

*Chapter 5*



*Tools*

## 5. *SilverFast* Tools

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## Tools for Brilliant Images

*SilverFast* has all the tools to generate brilliant images from your scanner or from raw data (*SilverFastDC...* and *SilverFastHDR...*). Make yourself familiar with the best way to get brilliant results from your scans. Use the *ScanPilot* in the beginning to help you with the right sequence.

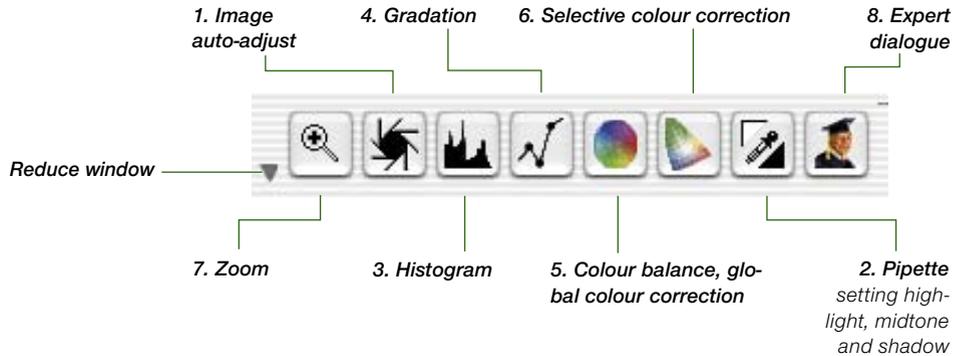
When using the auto-adjust make sure you select the appropriate Image Type to adjust the operation to your specific image.

Also check that your settings for highlights and shadows (under “Options...” > “Automatic”) are in accordance with your printing requirements.

It is also advised to read the chapter about optimum scan resolution in the addendum.

## Tools palette, overview

*SilverFast*'s powerful image adjustment tools can be accessed through the tool. Study the usage of these tools well in order to obtain optimal results with *SilverFast*.



### Tool 1: Image Auto-Adjust (Auto-Gradation)

(Mac:  $\text{⌘} + \text{⌘} + \text{2}$ , PC:  $\text{CONTROL} + \text{ALT} + \text{2}$ )

By means of the auto-gradation, the highlight / shadow points are automatically optimised. Colour cast removal is automatically applied (or not applied, depending on the scanner model and image type selected).

### Tool 2: Setting Highlight, Midtone, Shadow

Sets the brightest and darkest point and midtone on the image manually.

### Tool 3: Histogram

(Mac:  $\text{⌘} + \text{⌘} + \text{3}$ , PC:  $\text{CONTROL} + \text{ALT} + \text{3}$ )

With the histogram tool, the highlight / shadow points are controlled and optimised.

#### Tool 4: Gradation

(Mac: +**4**, PC: **CONTROL**+**ALT**+**4**)

In the gradation dialogue, the tonal values are influenced through RGB- or CMY-curves. Here the gradation curves can be controlled by sliders, numerical input or curve manipulation. You can choose between RGB and CMY representation.

#### Tool 5: Colour Balance (Global Colour Correction)

(Mac: +**5**, PC: **CONTROL**+**ALT**+**5**)

With global colour correction, the colour balance can be changed for all tonal values including quarter-, half-, and three quarter tones.

#### Tool 6: Selective Colour Correction

(Mac: +**6**, PC: **CONTROL**+**ALT**+**6**)

With this very powerful tool, single colours can be changed without influencing the overall colours.

#### Tool 7: Image Zoom

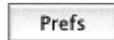
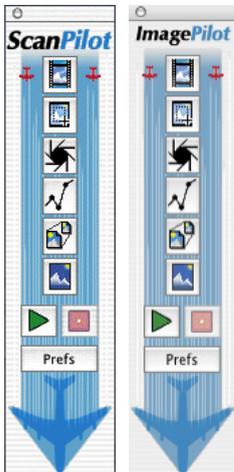
With the image zoom (magnifying glass), you can zoom into any part of the image.

#### Tool 8: Expert Dialogue

(Mac: +**8**, PC: **CONTROL**+**ALT**+**8**)

All parameters that influence the image are shown by number and can be changed. You can switch between RGB to CMY display.

## ScanPilot\* / ImagePilot\*



The *ScanPilot\** / *ImagePilot\** is an efficient tool that helps the novice with the subjects of “Scanning” and “Optimization” acting as a kind of road-map in order to reach successful and brilliant results. It is an instruction to use the available tools (automatic or manual) in the correct order.

It is easy to use and delivers good quality results:

- Click the first, uppermost icon and press the green launch button after that.
- *SilverFast* now works its way along the column of the tools palette partially automatic.
- Some tools require additional input fields and *SilverFast* will halt and open the respective dialogues in order for the user to enter his own parameters. The primary stop will, for example, be done while adjusting the gradation.
- Regardless of whether changes have been made within the tools-dialogue or not, hit the „OK“ button or press the „Enter“ key in order to close the window.
- The *ScanPilot\** / *ImagePilot\** may be halted at any time by clicking the red “Stop“ button and then allow moving on to the regular tools in *SilverFast*’s main dialogue.

### Preferences

By pressing the “Prefs” button you can expand the tools-list used by the *ScanPilot\** / *ImagePilot\**. Click on the check boxes beside the tool buttons. The *ScanPilot\** / *ImagePilot\** will show you at which point you use these tools best. The detailed description of the tools can be found in this manual.

In the preferences dialogue window you define whether the *ScanPilot\** / *ImagePilot\** will supply concise help texts beside the tools during its operation.



### \* Difference between ScanPilot and ImagePilot

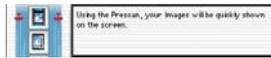
There are no differences! The „ScanPilot“ is available in *SilverFastAi...*, and the „ImagePilot“ in *SilverFastDC...* and *-HDR...*

If you would like to use the *ScanPilot*\* / *ImagePilot*\* permanently, click the check box “Open on Start-up”. The *ScanPilot*\* / *ImagePilot*\* will then open at every *SilverFast* start up (this is the default setting of the *ScanPilot*\* / *ImagePilot*\*).

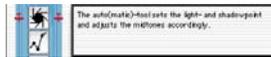
Click the icon with an image of an aeroplane in the vertical tools palette, located left of the preview window, once you are finished using it.

### Help Texts in *ScanPilot*\* / *ImagePilot*\*

Brief help texts beside the tool buttons of the *ScanPilot*\* / *ImagePilot*\* inform you about what to do next!



During the task “Frame position” you will be asked, “Which part you do want to scan?” Click and hold with your mouse on one corner of the frame and drag it to the size you want.



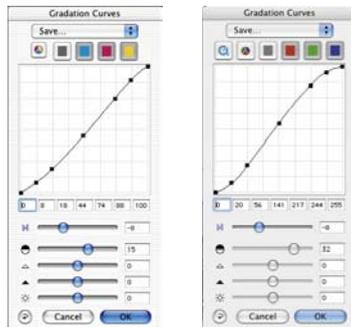
After that the image Auto-Adjust will be automatically applied and the next dialogue window will come up (here gradation).



#### Attention!

Please note that some dialogues that have been opened using the *ScanPilot*\* / *ImagePilot*\* are only partially available!

This, for example, is the case when using the gradation dialogue and merely serves security purposes. In the example, only the slider that is moveable is the one for the mid-tones. In order to obtain satisfactory results while using the other sliders, a certain level of expertise is necessary. In any case, the *ScanPilot*\* / *ImagePilot*\* can be closed and the full accessibility to all other sliders and parameters is given.



#### Comparison of the different gradation dialogues

Left: The appearance of the dialogue when opened using the *ScanPilot*\* / *ImagePilot*\*

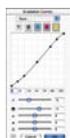
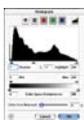
Right: The appearance of the dialogue when opened from the main menu.

With the completion of the last step, the scan frame will be scanned into the imaging application.

All running processes can be halted at any time, in order to allow manual intervention with the help of the tools in *SilverFast*'s main dialogue.

## The Concept of Optimising Images

When optimising scanned images, using the tools in the correct order significantly influences the results that can be obtained and leads to the optimal output quality.



### 1. Basic Choice of White / Black Point and Colour Correction

The black / white points and colour correction can be set manually or by using the auto-adjust function.

### 2. Optimising Gradation

If necessary, further individual optimising of the image with gradation curves (midtone and contrast) is possible.

### 3.+4. Global Colour and/or Selective Colour Correction

If necessary, individual colours can be corrected by using selective colour correction, or the total colour characteristics can be corrected by using global colour correction. It is also possible to use an ICC scanner profile for applying colour correction.

### 5. Size Adjustment and Scaling

Scale the image and scan frames individually in height and width.

### 6. Retouching

Removal of dust and scratches by means of *SilverFastSRD* and/or the clone tool.

### 7. Applying Filters: Sharpening (Unsharp Masking) / Descreening / GANE

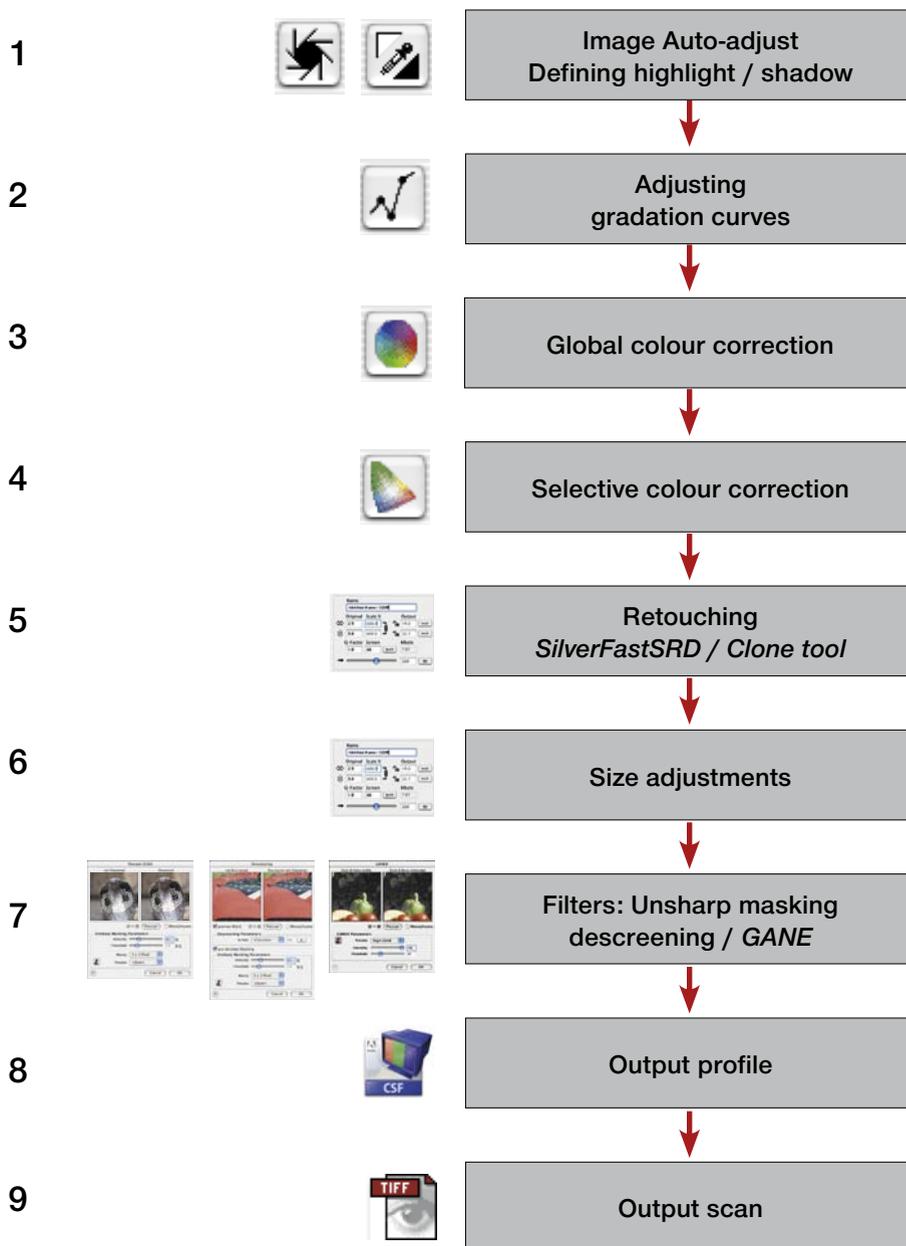
Choose, according to type of image and scaling, the optimum setting for Unsharp-Masking or descreening and GANE.

### 8. Output RGB, LAB or CMYK

Select "Scan RGB" – "LAB" or "Plug&Play CMYK". Select the appropriate separation profile (in case you scan CMYK) for your type of printing.

### 9. Scan

## Workflow of Optimising Images



## 5.1 Image Auto-Adjust (Auto-Gradation)



The auto-adjust is a convenient tool for achieving a quick image optimisation. This function investigates the end points of the image data; i.e. it looks for the brightest and darkest points of the image in the current frame and sets highlight and shadow points respectively. Also the distribution in the half- and three-quarter tone is checked and depending on this distribution a gradation curve (linear or logarithmic) is generated for correction.

In *SilverFast* the the image auto-adjust button can have the following states:



Grey

Standard setting with most scanners. Clicking the auto-adjust button triggers the image automatic and corrects existing colour casts. Colour casts will be eliminated in highlights and shadows.



Coloured

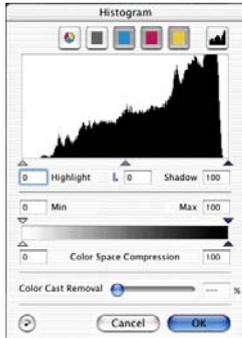
Standard setting with few scanners, which already have a fairly neutral image rendering with the factory settings. Also with active IT8 calibration (optional). Clicking the auto-adjust triggers the image automatic and keeps any existing colour casts.



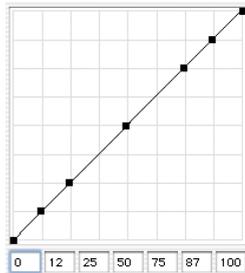
Coloured + "C" The small "C" within the coloured auto-adjust button indicates that a ColorSync workflow (Windows: ICM workflow) is active within *SilverFast*. It will become active when input calibration has been switched to ColorSync (ICM) and an ICC profile (Windows: ICM-profile) has been allocated in the colour management settings (under "Option") in *SilverFast*.

The following example shows the image before and after usage of the auto-adjust and the corresponding histograms.

The image appears a little flat because no correct highlight detail is present in the image. The reason is: Within the image there is no value for white – merely 10 % grey. The histogram shows that the first pixels in white begin between 9 and 13 %.



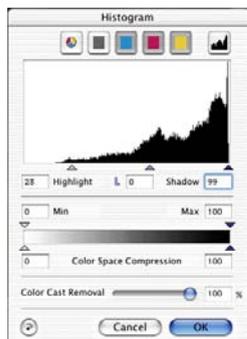
*Histogram  
without auto-adjust*



*Gradation  
without auto-adjust*



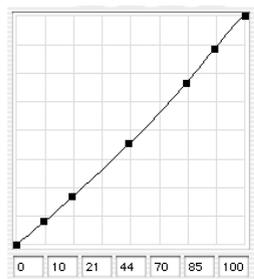
A moment after pressing the auto-adjust button, we realise, how the image has gained in brilliance. In general, a strong difference between the parts of the image within the scan frame and the parts outside this frame can be seen. The effect of the automation is also shown by the change of colour of the neighbouring buttons for the histogram and the gradation dialogue.



*Histogram with auto-adjust*



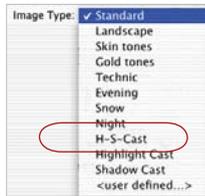
The gradation curve on the left shows that the auto gradation has made the image slightly brighter in the midtone.



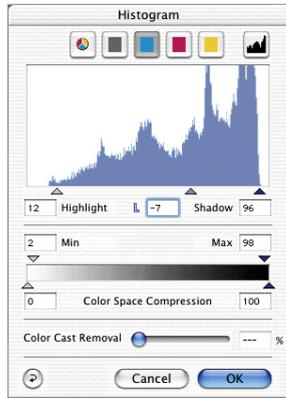
*Gradation with auto-adjust*

Please note, that the artificial intelligence inside *SilverFast* evaluates images on the basis of what is inside the scan frame selection. You can change the effect of the auto-adjust by making the selection smaller or larger.

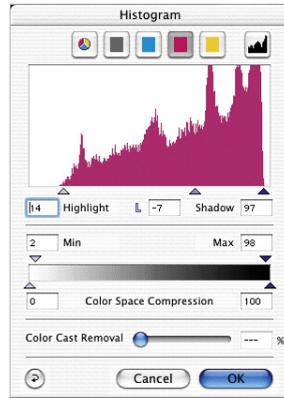
## Auto-Adjust and Colour Cast Removal



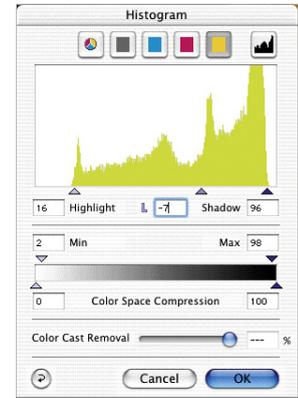
By pressing the aperture-button, the active scan frame will undergo a highlight-shadow optimisation with colour cast removal. In the following three histograms, it is easy to see the influence on the cyan, magenta and yellow channels.



*Cyan, highlights set to 9%*



*Magenta, highlights set to 14%*



*Yellow, highlights set to 16%*

By setting the highlight for cyan to 9%, magenta to 14% and 16% for yellow, the colour cast has been removed.



*Original with a cyan cast*



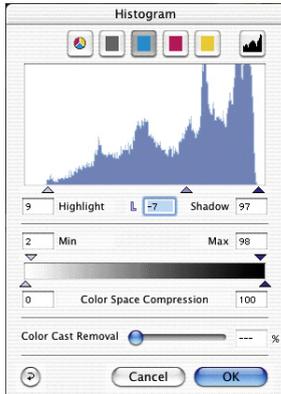
*Cyan cast removed with auto-adjust*

## Auto-Adjust and Colour Cast Preservation

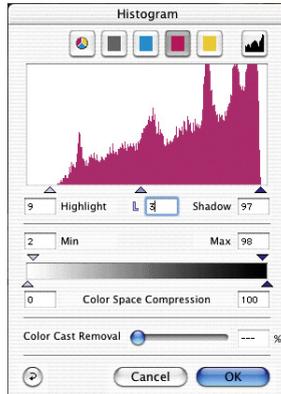
### Auto-adjust reset

In order to reset the auto-adjust tool, press the “Alt” key and click on the aperture (auto-adjust tool) icon.

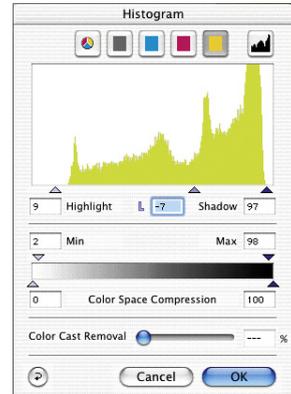
If your image contains sunset colours, a kind of reddish cast, you probably would like to keep this characteristic in the image. In order to prevent the automatic colour cast removal from eliminating this, keep the “Shift” key pressed down and click the aperture button. The highlight-shadow points will be optimised, the colour effect will remain untouched in the image. The highlight-shadow triangles of the above histograms will look like this:



Cyan, highlights set to 9%



Magenta, highlights set to 9%



Yellow, highlights set to 9%

The values for highlight and shadow points are 9% in the highlights and 97% in the shadows. This way, the colour cast is completely retained in the image.

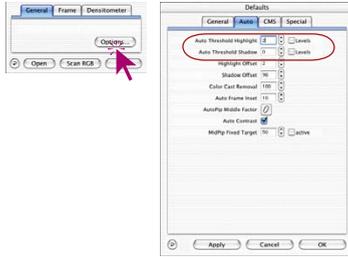


Original not optimised

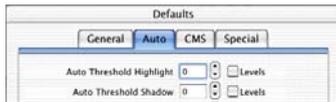


Optimised with colour cast removal suppressed

## Auto-Adjust and Threshold

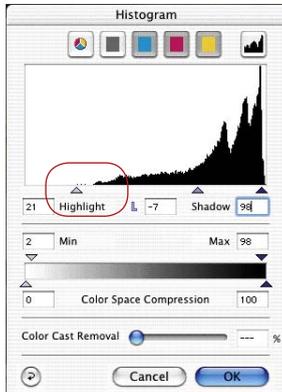


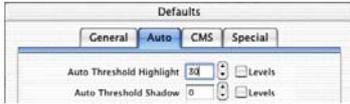
Under “Options...” / “Auto” a threshold can be determined for the auto-adjust. This threshold controls the sensitivity of the auto-adjust. If the auto-adjust is set to small values, it will react to few pixels. If the threshold is set to very larger values, it will skip more pixels at the end points in the histogram. This is made clear by the following two examples:



### 1. Automatic Threshold on “0”

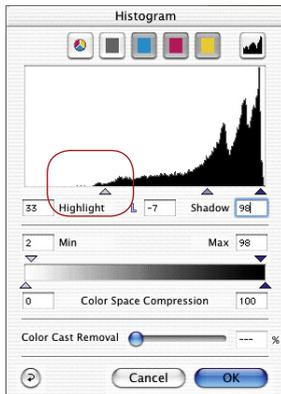
The auto-adjust is set to greatest sensitivity. If the threshold is set to “0”, the highlight / shadow points are set on individual pixels. This could, however, lead to undesired results in some images, since these first pixels could represent insignificant image information not visible to the eye. For this reason, the threshold should be set to values between 2 and 10.



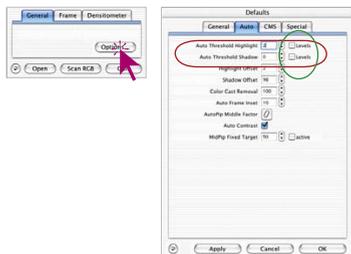


## 2. Automatic Threshold on “30”

The other extreme of the auto-adjust threshold is the value “30”. It can be clearly seen in the histogram that the highlight triangle points at the value “33”. Therefore, some of the highlight details will be lost. Depending on whether more or less pixels with a bright tonal value are present, the auto-adjust with this extreme threshold of “30” will disregard more pixels.

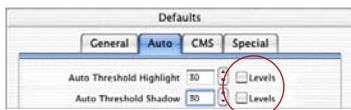
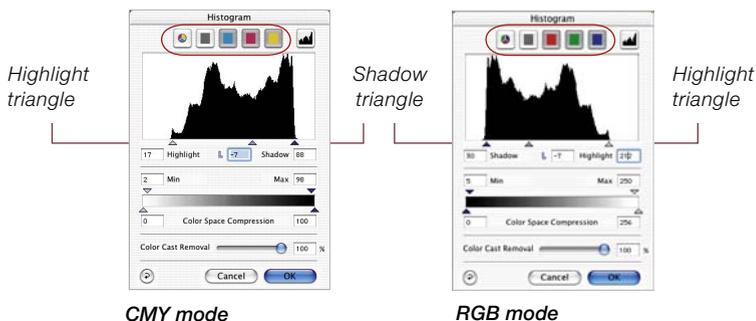


## “Auto Threshold Highlight” and “Auto Threshold Shadow”



“Auto Threshold Highlight” and “Auto Threshold Shadow” are adjustable within a range from 0 to 100 steps and can be varied in the “Options...” / “Auto” dialogue. These adjustments influence the function of the Image auto-adjust and become visible in the histogram dialogue.

At using the Image auto-adjust the triangles for highlight and shadow are placed automatically in the histogram as set in these defaults.

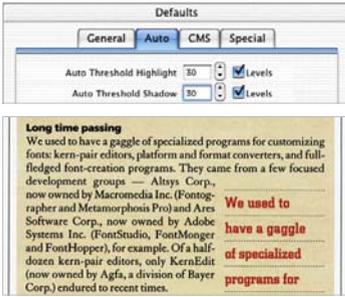


Remember: The histogram window depicts the whole range of greyscale - in 8 bit RGB mode from step 0 to step 255 (right hand) and in 8 bit CMY mode from 0% to 100% (left hand).

If one or both boxes “Levels” are marked the factors “Auto threshold highlight / shadow” are treated as real RGB steps and not as relative factors that correspond to the total quantity of pixel. Working with the CMY mode it is the same.

### Example

The adjustments should be used with motifs of flat bright or dark background. It is also worth using it for scanning texts and graphics on coloured grounding (see following example).

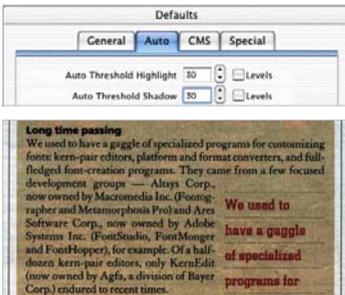
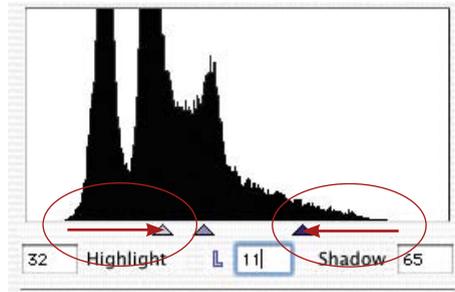


Using “Levels” emphasises the text from the background clearly.

An alteration factor of “50” effects a defined skip of the position of highlight and shadow triangle within the histogram. Starting from the first columns near the margins of the histogram, 50 RGB steps are skipped. Hence each alteration in steps is an “absolute” movement of the triangles.

Using the CMY mode (see picture below) 50 RGB steps are skipped too.

The example shows that highlight and shadow triangle are shifted identically (red arrows are of equal length).



Without “Levels” background looks too dark.

If the boxes “Levels” are not marked the adjustment will just effect a “relative” change of the triangle position. The alteration factor is then related to the quantity of pixels within the edge areas of the histogram.

If the marginal columns are high and contains a big amount of pixels the alteration factor of “50” effects a relatively small movement of the triangle (short red arrow for highlights), compared to a long shift for only some few pixels (long red arrow for shadows).

