



***SpoolMaster***<sup>®</sup>

**PRODUCT INFORMATION**

SpoolMaster is a product of  
**ROHA Software Support GmbH**

**Headquarters Vienna**

Ameisgasse 49-51 | 1140 Vienna  
Austria  
Phone: +43 1 419 67 00  
Fax: +43 1 419 67 00-39  
info@roha.at  
www.roha.at

**Branch office Cologne**

Max-Planck-Strasse 6-8 | 50858 Cologne  
Germany  
Phone: +43 1 419 67 00 431  
Fax: +43 1 419 67 00-39  
info@spoolmaster.de  
www.spoolmaster.de

## Table of content

THE output-management solution for IBM System i/(AS/400) .....	4
Services .....	5
Applications .....	5
Modular design.....	6
Modular design (colour-coded system) .....	7
SpoolMaster module overview .....	8
BASIS .....	8
SCS READER.....	8
EXTENDED SCS READER.....	8
IPDS READER.....	8
AFP READER .....	9
AFPDSLINEREADER.....	9
PRESCRIBE READER .....	9
DBR - DATABASE READER .....	9
DBCS SUPPORT .....	9
FL – FORMS LANGUAGE.....	10
DFL – DYNAMIC FORMS LANGUAGE .....	10
VFL – VISUAL FORMS LANGUAGE (WYSIWYG).....	10
F & G – FORMS & GRAPHICS.....	11
S & D – SEGMENTER & DISTRIBUTOR .....	11
PDF MERGER.....	11
AES ENCRYPTION (PDF) .....	11
DATA MERGER .....	12
MAIL AS/400.....	12
TLS/SSL FOR MAIL AS/400 .....	12
PDF CACHING .....	12
SPOOLMASTER NAVIGATOR .....	12
E-BILLING .....	13
E-MAIL TRACKING .....	13
PCL WRITER .....	14
PDF WRITER .....	14
ZEBRA WRITER (ZPL II) .....	14
POSTSCRIPT WRITER.....	14
XLSX WRITER .....	14
BARCODE FEATURE .....	15
2D BARCODE .....	15
HTML WRITER.....	15

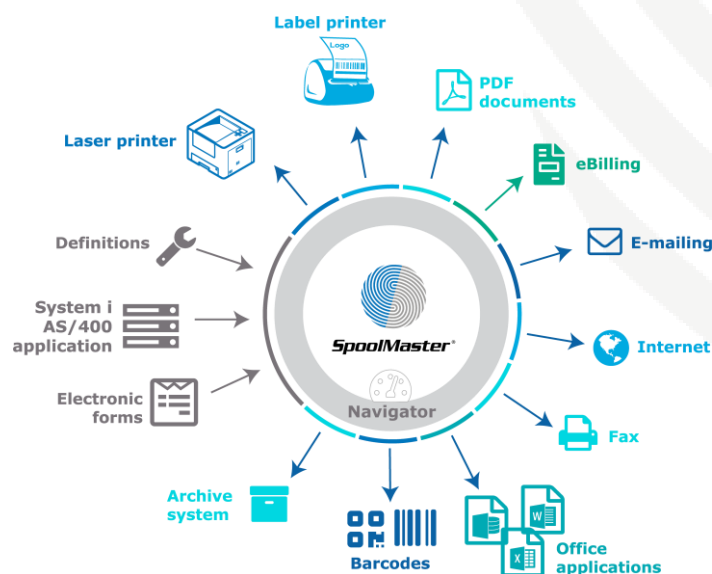
PDF/A WRITER .....	15
TIFF WRITER.....	15
ESC/POS WRITER .....	15
METO WRITER (SP40PDL).....	16
CAB WRITER .....	16
IEM WRITER (IBM ProPrinter Emulation).....	16
RTF WRITER .....	16
DIF WRITER.....	16
XGF WRITER .....	16
XML WRITER .....	16
PRINT CLIENT .....	17
DATA SECURE – DIGITAL SIGNATURE.....	17
FAX .....	17
COPY CLIENT .....	17
IGP WRITER.....	17
JCL WRITER .....	17
TIFF CONVERTER.....	18
JPG CONVERTER.....	18
PCX CONVERTER .....	18
GIF CONVERTER.....	18

## THE output-management solution for IBM System i/(AS/400)

As a forward-thinking output management solution, SpoolMaster brings your data into contemporary and appealing form. Due to its modular structure, you have numerous options to adapt SpoolMaster to your individual requirements.

- Existing applications remain unchanged: SpoolMaster is easy to install and quickly configured without adapting existing application programs. SpoolMaster easily integrates into your network and offers a convenient, graphic interface to create forms.
- An important basic function of SpoolMaster is that data processing at runtime happens completely on the IBM System i/(AS/400).
- Spool Master's data output is not limited to printers from a wide range of manufacturers.
- The spool files can be transferred to PC applications such as Microsoft Office, fax applications, e-mail systems, web pages or archiving systems.
- SpoolMaster optimises your archive with virtually no maintenance & in a legally compliant manner: The software packs content and fonts into a PDF/A file and guarantees sustainable availability of all resources in your documents.
- SpoolMaster is developed out in compliance with strict quality guidelines. A clear release concept facilitates maintenance and makes SpoolMaster future-proof.
- Full SpoolMaster functionality is available for mainframe, Unix, and network platforms via the extensive connectivity functions of IBM System i/(AS/400) integration in all common system environments.

### MODULAR ● FLEXIBLE ● RELIABLE



## Services

Close contact with our SpoolMaster users and their distribution partners is at the heart of ROHA's corporate philosophy, as is first-class support and rapid response.

This enables us to continuously expand SpoolMaster by incorporating customer feedback and complying with strict quality guidelines, and adapting the software to the (technical) conditions and requirements of today.

The **software maintenance agreement/maintenance contract** is mandatory for the first year and also provides many additional benefits – to list just a few:

- Continuous improvements via new releases
- Troubleshooting even beyond the warranty period
- Free download of the latest SpoolMaster version from our homepage

The exchange of information takes place by telephone, e-mail, or via remote maintenance, e.g., with TeamViewer. Error corrections, spool files, and electronic forms are swiftly transferred this way. Therefore, ROHA reacts particularly quickly and flexibly to new requirements and your concerns.

**Fonts:** SpoolMaster uses all fonts that are available on the respective printer. If a font is to be used that is not on the printer, a TrueType font can be converted into a download font by ROHA for a fee. For more detailed information, please contact your account manager directly.

## Applications

For what kind of tasks do IBM System i/(AS/400) users need SpoolMaster?

- Professional design of IBM System i/(AS/400) printouts directly on the IBM System i/(AS/400).
- Optional design of forms in Windows environments with a graphic interface or direct export from Windows programmes, such as Microsoft Word, Adobe Photoshop, etc.
- Integration of PCL5, Postscript and label printers (e.g., Zebra, IBM, Meto, cab, etc.) in IBM System i/(AS/400) environments.
- Automatically send documents by e-mail, e.g., PDF files created from spools. Reading of data such as recipient, subject, etc. from the spool text or from database files. Optional personalised HTML mailbodies with embedded graphics.
- Integration of forms, logos, signatures, and graphics.
- Modification and redesign of finished spool files created by standard applications (e.g., changing the invoice without changing the billing system).
- Output of spool files to various media: almost any printer, PC applications (e.g., Microsoft Office), fax applications, e-mail systems, WEB pages or archive systems (conversion to HTML for WWW pages, PDF for e-mail, RTF for document processing, DIF for tables and databases, TIFF, and much more).
- Creation of forms directly from the database (using the "DBR Database Reader" module).
- Easy control of network printers of IBM System i/(AS/400).

## Modular design

The extensive functions of SpoolMaster are divided into modules to create individual configurations. Therefore, SpoolMaster customers only pay for what they actually need.

Beyond the standard software, ROHA also provides individual solutions based on this modular design as a service.

SpoolMaster consists of the following types of modules:

<b>BASIS</b>	This is where the central process control and coordination takes place
<b>READER</b>	Spool files and database files are read via these modules
<b>PROCESSING</b>	This module facilitates extensive changes and processing of the spool files to take place
<b>WRITER</b>	The spool file is output in the specified format (e.g., PCL5, Postscript) via the writer.
<b>CONVERTER</b>	With these converters, graphic formats such as JPG, TIFF, GIF, PCX are converted to be used with SpoolMaster

You need the following for **minimum configuration of SpoolMaster**:

<b>BASIS</b>	As central process control and coordination module
<b>READER</b>	At least one reader
<b>WRITER</b>	At least one writer

## Modular design (colour-coded system)

### READER

SCS	extended SCS	IPDS	AFP	AFPDLINE
Prescribe	DBR	DBCS		

### PROCESSING

Basis	FL	DFL	VFL	F & G
S & D	PDF Merger	AES	Data Merger	Mail AS/400
TLS/SSL	PDF Caching	SPM Navigator	E-Billing	E-Mail Tracking

### WRITER

PCL	PDF	ZEBRA (ZPL II)	PostScript	XLSX
Barcode	2D Barcode	HTML	PDF/A	TIFF
ESC/POS	METO (SP40PDL)	CAB	IEM	RTF
DIF	XGF	XML	Print Client	Data Secure
FAX	Copy Client	IGP	JCL	

### CONVERTER

TIFF	JPG	PCX	GIF
------	-----	-----	-----

## SpoolMaster module overview

### BASIS

The basic module is the central control unit of SpoolMaster and contains the following functions:

- Automatic spool file editing and design with no changes to application programs
- Automatic adjustment of the page size (SpoolMaster Autofit)
- Electronic forms on front and back
- Collated copies per page or copy (collated and non-collated copies)
- Recurring form sequences with access to the different printer paper trays
- Integration of images: signatures, logos & graphics
- Double-sided printing for book or folder binding (duplex and tumble duplex)
- Multiple downsized pages on one physical page (multi-up)
- and many more

### SCS READER

This reader reads in spool files in SCS format (SCS stands for SNA Character Stream) and makes them available for processing by the base module.

- The most commonly used character-oriented data stream for spool files on the IBM System i/(AS/400).

### EXTENDED SCS READER

The Extended SCS Reader meets the highest formatting requirements.

- Sends more complex DCA commands (e.g., font changes, tabulator feeds and other formatting commands) from the IBM System i/(AS/400) to the printer.
- To prevent loss of information by the conventional CPYSPLF method, SpoolMaster reads the DCA commands via a DCA reader and converts them into corresponding formatting commands.

### IPDS READER

This reader reads spool files in the IPDS data stream (IPDS stands for Intelligent Printer Data Stream).

- The IPDS data stream is then converted into the respective output language by the SpoolMaster writer modules. Different fonts and font sizes are also taken into account and correctly replaced.
- Barcodes contained in the IPDS data stream are automatically printed using the SpoolMaster barcode feature (for a description of this module see "Barcode" / "2D Barcode").
- IPDS spool files can thus be printed from any printer (HP laser printer, XEROX large printers, Lexmark, etc.) and can include SpoolMaster overlays.



## AFP READER

- Accepts AFP data streams as input (AFP stands for Advanced Function Printing).
- As with the IPDS Reader, the SpoolMaster writer modules convert AFP data streams also into PCL5, PDF, Postscript, or similar formats.
- Different font sizes and fonts are also implemented correctly.
- AFP spool files can thus be printed from any printer (HP laser printer, XEROX large printers, Lexmark, etc.).

## AFPDSLNE READER

- The AFPDSLNE data stream is a hybrid data stream. It contains AFPDS elements and line data.
- The AFPDSLNE Reader reads the line data and passes it on to the respective writer module.

## PRESCRIBE READER

- Converts Prescribe command structures into the respective output language.
- Kyocera's font families from Kyocera are evaluated and replaced by the font of the respective output language.
- Prescribe macros with or without variable parameters are converted to PCL or PDF at program runtime.
- Output of texts and implementation of graphic elements.

## DBR - DATABASE READER

- Accepts IBM System i/(AS/400) database files as input.
- The data is then placed on print pages as desired using SpoolMaster "Forms Language" (for a description of the module see "Forms Language").
- At least ONE print program on the IBM System i/(AS/400) is required.
- This means that, for example, labels including EAN barcodes and graphics, or invoices, or statistics are generated from the ERP database directly via SpoolMaster from the product master data.
- In addition, simple calculations, such as summations, are carried out and field contents is queried.

## DBCS SUPPORT

- DBCS data is used for Unicode character sets, such as Japanese and Chinese.
- The output of the converted DBCS data is done via output languages such as PCL, PDF, and TIFF.

## FL – FORMS LANGUAGE

The SpoolMaster Forms Language is an easy-to-use symbolic forms language for creating or changing text segments, boxes, lines or graphic zones, shading, colour, etc.

- Uses the familiar IBM System i/(AS/400) command syntax and help system.
- FL-programs create a form object which is referred to when preparing a spool file.
- This concept achieves optimal performance values.

## DFL – DYNAMIC FORMS LANGUAGE

DFL allows you to define dynamic areas of the page in the form.

- In the form, elements such as frames, lines or graphics are output not only at fixed positions but also based on spool content.
- Page segments are positioned with DFL relative to the found search-text, e.g., when inserting graphics such as product images in the right column and the right line depending on the product name, or when printing two signatures next to each other, the position of the signature is positioned relative to the name and no longer absolutely to the page margins.
- Segments are replaced depending on the search text, dynamically adjusting the new space requirement on the form page.
- Numerous commands that dynamically control the selection of forms: If, during printing, an intermediate page deviates from the respective form pages, these pages can be overwritten with another form or new intermediate pages may also be inserted. SpoolMaster in turn recognises this dynamically on the basis of search texts in the spool.
- Removing pages from the spool file, as well as adding pages with blank forms.

## VFL – VISUAL FORMS LANGUAGE (WYSIWYG)

VFL is the easy-to-use PC frontend for "Forms Language" to create/modify text segments, boxes, lines or graphic zones, shading, colour, etc. on PCs with all the tools of the graphic user interface.

- To design forms, spool files created on the IBM System i/(AS/400) can be displayed as backgrounds, thus considerably simplifying the design and exact positioning of graphic elements.
- Forms can be changed alternately in the IBM System i/(AS/400) with SpoolMaster "Forms Language" and on the PC with SpoolMaster "Visual Forms Language", i.e., every change made with VFL on the PC is immediately available in the FL in the IBM System i/(AS/400) and vice versa.
- Forms created with VFL require significantly less memory than overlays created with other PC tools. This results in less network traffic & faster processing.

## F & G – FORMS & GRAPHICS

- Easy and quick creation of overlays and page segments on the PC.
- Conversion of printer data streams (which were created with any PC application that can print, e.g., Microsoft Office programs, Adobe programs).
- Direct conversion of (scanned) graphic formats such as JPG, TIFF, GIF, BMP and PNG.

## S & D – SEGMENTER & DISTRIBUTOR

S & D segments large spool files into smaller parts that are further processed individually and distributes spool files (or segments) into several output queues.

- Segmentation and/or sorting based on certain criteria, such as group change, within the spool file.
- Generation of index information for archive systems (requires SpoolMaster DFL "Dynamic Forms Language").

## PDF MERGER

This module combines individual PDF documents into a single document. The complete processing takes place directly on the IBM System i/(AS/400) and can be retrieved using SpoolMaster commands.

Several methods are available to use the PDF merger. In addition to a separate command for merging any PDF documents, there are two options when creating a PDF output from a spool or database file:

- One of them corresponds to the usual options of PDF writers: adding new pages to an existing document.
- The second option lets you specify up to 10 documents to add.

In any case, it is also possible to specify after which page of the original document the pages of the new document are to be inserted.

## AES ENCRYPTION (PDF)

PDFs are encrypted – the reader requires a password to open the file. It only opens the document if this password is correct. SpoolMaster also creates such encrypted documents.

In the basic version, files are encrypted with RC4. Use the `to` to use the "AES Encryption" module to secure your files with the AES 128-bit method.

## DATA MERGER

When you have to generate serial letters, you know this requirement: The data is available on the IBM System i/(AS/400) – either it was written by the application in spool files or it is located directly in the database of the application. However, you need documents in the PC world that are to be built from this data or supplemented with this data.

- The SpoolMaster Data Merger solves this task simply and reliably.
- It supports all uncompressed ASCII formats such as .txt, .rtf, .html, etc., but also the compressed format Office Open XML, which is used by Microsoft Word for .docx files.

The input is therefore a PC document as a template, as well as a spool file and/or a database file.

## MAIL AS/400

- Sending IBM System i/(AS/400) spool files directly from the IBM System i/(AS/400) as e-mails for sending fully automatic mass e-mails or e-mails to be sent regularly.
- Creation of e-mails with text or HTML mailbodies, insertion of dynamic content such as salutations, addresses, etc. from the spool text into the mailbodies.
- Attach up to 25 attachments
- Automatic attachment of documents previously created from spool files, such as PDF, HTML, TIFF, DIF, RTF, etc.
- Parameters such as addressee, CC, BCC, subject, and texts of the e-mail are read dynamically from the spool text or databases.

**Requirement:** TCP/IP connection from IBM System i/(AS/400) to the mail server >> SpoolMaster sends the e-mail via the SMTP protocol to the mail server.

## TLS/SSL FOR MAIL AS/400

Enables the use of the TLS protocol when sending e-mails.

## PDF CACHING

- PDF caching speeds up the creation of PDF documents with colour graphics.
- Each colour graphic is automatically converted once, after which the graphic is immediately available for all further documents.

## SPOOLMASTER NAVIGATOR

The SpoolMaster Navigator is a graphic user interface to configure SpoolMaster functions, including:

- Sequence control, i.e., selection criteria and actions for automatic processing of spool files.
- Control of SpoolMaster jobs (configuring, starting, stopping, monitoring, etc.).
- E-mail dispatch
- Software installation and licence management

Like VFL, the Navigator is an optional addition to the GreenScreen interface. All configurations can also be done in a conventional session. However, the configuration via graphic interface offers many advantages, e.g.:

- Clearer and more complete presentation
- Less need to switch between different screens or programmes.
- More intuitive operation with graphic interface and mouse control – less basic knowledge is required.
- Option to transfer configurations between multiple installations, such as test and real systems.



## E-BILLING

- Creation of XML data streams for electronic invoice documents
- Support for the following formats
  - PEPPOL-UBL
  - XRechnung
  - ZUGFeRD
  - ZUGFeRD 2 and ZUGFeRD 2.1.1
- Programming interface for reading in spool or database files or for seamless integration into invoicing programs.

## E-MAIL TRACKING

- Tracking of the e-mail dispatch after the e-mail has been handed over to the dispatch server and is thus shown in the mail log as "successfully sent".
- SpoolMaster requests a confirmation of receipt from the receiving server and is thus continuously supplied with information regarding the forwarding or delivery of e-mails. This makes it possible to reliably determine whether an e-mail has been successfully delivered – or whether delivery errors have occurred due to incorrect e-mail addresses, connection problems, full mailboxes, etc.
- In addition, the E-Mail Tracking module can also be used to receive and respond to e-mails, and to react to them – e.g., to automatically process incoming orders, to check customer responses, etc.

## PCL WRITER

- Generates the Hewlett Packard PCL5 data stream for PCL5-compatible printers.
- Since PCL has established itself as an industry standard, you can use SpoolMaster to control all common laser printers from the IBM System i/(AS/400).

## PDF WRITER

- Creates documents in PDF format.
- PDF documents can be transferred to archives or sent via SpoolMaster "Mail".
- To save storage space and bandwidth, PDF documents are usually created in compressed form.

## ZEBRA WRITER (ZPL II)

The SpoolMaster Zebra Writer output module converts your spools into a ZPL II data stream for Zebra printers (label printers). A wide range of output options are available:

- Print spool files with Zebra's standard fonts or True Type fonts.
- Print graphics and logos
- Print barcodes such as Code128 and Code39, EAN8 and EAN13, 2OF5 Standard and 2OF5 Interleaved

The functionalities of the SpoolMaster Dynamic Forms Language DFL are also implemented in ZPL II for Zebra printers. This means that variable search texts, positions, and conditions can be processed.

SpoolMaster supports 152 dpi, 203 dpi, and 304 dpi printer resolutions. In addition, SpoolMaster enables the cutting of labels.

## POSTSCRIPT WRITER

This SpoolMaster module converts your spool files into a Postscript Level 2 data stream.

## XLSX WRITER

- Microsoft Excel documents are created directly and completely automatically from spool files or database files.
- Formatting is done either in a predefined format (\*DIRECT method) or a template file created by the user (\*TEMPLATE method).
- With the \*TEMPLATE method, formatting, formulae, and calculations are defined in the Excel template. This template is filled again and again with current data without having to deal with tedious formatting work.
- The document is saved in IFS and can be sent automatically by e-mail, among other things.

## BARCODE FEATURE

- Converts text and digits into the common barcode types, such as Code 128, GS1-128, EAN8, EAN13, Interleaved 2 of 5, Code93, etc.
- To create barcodes, SpoolMaster reads the information from spool texts or IBM System i/(AS/400) databases and converts the data streams into the respective output language.
- Parameters such as barcode height, module width, subsets, HRI (Human Readable Information), etc. can be configured.

## 2D BARCODE

This module outputs two-dimensional codes such as QR code, Data Matrix, and PDF417.

## HTML WRITER

- Converts spool files into an HTML data stream and stores them in the IFS or places them directly on a web server via FTP.
- Allows large amounts of data that change regularly to be automatically updated and accessed via the Internet (e.g., price lists, statistics, etc.).
- Converts spool files into HTML mailbodies.

## PDF/A WRITER

- Long-term archiving of documents and forms according to ISO 19005-1:2000.
- Fonts, barcodes and graphic elements (logos, letterheads, etc.) are transferred directly into the file.

## TIFF WRITER

- Converts spools into the common graphic format TIFF.
- Particularly suitable for long-term archiving, as all fonts are already converted to graphics at definition time.

## ESC/POS WRITER

Especially since the Cash Register Ordinance (in Austria), the acquisition of cash register printers may become necessary. A common output language for these printers is the ESC/POS data stream.

- SpoolMaster supports the generation of legally compliant QR codes on ESC/POS printers in addition to the output of texts.

## METO WRITER (SP40PDL)

- Converts spools to the SP40PDL data streams.
- Many choices available: Printing spool files with the Meto fonts, printing graphics and logos, printing barcodes, etc.
- The functionalities of the SpoolMaster module "DFL - Dynamic Forms Language" are also implemented for Meto printers >> Processing of variable search texts, positions, and conditions.

## CAB WRITER

Data streams are output to cab label printers with the SpoolMaster module CAB Writer.

- Printer language "JScript"
- Due to the SpoolMaster form there are many options: Modification of texts and (CAB) fonts, printing of all common barcodes, printing of graphics, drawing of boxes and lines, etc.

## IEM WRITER (IBM ProPrinter Emulation)

This module outputs the IEM data stream used by older IBM printers.

## RTF WRITER

- Converts spool files into RTF (Rich Text) documents.
- These documents can be opened with Microsoft Word, for example, and sent by e-mail.
- By inserting control characters, it is also possible to automatically design the documents to look like modern Word documents or resemble the PCL printouts of the SpoolMaster.

## DIF WRITER

- Outputs IBM System i/(AS/400) spool files in DIF format (Data Interchange Format).
- DIF files can be opened directly as tables using Microsoft Excel or Microsoft Access.

## XGF WRITER

- XGF (Xerox Generic Format) is a Postscript-based language that is optimised for printing linemode data and therefore guarantees high formatting performance.
- Accesses non-volatile memory (e.g., hard disks) of midrange and large laser printers (production printers).
- Forms, logos and images can be stored directly at the printer to optimise the processing of print jobs even with slow lines.

## XML WRITER

This module is used to output spool files in XML format for further processing in other systems.



## PRINT CLIENT

- For printers that do not support PCL, Postscript, or any other printer data stream output by SpoolMaster (e.g., inkjet printers, thermal transfer printers, etc.).
- Runs on a PC (server)
- Spool files are taken from the IBM System i/(AS/400) and printed on any printer using PC printer drivers.

## DATA SECURE – DIGITAL SIGNATURE

- For signing PDF documents digitally.
- The signed documents can also be sent via SpoolMaster "Mail".

## FAX

- Transfers spool files to FAX systems
- Generates header and trailer pages, inserts telephone numbers, and transmits all page formatting options to the recipient via FAX.
- Generates FAX statistics for various evaluations.

## COPY CLIENT

- Copies the contents of a folder to another folder after definable time intervals.
- Is needed, for example, to supply the import directory of a fax solution with data.

## IGP WRITER

- Converts spools into IGP (Intelligent Graphics Printing) data streams.
- When printing labels on the IGP printer (e.g., IBM 4400), numerous alternatives are available: Printing spool files with the IGP fonts, printing graphics and logos, printing barcodes.
- The functional diversity of the "DFL-Dynamic Forms Language" module can also be used here.

## JCL WRITER

- Converts spools to JCL data streams.
- There are many options to choose from when printing labels on the SATO printer: Printing spool files with the JCL fonts, printing graphics and logos, printing barcodes.
- The functionalities of the SpoolMaster module "DFL - Dynamic Forms Language" are also implemented for SATO printers >> processing of variable search texts, positions and conditions.

## TIFF CONVERTER

Converts graphics in TIFF format for output to PCL, PDF and TIFF so that they are then available for further processing on IBM System i/(AS/400).

## JPG CONVERTER

Converts graphics from JPG format for output to PCL, PDF and ZPL II for Zebra printers so that they are then available for further processing on System i.

## PCX CONVERTER

Converts graphics from PCX format for output to PCL, PDF and ZPL II for Zebra printers so that they are then available for further processing on System i.

## GIF CONVERTER

Converts graphics from GIF format for output to PCL and PDF so that they are then available for further processing on System i (AS/400).



### How does SpoolMaster work?

Technical details clearly explained:

<https://roha.biz/en/#howitworks>

**The best success stories happen in real life...**

**Our clients** show you their best practices: <https://roha.biz>