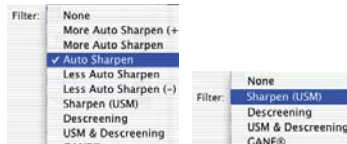


## 6.2 Improving the Sharpness of Artwork

*SilverFast* has a specially designed sharpness function, called an "Unsharp Mask" (USM). The concept stems from traditional lithography, while it was still a chemical process. Contour sharpness was improved by means of an out-of-focus film mask in the copy processes. This process is now used in software and assures a very good, natural-looking sharpness. Normal sharpness functions generally increase detail contrast and intensify all image irregularities of the artwork, making the image appear very unnatural.

### Automatic USM

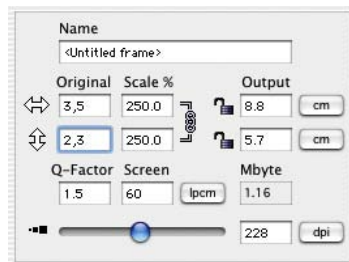


Filter menu "Unsharp Masking" in *SilverFastAi* and *SilverFastHDR*

Auto unsharp masking is done automatically if "Auto sharpen", "Less auto sharpen" or "More auto sharpen" is chosen in the filter menu of the scan dialogue window for *SilverFast*. "Auto sharpen" is the basic default setting. Default in *SilverFastAi*. By this automatic setting the unsharp masking is done with reference to the previously entered scan resolution.

In this setting, unsharp masking is automatically applied to the problem that has been selected. It avoids errors and has good result with most scans. If more or less sharpness is desired simply use the enhancing or reducing settings.

### Manual USM



In order to set the unsharp mask manually, the following settings have to be done first:

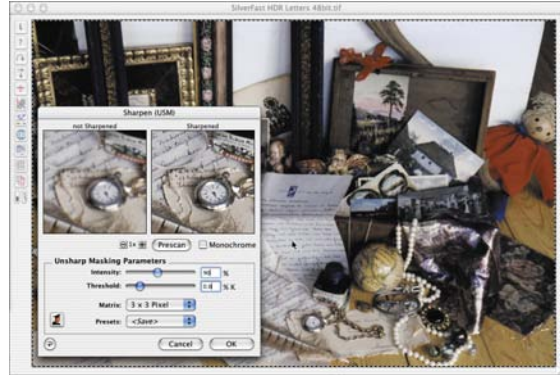
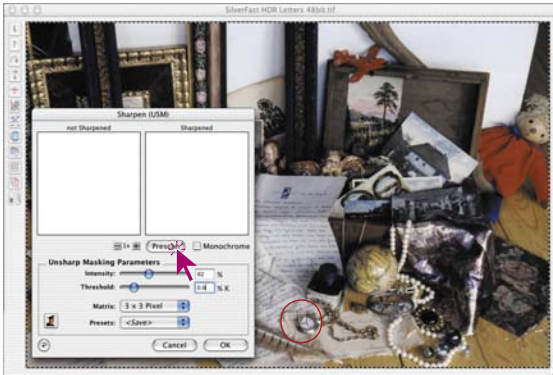
set the scaling, set the output frame, and enter the final output resolution.

The setting of the output parameters is absolutely necessary for a proper function of the USM

Only after the above-mentioned points have been done, should the „USM“ function be used in the filter menu in the „frame“ pipette.

First, click on the “Prescan” button in the USM dialogue and then in the main window of *SilverFast* click on the picture area that is suitable for determining sharpness. *SilverFast* will then scan an image detail in the final resolution that is selected.

The two small preview windows will show the scanned image detail, the left one without the sharpen effect and the right one with it.



The sharpen parameters can quickly and easily be adjusted by using the slider “strength” and “threshold” as well as using the popup menu “matrix”. All sliders are calculated in realtime

- **Strength:** this adjusts the intensity of the strength effect (0-500). Customary values are between 50 and 150.
- **Threshold:** the threshold value (0-10) determines where the sharpening of grey shades will take place (normally between 2-10).
- **Matrix:** this determines the distance at which pixels are sharpened to their surroundings. Larger pixel radii are only necessary with images having higher resolutions (standard is 3x3). For an enlargement of 300% we suggest a matrix of “5x5” and from 600% on a matrix of “7x7”.



**\*SilverFast...SE versions**

The dialogue is simplified in all *SilverFast...SE* versions and is recommended for novice users.

The selected parameters can be saved in the menu “presets” for subsequent scans.

All parameters are returned to their default setting by using the “reset” button.

## Zooming into the Preview

In order to zoom into the preview, please use the “Pixel zoom”. Simply press the “+” key to reach a maximum magnification of 8.



### Zoomed Prescans

Magnifying factor up to 8x

The image of the small prescan can be moved by holding down the “Shift” key (only in the zoom mode!) and click-dragging with the mouse cursor.



## USM Dialogue with Scaleable Prescan

In the latest Studio versions of *SilverFast*, the USM dialogue is now fully scalable. By this means it is possible to obtain a realistic sharpening preview on a larger part of the image.

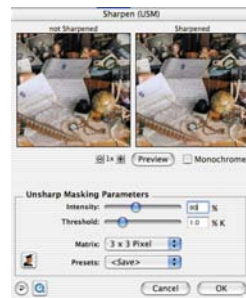
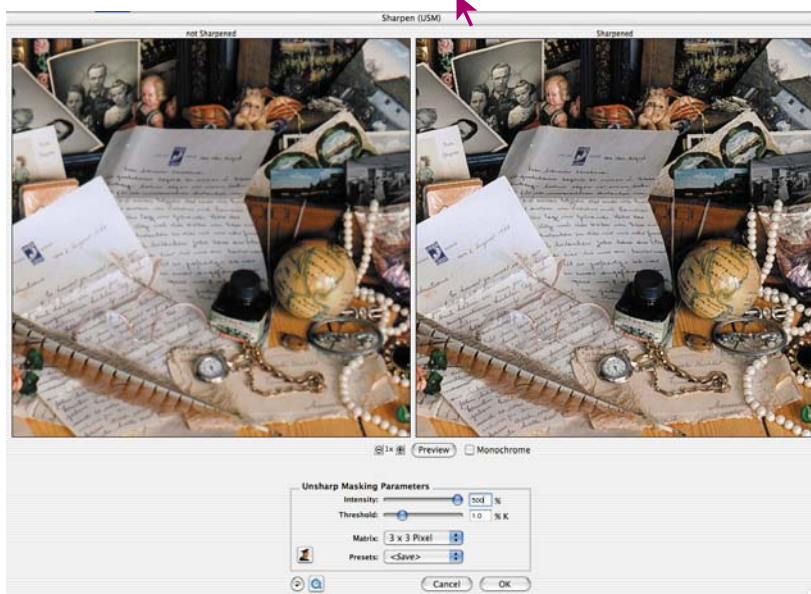
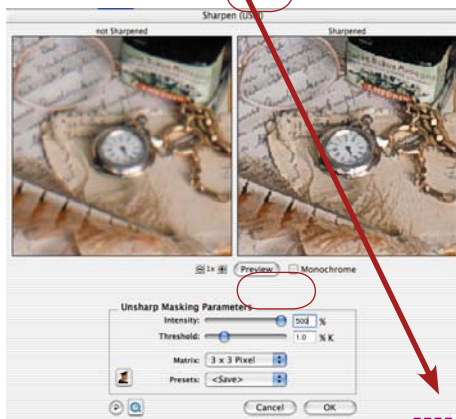
The size of the dialogue box is now resizable by means of a resizing button.

By clicking and dragging the corner button, the USM window can be expanded up to the entire monitor size.

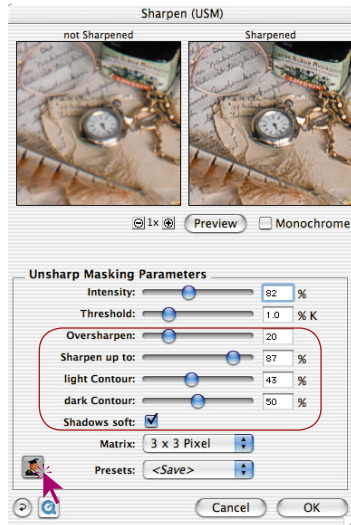
Initially, the contents of the prescan window are only enlarged by pixel-enlargement – the same effect as pressing the “+” button.

The real expansion of the visible area is achieved by keeping the “Shift” button pressed while clicking the “Prescan” button (i.e. it functions like an “Update-button”). (Ref. Illustration lower left).

Resizing the window preserves the captured part of the image. (Ref. Illustration lower right)



## Manual USM in the Expert Dialogue



Advanced users can use the extensive expert mode in order to set up optimal sharpening parameters.

A click on the small “Expert button” in the dialogue window will elongate the window and offer additional setting possibilities. An additional click on the “Expert button” (which is now red) will bring the dialogue window back to its normal size.

Additional parameters:

- **Over sharpening:** Reduces the generation of disturbing artifacts at the edges. A value of “Zero” suppresses this generation completely, but often delivers a seemingly artificial image. Low values (10 – 20) allow slight artifacts to appear, but the image appears more plastic and more natural.
- **Sharpening up to:** will determine the percent value of the grey value (0-100%).  
A value of e.g. 80% means that all tones below 80% will be sharpened. The dark tones between 80% and 100% will remain unsharpened.
- **Sharpen from (only in negative-mode):**  
Determines from which percentage (greyscale) sharpening will take effect. (0-100%)  
A value of e.g. 20% means that all tones above 20% will be sharpened. The lighter tones (negatives) from 0% to 20% again remain unsharpened.  
The slider „sharpen up to“ / „sharpen from“ is important to prevent noise in images with shadows to become intensified by the USM.
- **Light Contour / dark Contour:** depending on the desired sharpness of the subject matter, one or the other value can be intensified. In most instances the values are set the same.

- **Shadows soft:** a check in the check box will determine, that “sharpen up to” will be shown soft from that point on. The possibility of noise appearing in images with shadows is mostly eliminated with a good combination of the „sharpen up to“ and the „shadow soft“ settings.

### Example for Sharpening Bright Contour / Dark Contour

In order to achieve the desired sharpness results, which will depend on the actual image, you have to change one of the two value accordingly. In general it is advised to keep both values the same. Merely the sliders for bright / dark edge have been changed in all four images.



*Bright Contour = 0  
Dark Contour = 0*



*Bright Contour = 40  
Dark Contour = 60*



*Bright Contour = 0  
Dark Contour = 100*



*Bright Contour = 100  
Dark Contour = 0*