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PHOTOSHOP
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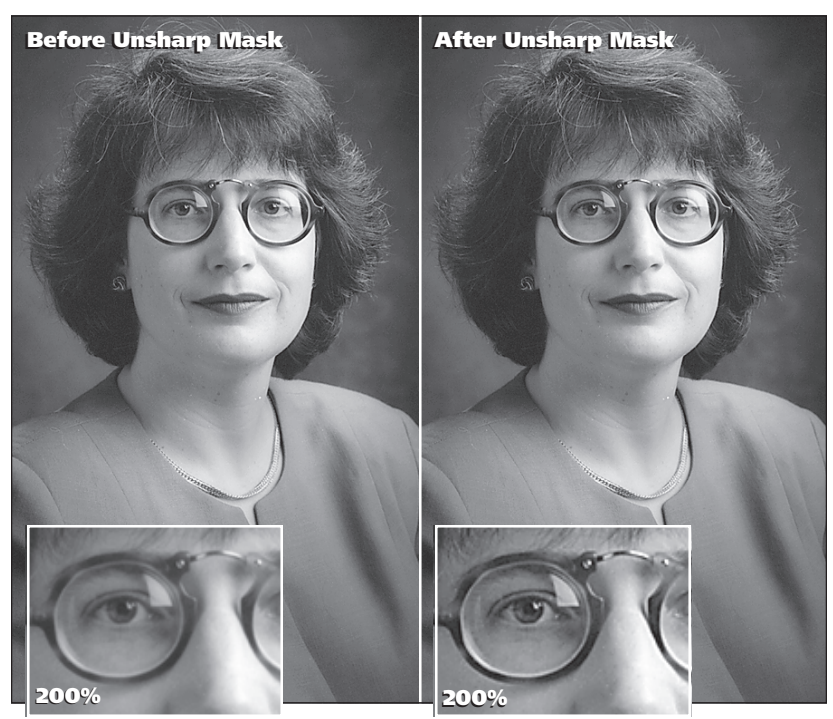
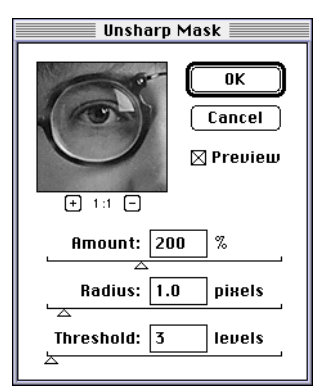
Photoshop Techniques

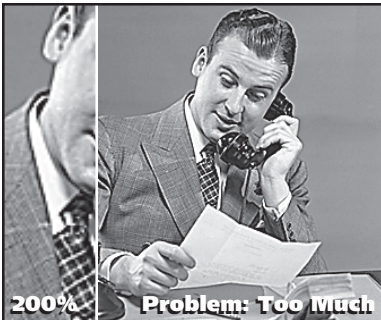
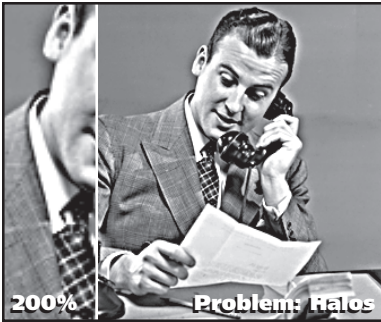
Understanding and using **THE UNSHARP MASK FILTER.**

When it comes to producing high quality photographic images, Unsharp Mask is one of the most useful yet misunderstood tools in desktop production. This is partially due to the subtlety of the sharpening effect. When the Unsharp Mask filter is used properly, a viewer should not be aware of it, the photo should just look clearer.

The right use of sharpening can pull detail right off the page: Wood grain becomes more visible; a model's smile shows defined teeth; products pop off the page; and in general, photos appear to be more clear and focused.

Unfortunately, many users see the Unsharp mask filter as an optional effect they can use on occasional images. As a rule of thumb, almost all images will benefit from some amount of sharpening.





Introduction to Sharpening

Without sharpening, or if sharpening is used ineffectively, you may see the following results in your desktop images. At left are examples of several different levels of sharpening.

Too little or no Sharpening:

- Soft, fuzzy images.
- Lack in detail.
- Lack of visual contrast.

Too much Sharpening:

- Strange halos at object edges.
- Noise patterns in flat tonal areas.
- Overexposed, posterized appearance

The trick then is to use the right amount of sharpening for the type of images you are working with.

Why Sharpening Works

The Unsharp Mask filter works to increase contrast around the edges of shapes. The human eye uses an object's edge to define its shape. As a result of this added contrast, objects in the photo appear crisper and more focused to the viewer's eye.

An artistic example.

To a layman the concept of sharpening might have more in common with painting than with photography.

To illustrate how sharpening helps the viewer's eye distinguish shapes better, let's take the example of a painter. Now let's say our artist was painting a sailboat against a light sky background. To make the edge of his white sail stand out against a bluish-white sky, he might take a fine brush and add a thin black line to the edge of his sail.

This black line would never exist in nature. But to a viewer looking at the painting, the line is not visible—instead his eye uses it as a reference to better identify the edge of the sail. Our painter, by adding something that did not exist in nature, has made the objects in his painting easier to see.

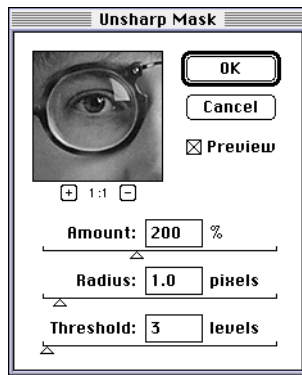
On the computer...

Sharpening on the computer works much the same. The computer locates the edges of objects in a photo and then increases the contrast along those edges. To the viewer, the resulting image has more clearly defined shapes and appears crisper and more focused.

Suggested Settings:

This example shows the suggested settings for a 170 pixel per inch photo as described in the Rules-of-thumb.

Examples using these settings below have a ★ in the upper left corner.



The Unsharp Mask filter

Despite a confusing name, the Unsharp Mask filter gives the best control and quality when sharpening images. Don't get sidetracked by the Sharpen or Sharpen Edges filters. Once you understand how to use the settings for Unsharp Mask, you can achieve excellent results.

Photoshop's Unsharp Mask filter has three main settings:

- Amount
- Radius
- Threshold

Together these controls give you the ability to very precisely control the sharpness of your images. Once you gain an understanding of how the settings interact, you will be able to quickly decide on the best approach for different types of images.

Radius.

You should start by choosing your Radius value. Radius controls how wide the sharpening effect will be at the edges of objects. Notice in the examples, how a 1-pixel setting creates a thin line, while 4-pixels creates a 'halo' around the edge.

Rule-of-thumb: In *Real World Scanning and Halftones*, David Blatner and Steve Roth recommend dividing your image's final printing resolution by 200 to determine the best Radius setting. To the right is a chart showing this rule for several common resolutions.

Resolution	Radius
150 ppi	.75
170 ppi	.85
200 ppi	1
266 ppi	1.3
300 ppi	1.5

*Photoshop will round to tenths.

Radius

Amount: 200; Threshold 3



Amount

Radius: .85; Threshold 3



Threshold

Amount: 300; Radius .85 (200%)



Amount.

The Amount slider controls the intensity of contrast added to your image. Notice in the examples to the left how the higher numbers result in more pronounced edges.

Rule-of-thumb: Start with an Amount of 200%. From there, adjust up or down until you are happy with your image. Use the preview window to view the changes.

Threshold.

The Threshold setting controls how different the colors on the two sides of an edge must be before the filter will sharpen it. The Threshold setting is the key to avoiding mottling and noise in sharpening your images. With this setting you can make sure you don't accentuate film grain or noise from the scan. It is also useful in keeping a model's skin tones smooth, while sharpening her hair and eyes.

Look carefully at the skin tones in the examples. We've increased the default Amount setting and magnified the photo to help make the effect more noticeable.

Rule-of-thumb: A good default is 3. Use higher setting if you are trying to eliminate patterning in smooth areas. Use 0 if you really want to pull out tiny details in the image. Going above 10 will generally nullify the sharpening effect for most images.

Tips for using Unsharp Mask



Tip #1: Always view Unsharp Mask results at a 1:1 ratio.

When you are trying out different Unsharp Mask settings, make sure Photoshop is displaying a 1:1 ratio in the title bar of your image window. If you are viewing your image at a reduced or magnified view, the sharpening effect will be distorted. (*This distortion only effects your view on the screen, not the printed piece.*)

Tip #2: Test Unsharp Mask setting on a smaller section.

Try a few different Amount and Radius settings to make sure you are getting the best results for your image. To make the testing quicker, select a sample section of your photo using the marquee and copy it; create a new document and paste your copied selection. You can now try several setting quickly without effecting your original image.

Tip #3: Use Unsharp Mask after sizing and image effects.

Whenever you use Image → Image Size or Image → Effects → Scale to make a change that affects the file size, use Unsharp Mask afterwards. Any such change in file size involves interpolation. In general, interpolation tends to “soften” the image.



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