

QS-DocumentAssembler

Version 2.2



Product Documentation

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QS QualitySoft GmbH
Zum Fuerstenmoor 11
21079 Hamburg
Tel. +49 (0)40 790 100 40
Fax +49 (0)40 790 100 44
info@qualitysoft.de
<http://www.qualitysoft.de>



Table of Contents

| | |
|--|-----------|
| 1. INTRODUCTION | 3 |
| 1.1 SOFTWARE TASK | 3 |
| 1.2 SYSTEM REQUIREMENTS | 3 |
| 2. INSTALLATION | 4 |
| 3. FUNCTION | 5 |
| 3.1 PROCESSING | 5 |
| 3.2 PROCESSING OF INCREMENTAL PAGES | 5 |
| 3.3 AUTOMATIC FUNCTIONS | 5 |
| 3.4 LOG REPORT | 5 |
| 4. SCREEN..... | 6 |
| 4.1 MAIN WINDOW..... | 6 |
| 4.2 OPTIONS..... | 7 |
| 4.2.1 "GENERAL" | 7 |
| 4.2.2 "BARCODE" | 8 |
| 4.2.3 "BARCODE FILTER" | 11 |
| 4.2.4 "SOURCE DIRECTORIES" | 13 |
| 4.2.5 "PROCESSING" | 14 |
| 4.2.6 "SPECIAL" | 18 |
| 4.2.7 "ADOBEPDF" | 19 |
| A APPENDIX..... | 20 |
| A.1 FILE NAMES DURING ASCENDING SERIAL NUMBERING | 20 |
| A.2 LOG FILE | 20 |
| A.3 POLL MODE | 21 |
| A.4 SOFTWARE IMPRINTER PARAMETER..... | 21 |
| A.5 SUPPORTED FILE FORMATS | 21 |

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QS QualitySoft GmbH
 Zum Fuerstenmoor 11
 21079 Hamburg, Germany
 Tel. +49 - 40 790 100 40
 Fax + 49 - 40 790 100 44
 info@qualitysoft.de <http://www.qualitysoft.de>



1. Introduction

1.1 Software Task

Documents scanned with text scanners, photographed with digital cameras or received by fax are made available in the form of image files. Recognition of barcodes found within image files is now required. Identified data should then be made available for further processing or matched to image files.

Barcodes can be searched on the entire page from any angle. Results are then written to files from any number of barcodes.

Optionally, "QS-DocumentAssembler" can read 2D barcode types PDF417 and DataMatrix that contain large amounts of data. The latest program version allows recognition of more than 800 encoded characters and makes them available for subsequent processing.

The recognition time for a PDF 417 barcode – as used in the banking sector - is under 50 msec.

"QS-DocumentAssembler" has been developed for batch processing involving automatic processing of large data volumes. Barcode recognition of the "QS-DocumentAssembler" is based on the "QS-Barcode Library" which is also available as a stand-alone product for software developers.

1.2 System requirements

"QS-DocumentAssembler" is compatible with Microsoft Windows operating systems (Windows ME, 2000, XP, Windows 2003).

Every PC with at least 50 MB free hard drive storage and a CD-ROM drive is suitable for the use of "QS-DocumentAssembler". The image files which are to be processed with the software often require more space than these 50 MB; 50 MB is just the space the software needs.

To scan and to save the digital images "QS-DocumentAssembler" processes, a large variety of equipment with different scan software can be used. QualitySoft will always be glad to help you choose the right components and we also offer our own supply of products.

Barcode recognition is based on the QS-Barcode Library. The optimal barcode settings can be found with our Freeware bcTester: <http://www.bctester.de>.

For details of individual parameters, please see the corresponding QS-Barcode documentation, available online at:

http://www.qualitysoft.de/en/download/qsbarsdk_en.pdf .

Barcode Info: Basic information on QS-Barcode recognition (types, printing advice, etc.) http://www.qualitysoft.de/en/download/bcinf_en.pdf

"QS-DocumentAssembler" prices and ordering advice:

http://www.qualitysoft.de/en/download/docasm_prices.pdf

Should you experience problems in recognizing barcodes, please contact QualitySoft at any time – we'll analyze your situation free of charge!

Please send your image and docasm.ini file to help@qualitysoft.de.



2. Installation

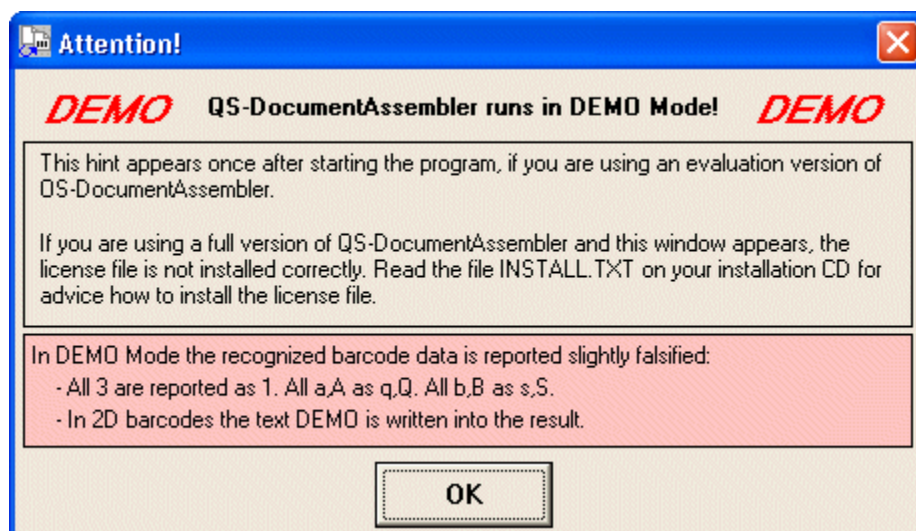
"QS-DocumentAssembler" is delivered on CD.
Take the following steps to install the program:

1. Start the application SETUP.EXE from the CD-Directory \SETUP\
2. Follow the instructions which are given in the setup program, if you like you can change the target directory of the installation.
3. During setup, your individual license file QSBC.LIC is automatically copied from the CD-Directory \SETUP\ into the target directory.
4. Please restart the computer after installing the software, even if the setup program does not request it.
5. You can now start "QS-DocumentAssembler".
6. Configure "QS-DocumentAssembler" with the "Options" dialog as your documents require it (for more information read the following chapters)

Notes:

- If the error message "Path or Drive does not exist" occurs during the installation, the reason may be that the file extension "CAB" is linked to an application, e.g. WinZIP. In this case remove the link.
- If the license file cannot be found, the program automatically changes into **DEMO mode**. The barcode recognition results will be changed systematically: 3 turns to 1; A,a turns to Q,q; B,b turns to S,s

If the program runs in Demo mode, this window will appear right after starting the program:





3. Function

3.1 Processing

Several modes of operations are possible for "QS-DocumentAssembler", all of which involve reading image files from a source directory. Barcode information is usually added to image files and then moved to a target directory. Result files and log report files can then be analyzed in several ways.

Move

The image files are moved from the source directory to the target directory without renaming. A text file containing barcode information is written to the target directory for each image file. Alternatively, barcode information for all image files processed can also be gathered into one file.

Rename

Image files are moved from the source directory to the target directory; their new file name contains the barcode (the file ending is preserved).

3.2 Processing of Incremental Pages

"QS-DocumentAssembler" also supports processing image files without barcodes. The following modes of processing are available for documents that do not contain recognized barcodes:

MoveToError

Documents without barcodes are moved to a separate error directory that differs from the target directory.

RenameAndIncrement

Documents without barcodes are treated as incremental pages of a bundle. The last barcode read is assigned to documents. In this mode, the file name in the target directory consists of a combination of the barcode, a series number and the file ending.

RenameToMultipage

Documents without barcodes are treated as incremental pages of a bundle. The last barcode read is assigned to the documents. A Multipage file is created in the target directory to which the current document is added as a new page.

3.3 Automatic Functions

You can operate and configure "QS-DocumentAssembler" manually so that processing is performed once automatically when the application starts, or performed repeatedly under time control (polling). This allows the program to run in the background without the need for user interaction.

3.4 Log Report

A log report file can be activated where either all or only documents with barcodes are flagged.



4. Screen

4.1 Main Window

After start, the following window appears in "QS-DocumentAssembler".



Figure 1 "Main Window"

The "Statistics" section logs information about the running process. During processing, a progress indicator and the file name of each processed document is also displayed.

Use the <Start> button to manually begin a processing run. A processing run will work through all existing image files in the source directory.

Use the <Options> button to configure "QS-DocumentAssembler".

Use the <Help> button to get more detailed information on the main window.

Use <Close> to close "QS-DocumentAssembler".

Use the menu to call up the "Info-Dialog" which contains information on the program version and manufacturer contact details.



4.2 Options

Program actions are set using this dialog. Use the Options window to configure the functions of "QS-DocumentAssembler" as described in Section 2 "Functions".

4.2.1 "General"

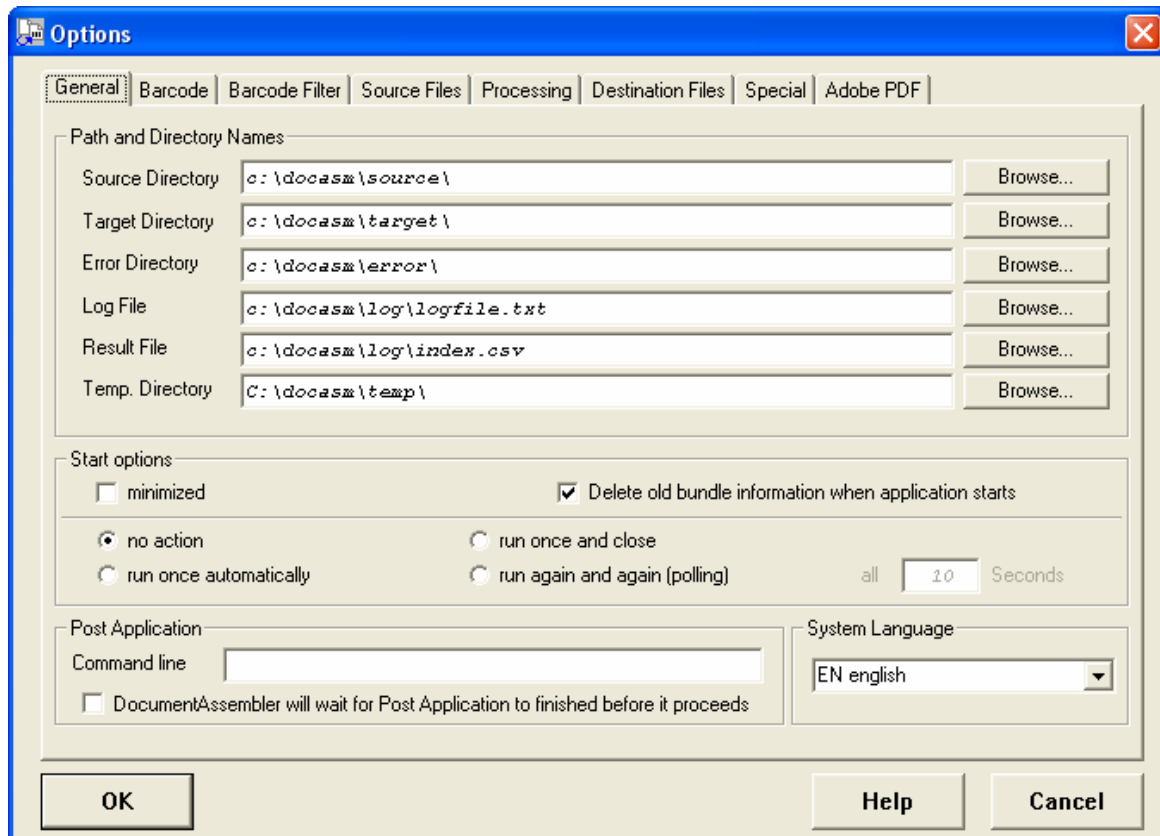


Figure 2 "Program Options" – "General"

"Source Directory"/"Target Directory": These are the most important parameters. The source directory indicates where the scanned documents are located prior to processing with the "QS-DocumentAssembler" program. The target directory indicates where the documents after processing are located.

"Error Directory": If you configure processing to sort image files without barcodes, use this directory to set a location.

"Log File": Set the log report file complete with designated path here.

"Result File": In case all barcode information needs to be collected into one file, specify the file name here.

"Temp. Directory": "QS-DocumentAssembler" can be configured in many different ways. If Multipage-Files are processed or created, temporary files are created while the program runs. This is where you can specify the directory for this.

"Start Options": Use this option to determine how "QS-DocumentAssembler" should run during program startup. Please note the information contained in "Appendix A3: The Poll Mode".



"delete old bundle information at new start": The first document after starting the program can be handled either as a part of the bundle processed before if it is without a barcode, or all old bundle information can be deleted upon a restart.

This way new documents are not attached to an "old" bundle.

"Post application": QS-DocumentAssembler can start a post application after one cycle (when all files in the source directory have been processed). The command line can be chosen freely. You can also decide whether QS-DocumentAssembler should wait for the post application to end (important in the "Poll Mode"), before a new cycle is started.

"System Language": QS-DocumentAssembler runs either in English or in German, you can choose which language you prefer

4.2.2 "Barcode"

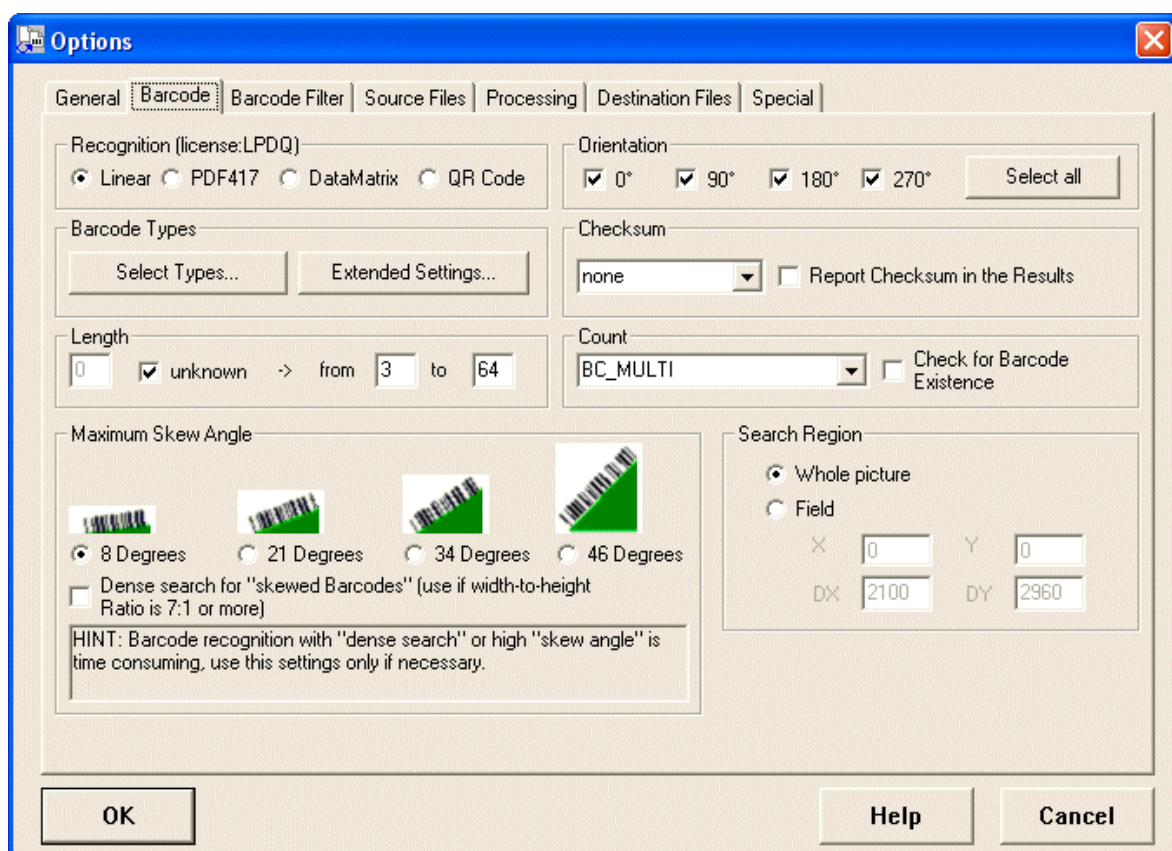


Figure 3 "Program Options" – "Barcode"

In the barcode settings dialog, you can set the properties of the barcode types you want recognized. Multiple selections of barcodes are possible. You can also enter various settings to influence search and recognition.

"Recognition": Depending on the license you purchased, you can choose between linear barcodes, PDF 417, QR Code and DataMatrix.

"Orientation": Orientation sets the direction of the barcode search on the image. If you do not know the direction of the barcode (for example, if a barcode label is attached to the paper upside-down) you can search with multiple orientations.



"Select Types": When you press "Select Types..." a dialog is displayed. Here you can select possible barcode types.

"Extended Settings": The extended parameters for barcode recognition can be changed in a separate dialog.

"Checksum": Modern barcodes often contain a checksum. Calculation of the checksum is defined in the barcode symbol definition.

For barcodes without internal checksum, an extra checksum is often calculated and added. We have programmed some frequently used checksum calculations. In this case, select the type: Standard Modulo 10, Modulo 10 Extended or Standard Modulo 43.

If checksum is activated, barcodes without right checksum are classified as erroneous and no result is reported.

"Report Checksum in Barcode Result": Normally the check digit will not appear in the result. When the check box is activated, the check digit is appended to the result.

"Length": Here you enter the length of the barcode (number of characters in the barcode) you want recognized as precisely as possible (you can also enter a range). Providing the correct length improves performance and reliability. Length 0 means unknown. For linear barcodes, the maximum is 64.

"Count": Specifies whether to find one barcode (BC_ONE), to find the first barcode and then stop the barcode recognition (BC_ONE_BREAK) or to find many barcodes (with increasing error tolerance: BC_MULTI_ONE, BC_MULTI, BC_MULTI_BESTGUESS, BC_MULTI_MULTI) of the defined type.

Please note: BC_MULTI is the best choice in most cases, even if there is only one barcode to read. Choose BC_MULTI_MULTI if there are many barcodes with the same data content on one page.

"Check for Barcode Existence": Sometimes the scanned images are too light or too dark. This results in not all bars being found and it is impossible to recognize the barcode. If "Check for Barcode Existence" is activated, the message "barcode exists" is displayed if there are too few lines. The value of percentage in "extended settings" controls the sensitivity. Good values are between 60-80%.

"Maximum Skew Angle": Indicates how much a barcode can be skewed and still be recognized. Normally 8° is sufficient. However, if you expect barcodes to be more highly skewed, you should select a higher setting. Please note that the higher the angle, the longer the recognition takes.

"Dense Search": If you have a very flat barcode (width-to-height ratio 7:1 or more) certain barcodes may not be recognized because they are between two scan angles. With this option you can add more scan-angles to prevent this. Note that the recognition will take longer in this case!

"Search Region": Either the "whole image" or just a "region" can be chosen as search region. If you choose the second possibility, the coordinates of the region have to be specified in pixels. X/Y mark the top left corner of the region, DX=width, DY=height.

Instead of the above settings, you may also select all barcode types, set the length to unknown and activate all rotations.

Please remember that knowing the exact barcode type and length increases the performance and reliability of the recognition. If you know the barcode type and length, you should always select the corresponding settings.



4.2.2.1 Barcodes – Types

Choose the barcode types which are suitable for your documents. Codablock F, Pharmacodes and Patchcodes cannot be recognized together with other barcodes.

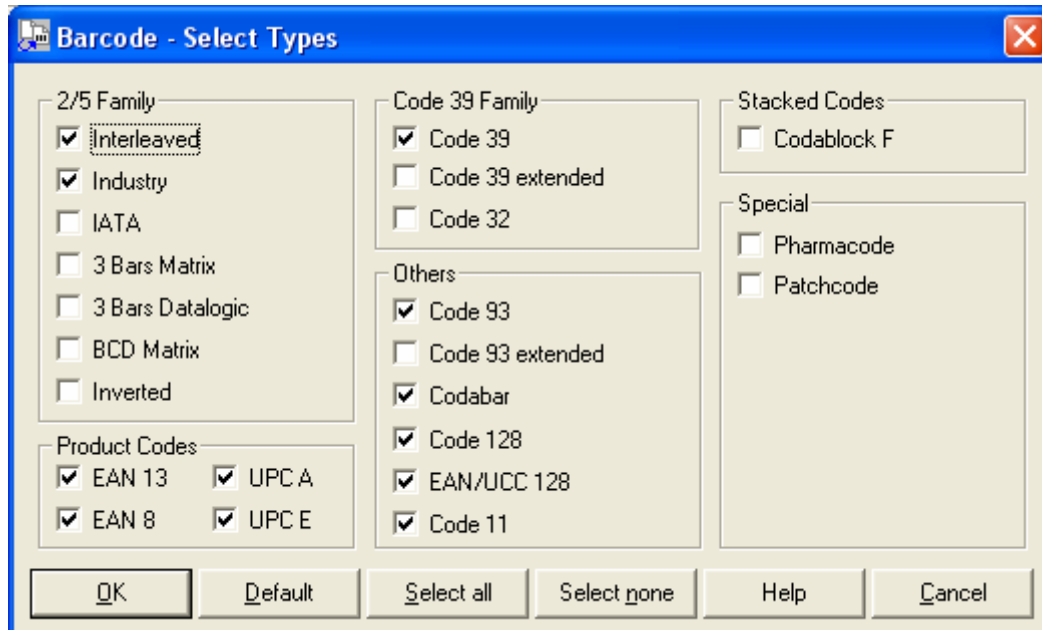


Figure 4 "Program Options" – "Barcode - Types" Dialog

4.2.2.2 Extended Barcode Settings

The default settings are a good choice in many applications. In special cases, it may be necessary to change the values slightly in order to receive the correct results.

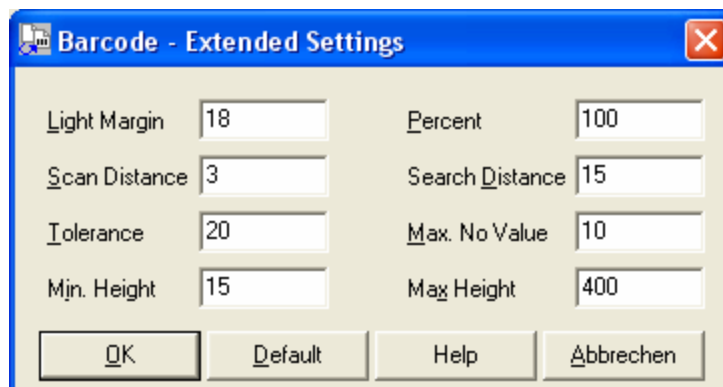


Figure 5 "Program Options" – "Barcode – Extended Settings" Dialog

"Light margin": Minimal number of white pixels that must surround a barcode. When gaps between barcode bars are too wide and thus recognized as a light margin, the barcode will not be recognized.

"Percent": Percentage of minimum lines of a barcode that are necessary to report a barcode. This is a special setting used when the barcode is very uncertain. In this case "Barcode Exists" is displayed (works only when combined with "Report BC Existence" in the main barcode settings).



"Scan Distance": This corresponds to scanning the barcode in y-direction. It is used automatically for recognition when a barcode is detected. For poor quality barcodes you can set the scan line to 1.

"Search Distance": Searching for the barcode on an image in y-direction is completed in steps. The distance between the steps is defined here. When the barcode is detected, a switch to "Scan Distance" occurs. Higher values improve the performance since fewer lines are tested.

"Tolerance": Tolerance of the position (x-direction) of the barcode during the search.

"Max. NoValue": Defines the number of lines containing no barcode after which the currently recognized barcode is marked 'finish'

"Max. and Min. Height": The maximal and minimal height of the barcode is specified here.

In case of barcode types Data Matrix and PDF 417 not all setting values are in use. In this case the edit fields are grayed and cannot be changed.

The default settings for the barcode type Data Matrix and PDF 417 are different to the setting for the linear barcodes. This dialog is not available for QR Code.

4.2.3 "Barcode Filter"

Documents may contain barcodes from different sources. By using a barcode filter, the results of barcodes which are not of interest can be suspended.

Recognized barcodes are checked by "QS-DocumentAssembler" before further processing starts. If a barcode does not match the format which was set beforehand, it will be filtered and will be ignored in further processing.

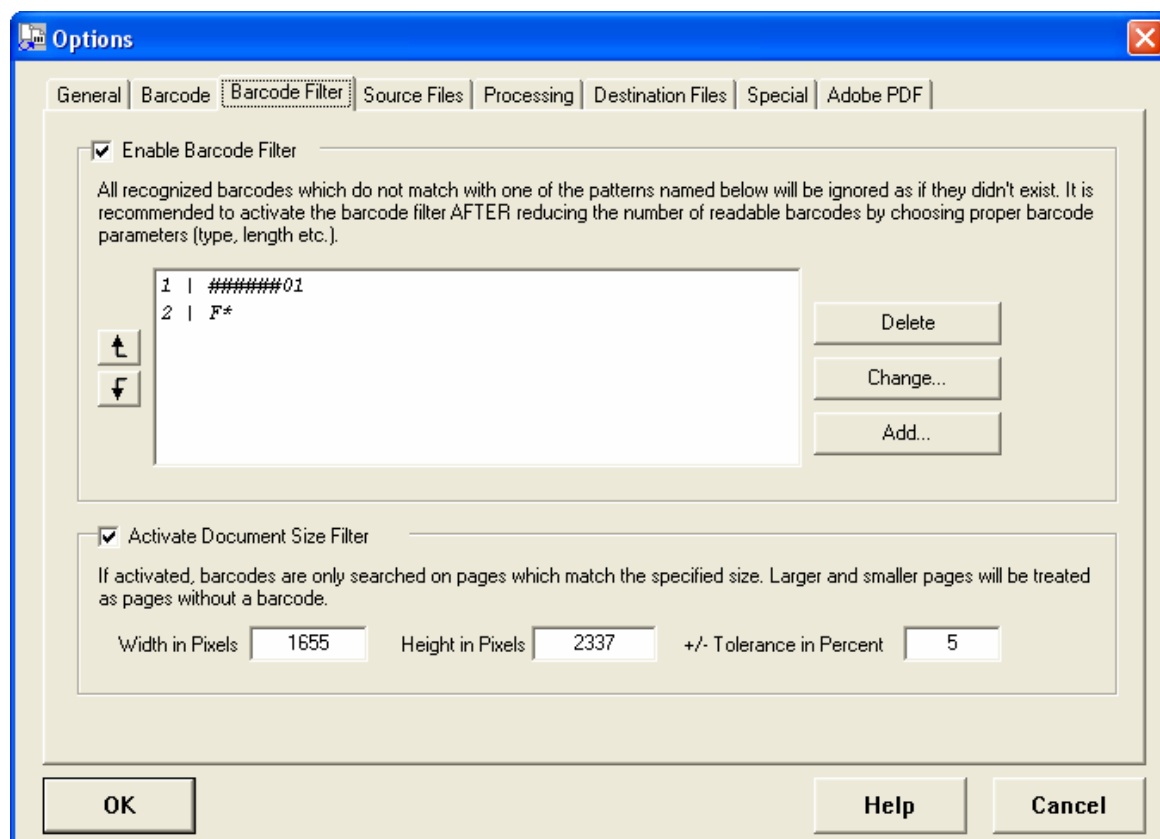


Figure 6 "Program Options" – "Barcode Filter"



In this dialog a barcode filter can be activated and configured.
In the following dialog <Add...> the settings for the filter can be chosen.

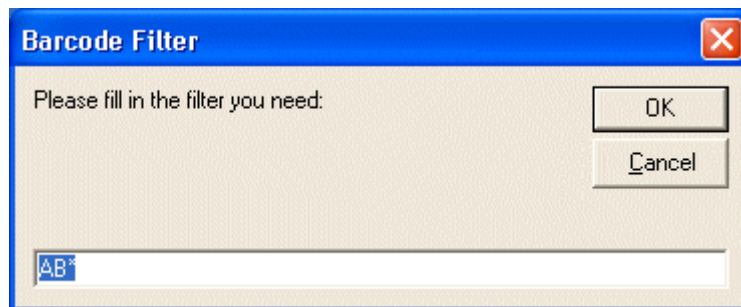


Figure 7 "Program Options" – "Add Barcode Filter" Dialog

They then appear in the window shown in Figure 6.

The button <Delete> erases the current entry, with <Change...> you can modify it. It is useful to activate the barcode filter AFTER reducing the number of readable barcodes by choosing proper barcode parameters (type, length etc.). Up to nine filters can be defined. The filters will be processed in the settled order.

When defining filters, you can use some special signs in the pattern:

| Sign in pattern | Meaning |
|-----------------|---|
| ? | any single sign |
| * | none, one or more signs |
| # | any single figure (0-9) |
| [sign listing] | any single sign in sign listing |
| [!sign listing] | any single sign not contained in sign listing |

Examples:

| Filter | Matching |
|--------|------------------------|
| RE* | REABCD RE0011 |
| ?### | A123 0123 |
| #[AB]* | 1A4711 2B BCDEFG |



4.2.4 "Source Files"

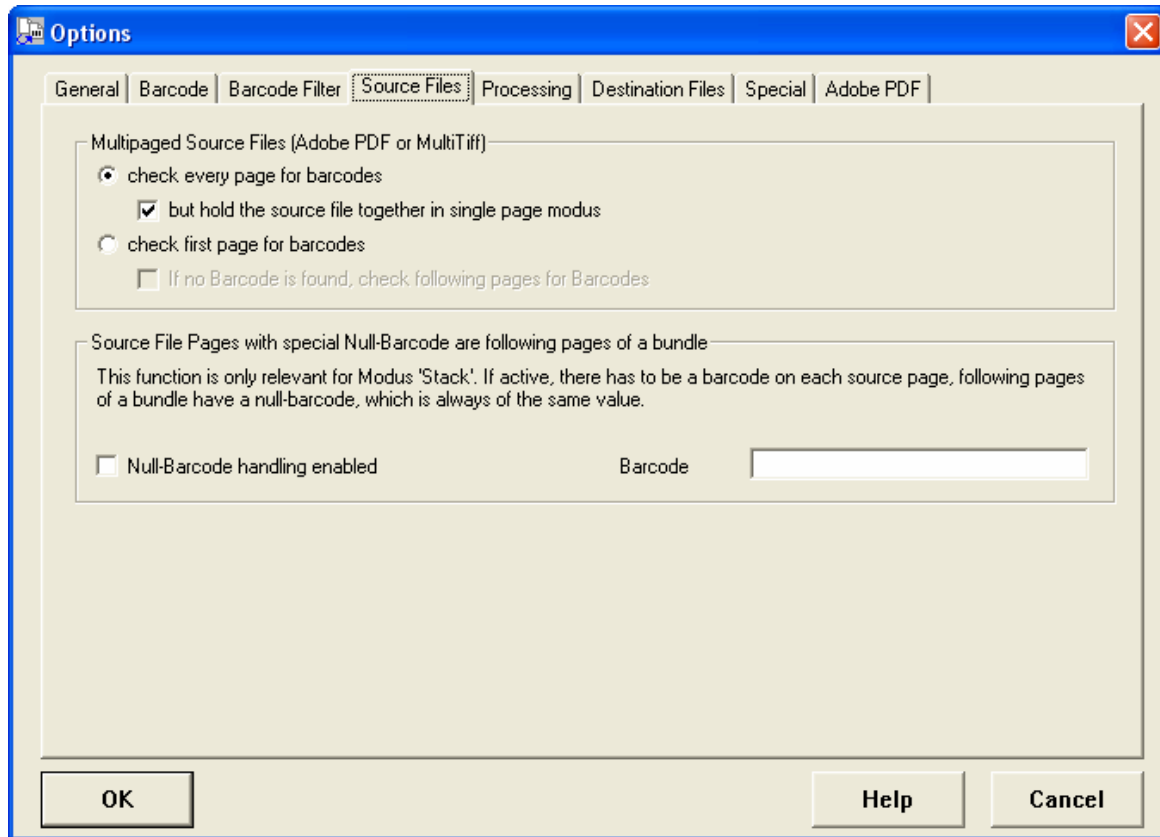


Figure 8 "Program Options" – "Source Directories"

If the source files are MultiPage files (MultiTiff files or Adobe PDF Documents), you can set the options for the reading process in this dialog:

"check every page for barcodes": all pages of the MultiPage file are treated as individual source files.

"check first page for barcodes": further pages of the MultiPage file are ignored (exception: the option "delete empty pages", see below, is still processed), the MultiPage file is handled as one unit. In special cases, if no barcode is found on the first page, QS-DocumentAssembler can also check the following pages for one. If a barcode is found then, the further processing will continue as if it was found on the first page.



4.2.5 "Processing"

"QS-DocumentAssembler" has two main processing options available:

"Treat each source image as an individual image": There is no interrelation between individual source files; each file is treated separately. If no barcode is found on a source page, the only option available is to sort this source file out.

"Treat each source image as a part of a bundle": Several source files should be grouped together. A barcode is attached to at least the first page of a bundle. A new barcode implies that a new bundle begins. Pages without barcode are classified as incremental pages of the bundle.

Within the tab pages, these two modes of processing are distinguished by a BLUE and a GREEN area.

4.2.5.1 Processing: Source Image as an Individual Image (BLUE)

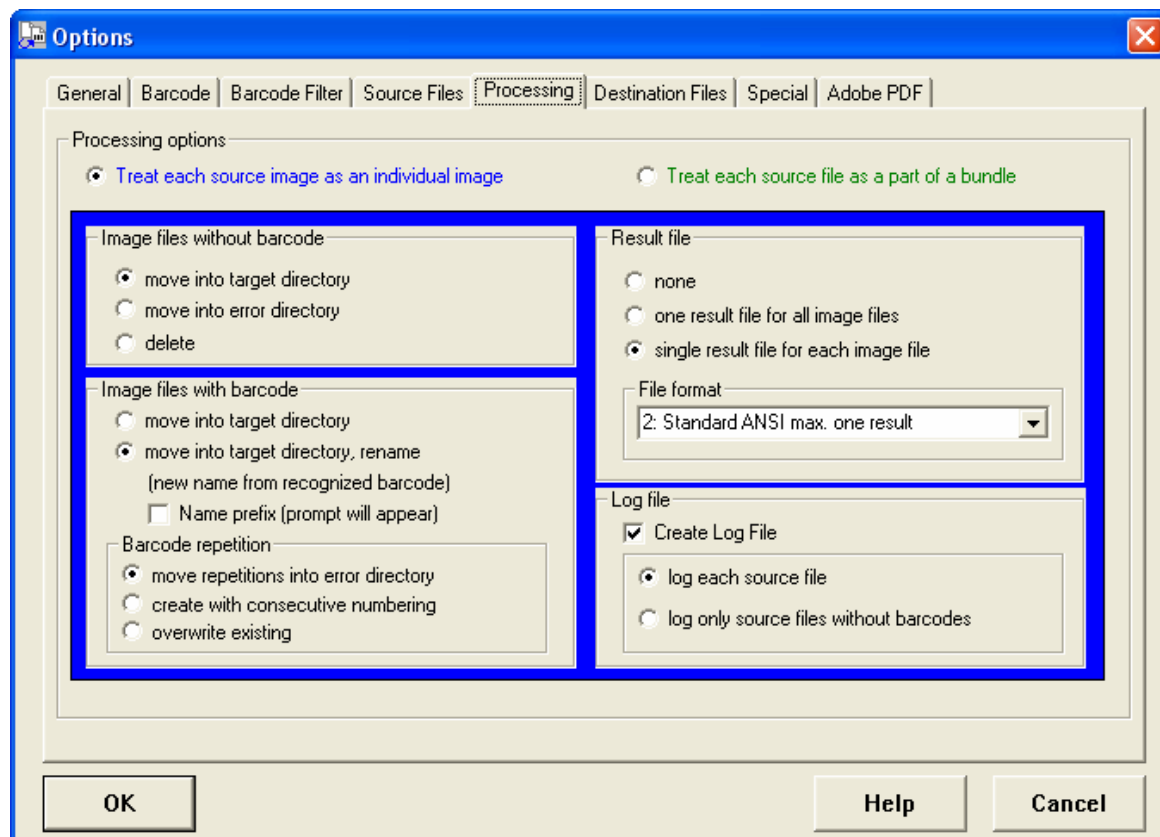


Figure 9 "Program Options" – "Processing / BLUE"

"Image Files without Barcode": If no barcode is recognized on the processed image taken from the source directory, the image file may be moved into the error or target directory. Alternatively, image files without barcodes can be deleted. Be warned however, that in some special cases no barcode was recognized although one did appear on the image. This may occur whenever the image material is very dirty or the barcode settings do not correspond to the barcode on the image.



"Image Files with Barcode": These image files can always be moved to the target directory. If desired, the file name can be adjusted to incorporate the recognized barcode data.

Normally either a result file is written and the image file name is not changed, or the image file name is changed and no additional image file name is needed. It is also possible to set combinations of these two options.

"Barcode Repetition": Here you can decide what to do if a file with an equal name already exists in the target directory.

"Result File": This is the option to create or not create a result file. If a common result file for all image files should be created, then the file name is the name that was set in the "General" tab. If a single result file should be created for each image file, then the file will always contain the same name as the corresponding image, but with a different file extension. You can select among various export formats.

"Log File": The log file can be switched on or off. Additionally, you can set whether all image files or only those without barcode should be logged. This in turn can be used to create an error list.

4.2.5.2 Processing: Source Image as a Bundle Section (GREEN)

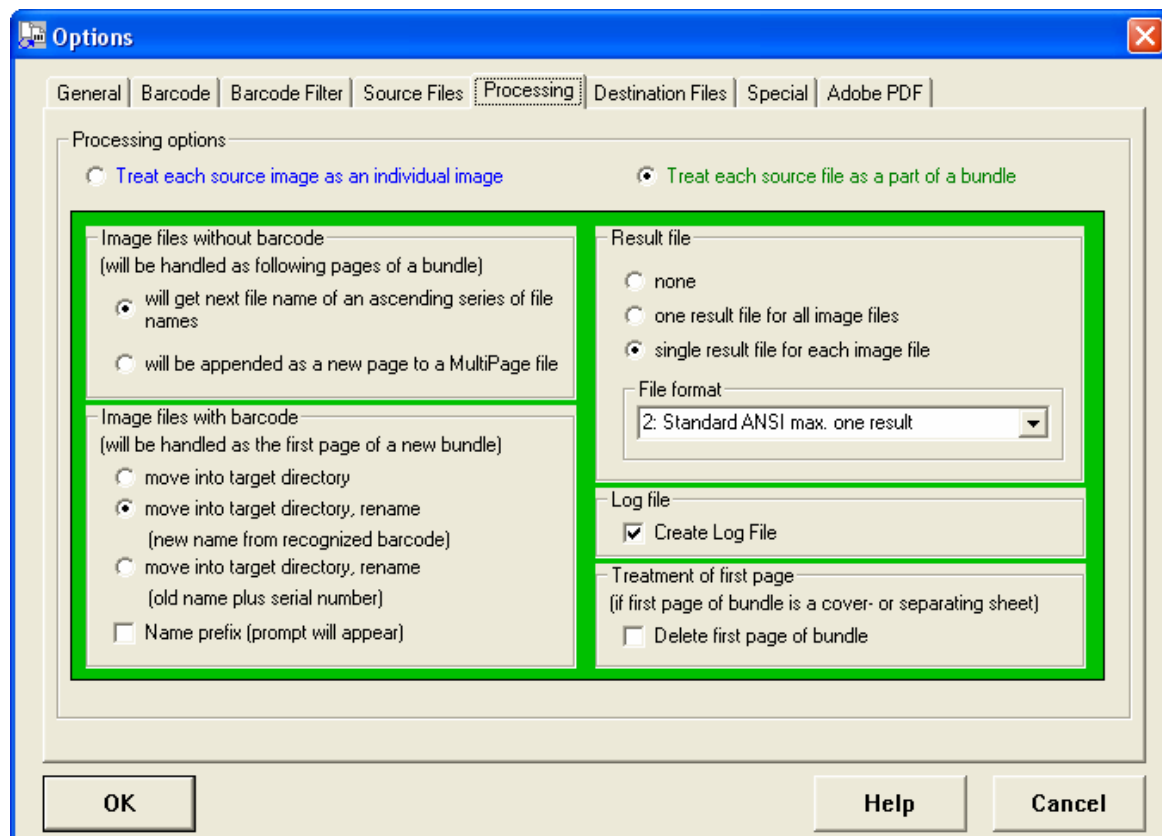


Figure 10 "Program Options" Processing / GREEN

"Image Files without Barcode": If no barcode is recognized on the image processed from the source directory, the image is interpreted as an incremental image within a bundle. The barcode of the first image in a bundle is used as a basis to generate an ascending series of file names (see Appendix A). Alternatively, an



incremental side can be added as pages to a Multipage file. This Multipage file then also carries the name of the barcode on the first bundle page.

"Image Files with Barcode": These image files are always moved to the target directory and interpreted as the first page of a new bundle. The barcode on the image file is saved to be used again on subsequent bundle pages.

"Result File": This is the option to create or not create a result file. If a common result file for all image files should be created, the file name consists of the file name that was set in the "General" tab. If a single result file should be created for each image file, then the file will always contain the same name as the corresponding image, but with a different file extension. You can select among various export formats.

If required, QualitySoft can adapt customer-specific formats at a reasonable cost.

"Log File": The log file can be switched on or off. When in bundle mode, log file entries are always made for all image files.

Note: Multipage files contain many images in one file. The standard format is Multitiff. Processing of Multitifs is very fast. Adobe PDF format is available as an option.

4.2.6 "Destination Files"

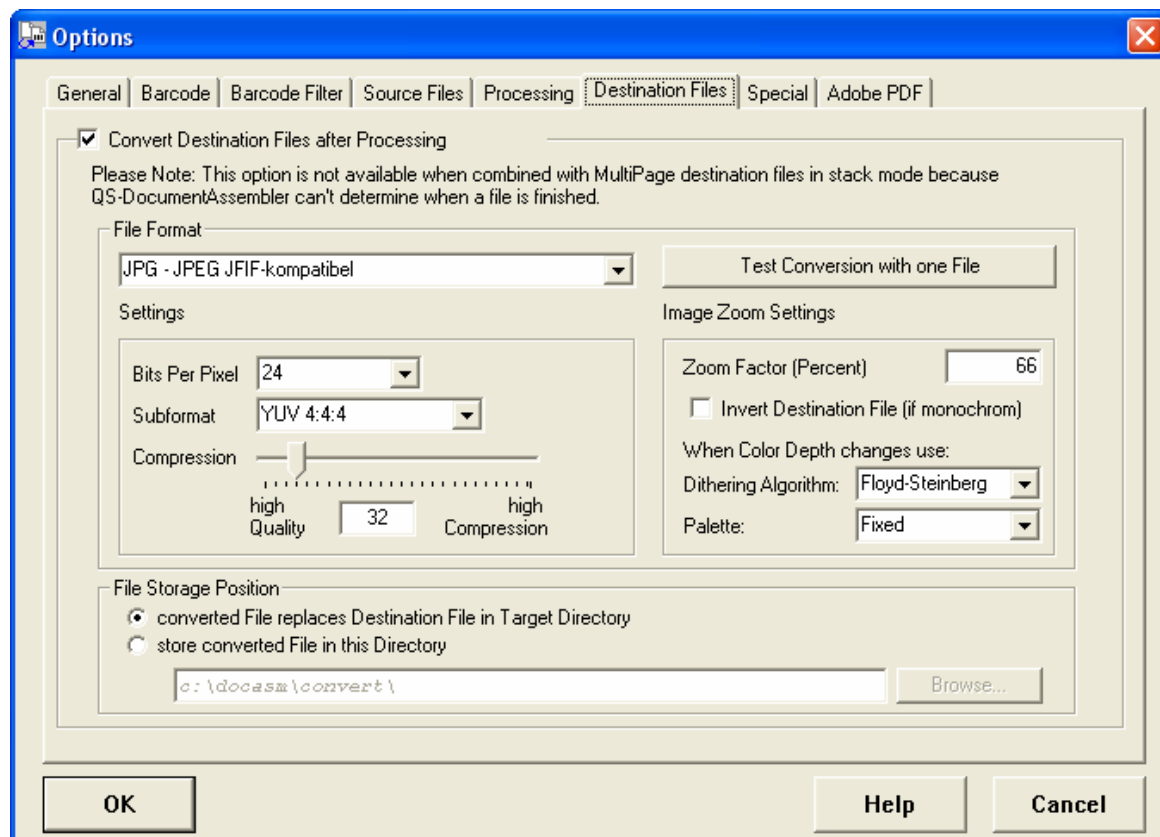


Figure 11 "Program Options" – "Destination Files"



„Convert Destination Files after Processing“ is a feature which allows you to define an output file format for all destination files. This conversion of destination files takes place after all other processing steps are done with the current output file (when the current output file is the last and the assembling process stops right after this file, the file conversion is done before the “post application command line” is executed).

Why should I convert the Output Files?

- If your input files have different file formats, e.g. when receiving tif files from a document scanner and jpeg files from a digicam, you can use the conversion to make sure that the output file format is always the same.
- If you want to be sure to read all barcodes, use a high resolution during scanning and convert the output files, using the zoom option to reduce the resolution (and the file size) after barcode recognition is done.
- You can save the scanned images using a low compression high quality setting for jpeg files. This minimizes data loss due to compression and allows good barcode recognition results. Later, using the convert feature, these files are saved with a high compression rate. The bad influence this compression has on barcode recognition does not matter as the recognition is already done.

„*File Format*“: Choose the output file format. QS-DocumentAssembler supports the common formats. Depending on the chosen format, you find more options in the “settings” section.

„*Bits Per Pixel*“: Choose the color depth for the output files. If you choose „Same as source“ and the color depth of the source file is not valid for the output file format, QS-DocumentAssembler automatically selects the next higher depth (if no higher depth is available, the highest possible depth is chosen).

„*Subformat*“: Choose the output file format subformat. Only active if the format has subformats.

„*Compression*“: For JPG file format, choose a compression rate between 2 (high Quality) and 255 (high Compression). For PNG file format, choose a compression rate between 0 (high Quality) and 9 (high Compression). For all other file formats, the compression rate is defined with the format and subformat.

„*Zoom Factor in Percent*“: For all values other than 100, the output file is resized using the specified Zoom Factor (e.g. 200 -> double x and double y size, 50 -> reduce to half).

„*Invert Destination File*“: When chosen, the destination file is inverted. This is an option rarely used. Inverting is only possible if the Bits Per Pixel are 1.

„*Dithering-Algorithm*“: If the conversion includes color depth reduction, choose the algorithm QS-DocumentAssembler should used to determine the target colors.

„*Palette*“: The palette is another parameter which is relevant only if the color depth is reduced. „Fixed“ should work fine in most cases, but if the resulting image quality is not the best, try to change to „Optimized“.

„*Test-Conversion with one File*“: This button allows you to test your conversion settings.



„File Storage Position “: Choose one: Overwrite Destination Files in Target Directory or Store Converted Files in a special Folder.

4.2.7 “Special”

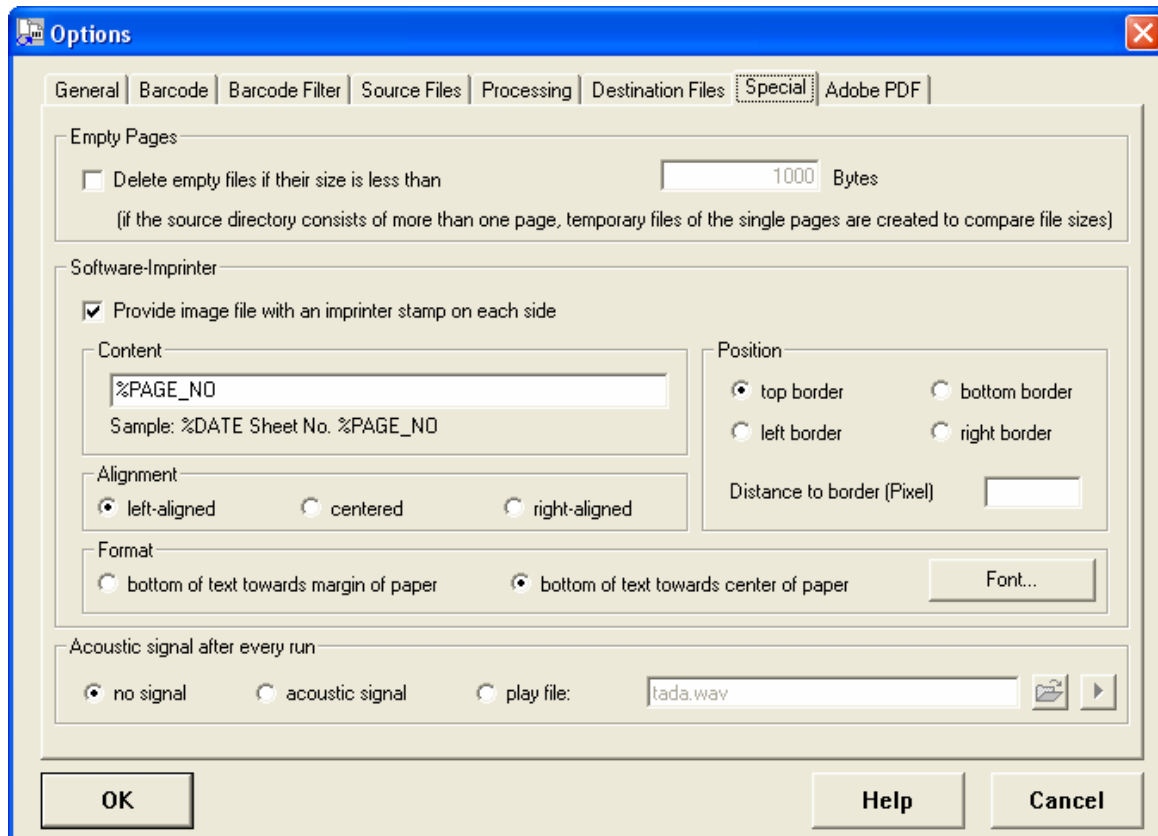


Figure 11 “Program Options” – “Special”

“Delete blank pages”: Blank pages can be completely deleted. This could be useful if e.g. both sides of a page are scanned and the empty back is not used in further processing. The decision whether a page is empty or not is made based on the size of the image file. As a result, it is important that all image files have the same file format, the same resolution and the same kind of compression. Otherwise non-empty pages may be deleted as well. If the source file consists of more than one page (Multipage files), temporary files of the single pages are created to compare the file sizes.

“Software Imprinter”: An "Imprinter" (also called Endorser) adds a stamp on the paper during scanning. This marks each processed paper as "done" and allows tracking the document later on. A "Software Imprinter" adds a stamp to the digital copy of the paper instead of the paper itself. QS-DocumentAssembler can do this while processing documents.

Please note: This function is only available when using the "bundle mode" and when creating Multipage files.



4.2.8 "Adobe PDF"

Attention: These options are only available if you purchased a "QS-DocumentAssembler" version with the option "PDF documents".

With this option, most of the processing modes of "QS-DocumentAssembler" also work with PDF files. Adobe Acrobat is only necessary for separating PDF files without changing the pages. Adobe Acrobat has to be additionally purchased and installed on the computer. Then it will be called and controlled by "QS-DocumentAssembler". You find detailed notes on processing of PDF files in **Appendix 7**.

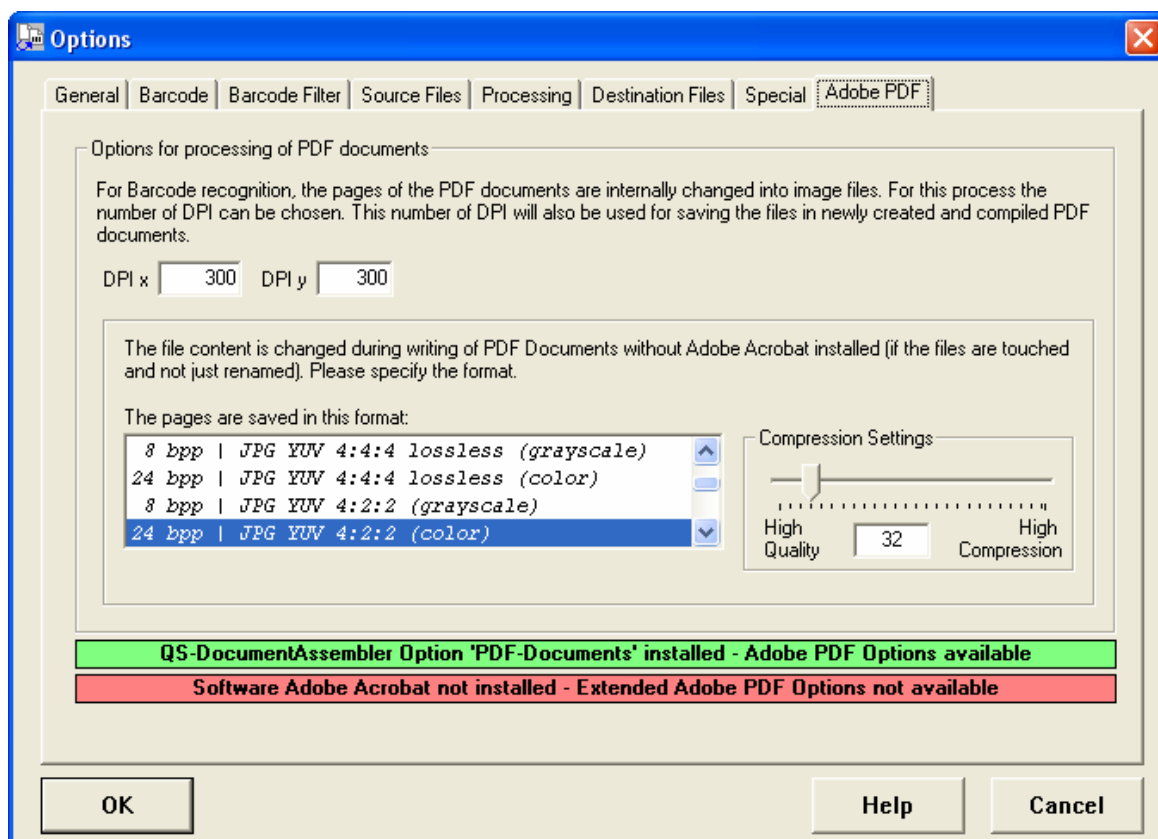


Figure 12 "Program Options" – "Adobe PDF"

"Number of DPI": For Barcode recognition, the pages of the PDF documents are internally converted into image files. For this process the number of DPI can be chosen. This number of DPI will also be used for saving the files in newly created and compiled PDF documents. For a safe barcode recognition, the number of dpi should only fall below a value of 200 in very special cases. With a much higher value, you may have to adjust some barcode parameters, especially the "light margin", to achieve good results.

"Format" and "Compression Settings": Target size and quality is mainly set with the format for the images embedded to the PDF document. For JPEG formats (but not for lossless JPG) you can choose the compression rate from "high quality" to "high compression".



A Appendix

A.1 File Names during Ascending Serial Numbering

Files in the target directory contain the following data names:

BBBB...B.NNNN.EXT
(e.g. 68439245.0004.TIF)

Meaning:

BBBB...B Recognized barcode with full length
(e.g. 68439245)

NNNN Series number starting with 0001
(e.g. 0004)

EXT Extension corresponding to the file type
(e.g. TIF)

A.2 Log File

The example below shows the structure of the log file. One line is created per image file. Individual information fields are separated with semicolons.

OK;C:\DocAsm\quelle\01.tif;C:\DocAsm\ziel\021079.tif;021079;10.07.2003
15:04:22;BARCODES:1/FILECOPY:OK/FILEKILL:OK

Overview of log file fields:

| Position | Description | Example |
|----------|---|------------------------------------|
| 1 | Overall Status | OK or ERROR |
| 2 | File name of original file used for access from source directory | C:\DocAsm\source\01.tif |
| 3 | File name under which the file is saved after processing | C:\DocAsm\target\021079.tif |
| 4 | First recognized barcode on the image file; will remain empty if nothing recognized | 021079 |
| 5 | Time of processing | 01.07.2003 15:04:22 |
| 6 | Status information | BARCODES:1/FILECOPY:OK/FILEKILL:OK |



A.3 Poll Mode

If the Poll Mode is configured in combination with "Minimized Start", a problem may arise: how to deactivate the Poll Mode once again.

In this case, you can configure the Poll Mode directly in the configuration file named DOCASM.INI. There you will also find the useful parameter PollTimer used to set the poll interval. Relevant sections of the INI file follow (please note that this is just one section of the INI file):

```
[Start]
;# WindowState: 0=minimized, 1=normal
WindowState=1
;# AutoRun: 0=no action, 1=runOnce, 2=poll, 3=runOnceAndEnd
AutoRun=0

[Assembler]
;# PollTimer: in seconds
PollTimer=10
```

A.4 Software Imprinter Parameter

For forming the Software Imprinter text, the following variables can be used. "QS-DocumentAssembler" will fill in the correct data:

| | |
|-------------------|---|
| %STAPEL | The current bundle name (the Barcode) |
| %DATUM | The current date (formatted: TT.MM.JJJJ) |
| %SEITEN_NR | The current serial number (1,2,3,...) |
| %SEITEN_NR_DUPLEX | The current page number (1V,1R,2V,2R,...), V=Front page and R=Back page |

A.5 Prompt Parameters

"QS-DocumentAssembler" supports some command line prompt parameters. The following notes are important when specifying these parameters:

- Upper and lower case is irrelevant.
- The order of the parameters is not important, if a parameter is named twice, the first occurrence will be used.
- The first character of the prompt parameter always has to be the "/", a "-" (accepted in some other systems) is not supported.

The parameters in detail:

/automode

With "automode" the start option "run once and close", which can also be chosen in the options, is activated. The prompt parameter will override parameters set in the start options.

Reason: If "QS-DocumentAssembler" is started as usual (without "automode"), processing is not started immediately, the processing parameters can be changed first. But for some tasks the parameter can be useful to start a direct processing.

**/ini:<Filename>**

Usually "QS-DocumentAssembler" always uses the file `DOCASM.INI` out of the same directory `DOCASM.EXE` is located in. All settings of the software are documented in the INI-file, including all settings chosen in the "Options" dialog. A deviating INI-file can be set as a parameter to allow several different ways of processing, e.g. to work with two different sets of barcode parameters or use different source directories.

<Filename> is the name of the file, which always has to be stated with the ending ".INI" and the complete path. If the filenames are long and have blanks in the path- or filename, double quotation marks have to be used.

Sample:

```
/ini:"C:\Programs\Document Assembler\docasm_new.ini"
```

If the stated INI-file cannot be found, the standard-INI `DOSASM.INI` will be used without any further comment.

| | |
|----------------|---|
| Example | Example for using multiple parameter sets (ini-Files) QS-DocumentAssembler can handle different tasks one after another with multiple parameter sets. This allows handling different sorts of documents or implementing many ways of processing. It is also a useful tool to optimize the overall recognition and processing performance. With one default parameter set optimized for speed the lion's share of barcodes is recognized and the image files are moved to the destination folder. The few non recognized files in the error folder are then processed in a second step with another parameter set optimized for difficult barcodes (small search and scan distance, search for skewed barcodes). As the second, intense Recognition is only done on a few image files, the long time it takes is acceptable. |
|----------------|---|

A.6 Supported File Formats

File formats supported by "QS-DocumentAssembler":

Standard Scope of Delivery

- BMP Formats
- Exif Formats (TIFF and JPG)
- GIF and TIFF with LZW Compression
- JPEG and LEAD Compressed (JPG and CMP)
- Portable Network Graphics Format (PNG)
- TIFF CCITT and other FAX Formats
- Windows Metafile Formats (WMF and EMF)



Available on request without further costs

- AFP (PTOCA) Format (AFP)
- CALS Raster (Type 1, 2, 3 and 4)
- Various 1-Bit Formats (MAC, IMG, and MSP)
- Dr. Halo (CUT)
- Encapsulated PostScript (EPS)
- Flic Animation (FLC and FLI)
- Icons and Cursors (ICO and CUR)
- Image Object Content Architecture Format (IOCA/MODCA)
- Interchange File Formats (IFF)
- Intergraph Format (ITG)
- LaserView LaserData (Read Only)
- LEAD 1-Bit Format (CMP)
- Microsoft Fax (AWD)
- MODCA PTOCA
- PCX Formats (PCX and DCX)
- PhotoShop 3.0 Format (PSD)
- Microsoft Windows Clipboard (CLP)
- Portable Bitmap Utilities (PBM, PPM, PNM and PGM)
- Scitex Continuous Tone Format (SCT)
- SMP Format (SMP)
- SUN Raster Format (RAS)
- Truevision TARGA Format (TGA)
- Windows Animated Cursor (ANI)
- Windows AVI Format (AVI)
- Wireless Bitmap (WBMP)
- WordPerfect Format (WPG)
- Silicon Graphics Image Format (SGI)
- XBitMap Format (XBM)
- XPicMap (XPM)
- X WindowDump (XWD)

Available as Option

- Various Vector Formats
- JPEG 2000 Format (JP2)
- Portable Document Format (Adobe PDF)

You need further formats? Please contact us.



A.7 Notes on Adobe PDF File Format

Documents are more and more often saved as Adobe PDF files. A PDF file can contain many different components like text, images, bookmarks, signatures, etc.

In the environment of document scanners, **Adobe PDF format** is also often used besides the conventional file formats for image files like BMP, TIF or JPG.

The most simple form (**PDF type 1**) of these PDF files contains **only the images** of the scanned documents.

Additionally, an automatic character recognition (**OCR**) can be applied to the whole PDF file, so **texts can be read from the images** and a "**searchable PDF**" emerges (**PDF type 2**). The PDF file can be searched for texts then. Attention should be paid to the fact that the character recognition can lead to different amounts of recognition errors, depending on the quality of the texts and images. Wrong characters or blanks can occur in the searchable text.

Apart from the mentioned ones, of course there are the PDF files which are generated by "**printing**" documents (**PDF type 3**). In this case, the different components of the documents like texts, fonts, logos, images are contained in the PDF file. Barcodes can be contained in the pages as special fonts or small graphics.

Important | **Embedded Fonts**

If you use Fonts to create barcodes within Adobe PDF documents, you will need to use the „embedded font“ feature when creating the PDF documents. Otherwise QS-DocumentAssembler will have problems reading and processing these files.

An **additional option** of "QS-DocumentAssembler" is available for **input files** in PDF format.

For Barcode recognition, the pages of the PDF documents (only the first one or all pages, depending on the settings) are internally changed into image files, from which the barcode is read.

Regarding the **output file**, some cases have to be distinguished for technical and license reasons:

- **Only Renaming** the PDF file

All PDF types are treated the same.

- The barcode is searched on the first page (or, if none is found, on the following pages).
- The PDF file is renamed, the content and structure are not changed.
- The option "remove first page" is not available.
- The option "remove empty pages" is not available.

Precondition: QS-DocumentAssembler with Adobe PDF option



- **Splitting** the Adobe PDF File into several Files

Two cases are distinguished:

- **The input file contains only images (PDF type 1)**

New images are created from the PDF pages, the parameters can be chosen in the QS-DocumentAssembler. In this case input- and output file are not equal.

The options "remove first page" and "remove empty pages" are available.

Precondition: QS-DocumentAssembler with Adobe PDF option

- **The input file contains not only images (PDF types 2 and 3)**

With "searchable PDF files" or "printed PDF files", another technique has to be applied to keep additional information intact, e.g. texts.

In this case, the input file is split into several single files, the internal structure is kept. The splitting is done with Adobe Acrobat, which is automatically controlled by QS-DocumentAssembler.

The options "remove first page" and "remove empty pages" are available.

Precondition: QS-DocumentAssembler with Adobe PDF option and Adobe Acrobat Version 5 or higher, Standard or Professional Edition. While QS-DocumentAssembler is running, working with Adobe Acrobat or Adobe Reader is not possible.

Note: For creating "searchable PDF files", we refer to standard products for character recognition

Note: In general reading of barcodes is possible with the Adobe PDF option. But the programs which can be used to create PDF files work very differently, so your files should be tested anyway. Send us some samples, we will be glad to test for you, also if you are not sure which PDF type your files are.