sharpen after the image has been sized to its final size. If an image is re-purposed for another use, work with the original unsharpened file. Sharpen for each specific use.**

- For newsprint more sharpening is the rule.
- Watch for over sharpening!!!!Proof. Look at the file at 100%.
- Your printer may be better off sharpening for you. Communicate with them!!!
- After sharpening don't resize!!!
- Another way to sharpen is add small increments of sharpening.
- Sharpening is one of those things that is a time-honed craft.

**Please feel to share this. Please feel free not to rub out my name. Thanks.**

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