Spool-a-Matic

Programmer's Guide and Reference
Licensed Program 2A55SAM V2R3M0

Spooled File Conversion

Edition

Twelfth Edition (November 2009)

This edition applies to the licensed program Spool-a-Matic (Program 2A55SAM), Version 2 Release 3 Modification 0, and to all subsequent releases and modifications until otherwise indicated in new editions. This revision makes all previous editions obsolete. Make sure you are using the proper edition for the level of the product.

This manual is available as option 1 from the SPLAMATIC menu or in PDF format in directory /Gumbo/Proddata/2A55SAM/doc on your System i and on the web.

We welcome your comments. Send them to:

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Chapter 1 Introduction

What's In This Chapter

This chapter introduces you to Spool-a-Matic. The chapter:

- Gives an overview of Spool-a-Matic.
- Describes the features of Spool-a-Matic.
- Describes the conversions of Spool-a-Matic.
- Describes Spool-a-Matic's spooled file splitting.
- Describes Spool-a-Matic's logical printer support.
- Describes Spool-a-Matic's TOOBJ() parameter.
- Describes Spool-a-Matic's relationship to other products.
- Outlines future directions for the product.
- Describes conventions used in this manual.

Spool-a-Matic Overview

Spool-a-Matic is an i5/OS based software utility that converts System i spooled files into industry standard file formats and places the resulting PC file into any directory in i5/OS's Integrated File System. Spooled files can be split into multiple PC files based on data found on the page. This is ideal for separating pages by branch, by customer or by other criteria. Depending on the Integrated File System name specified, you can place the generated file in any file system known to i5/OS including writing directly to Windows systems on the network, another System i or NFS servers. With Spool-a-Matic you can make i5/OS spooled output available to your users in the form best suited to them.

The product can convert spooled files to a wide variety of formats, the most popular of which is Adobe's Portable Document Format (PDF). The PDF conversion is fully enabled for all levels of document complexity found in i5/OS printed output. Print data, page segments, overlays, color, graphics, images, fonts and barcodes are accurately processed to give you PDF files that display and print like the original spooled file. The resulting PDF file is text based (not a bit image), optionally ISO 19005-1:2005 PDF/A compliant and can be searched and indexed using Adobe's products. The PDF files can be encrypted, password protected and compressed during the conversion to provide security and reduce storage requirements. Extensive bookmarking capabilities, based on DDS's indexing keywords or data on the page, allow you to generate PC files that are easy to navigate. Additional parameters allow you to specify the PDF document title, document subject, document open options, and font imbedding, giving fine grain control over the presentation of your data to the end user. The conversion to PDF is DBCS and unicode enabled for Chinese, Japanese, and Korean.

Spool-a-Matic Features

The main function of Spool-a-Matic is accessed by running the Spool Convert (SPLCONVERT) command. The command takes a spooled file and an Integrated File System object (PC file) name as input. The spooled file is retrieved from i5/OS's spool store and converted based on the transform requested. The converted spooled file is then placed in the requested Integrated File System object (PC file).

Spool-a-Matic includes a command and associated print driver programs that allow you to create logical printer devices. Logical printers perform Spool-a-Matic's spooled file processing automatically for all spooled files placed on their output queue.

Spool-a-Matic includes a work-a-like for i5/OS's Work with Spooled File (WRKSPLF) command called Work with Gumbo Spooled Files (WRKGSISPLF). It also includes a work-a-like for i5/OS's Work with Output Queue (WRKOUTQ) command called Work with Gumbo Output Queue (WRKGSIOUTQ). These commands provide the same functions as their i5/OS equivalent. In addition they provide an option that allows you to access the function of Spool-a-Matic by entering an option number.

Our Display Page Data (DSPPAGDTA) command is included in the product. The command allows you to display selected data from within a spooled file. The command supports output to a display, to print, and most interestingly

to an output file. For example, by displaying the page positions of the customer number in spooled files containing invoices, you can create an index from customer number to the related spooled files that contain their invoices.

Our Retrieve Page Data (RTVPAGDTA) command is included in the product. The command allows you to retrieve data from a specific position spooled file. The requested data is returned in a Control Language (CL) program variable.

For example, by retrieving the page position of the customer number in a spooled file containing an invoice, you can determine the customer number for which the invoice was generated from within a CL program.

Spool-a-Matic Conversions

Spool-a-Matic supports all of the i5/OS spooled file print data streams:

- *SCS (SNA Character String)
- *IPDS (Intelligent Printer Data Stream)
- *AFPDS (Advanced Function Presentation Data Stream)
- *USERASCII (ASCII data stream)
- *LINE (1403 line data)
- *AFPDSLINE (Mixed *AFPDS and *LINE data)

Spool-a-Matic can produce PC files in a wide variety of industry standard formats:

- Adobe's Portable Document Format (PDF)
- ASCII text (TXT)
- Microsoft's Rich Text Format word processor file (RTF)
- The world wide web's Hyper Text Markup Language (HTML)
- Printer specific print data streams produced by i5/OS's Host Print Transform (HPT)
- An unaltered copy of the original print data stream (NONE)
- Adobe's PostScript (PS)
- IBM's AFP Print File (AFP)
- IBM's Final Form Text (FFT)
- Tag Image File Format (TIFF)

Not all of the possible conversions are applicable to all spooled file print data streams. The following table shows the supported conversions:

Input Spooled File Print Data Stream	Output Data Format Conversion								
	PDF	TXT	RTF	HTML	HPT	NONE	PS	FFT	TIFF
*SCS	YES	YES	YES	YES	YES	YES		YES	YES
*IPDS	YES	YES	YES	YES		YES		YES	
*AFPDS	YES	YES			YES	YES	YES		YES
*USERASCII						YES			
*LINE	note	note			note	YES	note		note
*AFPDSLINE	note	note			note	YES	note		note

Notes: o Print Data Stream is found on WRKSPLFA's "Printer device type" parameter. Use option 8 from WRKOUTQ or WRKSPLF.
    o PDF is double byte enabled for Chinese/Japanese/Korean.
    o TXT is double byte enabled for *SCS.
    o Convert *LINE and *AFPDSLINE to *AFPDS using OVRPRTF CVTLINDTA(*YES) or respool using CRTAFPDTA/PRTAFPDTA.

The conversion process is described in detail in the Conversions chapter.

Spool-a-Matic's Spooled File Splitting

Spool-a-Matic has the ability to split spooled files into multiple PC files based on data found on each page. A request to split the spooled file is indicated by including the *PAGDTA special value as an element of the path specified in the Spool Convert (SPLCONVERT) command's TOOBJ() parameter. When splitting is indicated, the location of the data used is specified on the Page data (PAGDTA) parameter.

The data for each page is retrieved and pages with identical values are converted into a PC file. The value the pages have in common is substituted for the *PAGDTA special value in the path when each PC file is created. For example, consider a 6 page spooled file with a 10 character branch name printed at line 7, position 12 of each page. If pages 1, 2, 3 and 6 contain "Seattle" and pages 4 and 5 contain "Redmond" then the following command:

```
SPLCONVERT  TOOBJ('/Reports/*PAGDTA/Inventory.pdf)
            PAGDTA(7 12 10) ...
```

Creates two PC files named:

```
/Reports/Seattle/Inventory.pdf
/Reports/Redmond/Inventory.pdf
```

The PC file in the "Seattle" directory contains page 1, 2, 3 and 6 while the PC file in the "Redmond" directory contains pages 4 and 5.

Logical Printer Support

A Gumbo logical printer is a printer device that performs spooled file processing instead of printing on paper. As with other printer devices, you use i5/OS's writer commands (WRKWTR, STRPRTWTR, ENDWTR, HLDWTR, etc.) and i5/OS's configuration commands (WRKCFGSTS, VFYCFG, etc.) to control a Gumbo logical printer's operation.

When you create a Gumbo logical printer using the Create Device Gumbo Printer (CRTDEVGLP) command, a source file with the same name is create in library QUSRSYS. The source file contains a member with the same name as the printer and in the source member is a single Control Language (CL) command. As a Gumbo logical printer processes, it runs this command once for each spooled file in the output queue.

Logical printers can be shared to your network and provide direct conversion "printing" from any PC application for any PC on your network. Combine this with Spool-a-Matic's PDF support and you can "print" PDF files without Acrobat.

Spool-a-Matic's TOOBJ() Parameter

The key to generating PC files when using Spool-a-Matic's Spool Convert (SPLCONVERT) command is the TOOBJ() parameter. The parameter specifies the name of the file in terms of i5/OS's Integrated File System.

An Object (PC file) is a path that specifies the name and location of the file in terms of i5/OS's Integrated File System.

Depending on the Integrated File System path specified, you can place the generated file in any file system known to i5/OS including writing directly to Windows systems on the network, another System i or NFS server. Run the Work with Object Links (WRKLNK) command to view the available directories and file systems.

As an example, the generated file can be placed in a directory in i5/OS's Open Systems file system (QOpenSys). To create file "ABC.TXT" in directory "MYDIRECTORY" in i5/OS's QOpenSys, use the following TOOBJ() parameter:

```
TOOBJ('/QOpenSys/MYDIRECTORY/ABC.TXT')
```

The path you specify must follow the naming conventions of the file system involved. For example QOpenSys supports case-sensitive names and each component of the path can be up to 255 characters long. For complete details on file system name restrictions see the *Integrated File System* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

For additional information see the *Accessing Files In The Integrated File System* section of this manual.

Note: We recommend that you not use the /QDLS file system, which is accessed using the WRKFLR command, unless you have a specific requirement for its features.

Spool-a-Matic provides several special values that can used to construct dynamic object (PC file) names. When the special values are found, the associated data is blank trimmed and substituted into the path specified when it is processed. If the data associated with a special value is blank, "BLANK" is substituted. If the data associated with a special value contains characters not allowed in a object name, question marks ('?') for example, the name will be invalid and the command will fail. The special values must be delimited by an underscore ('_') a period ('.') a slash ('/' or '\') or another special value (which starts with '*').

The spooled file splitting special values are:

*PAGDTA	The spooled file is split according to the criteria specified in the Page data (PAGDTA) parameter. A PC file is created for each unique value found and contains all the pages that had the value.

The spooled file attribute related special values are:

*ACGCDE	Accounting code CHAR(15).
*CRTSYS	System created on originally CHAR(8). This can differ from the current system's name if the spooled file was sent from another System i.
*CRTUSR	User creating originally CHAR(10). This can differ from the *JOBUSR value if the spooled file was sent from another System i.
*FILE	Spooled file name CHAR(10).
*FILE8	Same as *FILE truncated to CHAR(8).
*FORMTYPE	Spooled file form type CHAR(10). Make sure special values in the data are compatible with usage. For example few file systems allow * in a name. If the form type is *STD, the name will be invalid.
*JOBNAM	Name portion of the job containing the spooled file CHAR(10).
*JOBNAM8	Same as *JOBNAM truncated to CHAR(8).
*JOBNBR	Job number of the job containing the spooled file CHAR(6).
*JOBUSR	User portion of the job containing the spooled file CHAR(10).
*JOBUSR8	Same as *JOBUSR truncated to CHAR(8).
*OUTQ	Output queue the file is on CHAR(10).
*PAGECOUNT	Spooled file page count converted to text. CHAR(6) or more.

*PAGECNTZ	Spooled file page count converted to text with leading zeros removed. Length varies.
*PGM	Program that opened the file CHAR(10).
*PGM8	Same as *PGM truncated to CHAR(8).
*PRTTXT	Print text CHAR(30).
*SPLCDAT	Date the spooled file was open CHAR(7) CYYMMDD.
*SPLCTIM	Time the spooled file was opened CHAR(6) HHMMSS.
*SPLCCYY	Century-year portion of the date the spooled file was open CHAR(3) CYY.
*SPLCYY	Year portion of the date the spooled file was open CHAR(2) YY.
*SPLCMM	Month portion of the date the spooled file was open CHAR(2) MM.
*SPLCDD	Day portion of the date the spooled file was open CHAR(2) DD.
*SPLNBR	Spooled file number converted to text. CHAR(6).
*SPLNBRZ	Spooled file number converted to text with leading zeros removed. Length varies.
*USRDFNDTA	User defined data CHAR(255).
*USRDFNTXT	User-defined text taken from the user profile when the spooled file was created CHAR(100).
*USRDTA	User data CHAR(10).

Product Positioning

Gumbo Software, Inc. has several i5/OS based products:

Number	Licensed Program
2A55RM1	Report Manager - Automates report distribution, bursting and spooled file management
2A55SM1	SpoolMail - Converts i5/OS spooled files into industry standard file formats and sends the resulting PC files to any email recipient
2A55SAM	Spool-a-Matic - Converts i5/OS spooled files into industry standard file formats and places the resulting PC files in the Integrated File System
2A55XL1	Excel-erator - Converts database files into spreadsheets placing the resulting PC files in the Integrated File System or sends the resulting PC files to any email recipient
2A55DCR	Dicer - Merges/sorts/splits/duplicates spooled files
2A55RDA	Report Designer - Edits DDS, RPG and ILE/RPG print specifications
2A55SM2	Gumbo Mail - Sends email from your applications

There is some overlap between and unique function within the products. Choose the product or combination of products that provide the function you need:

	Product						
Function	RM1	SM1	SAM	XL1	DCR	RDA	SM2
Primary input to product	SPL	SPL	SPL	DBF	SPL	SRC	IFS
Primary output from product	SPL	EML	IFS	I/E	SPL	SRC	EML
Monitor output queues for work	YES	YES	YES	—	—	—	—
Spooled file distribution	YES	—	—	—	—	—	—
Burst (split) spooled files	YES	YES	YES	—	YES	—	—
Merge/sort/duplicate spooled files	YES	—	—	—	YES	—	—
Convert spool to TXT PC file	YES	YES	YES	—	—	—	—
Convert spool to PDF/RTF/etc. PC file	—	YES	YES	—	—	—	—
Convert DB file to spreadsheet	—	—	—	YES	—	—	—
Email PC file as attachment	YES	YES	—	YES	—	—	YES
Write PC file to Integrated File System	YES	—	YES	YES	—	—	—
Set up IBM i SMTP & mailhub	YES	YES	—	YES	—	—	YES
Edit DDS, RPG, ILE/RPG source code	—	—	—	—	—	YES	—

```
Where: DBF = Database file
       EML = Email
       IFS = PC file in the Integrated File System
       I/E = Both IFS and EML
       SPL = Spooled file
       SRC = Source code
```

Future Directions

Future releases of Spool-a-Matic will include enhanced functionality based on customer feedback. Additionally, enhancements are often added to a current release by Program Temporary Fix (PTF).

Contact Gumbo Software Inc for information on scheduling or to suggest enhancements.

Manual Conventions

A note on conventions used in this manual. In several places, instructions for entering commands are given. When the command is intended to be run from a PC command prompt it is flagged by [PC]. When the command is intended to be run an i5/OS command line it is flagged by [i], or is not flagged at all. [Enter] denotes the enter key.

Chapter 2 Installation

What's In This Chapter

This chapter describes

- How to install Spool-a-Matic.
- How to verify that Spool-a-Matic is installed correctly.
- API authority granted during installation
- How to include the SPLAMATIC library in a job's library list.
- How to determine release dependencies.
- How to test a new release while leaving the old in production.
- How to remove Spool-a-Matic from the system.
- How to find additional installation information.
- How to contact technical support.
- How to integrate Report Manager and Spool-a-Matic.
- Hot site installation.
- Permanent Authorization Codes.

Installing Spool-a-Matic

Follow these instructions to install Spool-a-Matic V2R3M0 on your System i:

Note: If you have downloaded this software from the web, instructions specific to installing from the download can be found in the file "readme.htm" which is included in the download.

1. Sign on to the system as the security officer (QSECOFR).
2. Verify that your machine is at i5/OS V5R4M0 or later by running:

   DSPDTAARA DTAARA(QGPL/QSS1MRI)

   Note: If you are running a version of i5/OS earlier than V5R4M0 you can not install Spool-a-Matic V2R3M0 on your machine. You must install an earlier version of Spool-a-Matic or upgrade the operating system.

3. Verify that user domain objects are allowed in the libraries SPLAMATIC and QSRV, by running:

   WRKSYSVAL   SYSVAL(QALWUSRDMN)

   Take option 5 to display the value. If the value is not *ALL, use option 2 to add libraries SPLAMATIC and QSRV to the list of libraries where user domain objects are allowed.

   Note: QSRV is required to correctly process PTFs when they are loaded and applied.

4. Insure that i5/OS will be able to verify the signatures that we apply to our product's objects by installing our Signing Certificate and Root CA Certificate using Digital Certificate Manager. Alternately, insure that signature verification will not prevent the restore operation by running:

   WRKSYSVAL SYSVAL(QVFYOBJRST)

   Take option 5 to display the value. If the value is 3 or higher, use option 2 to temporarily change the value to 1.

5. Mount the distribution media in the appropriate device.
6. Submit the Restore Licensed Program (RSTLICPGM) command to batch:

```
         RSTLICPGM  LICPGM(2A55SAM) DEV(device-name) LNG(2924)
```

Note: "device-name" is the device the media was mounted on and is usually OPT01.

Note: During the restore operation the system operator message queue may receive inquiry message CPA3DE4 "Directory not registered. (C G)". Unless you are using a directory naming convention similar to ours (that is the directory specified in the CPA3DE4's second level text is unrelated to our software), You can safely respond with a "G" to reestablish the relationship between the directory and the product. Typically the message will occur three times.

When the RSTLICPGM command finishes a new library SPLAMATIC and a new directory '/Gumbo/ProdData/2A55SAM' are on the system. You can access the Spool-a-Matic menu by entering the following command:

```
GO  MENU(SPLAMATIC/SPLAMATIC)
```

You can determine which PTFs were included on the media by entering the following command:

```
DSPPTF  LICPGM(2A55SAM)
```

A list of current PTFs can be found at www.gumbo.com. If there are newer PTFs available, download and install them. The bottom of our PTF web page also includes a listing of any IBM PTFs that affect the product.

Note: *GUMBO* recommends downloading the current cumulative PTF package after installing the software.

Verifying Spool-a-Matic Installation

You can verify that Spool-a-Matic has been correctly installed by running the Check Product Option (CHKPRDOPT) command:

```
CHKPRDOPT PRDID(2A55SAM) RLS(V2R3M0) CHKSIG(*NONE)
```

Note: If you have installed our digital certificates, specify CHKSIG(*ALL) instead of CHKSIG(*NONE) and digital signatures will be checked.

If the message 'No errors detected by CHKPRDOPT.' is displayed on the bottom of your display when the command finishes, Spool-a-Matic is installed correctly.

If the message is not displayed, check your job log messages or see the Recovery Procedures in the *Software Installation Problems* section of the *Trouble Shooting* chapter of this manual.

API Authority Granted During Installation

The first time Spool-a-Matic is installed on a system, public authority *USE is granted to 3 of the i5/OS supplied spooling APIs. These are QSPOPNSP, QSPGETSP, and QSPCLOSP. The APIs are used by Spool-a-Matic to open, read and close spooled files. This is required to perform the product's functions.

Security restrictions and authority requirements pertaining to spooled files and output queues remain in effect and are enforced by i5/OS during use of the APIs. However, if you are operating a highly secured environment you may wish to review and revise the authority granted during installation.

No authority is granted during installation if Spool-a-Matic exists on the system. This prevents new releases from altering changes made after the initial installation.

Library List Considerations

Library SPLAMATIC must be in the library list of jobs using Spool-a-Matic commands, or the commands must be qualified with library SPLAMATIC. Depending on your installation and intended use you can choose to:

- Add library SPLAMATIC to the system library list. This insures every job in the system has access to Spool-a-Matic commands. However this introduces problems with installing new releases and is not recommended.

- Add library SPLAMATIC to the initial library list parameter of job descriptions controlling jobs which will use Spool-a-Matic commands. (recommended)
- Run a ADDLIBLE SPLAMATIC command in individual threads requiring Spool-a-Matic commands.
- Qualify the command names on each use:

    ```
    SPLAMATIC/CHGSAMDFT
    ```

    Library SPLAMATIC will be temporarily added to the product portion of the current thread's library list.

Determine the best method for your installation and perform any changes required.

Release Considerations

Spool-a-Matic operates under i5/OS V5R4M0 or higher. Releases occur on a different schedule than IBM releases. Once Spool-a-Matic is installed the following considerations apply:

- A new release of i5/OS may be installed without installing a new release of Spool-a-Matic.

    Spool-a-Matic uses only published or IBM sanctioned interfaces and is upward compatible with all releases of i5/OS. The Spool-a-Matic authorization code does not change.

- A new release of Spool-a-Matic may be installed without installing a new release of i5/OS.

    Any change in the requirements for operating system release level will be noted in the documentation accompanying the Spool-a-Matic release. The new authorization code must be entered.

- A new release of Spool-a-Matic may be installed over any prior release of Spool-a-Matic.

    You can skip "missed" releases.

- More than one release of Spool-a-Matic may be installed on a system at one time.

    By restoring Spool-a-Matic to a library other than SPLAMATIC a new release can be installed for testing while the old release remains in production. Any release to release considerations that may apply will be noted in the documentation accompanying the new release. Additional operational considerations may apply. For more information on renaming a library during licensed program installation see the Restore Licensed Program (RSTLICPGM) command and the New Release Testing section of this chapter.

- When a new release of Spool-a-Matic is installed in the same library as an old release the following processing is performed in order to preserve data and Spool-a-Matic authorization information:
    1. The Spool-a-Matic library is saved to QGPL/SAMVxRyMz. Where VxRyMz is the old release.
    2. Product objects that contain default settings and operational information are copied to library QTEMP.
    3. The Spool-a-Matic library is cleared.
    4. Spool-a-Matic is restored.
    5. Default settings and operational information are copied back to the product objects.
    6. All objects duplicated to QTEMP are deleted.
    7. Save file QGPL/SAMVxRyMz is deleted.

Note: *GUMBO* recommends making a backup of the old release before installing a new release of Spool-a-Matic.

New Release Testing

Unlike IBM licensed programs, *GUMBO* licensed programs are packaged in a way that allows multiple release to be installed on your System i at the same time. This feature allows you to test a new release while the old release remains in production.

The key to new release testing are the LIB() and CODHOMEDIR() parameters of i5/OS's Restore License Program (RSTLICPGM) command which allow you to restore the product to a library name and directory different than the those used during packaging.

To test a new release, follow this procedure:

1. Review the Enhancement Summary for any release to release considerations that could affect your installation.
2. Install the new release in library SAMV2R3M0 and directory '/Gumbo/ProdData/2A55SAMV2R3M0':

    ```
    RSTLICPGM  LICPGM(2A55SAM) DEV(device-name) LNG(2924)
               LIB(SAMV2R3M0) REPLACERLS(*NO)
               CODHOMEDIR('/Gumbo/ProdData/2A55SAMV2R3M0')
    ```

    where device-name is the device the media was mounted on.

3. Perform your new release testing.
4. When testing is complete you must delete the new release.

    ```
    DLTLICPGM  LICPGM(2A55SAM) RLS(V2R3M0) OPTION(*ALL)
    ```

    Note: Do not delete nor rename libraries and directories to move the new release into production. Doing so will corrupt the license program information kept internally by i5/OS. If this has already occurred, see the Software Installation Problems section of the *Trouble Shooting* chapter of this manual.

5. Follow the installation instructions to place the new release into production.

Deleting Spool-a-Matic

Follow these instructions to remove Spool-a-Matic from your System i:

1. Sign on to the system as the security officer (QSECOFR).
2. Delete the Spool-a-Matic library by using the Delete Licensed Program (DLTLICPGM) command:

    ```
    DLTLICPGM  LICPGM(2A55SAM) OPTION(*ALL)
    ```

These instructions delete an otherwise healthy installation of Spool-a-Matic. If the installation has been damaged, follow the instructions for Installation Fails in the *Software Installation Problems* section of the *Trouble Shooting* chapter of this manual.

Additional Installation Information

Additional detailed installation information and instructions can be found in *i5/OS and related software > Installing, upgrading, or deleting i5/OS and related software SC41-5120* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

Technical Support

If you encounter a problem with Spool-a-Matic you should:

- Review the information in the Trouble Shooting chapter for a description of and solution to common problems.
- Load and apply the current cumulative PTF package for the software. You can obtain the current package by visiting the web site listed below.

If the problem remains unresolved, contact:

GUMBO
Software, Inc.

```
809 W Howe St
Seattle, WA 98119
United States of America
Phone:   (206) 284-5078
Email:   support@gumbo.com
Web:     www.gumbo.com
```

If your problem involves spooled file processing, the best method for getting it resolved is to capture the spooled file using the Create Spool Save File (CRTSPLSAVF) command and email the resulting save file along with a description of the problem to the address listed above. Be sure to include contact information.

Note: See the Trouble Shooting chapter for details on creating and sending spool save files.

Integrating Report Manager and Spool-a-Matic

Report Manager is a product that offers extensive spooled file manipulation capabilities, including the ability to convert spooled files into PC File. The conversion is limited however to plain ASCII text and does not include the extensive conversion capabilities offered by Spool-a-Matic.

Spool-a-Matic is a product that offers extensive spooled file conversion capabilities, but does not provide spooled file splitting, and other capabilities offered by Report Manager.

To make the capabilities of Spool-a-Matic available for use with Report Manager perform the following steps:

1. Change the Report Manager job description RMRPTWTR to include library SPLAMATIC on the Initial library list (INLLIBL) parameter. For example, if you are using the job description as shipped with Report Manager, run the following command:

```
CHGJOBD JOBD(RPTMGR/RMRPTWTR)
          INLLIBL(RPTMGR QTEMP QGPL SPLAMATIC)
```

2. Add subscriptions to the reports that should create PC files using Spool-a-Matic. For example to generate PC files as Portable Document Format from report INV310, run the following command:

```
ADDRPTSUB RPT(REPORTS/INV310)
          OUTQ(*NONE)  TRANSFORM(*PDFLETTER)
          TOOBJ('/MYDIRECTORY/INV310.PDF')
```

Hot Site Installation

In the event of a catastrophic system failure, an otherwise properly licensed and authorized copy of our product may be copied to a back up or fail over machine. The product's authorization algorithm will detect that the software is operating on a machine serial number different than the licensed and authorized serial number and automatically create and install a 30 day temporary authorization code for the back up or fail over machine. You do not need to contact Gumbo Software, Inc. in the event of an emergency.

An otherwise properly licensed and authorized copy of this product may be transferred to a back up or fail over machine for the purpose of testing your emergency recovery procedures and the product's automatic temporary authorization function.

The correct sequence of steps is as follows:

1. Install the software and enter the permanent authorization code on your production machine.
2. Save the software from your production machine using the Save Licensed Program (SAVLICPGM) command. This creates an authorized copy, save it with your back ups.
3. When restoring to the back up or fail over machine you must first insure that any previous copies have been deleted. To delete a previous copy use the Delete Licensed Program (DLTLICPGM) command.
4. Restore the authorized copy to the back up or fail over machine using the Restore License Program (RSTLICPGM) command.
5. Confirm that the authorized copy was correctly restored by running the Check Product Option (CHKPRDOPT) command.
6. The first time the software is used on the back up or fail over machine the product's authorization algorithm will create and install a temporary authorization code running for 30 days. This allows you install the authorized copy in advance of a disaster.

Permanent Authorization Codes

When you purchase a product from us, or when we send you a new release of a product, you receive a permanent authorization code. Here we describe how to determine the information you must give us in order to receive a permanent authorization code and how to determine if the permanent authorization code you have received is correct for your installation.

The overwhelming majority of licenses purchased from us are **System Wide Licenses**. The other possibility, a **Partition Only License**, is described at the end of this section. For a System Wide License, permanent authorization codes are specific to a **Serial Number**, a **Processor Group**, and our product's **Release**. For a Partition Only License, permanent authorization codes are specific to a **Serial Number**, a **Partition ID Number**, the partition's **Maximum Processor Capacity**, and our product's **Release**.

In all cases, our permanent authorization codes are specific to a release of our product. The release of i5/OS never makes a difference. To determine the release of our product installed on your System i, run:

```
DSPPTF LICPGM(2A55SAM)
```

Where the possible LICPGM numbers are:

Number	Licensed Program
2A55RM1	Report Manager - Automates report distribution, bursting and spooled file management
2A55SM1	SpoolMail - Converts i5/OS spooled files into industry standard file formats and sends the resulting PC files to any email recipient
2A55SAM	Spool-a-Matic - Converts i5/OS spooled files into industry standard file formats and places the resulting PC files in the Integrated File System
2A55XL1	Excel-erator - Converts database files into spreadsheets placing the resulting PC files in the Integrated File System or sends the resulting PC files to any email recipient
2A55DCR	Dicer - Merges/sorts/splits/duplicates spooled files
2A55RDA	Report Designer - Edits DDS, RPG and ILE/RPG print specifications
2A55SM2	Gumbo Mail - Sends email from your applications

The 5th line of the panel shows the release you are running. It is V2R3M0 in this example.

```
                         Display PTF Status
                                               System:   GUMBO4
Product ID  . . . . . . . . . . . . :    2A55SAM
IPL source  . . . . . . . . . . . . :    ##MACH#A
Release . . . . . . . . . . . . . . :    V2R3M0


Type options, press Enter.
  5=Display PTF details   6=Print cover letter   8=Display cover letter


     PTF                                          IPL
Opt  ID      Status                               Action

  (No PTFs found.)




                                                        Bottom
F3=Exit   F11=Display alternate view   F17=Position to   F12=Cancel
```

Note: It is possible that more than one release of a product is installed. To check, press [Enter]. If you are returned to the command line, only one release is installed.

All of our permanent authorization codes are serial number dependent. For a System Wide License they are also Processor Group dependent. To determine your system's serial number and processor group, run:

WRKLICINF

Lines 3 and 4 of the resulting panel show the serial number and processor group of your system.

```
                    Work with License Information         GUMBO4
                                               04/06/10  18:08:32
System serial number . . . . . . . . . :    1234567
Processor group  . . . . . . . . . . . :    P10

Type options, press Enter.
  1=Add license key   2=Change   5=Display detail   6=Print detail
  8=Work with license users  ...


           License
Opt  Product   Term    Feature   Description
__   5761SS1   V6R1M0   5050     i5/OS
__   5761SS1   V6       5051     i5/OS
__   5761SS1   V6R1M0   5103     Media and Storage Extensions
__   5761SS1   V6R1M0   5112     PSF 1-45 IPM Printer Support
__   5761SS1   V6R1M0   5113     PSF 1-100 IPM Printer Support
__   5761SS1   V6R1M0   5114     PSF Any Speed Printer Support
__   5761SS1   V6R1M0   5116     HA Switchable Resources
                                                        More...
Parameters or command
===>
F3=Exit          F5=Refresh   F11=Display Usage Information   F12=Cancel
F17=Position to   F23=More options
(C) COPYRIGHT IBM CORP. 1980, 2007.
```

For a Partition Only License, permanent authorization codes depend on the Partition ID Number and maximum processor capacity. To determine the number and processor capacity of partitions on your system:

1. Start system service tools by running:

    STRSST

2. After entering a Service tools user ID and Service tools password, select the option to Work with system partitions.

3. Select the option to Display partition information.
4. Select the option to Display partition processing configuration.
5. Note the Partition ID Number and Total Processor Maximum.

```
                    Display Partition Processing Configuration
                                                      System:    GUMBO4
Number of system processors . . . . . . . . . . . :  2
Number of available system processors . . . . . . :  0
Size of system main storage (MB)  . . . . . . . . :  4096
Size of available system main storage (MB)  . . . :  0
Interactive feature available . . . . . . . . . . :  0   %


Partition             ----------Total Processors----------
Identifier  Name     Current / Pending  Minimum / Maximum
  0         PRIMARY       1 /   1           1 /   1
  1         SECONDARY     1 /   1           1 /   1






F3=Exit   F5=Refresh   F6=Print      F10=Main storage
F11=Display allocated I/O resources   F12=Cancel
```

Note: A Partition only license is not valid for a machine with only one partition.

Note: Our product's algorithm checks the authorization against the Total Processors Current value. If the maximum configured is larger than the license, the algorithm will grant usage as long as the current configured is with in the license's limit, and will issue a warning.

Chapter 3 Menu

What's In This Chapter

This chapter describes how to access the Spool-a-Matic menu, and reviews the functions that can be performed from the menu.

Accessing The Menu

The Spool-a-Matic commands and functions that you will use most often are collected on a menu named SPLAMATIC. To access this menu use the Go To Menu (GO) command:

```
GO  MENU(SPLAMATIC/SPLAMATIC)
```

Library SPLAMATIC is added to the product portion of the current thread's library list while the menu is displayed.

Menu Options

```
SPLAMATIC                     Spool-a-Matic
                                                       System:    SAM
Select one of the following:

     1. Online Manual

  Spool-a-Matic
     2. Spool Convert                              SPLCONVERT
     3. Work with Gumbo Spooled Files              WRKGSISPLF
     4. Work with Gumbo Output Queue               WRKGSIOUTQ

  Verification and Set Up
    10. Verify the product is installed correctly  CHKPRDOPT
    11. Create Device Gumbo Printer                CRTDEVGLP
    12. Change Device Gumbo Printer                CHGDEVGLP
    13. Delete Device Gumbo Printer                DLTDEVGLP


                                                     More...
Selection or command
===>

F3=Exit   F4=Prompt   F9=Retrieve   F12=Cancel
© Copyright Gumbo Software, Inc. 1998, 2009. All Rights Reserved.
```

The Spool-a-Matic (SPLAMATIC) menu options are summarized below:

Note: See the detailed descriptions in later chapters for a complete explanation of each option.

Option 1. Online Manual

The online manual allows you to view the contents of the Spool-a-Matic Manual from a work station.

Option 2. Spool Convert

The Spool Convert (SPLCONVERT) command converts an i5/OS spooled file into a PC file in i5/OS's Integrated File System.

Option 3. Work with Gumbo Spooled Files

The Work with Gumbo Spooled Files (WRKGSISPLF) command works like i5/OS's Work with Spooled Files (WRKSPLF) command but provides additional options to access the functions of Spool-a-Matic.

Option 4. Work with Gumbo Output Queue

The Work with Gumbo Output Queue (WRKGSIOUTQ) command works like i5/OS's Work with Output Queue (WRKOUTQ) command but provides additional options to access the functions of Spool-a-Matic.

Option 10. Verify the product is installed correctly CHKPRDOPT

Installation verification checks to make sure that Spool-a-Matic has been correctly installed by running i5/OS's Check Product Option (CHKPRDOPT) command.

Option 11. Create Device Gumbo Printer

The Create Device Gumbo Printer (CRTDEVGLP) command creates a device description for a Gumbo logical printer.

Option 12. Change Device Gumbo Printer

The Change Device Gumbo Printer (CHGDEVGLP) command prompts you to change the source command executed by a Gumbo logical printer.

Option 13. Delete Device Gumbo Printer

The Delete Device Gumbo Printer (DLTDEVGLP) command deletes a device description for a Gumbo logical printer.

Note: If a writer is active it is ended. If the device is varied on, it is varied off.

Option 61. Display Current PTF Status

Displays the Spool-a-Matic PTFs that have been applied to the software.

Option 62. Change Spool-a-Matic Authorization

The Change Spool-a-Matic Authorization (CHGSAMAUT) command changes the authorization code for Spool-a-Matic. The command is used to extend a demonstration period or to permanently authorize Spool-a-Matic for a system or a partition.

Option 63. Search Help Index

Search help index allows you to access the Spool-a-Matic help index and search for specific information.

Option 64. Change Spool-a-Matic Default

The Change Spool-a-Matic Default (CHGSAMDFT) command changes values used by Spool-a-Matic to control processing and other activities.

Option 65. Dump Page Index Positions

The Dump Page Index Positions (DMPPIP) command prints the line and position values, for data found in the spooled file, as calculated by the software. These are used to specify data selection criteria for the spooled file.

Option 66. Create Spool Save File

The Create Spool Save File (CRTSPLSAVF) command creates a save file containing a spooled file and all its related resources. The save file is suitable for emailing with a problem report.

Option 67. Display Page Data

The Display Page Data (DSPPAGDTA) command shows the contents of a spooled file's pages at specified locations. The contents can be shown, printed, or directed to database output file (OUTFILE).

Option 68. Check Spool-a-Matic Authorization

The Check Spool-a-Matic Authorization (CHKSAMAUT) command executes Spool-a-Matic's authorization verification function. This allows you to determine whether and how the product is authorized for use.

Option 69. Retrieve Page Data

The Retrieve Page Data (RTVPAGDTA) command retrieves data from a specific location in a spooled file. The requested data is returned in a Control Language (CL) program variable.

Chapter 4 Implementation

What's In This Chapter

This chapter describes how to implement Spool-a-Matic in your environment. The chapter:

- Gives an overview of implementation choices.
- Describes changing programs to convert spooled files.
- Describes manually converting spooled files.
- Describes creating a Gumbo logical printer.
- Describes sharing a Gumbo logical printer on the network.
- Describes accessing files in the Integrated File System.
- Describes integration with Report Manager.
- Describes useful spooled file information.
- Describes adding bookmarks to PDF files.
- Describes digitally signing PDF files.
- Describes a CL coding tip.
- Describes changing command defaults.

Overview

The main function of Spool-a-Matic is accessed by running the Spool Convert (SPLCONVERT) command. The command takes a spooled file and an Integrated File System object (PC file) name as input. The spooled file is retrieved from i5/OS's spool store and converted based on the transform requested. To implement Spool-a-Matic in your environment you have four basic choices:

1. Modify each program that creates spooled files that will be converted to directly run the Spool Convert (SPLCONVERT) command.

Pros	The spooled file is always converted as soon as it is created.
Cons	Programs must be modified and recompiled.

2. Manually run the Spool Convert (SPLCONVERT) command from a command line or using option 12 from the Work with Gumbo Spooled Files (WRKGSISPLF) or Work with Gumbo Output Queue (WRKGSIOUTQ) displays.

Pros	Good for casual or on demand use, no program changes required.
Cons	Requires manual operations and scheduling.

3. Create a Gumbo logical printer device to run the Spool Convert (SPLCONVERT) command for each spooled file placed in the printer's output queue.

Pros	No program changes, no manual intervention.
Cons	Fixed path template, limited flexibility compared to Report Manager.

4. Automatically run the Spool Convert (SPLCONVERT) command using *GUMBO's* Report Manager.

Pros	No program changes, no manual intervention, extensive distribution and bursting options.
Cons	Additional product required.

See the following sections for a detailed discussion of the choices.

Changing Programs

Spool-a-Matic can be implemented by changing the programs that create spooled files to convert them directly. A typical batch Control Language (CL) program that creates a spooled file would contain the following CL sequence:

```
           .
           .
           .
OVRDBF     FILE(INVENTORY) TOFILE(INVLIB/INVENTORY)
OVRDBF     FILE(CUSTOMER) TOFILE(INVLIB/CUSTOMER)
CALL       PGM(INVLIB/INV320)
           .
           .
```

If program INV320 generates spooled file QSYSPRT then the following changes will convert the spooled file to the /reports/INV320 directory and create a file with the date and time created as the name:

```
           .
           .
OVRPRTF    FILE(QSYSPRT) HOLD(*YES) /* Can't let it print */
OVRDBF     FILE(INVENTORY) TOFILE(INVLIB/INVENTORY)
OVRDBF     FILE(CUSTOMER) TOFILE(INVLIB/CUSTOMER)
CALL       PGM(INVLIB/INV320)
SPLCONVERT FILE(QSYSPRT) TRANSFORM(*PDFLETTER) +
             TOOBJ('/reports/*PGM/*SPLCDAT*SPLCTIM.pdf')
RLSSPLF    FILE(QSYSPRT) SPLNBR(*LAST) /* Now it can print */
           .
           .
```

The spool file is converted as soon as program INV320 has completed processing.

Manually Converting Spooled Files

Spool-a-Matic can be implemented by assigning an operator the task of manually converting spooled files. Spool-a-Matic's Work with Gumbo Spooled Files (WRKGSISPLF) or Work with Gumbo Output Queue (WRKGSIOUTQ) commands provide a convenient means of accomplishing this. Suppose the operator should convert all spooled files created by user QPGMR and program INV320 in the NIGHTBATCH output queue to the /reports/INV320 directory and create files with the date and time created as the name. The following command displays a list of spooled files created by user QPGMR:

```
WRKGSISPLF SELECT(QPGMR)
```

The operator enters option 12 for each spooled file to convert and enters the object name on the parameter line as illustrated:

```
                      Work with Gumbo Spooled Files

Type options, press Enter.
  1=Send  2=Change  3=Hold  4=Delete  5=Display   6=Release  7=Message
  8=Attributes  9=Print Status 12=Convert  14=Email    15=Merge


                          Device or   User              Total    Cur
Opt  File       User      Queue       Data      Sts     Pages    Page
12   QSYSPRT    QPGMR     NIGHTBATCH  INV320    RDY       1
12   QSYSPRT    QPGMR     NIGHTBATCH  INV320    RDY       1
__   QPJOBLOG   QPGMR     QEZJOBLOG   TEST      RDY       2
__   QPJOBLOG   QPGMR     QEZJOBLOG   PRT02     RDY       1
12   QSYSPRT    QPGMR     NIGHTBATCH  INV320    RDY       1
12   QSYSPRT    QPGMR     NIGHTBATCH  INV320    RDY       1




                                                            Bottom
Parameters for options or command
===> TOOBJ('/reports/*PGM/*SPLCDAT*SPLCTIM.pdf') TRANSFORM(*PDFLETTER)
F3=Exit F4=Prompt  F5=Refresh  F9=Retrieve  F11=Change view  F12=Cancel
F17=Top F18=Bottom  F22=Printers
© Copyright Gumbo Software, Inc. 1998, 2009. All Rights Reserved.
```

By pressing enter, the spooled files are converted. The spooled files remain on the system.

Gumbo Logical Printer

Spool-a-Matic can be implemented by using the Create Device Gumbo Printer (CRTDEVGLP) command to create a Gumbo logical printer.

A Gumbo logical printer is a printer device that performs spooled file processing instead of printing on paper. As with other printer devices, you use i5/OS's writer commands (WRKWTR, STRPRTWTR, ENDWTR, HLDWTR, etc.) and i5/OS's configuration commands (WRKCFGSTS, VFYCFG, etc.) to control a Gumbo logical printer's operation.

When you create a Gumbo logical printer using the Create Device Gumbo Printer (CRTDEVGLP) command, a source file with the same name is create in library QUSRSYS. The source file contains a member with the same name as the printer and in the source member is a single Control Language (CL) command. As a Gumbo logical printer processes, it runs this command once for each spooled file in the output queue.

After creating the Gumbo logical printer, move your spooled files to the printer's output queue and release them to initiate processing.

Sharing A Gumbo Logical Printer On The Network

A Gumbo logical printer is a printer device that performs Spool-a-Matic's spooled file processing instead of printing on paper. You can create a share for the Gumbo logical printer that allows PC user to "print" to it and receive its services. To create a print share for Gumbo logical printer GLP01 follow these steps:

1. Open a connection to your System i in iSeries Navigator.
2. Expand Network.
3. Expand Servers.
4. Click TCP/IP to retrieve a list of TCP/IP servers available.
5. Right-click System i NetServer and select Open.
6. Right-click Shared Objects and select New and then Printer.
7. Use the General Properties page and configure:
   o Share name: GLP01
   o Description: Spool-a-Matic Printer
   o Output queue: GLP01
   o Output queue library: QUSRSYS
   o Printer driver: (leave blank)

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        o   Spooled file type: Advanced function printing

8. Click OK.

Note: The iSeries Navigator online help provides more details about NetServer file share properties.

Once a share has been created, map to it from your Windows PC by following these steps:

1. From the Windows Control Panel, double click Printers.
2. Double click Add Printer.
3. Click next.
4. Select Network printer and click next.
5. Select Type printer name, enter \\server-name\GLP01 and click next.

    Note: server-name is the name by which your System i is known to the Windows Network Neighborhood.

6. When the Connect to Printer pop-up appears click OK.
7. When the Add Printer Wizard pop-up appears, double click Manufactures: IBM.
8. Double click IBM AFP 300. Click next.

    Note: If you do not have the AFP print drivers they can be loaded using iSeries Access Set Up.

9. Click Finish.

We suggest you change the printers settings to print text as text instead of graphics. To do so:

1. Right click the newly created "GLP01 on server-name" and select properties.
2. Click the Advanced tab.
3. Click Printer Defaults.
4. Set Print Text as Graphics to Off, click OK.
5. Click OK.

Accessing Files In The Integrated File System

Files are created in i5/OS's Integrated File System (IFS). There are a variety of ways to access the contents of the IFS. The following common methods are described here:

- Accessing the file from a PC using i5/OS's support for Windows Network Neighborhood (NetServer).
- Creating the file directly on a Windows machine using the IFS's QNTC file system.
- Transferring the file using FTP from a PC.
- Transferring the file using FTP from i5/OS.
- Accessing the file from a PC using iSeries Access.

Complete, detailed, information can be found in the *Files and file systems > Integrated file system* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

Windows Network Neighborhood (NetServer)

i5/OS Support for Windows Network Neighborhood (NetServer) allows a TCP/IP attached PC to access the Integrated File System using the file and print sharing built into Windows.

i5/OS NetServer support does not require you to install any additional software on your personal computer. Similarly, NetServer does not require any software other than base i5/OS V4R2M0 or later.

Follow these guidelines to get your System i set up to use NetServer. These instructions assume that you do not have access to System i Navigator support. Whenever possible, you should use System i Navigator.

Note: You must have *IOSYSCFG special authority to change any part of NetServer configuration. In addition, you must have *SECADM special authority to change the NetServer guest user profile. These changes will take effect the next time NetServer is started.

1. Verify that TCP/IP support is configured on your System i.
2. Use the Work with Subsystems (WRKSBS) command to confirm that the QSERVER subsystem has started.
3. Verify that the NetServer name is unique on the network. To change the NetServer default server and domain name, use the following command:

```
CALL QZLSCHSN PARM(server_name domain_name
                   'text description or comment' X'00000000')
```

4. To change NetServer guest support, use the following command:

```
CALL QZLSCHSG PARM(guest_user_profile X'00000000')
```

Users who require the file and print-sharing capabilities of NetServer, but do not have an i5/OS user profile need a guest user profile.

Note: The Guest User Profile should not have a password or any special authority.

5. Stop and start NetServer, using the following commands:

```
ENDTCPSVR SERVER(*NETSVR)
STRTCPSVR SERVER(*NETSVR)
```

The only directory that is automatically shared with the network is the \QCA400 directory. To create additional shares you must use iSeries Navigator and follow these steps:

1. Open a connection to your System i in iSeries Navigator.
2. Expand Network.
3. Expand Servers.
4. Click TCP/IP to retrieve a list of TCP/IP servers available.
5. Right-click NetServer and select Open.
6. Right-click Shared Objects and select New and then File.
7. Use the General Properties page to configure the new file share with a name, description, access, maximum number of users, and directory path name.

Note: The iSeries Navigator online help provides more details about NetServer file share properties.

Once a share has been created, map to it from your Windows PC by following these steps:

1. Right-click the Start button and choose Explore to open the Windows Explorer.
2. Open the Tools pull-down menu on the Windows Explorer and select Map network drive.
3. Select the letter of a free drive for the file share.
4. Enter the name of a NetServer file share. For example:

```
\\server_name\Sharename
```

Note: server_name is the system name of NetServer on System i, and Sharename is the name of the file share you want to use.

5. Click OK.

Alternately you can use Network Neighborhood to access the share:

1. Open Windows Network Neighborhood.
2. Open QSYSTEM1 (Where QSYSTEM1 is the server name of NetServer on System i).
3. Select a file share.

QNTC File System

i5/OS's QNTC file system allows the Integrated File System to write directly to Windows file shares (disk) as if it were local i5/OS disk storage.

Path (file) names in QNTC consist of the file system name, the Windows server name, the sharename, the directory and sub-directory names, and the object name. Path (file) names have the following form:

```
/QNTC/Servername/Sharename/MyDirectory/MyFile.pdf
```

Use the Make Directory (MKDIR) command to add a Windows machine to QNTC. For example:

```
MKDIR DIR('/QNTC/NTSRV1')
```

Adds the NTSRV1 server into the QNTC file system directory structure to enable access of files and directories on that server.

For additional detailed information, search IBM i Information Center for "QNTC".

FTP Using PC

FTP can be used from your PC to transfer the files to another system. In brief, the steps for retrieving the file /mydirectory/myfile.pdf from IFS to your PC are:

Note: [PC] denotes an operation performed on your PC. [i] denotes an operation performed on your System i. [Enter] denotes the enter key.

1. [i] Insure the i5/OS FTP server is active by running this command from a command line:

   ```
   STRTCPSVR SERVER(*FTP)
   ```

2. [PC] Choose Start > Programs > Accessories > Command Prompt to open a command prompt.
3. [PC] Open an FTP connection to the System i by running (use your system's name or IP address):

   ```
   FTP system_name [Enter]
   ```

4. [PC] Enter a user name and password as prompted.
5. [PC] Change to binary (image) mode by running:

   ```
   binary [Enter]
   ```

6. [PC] Switch to i5/OS Integrated File System by running:

   ```
   quote site namefmt 1 [Enter]
   ```

7. [PC] Retrieve the file by running:

   ```
   get /mydirectory/myfile.pdf [Enter]
   ```

8. [PC] End FTP and command prompt by running:

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```
        quit [Enter]
        exit [Enter]
```

For more details see *Networking* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

FTP Using i5/OS

FTP can be used from i5/OS to transfer the files to another system interactively or in batch. The interactive procedure is similar to the PC procedure, using "put" instead of "get". In brief, the steps for transferring the file /mydirectory/myfile.pdf from IFS to another system in batch are:

1. Create a source member containing the FTP commands that you would otherwise have to type at the terminal during an interactive session with the target server. By way of example, we use the following command sequence in member FTPCMDS in QGPL/QCLSRC.

```
user password
binary
namefmt 1
put /mydirectory/myfile.pdf
quit
```

2. Add the following statements to your program:

```
     ...
OVRDBF  FILE(INPUT)  TOFILE(QGPL/QCLSRC)  MBR(FTPCMDS)
OVRDBF  FILE(OUTPUT)  TOFILE(QGPL/QCLSRC)  MBR(FTPLOG)
FTP     RMTSYS(system_name)
     ...
```

For more details see *Networking* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

System i Access

System i Access includes software that connects to the System i and makes the integrated file system available to the PC. For more information see *System i Access* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

Integration With Report Manager

GUMBO's Report Manager is a software utility that automates report distribution and spooled file management on the IBM System i. Spool-a-Matic can be integrated with Report Manager or similar products that monitor an output queue and process spooled files upon arrival. Suppose Report Manager is installed and a definition for report INV320 has been created. To have Report Manager automatically convert spooled files created by INV320 to the /reports/INV320 directory and create a file with the date and time created as the name, run the Add Report Subscription command:

```
ADDRPTSUB  RPT(INV320) TRANSFORM(*PDFLETTER)
           TOOBJ('/reports/*PGM/*SPLCDAT*SPLCTIM.pdf')
```

Each time an INV320 spooled file is processed, it is converted to /reports/INV320 in addition to the deliveries for other subscribers.

Useful Spooled File Information

i5/OS provides powerful printing capabilities collectively known as AFP (Advanced Function Presentation). If you use IPDS printers you also need PSF/400. Otherwise, the base operating system gives you everything you need to take advantage of the power of AFP. For example, you can create overlays (electronic forms) to replace preprinted forms and print invoices on plain paper on your laser printers. Detailed information on AFP can in the *Printing >*

Advanced Function Presentation (AFP) topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

The single best source that we've found for information on all aspects of i5/OS printing is the Redbook *SG24-4389 Printing V* (and its replacement *SG24-6250 Printing VI*). The books are available for download in the PDF format at http://www.redbooks.ibm.com.

The Redbook supplements the standard reference documents on printing by providing more specific "how to" information, such as diagrams, programming samples, and working examples. We find that it pulls together the information from other manuals and fits the pieces together in an understandable way.

Creating Overlays and Page Segments

InfoPrint's (formerly IBM's®) AFP Printer Driver is a very useful piece of software that allows you to create i5/OS overlays and page segments by "printing" from any PC based application. Best of all, it is free and available for download at www.infoprintsolutionscompany.com, search on "AFP Printer Driver" or Google '"AFP Printer Driver for Windows" download site:ibm.com'. Also, the *AFP AS/400 Programming Sampler* which contains useful tools for compiling the overlays and page segments on your System i. The sampler.savf was last spotted at ftp://ftp.software.ibm.com/printers/products/as400

Additional information is available from the IBM Software Knowledge Base Document Number 5184341, *Creating AFP Resources Using the IBM AFP Printer Drivers*.

Our experience shows that you get the best results using a smaller is better approach to creating overlays and page segments. Trim as much as possible and position instead of creating a page size overlay or page segment. Use the lowest resolution, color depth, etc. that gives acceptable results.

*LINE and *AFPDSLINE Data

Our spooled file conversions do not process spooled files with printer device type *LINE or *AFPDSLINE. However i5/OS allows you to convert these to pure *AFPDS data which can be processed (most conversions). There are two methods for accomplishing this:

1. The printer file's CVTLINDTA() parameter while creating the spooled file.
2. Respooling an existing *LINE or *AFPDSLINE spooled file using CRTAFPDTA/PRTAFPDTA commands.

See RedBook *SG24-6250 Printing VI* for details and examples.

Adding Bookmarks To PDF Files

When converting spooled files to PDF with Spool-a-Matic you can specify that bookmarks are to be included in the generated PC file. Bookmarks provide easy navigation to specific portions of the report. When a bookmark is clicked, Adobe's Acrobat viewer positions the file directly to the page the bookmark references.

The inclusion of bookmarks is controlled by the "PDF bookmark style" PDFBKMSTY() and "PDF bookmark data source" PDFBKMSRC() command parameters which specify what data to use for bookmarking and how the bookmarks are presented.

Consider the following sample pages from a spooled file:

Figure: Sample Spooled File Pages

```
Invoice: 1102        Page: 537
SalesRep: C775
    Invoice: 1023        Page: 467
    SalesRep: C775
        Invoice: 1009        Page: 321
        SalesRep: C775
            Invoice: 1008        Page: 254
            SalesRep: C775

            ... .............. .......
            ... .............. .......
            ... .............. .......
            ... .............. .......
            ... .............. .......
            ... .............. .......
            ... .............. .......
            ... .............. .......
```
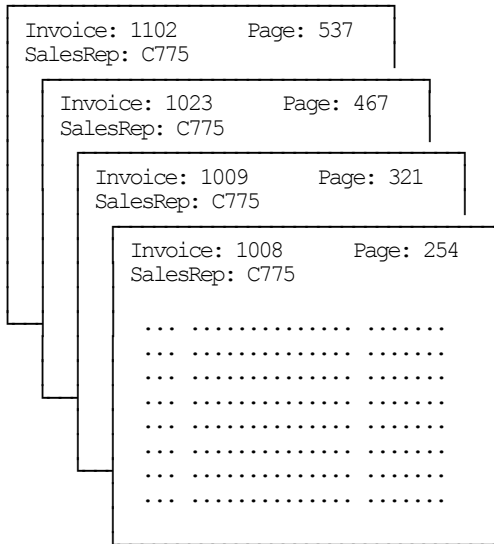
Note: All but 4 pages were omitted for brevity.

Specifying line=2, position=12, length=4 as name 'Rep No.' and line=1, position=11, length=4 as 'Invoice' with one level of bookmarking:

```
PDFBKMSTY(*ONELEVEL)
PDFBKMSRC((2 12 4 'Rep No.') (1 11 4 'Invoice'))
```

Generates the following bookmarks in the PDF:

```
├──Invoice
│    ├──1008
│    ├──1009
│    ├──1023
│    └──1102
│
└──Rep No.
     ├──C775
          ├──254
          ├──321
          ├──467
          └──537
```
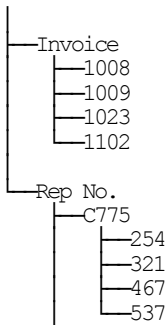
Using *TWOLEVEL instead of *ONELEVEL generates (the invoice top level bookmark has been omitted from the diagram for brevity):

```
├──Invoice
│    (detail omitted)
│
└──Rep No.
     ├──C775
          ├──Invoice
          │    ├──1008
          │    ├──1009
          │    ├──1023
          │    └──1102
          └──Page
               ├──254
               ├──321
               ├──467
               └──537
```
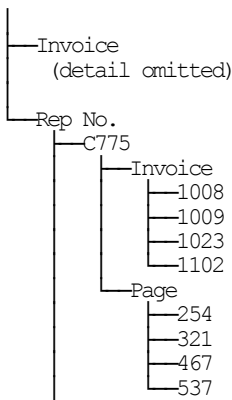
For more details on specifying data sources see the PDFBKMSRC() command parameter description.

Adding DOCIDXTAG DDS Printer File Keywords

One of the possible sources of bookmarking data for *AFPDS spooled files is DDS's DOCIDXTAG keyword. When present in the spooled file they can be selected by the "PDF bookmark data source" PDFBKMSRC() command parameter's special values ***DOCIDXTAG**, ***DOCIDXTAGP** and ***DOCIDXTAGG**.

The DOCIDXTAG() DDS keyword allows you to specify one or more "attribute-name"/"attribute-value" pairs for a page or group of pages. Examples pairs would be "POLICY NUMBER"/"12345" or "CUSTOMER NUMBER"/"67890". Spool-a-Matic uses the pairs to construct bookmarks as specified by the "PDF bookmark style" PDFBKMSTY() command parameter.

You add DOCIDXTAG data to your spooled file by specifying the DOCIDXTAG keyword in the printer file that creates the spooled file:

```
              ...
A          R RECORD1
A  02                              DOCIDXTAG('Policy Number' +
A                                  '43127' PAGE)
              ...
— or —
              ...
A          R RECORD2
A                                  DOCIDXTAG(&NAM &VAL PAGE)
A            NAM        20A  P
A            VAL        10A  P
              ...
```

For complete details see the *Programming > DDS > DDS for printer files* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

Adding STRPAGGRP DDS Printer File Keywords

One of the possible sources of bookmarking data for *AFPDS spooled files is DDS's STRPAGGRP keyword. When present in the spooled file they can be selected by the "PDF bookmark data source" PDFBKMSRC() command parameter's special value ***STRPAGGRP**.

The STRPAGGRP() DDS keyword in conjunction with the ENDPAGGRP DDS keyword allows you to define a group of pages and assign them a name. Examples names would be "POLICY NUMBER 12345" or "CUSTOMER NUMBER 67890". Spool-a-Matic uses the grouping and its name to construct bookmarks as specified by the "PDF bookmark style" PDFBKMSTY() command parameter.

You add page group information to your spooled file by specifying the STRPAGGRP/ENDPAGGRP keywords in the printer file that creates the spooled file:

```
              ...
A          R RECORD1
A  02                              STRPAGGRP('Policy Number +
A                                  43127')
              ...
— or —
              ...
A          R RECORD2
A                                  STRPAGGRP(&NAM)
A            NAM        20A  P
              ...
```

For complete details see the *Programming > DDS > DDS for printer files* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

Digitally Signing PDF Files

PDF files produced by Spool-a-Matic can be, optionally, digitally signed. The signature included in the PDF document allows the identity of the author to be validated and provides additional assurance that the PDF document has not been tampered with after it was signed.

You create digitally signed PDF documents by specifying an **Application ID** when the document is created. There are two ways to accomplish this: at the command level and at the system (or LPAR) level. The command level overrules the system level. For command level, specify an **Application ID** directly on the command's **PDF document signing key** (PDFSGNKEY) parameter. For the system level, specify an **Application ID** on the CHGSAMDFT command's **PDF document signing key** (PDFSGNKEY) parameter.

The shipped default values for the **PDF document signing key** (PDFSGNKEY) parameters are *DEFAULT and *NONE respectively.

Application ID refers to the name you have given to a digital certificate when placing it in the *OBJECTSIGNING Certificate Store using i5/OS's Digital Certificate Manager (DCM). DCM is option 34 of i5/OS. You can determine if DCM has been installed by running the Display Software Resources (DSPSFWRSC) command.

For complete information on setting up DCM, creating and storing certificates and adding **Application IDs**, see the *Security > Digital Certificate Manager* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

CL Coding Tip

Many of our commands accept a variable number of values for a given parameter. For example, the Send Spool Mail (SNDSPLMAIL) command accepts up to 300 email addresses on the recipient parameter. When writing CL programs, the problem of how to code for a variable number of email addresses without coding the SNDSPLMAIL command multiple times (once for each address count) arises. The solution is a little known CL trick for coding "no value" in a variable. "No value" is represented in CL by '*N'. Consider the following program fragment:

```
PGM
DCL          VAR(&ADD1) TYPE(*CHAR) LEN(128) VALUE('*N')
DCL          VAR(&ADD2) TYPE(*CHAR) LEN(128) VALUE('*N')
DCL          VAR(&ADD3) TYPE(*CHAR) LEN(128) VALUE('*N')
   .
CHGVAR       VAR(&ADD1) VALUE(NOBODY@GUMBO.COM)
   .
SNDSPLMAIL FILE(QPDSPLIB) TRANSFORM(*TXT) +
             TOSMTPNAME((&ADD1) (&ADD2) (&ADD3))
   .
ENDPGM
```

Since &ADD2 and &ADD3 contain '*N' they are treated as if they weren't specified on the command and the email is sent to only one address.

Changing Command Defaults

As with any CL command, you can change the default values of the commands found in our products. You do this using the i5/OS Change Command Default (CHGCMDDFT) command.

But before you do, there are some gotchas (Slang term for "I got you": a trap) you should be aware of. You WILL lose the change each time a new release of the product is installed, and you COULD lose the change when PTFs are applied to the product. You must then reapply the default change.

As an example, to change the default transform on SpoolMail's SNDSPLMAIL command from *TXT to *PDFA4, run the following:

```
CHGCMDDFT  CMD(SNDSPLMAIL) NEWDFT('TRANSFORM(*PDFA4)')
```

GUMBO recommends AGAINST changing command defaults, we know from the calls for support we receive that this regularly causes problems for customers.

Chapter 5 Conversions

What's In This Chapter

This chapter describes the spooled file conversions available with Spool-a-Matic. The chapter:

- Gives an overview of the conversions process.
- Describes the ASCII text conversion.
- Describes the Portable Document Format conversion.
- Describes the Rich Text Format conversion.
- Describes the Hyper Text Markup Language conversion.
- Describes the Tag Image File Format conversion.
- Describes the Host Print Transform conversion.
- Describes the no conversion conversion.
- Describes the PostScript conversion.
- Describes the Final Form Text conversion.
- Describes the Afp print file conversion.

Overview

The Spool Convert (SPLCONVERT) command retrieves the requested spooled file from i5/OS's spool store and converts the print data into a PC file in i5/OS's Integrated File System. i5/OS applications can produce spooled files in the following data streams:

- *SCS (SNA Character String)
- *IPDS (Intelligent Printer Data Stream)
- *AFPDS (Advanced Function Presentation Data Stream)
- *USERASCII (ASCII data stream)
- *LINE (1403 line data)
- *AFPDSLINE (Mixed *AFPDS and *LINE data)

The type of data stream produced is determined by the DEVTYPE parameter of the printer file associated with the application.

Spool-a-Matic can produce PC files in several different formats:

- ASCII text (TXT)
- Adobe's Portable Document Format (PDF)
- Microsoft's Rich Text Format word processor file (RTF)
- World wide web's Hyper Text Markup Language (HTML)
- Tag Image File Format (TIFF)
- Printer specific print data streams produced by i5/OS's Host Print Transform (HPT)
- An unaltered copy of the original print data stream (NONE)
- Adobe's PostScript (PS)
- IBM's Final Form Text (FFT)
- IBM's Afp print file (APF)

Not all of the possible conversions are applicable to all spooled file print data streams. The following table shows the supported conversions:

Input Spooled File Print Data Stream	Output Data Format Conversion								
	PDF	TXT	RTF	HTML	HPT	NONE	PS	FFT	TIFF
*SCS	YES	YES	YES	YES	YES	YES		YES	YES
*IPDS	YES	YES	YES	YES		YES		YES	
*AFPDS	YES	YES			YES	YES	YES		YES
*USERASCII						YES			
*LINE	note	note			note	YES	note		note
*AFPDSLINE	note	note			note	YES	note		note

Notes: o Print Data Stream is found on WRKSPLFA's "Printer device
type" parameter. Use option 8 from WRKOUTQ or WRKSPLF.
o PDF is double byte enabled for Chinese/Japanese/Korean.
o TXT is double byte enabled for *SCS.
o Convert *LINE and *AFPDSLINE to *AFPDS using OVRPRTF
CVTLINDTA(*YES) or respool using CRTAFPDTA/PRTAFPDTA.

The conversion process is governed by the Spool Convert (SPLCONVERT) command's TRANSFORM() parameter. Depending on the transform specified, the Target coded character set id (TRGCCSID), Source coded character set id (SRCCCSID) and Workstation customizing object (WSCST) parameters also play a role.

The following sections describe the conversions in more detail.

ASCII Text

ASCII text PC file format is the simplest of the conversion processes. Each line of the input spooled file is converted from EBCDIC to ASCII based on the source and target CCSIDs specified. A carriage return and line feed are appended to the end of the line. Additional carriage return line feed pairs are inserted to account for blank lines in the page. For transform *TXT, pages are filled from the last print line to bottom of the page with additional blank lines. For transform *TXTFF a single <FORM FEED> control is place at the end of the last printed line on each page. For transform *TXTTRIM the line padding is omitted on the last page.

The generated file can be read by any ASCII capable viewer. Virtually every machine has an ASCII capable viewer making this transform useful when the capabilities of the recipient's machine are unknown or limited.

You specify this conversion by specifying TRANSFORM(*TXT), TRANSFORM(*TXTFF) or TRANSFORM(*TXTTRIM).

This conversion is Double Byte Character Set (DBCS) enabled for *SCS.

There is a limitation when converting an AFPDS spooled file to text. If the lines of a spooled file are printed out of sequential order, the results will not be as expected. The text processor does not have the ability to "move backward" in the generated data and insert new data into a line that was previously passed. The new data for a preceding line is placed on the current line giving undesirable results. This limitation may be addressed in a future release.

The recommended extension for ASCII text PC files is **txt**.

Adobe Portable Document Format

Adobe's PDF is a file format used to represent a document in a manner independent of the application software, hardware, and operating system used to create it. A PDF file contains a PDF document and other supporting data.

The files generated by Spool-a-Matic can be read by any PDF capable viewer. Adobe's Acrobat reader is a PDF viewer that is distributed for free and is available for most major platforms making this transform useful when the users have differing platforms. You can download the latest version of Acrobat from **www.adobe.com**.

On October 1, 2005, International Organization for Standardization (ISO) published *ISO 19005-1 Document Management - Electronic document file format for long term preservation - Part 1: Use of PDF 1.4 (PDF/A-1)* This standard defines a format (PDF/A) for the long-term archiving of electronic documents and is based on the PDF Reference Version 1.4 (implemented in Adobe Acrobat 5). The files generated by Spool-a-Matic optionally conform to this standard.

Font Processing

When converting spooled files Spool-a-Matic processes external print resources such as page segments and overlays. By default, fonts are mapped to one of the fonts built in to Adobe's Acrobat reader. The built in fonts are:

- Courier (including bold, italic and bold italic)
- Helvetica (including bold, italic and bold italic)
- Times (including bold, italic and bold italic)
- Symbol

For host resident fonts, that is fonts specified using coded font names such as XZ421001 or specified using character set and codepage names such as CZ4200 and T1V10037, you can improve the font fidelity (at the expense of file size) by specifying PDFFNTIMB(*TYPE1 *TYPE3) on the PDF font imbedding parameter. Imbedding fonts includes a copy of the font's definition in the generated PC file.

For printer resident fonts, that is fonts specified using font global IDs such as **11**, you can convert to and imbed i5/OS's host resident printer emulation fonts (at the expense of file size) by specifying PDFFNTIMB(*FGID) on the PDF font imbedding parameter. Imbedding fonts includes a copy of the font's definition in the generated PC file.

Text positioning

Most i5/OS spooled files use absolute text positioning operations which are processed exactly. For spooled files and print resources that contain relative moves, use blank padding to position text, or underline variable pitch text, positional accuracy can be improved at the expense of processing time by specifying TXTRELPOS(*EXACT) or TXTRELPOS(*EXACTMOD) on the Text relative positioning parameter.

Document Security

PDF documents can be encrypted to protect their contents from unauthorized access. An encrypted PDF document has two passwords: an owner password and a user password. The PDF document also specifies operations that should be restricted even when the PDF document is decrypted. When opening an encrypted PDF document, Adobe's Acrobat Reader prompts for a password, if one is required. When the correct user password is supplied, the PDF document is opened and decrypted but operations are restricted; when the owner password is supplied, all operations are allowed. The owner password is required to change these passwords and restrictions.

A PDF document is encrypted whenever a user or owner password or restrictions are supplied for the PDF document. However, a user is prompted for a password on opening a PDF document only if the PDF document has a user password.

File Signing

The PDF documents produced can be, optionally, digitally signed. The signature included in the PDF document allows the identity of the author to be validated and provides additional assurance that the PDF document has not been tampered with after it was signed.

Document Open Options

PDF documents can be configured to control the behavior of Acrobat when the document is opened. The configuration settings are the same as those found in the full version of Acrobat under File > Document Properties > Open Options. With the settings, you can control the Initial View, Window Options, and User Interface Options in

effect when the document is opened. You can for example configure the document to hide the Acrobat menu bar, tool bar and window controls and to display in full screen mode when it is opened.

Bookmarks

When converting spooled files Spool-a-Matic generates bookmarks based on the "PDF bookmark style" PDFBKMSTY() and "PDF bookmark data source" PDFBKMSRC() command parameters. These specify what data to use to produce bookmarks in the generated PDF file. The bookmarks provide easy navigation to specific portions of the report. See > Adding Bookmarks To PDF Files in the Implementation chapter for more information.

Transform Specification

You specify PDF conversion by specifying one of the following on the TRANSFORM() parameter:

*PDFLETTER	for 8.5" x 11" paper size
*PDFLEGAL	for 8.5" x 14" paper size
*PDFSTATEMENT	for 5.5" x 8.5" paper size
*PDFEXECUTIVE	for 7.25" x 10.5" paper size
*PDFLEDGER	for 11" x 17" paper size
*PDFA5	for A5 paper size
*PDFA4	for A4 paper size
*PDFA3	for A3 paper size
*PDFB5	for B5 paper size
*PDFB4	for B4 paper size
*PDFLETTERLEGAL	for 8.5" x 11" paper size in drawer 1 and 8.5" x 14" paper size in drawer 2.
*PDFLEGALLETTER	for 8.5" x 14" paper size in drawer 1 and 8.5" x 11" paper size in drawer 2.
*PDFPAGESIZE	for the page size defined by the spooled file's attributes.

The transforms to generate PDF/A are:

*PDFALETTER	for 8.5" x 11" paper size
*PDFALEGAL	for 8.5" x 14" paper size
*PDFASTATEMENT	for 5.5" x 8.5" paper size
*PDFAEXECUTIVE	for 7.25" x 10.5" paper size
*PDFALEDGER	for 11" x 17" paper size
*PDFAA5	for A5 paper size
*PDFAA4	for A4 paper size
*PDFAA3	for A3 paper size
*PDFAB5	for B5 paper size
*PDFAB4	for B4 paper size
*PDFALTRLGL	for 8.5" x 11" paper size in drawer 1 and 8.5" x 14" paper size in drawer 2.
*PDFALGLLTR	for 8.5" x 14" paper size in drawer 1 and 8.5" x 11" paper size in drawer 2.

Double Byte Character Set Enabled

The conversion is DBCS enabled for Chinese/Japanese/Korean, specify a target CCSID of *UNICODE. You must have the appropriate Adobe "Asian Font Pack" installed with Acrobat Reader or an Asian language specific version of Acrobat Reader Installed. You can download Asian Font Packs from **www.adobe.com**.

Miscellaneous

The recommended extension for Portable Document Format PC files is **PDF**.

Microsoft Rich Text Format Conversion

Microsoft's RTF Specification provides a format for text and graphics interchange that can be used with different output devices, operating environments, and operating systems. The generated RTF uses the ANSI character set to control the representation and formatting of a document, both on the screen and in print. With the RTF Specification, documents created under different operating systems and with different software applications can be transferred between those operating systems and applications.

The generated RTF file specifies Courier New as the font. The font size is reduced if necessary to fit spooled file pages onto RTF pages. The data in the spooled file is converted from EBCDIC to ASCII based on the values specified for the source and target CCSID parameters.

The generated file can be read by any RTF capable viewer. Most word processors can read RTF encoded files making this transform useful when the recipient has a word processor. Naturally enough, Microsoft's Word has a very good RTF implementation while the quality of other implementations varies. Word Pad is capable of reading RTF files, however it discards most of the page format information such as margins and orientation.

You specify this conversion by specifying one of the following on the TRANSFORM() parameter:

*RTFLETTER	for 8.5" x 11" paper size
*RTFLEGAL	for 8.5" x 14" paper size
*RTFSTATEMENT	for 5.5" x 8.5" paper size
*RTFEXECUTIVE	for 7.25" x 10.5" paper size
*RTFLEDGER	for 11" x 17" paper size
*RTFA5	for A5 paper size
*RTFA4	for A4 paper size
*RTFA3	for A3 paper size
*RTFB5	for B5 paper size
*RTFB4	for B4 paper size

The recommended extension for Rich Text Format PC files is RTF.

Hyper Text Markup Language

Hyper Text Markup Language (HTML) is the file format of the World Wide Web and is used to represent a document in a manner independent of the application software, hardware, and operating system used to create it. An HTML file contains HTML tags and the content of the spooled file.

Spool-a-Matic generates a HTML file that specifies a fixed pitch font. The font size is determined by Spool-a-Matic's default settings. The print data in the spooled file is converted from EBCDIC based on the value specified in the source and target CCSID parameters. Each page is placed in a row of a single column table with a border. Only the print data is converted. Images, overlays, page segments, etc. are not converted. The conversion is DBCS enabled.

The generated file can be view by any web browser, making this transform useful when the users have differing platforms.

You specify this conversion by specifying TRANSFORM(*HTMLBASIC). The recommended extension for Hyper Text Markup Language PC files is HTM. The recommended target CCSID is *UTF8.

Tag Image File Format

Tag Image File Format is a widely used format for storing image data.

Spool-a-Matic generates a TIFF file by passing the contents of the spooled file to the IBM i5/OS Host Print Transform Function and storing the converted data stream in a PC file.

The generated file can be view by most image viewing or editing applications. Our experience is that the i5/OS support is some what flakey, and that some image viewing applications have problems with multi page TIFF files. Test your results before placing this transform into production.

You specify this conversion by specifying one of the following on the TRANSFORM() parameter:

*TIFFLETTER	Group 4 specification conversion with letter size paper implied.
*TIFFLEGAL	Group 4 specification conversion with legal size paper implied.
*TIFFEXECUTIVE	Group 4 specification conversion with executive size paper implied.
*TIFFLEDGER	Group 4 specification conversion with ledger size paper implied.
*TIFFA3	Group 4 specification conversion with A3 size paper implied.
*TIFFA4	Group 4 specification conversion with A4 size paper implied.

*TIFFA5	Group 4 specification conversion with A5 size paper implied.
*TIFFB4	Group 4 specification conversion with B4 size paper implied.
*TIFFB5	Group 4 specification conversion with B5 size paper implied.
*TIFFCONT80	Group 4 specification conversion with continuous 8.0 inch paper implied.
*TIFFCONT132	Group 4 specification conversion with continuous 13.2 inch paper implied.
*TIFF	Group 4 specification
*TIFFPB	Pack Bit specification

The recommended extension for Tag Image File Format PC files is TIF.

i5/OS Host Print Transform Conversion

i5/OS's Host Print Transform converts *AFPDS or *SCS print data streams and generates an ASCII print data stream for a number of IBM and non-IBM printer. For example, you can print Advanced Function Presentation (AFP) text, bar codes, image, overlays, and page segments to Hewlett Packard PCL and Lexmark PPDS page printers. To generate the different ASCII data streams, the host print transform function uses i5/OS system objects that describe characteristics of a particular ASCII printer.

Spool-a-Matic generates a HPT file by passing the contents of the spooled file to the Host Print Transform Function and storing the converted data stream in a PC file. The transform performed is controlled by the TRANSFORM() and WSCST() parameters of the Spool Convert (SPLCONVERT) command. The generated file has the CCSID specified in the Spool Convert (SPLCONVERT) command's Target coded character set id (TRGCCSID) parameter. The Source coded character set id (SRCCCSID) parameter is ignored.

The generated file can be copied directly to a PC printer port for printing. For example, if the PC file's name is T103609.HPT then the following DOS command prints the file to printer port LPT1:

```
copy t103609.hpt lpt1:
```

You specify this conversion by specifying one of the Host Print Transforms such as TRANSFORM(*HPIIIP). The recommended extension for Host Print Transform PC files is HPT. For complete information on the available Host Print Transforms see the Manufacturer Type and Model (MFRTYPMDL Parameter) of the CRTDEVPRT command.

No Conversion Conversion

Spool-a-Matic can copy a spooled file's print data stream directly to a PC file without conversion. This is most useful for spooled files with a *USERASCII print data stream but works with any spooled file. The generated file has the CCSID specified in the Spool Convert (SPLCONVERT) command's Target coded character set id (TRGCCSID) parameter. The Source coded character set id (SRCCCSID) parameter is ignored.

The generated file can be copied directly to a PC printer port for printing. For example, if the PC file's name is T103609.SPL then the following DOS command prints the file to printer port LPT1:

```
copy t103609.spl lpt1:
```

You specify this conversion by specifying TRANSFORM(*NONE). The recommended extension for no conversion PC files is SPL, unless a more accurate extension is available for the contents of the file.

Adobe PostScript Conversion

Adobe's PostScript is a widely used page definition language. i5/OS includes an application programming interface (API) for converting Advanced Function Presentation Data Streams (AFPDS) into PostScript. The API processes the following AFPDS objects:

- Document
- Presentation page
- Presentation text data
- IM1 image data
- IO image (IOCA) commands

- Presentation Text 2 (PT2) text commands
- Overlay resources
- Page segment resources

The API does not process the following objects:

- Graphic data (GOCA) commands
- Bar code (BCOCA) commands
- Double-byte character set (DBCS) fonts
- Spooled files that are larger than 16 Meg
- Generated PostScript larger than 16 Meg

AFP that is not supported is ignored, and no warning or error message is sent to the user. Additionally the printed output may appear different than the same spooled file printed on an AFP capable printer.

Spool-a-Matic generates a PostScript file by passing the contents of the spooled file to the i5/OS API and storing the converted data stream in a PC file. The generated file has the CCSID specified in the Spool Convert (SPLCONVERT) command's Target coded character set id (TRGCCSID) parameter. The Source coded character set id (SRCCCSID) parameter is ignored.

The generated file can be copied directly to a PC printer port for printing. For example, if the PC file's name is T103609.PS then the following DOS command prints the file to printer port LPT1:

```
copy t103609.ps lpt1:
```

You specify this conversion by specifying TRANSFORM(*POSTSCRIPT). The recommended extension for PostScript PC files is PS.

IBM Final Form Text Conversion

IBM's Final Form Text is a data stream defined by document content architecture that is used to exchange resolved documents (which can be printed directly by most printers or displayed) between systems.

Spool-a-Matic generates an FFT file that specifies Courier New as the font. The font size is set to the size specified by the spooled file. The data in the spooled file is copied to the generated file without conversion. The Spool Convert (SPLCONVERT) command's Target coded character set id (TRGCCSID), parameter is ignored.

Final Form Text files are primarily used by Office Vision users. The generated file can be read by any FFT capable viewer. Office Vision and some word processors can read FFT encoded files making this transform useful for OV/400 users.

You specify this conversion by specifying TRANSFORM(*FFTBASIC). The recommended extension for Final Form Text PC files is FFT.

Afp Print File Conversion

IBM's Advanced Function Presentation (AFP) Workbench Viewer is a platform for the integration of AFP-enabling applications and services. The Viewer provides the ability to browse AFP formatted print files.

Spool-a-Matic generates an Afp Print File by copying the contents of the spooled file and inserting any related page segments and overlays and optionally when *AFPPRINTFILE2 is used, fonts. Since the Afp Workbench Viewer "thinks" in EBCDIC, the Spool Convert (SPLCONVERT) command's Target coded character set id (TRGCCSID), parameter is ignored. The resulting PC file is ready for viewing with Afp Workbench Viewer.

You specify this conversion by specifying TRANSFORM(*AFPPRINTFILE) or TRANSFORM(*AFPPRINTFILE2). The recommended extension for Afp Print Files is AFP.

Chapter 6 Commands

What's In This Chapter

This chapter describes the control language (CL) commands supplied by Spool-a-Matic. The commands are arranged in alphabetic order by command name (mnemonic). Each description includes environment and threadsafe classification, a brief general description, detailed parameter explanations, examples and message information. Additional explanatory material can be found in the *Programming > CL overview and concepts* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter.

Archive Spooled File (ARCSPLF)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Archive Spooled File (ARCSPLF) command creates a spooled file archive which can be saved and restored, and from which the spooled file can be retrieved (recreated).

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*	Required, Positional 1
ARC	Spooled file archive	*Qualified object name*	Optional
	Qualifier 1: Spooled file archive	*Name*, ***GEN**	
	Qualifier 2: Library	*Name*, ***CURLIB**	
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

> **name**   Specify the name of the spooled file.

Spooled file archive (ARC)

Specifies the name of the archive that contains the spooled file.

Element 1: Spooled file archive

> ***GEN**   Generate the archive name from the supplied FILE, JOB, and SPLNBR parameters.
> **name**   Specify the name of the archive.

Qualifier 2: Library

> ***CURLIB**   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
> **name**   Specify the name of the library.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

> *****   The job that issued the command.

Qualifier 1: Job name

> **name**   Specify the name of the job. CHAR(10)

Qualifier 2: User

> **name**   Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

    000000-999999   Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

    <u>*LAST</u>   The highest numbered spooled file with the specified file name is used.
    ***ONLY**   The number of the only spooled file with the specified file name is used.
    1-999999   Specify the number of the spooled file.

Examples

Example 1:

```
ARCSPLF   FILE(QSYSPRT)
```

This command archives the last spooled file named QSYSPRT. The current job is searched to locate the file. The archive is placed in the job's *CURLIB.

Example 2:

```
ARCSPLF   FILE(QPQUPRFIL) ARC(QGPL/*GEN) SPLNBR(3)
```

The file named QPQUPRFIL which is spooled file number 3 in the job executing this command is archived. The archive is placed in library QGPL.

Change Device Gumbo Printer (CHGDEVGLP)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Change Device Gumbo Printer (CHGDEVGLP) command prompts you to change the source command executed by a Gumbo logical printer.

Parameters

Keyword	Description	Choices	Notes
DEVD	Device description	*Name*	Required, Positional 1
START	Start printer writer now	***YES**, *NO	Optional

Device description (DEVD)

Specifies the name of the device description.

This is a required parameter.

name   Specify the name of the device.

Start printer writer now (START)

Specifies whether a printer writer is automatically started (restarted if it is active) when the changes are complete.

Note: The changes do not take affect until the printer writer is restarted.

*YES   A printer writer is started immediately.
*NO   A printer writer is not started now.

Examples

Example 1:

```
CHGDEVGLP   DEVD(GPL01)
```

This command changes a Gumbo logical printer with named GLP01.

Change Spool-a-Matic Authorization (CHGSAMAUT)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Change Spool-a-Matic Authorization (CHGSAMAUT) command changes the authorization code for Spool-a-Matic. The command is used to extend a demonstration period or to permanently authorize Spool-a-Matic for a system or a partition.

Parameters

Keyword	Description	Choices	Notes
AUTH	Authorization code	*Hexadecimal value*	Required, Positional 1
EXPDAT	Expiration date (CCYYMMDD)	*Character value*, ***NONE**	Optional, Positional 2
LICTYP	License type	***SYS**, *LPAR	Optional, Positional 3
PRCMAX	Processor maximum capacity	*Decimal number*	Optional, Positional 4

Authorization code (AUTH)

Specifies the authorization code to use. The authorization code is 8 hex digits that may be entered in upper or lower case.

This is a required parameter.

hexadecimal value   Specify the case insensitive authorization code.

Expiration date (CCYYMMDD) (EXPDAT)

Specifies the date on which the authorization expires.

*NONE   The authorization is permanent.
date   The date on which the authorization expires in CCYYMMDD format.

License type (LICTYP)

Specifies the type of license that is authorized.

*SYS   The authorization is for a system wide license which enables any and all partitions on the system but is specific to the processor group.

                 Note: The authorization code must be entered in each partition.

*LPAR   The license is specific to one of the partitions on the system and specific to a number of processors within the partition. A partition license must be entered in the partition for which it is intended.

Processor maximum capacity (PRCMAX)

Specifies the maximum processor capacity for which the partition is licensed. The value is expressed in terms of processors where 1.00 is 100% of a processor's capacity or the same as 1 processor, .50 is 50% of a processor's capacity or .5 processors, 2.00 is 200% of a processor's capacity or 2 processors, etc.

decimal number   Specify the maximum processor capacity.

Examples

Example 1:
```
CHGSAMAUT  AUTH(01234567)
```

This command changes the authorization code to a permanent system wide license code.

Example 2:

```
CHGSAMAUT  AUTH(01234567) LICTYP(*LPAR) PRCMAX(1.3)
```

This command changes the authorization code to a permanent partition only license code for 1.3 processors in the current partition.

Change Spool-a-Matic Default (CHGSAMDFT)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Change Spool-a-Matic Default (CHGSAMDFT) command changes values used by Spool-a-Matic to control processing and other activities.

Parameters

Keyword	Description	Choices	Notes
MARGIN	Margins in hundredths	*Element list*	Optional, Positional 1
	Element 1: Left	0-255, ***SAME**	
	Element 2: Right	0-255, ***SAME**	
	Element 3: Top	0-255, ***SAME**	
	Element 4: Bottom	0-255, ***SAME**	
PDFDEFLATE	Compress PDF files	*NO, *YES, ***SAME**, ' ', N, S	Optional, Positional 2
HTMFNTSIZ	*HTMLBASIC Font Size	*MINUS3, *MINUS2, *MINUS1, *PLUS0, *PLUS1, *PLUS2, *PLUS3, ***SAME**, ' ', *, A, B, C, D, E, F	Optional, Positional 3
REFPRTDEV	Reference printer device	*Name*, ***SAME**, *SYSVAL, *AFPYES, *HPTASCII, *HPTOLD, *HPT, *NONE	Optional, Positional 5
REFOFFSET	Refprtdev offset default	*Element list*	Optional, Positional 6
	Element 1: Left	*Integer*, ***SAME**	
	Element 2: Top	*Integer*, ***SAME**	
REFCORRECT	Refprtdev offset correction	*Element list*	Optional, Positional 7
	Element 1: Left	*Integer*, ***SAME**	
	Element 2: Top	*Integer*, ***SAME**	
PDFNPBOVL	PDF apply noprtbdr to overlay	*NO, *YES, ***SAME**, ' ', Y, S	Optional, Positional 8
PDFFNTIMB	PDF font imbedding	Single values: ***SAME**, *NONE, *TYPES13 Other values (up to 5 repetitions): ***SAME**, *NONE, *TYPE3, *TYPE1, *TYPES13, *FGID, *TRUETYPE, 0, 1, 2, 3, 4, 8, -1	Optional, Positional 9
TXTRELPOS	Text relative positioning	*ESTIMATE, *EXACT, *EXACTMOD, ***SAME**, 0, 1, 3, 226	Optional, Positional 10
PDFIMGPBL	PDF image process blending	Single values: ***SAME**, *RECOMMENDED Other values (up to 3 repetitions): ***SAME**, *RECOMMENDED, *NOPREBLEND32, *PREBLEND32, *NOPREBLEND4, *PREBLEND4, *BLENDOVL, *NOBLENDOVL, 0, 1, 2, 64	Optional, Positional 11
SIXSIC	Spool Index SCS Control	*ORDINAL, *RELATIVE, ***SAME**, 0, 64, -1	Optional, Positional 12
PDFSGNKEY	PDF document signing key	Single values: ***SAME**, *NONE Other values: *Element list*	Optional, Positional 13
	Element 1: Application ID	*Character value*	
NOPRTBDR	Obsolete	*Element list*	Optional, Positional 4
	Element 1: .	*Integer*, ***SAME**	
	Element 2: .	*Integer*, ***SAME**	

Margins in hundredths (MARGIN)

Margins are used when converting a spooled file. The values for margins are entered in hundredths. For example, 100 means one inch and 25 means 1/4 inch.

Note: Not all transforms require or use the margin setting. Currently the *RTF transforms do use the margin setting.

Note: In previous releases, margins were used to affect the conversion of *SCS and *IPDS to PDF. This function is now supplied by the "Refprtdev offset default" (REFOFFSET) and "Reference printer device" (REFPRTDEV) parameters.

*SAME	The value is not changed.
margin	Specify the margin in hundredths.

Compress PDF files (PDFDEFLATE)

Specifies whether or not to use compression when using any of the *PDF conversions. When compression is used, the file is smaller but must be viewed with Adobe's Acrobat Reader 3.0 or higher. When compression is not used, older versions of Adobe's Acrobat Reader can be used to view the file.

*SAME	The value is not changed.
*YES	Compression is performed.
*NO	Compression is not performed.

*HTMLBASIC Font Size (HTMFNTSIZ)

Specifies the font size specification used by the *HTMLBASIC transform. This value is used on the "<FONT SIZE=..." tag in the generated HTML.

*SAME	The value is not changed.
*MINUS3	Font is three increments smaller than the base font.
*MINUS2	Font is two increments smaller than the base font.
*MINUS1	Font is one increment smaller than the base font.
*PLUS0	Font is the size as the base font.
*PLUS1	Font is one increment larger than the base font.
*PLUS2	Font is two increments larger than the base font.
*PLUS3	Font is three increments larger than the base font.

Reference printer device (REFPRTDEV)

The reference printer device is used when processing a spooled file. If an attribute of a spooled file specifies *DEVD, the reference printer device's description is retrieved to determine the value that is substituted for *DEVD. The reference printer device, in conjunction with the Refprtdev offset default and Refprtdev offset correction values, is also used to determine the correct positioning during processing.

*SAME	The value is not changed.
*SYSVAL	The system determines the reference printer device name from the QPRTDEV system value.
*AFPYES	Spooled files are processed as if an *IPDS AFP(*YES) printer were specified.
*HPTASCII	Spooled files are processed as if a Host Print Transform described ASCII printer were specified.
*HPTOLD	Included for backward compatibility, use *HPTASCII.
*HPT	Included for backward compatibility, same as *HPTOLD.
*NONE	Included for backward compatibility, same as *AFPYES.
name	Specify the name of the reference printer device.

Refprtdev offset default (REFOFFSET)

Specifies the default offset values (in 1/1440ths of an inch) to use if these can not be determined from the printer device specified on the REFPRTDEV parameter.

The Refprtdev offset default values represent the offset from the top left corner of the physical paper to the top left corner of the printable area for the printer:

- For HPT printers, this offset is often referred to as a "no print border".
- For *IPDS printers, this offset is often referred to as an "unprintable area".
- When set to 0s, a printer that is capable of printing edge-to-edge and with the capability turned on, is implied.
- Under most circumstances, the offset values move text and other page elements without moving page overlays.
- A typical IBM *IPDS printer has an unprintable area of 227 (1440ths of an inch or 4mm) when edge-to-edge printing is turned off.
- A typical HP Laser printer has a no print border of 240 (1440ths of an inch or 1/6").

During processing, the Reference printer device is used to determine the offset from the top left corner of the physical paper to the top left corner of the printable area. When the values can not be determined from the Reference printer device, the values specified in the "Refprtdev offset default" (REFOFFSET) parameter are used.

Additional information on this topic can be found in the Red Book IBM iSeries Printing V SG24-2160-00 available at http://www.iseries.ibm.com/infocenter.

Note: Previously, some of the function provided by the REFPRTDEV and REFOFFSET parameters were provided by the MARGIN and NOPRTBDR parameters. See the help text for them for further details.

*SAME	The value is not changed.
integer	Specify the offset in 1/1440ths of an inch.

Refprtdev offset correction (REFCORRECT)

Specifies offset correction values (in 1/1440ths of an inch), used to fix disparities between the physical hardware and its logical description.

The Refprtdev offset correction (REFCORRECT) parameter should almost always be set to zero. In two obscure cases values should be entered to correct alignment problems in the generated output.

1. If the spooled file normally prints correctly on an *IPDS printer that has a page offset value (usually set through the front panel), enter the same page offset values here.
2. If the spooled file normally prints correctly on a Workstation Customizing Object defined printer (that is, a custom WSCST is specified on the device description), and if the WSCST inaccurately specifies the device's no print border, enter a value here. The value to enter is the actual no print border minus the no print border inaccurately specified in the WSCST.

If you are not sure that these cases apply, enter zeros.

*SAME	The value is not changed.
integer	Specify the offset correction in 1/1440ths of an inch.

PDF apply noprtbdr to overlay (PDFNPBOVL)

Specifies how to handle overlays that fall into a Host Print Transform described printer's no print border when using any of the *PDF conversions.

*SAME	The value is not changed.
*YES	Overlays are moved out of the no print border.
*NO	Overlays are located at their "natural" position.

PDF font imbedding (PDFFNTIMB)

Specifies the default setting for font imbedding. Font imbedding specifies, by font type, which font definitions are included in the generated PDF file. Imbedding fonts improves the fidelity of the PDF at the expense of file size.

*SAME	The value is not changed.
*NONE	No font definitions are included in the file. All fonts are mapped to Acrobat built-ins.
*TYPE1	Outline font resources are imbedded in the file.
*TYPE3	Raster font resources are subsetted and imbedded in the file.
*TYPES13	Both raster and outline font resources are imbedded in the file.
*FGID	Printer resident font specifications are converted to host resident printer emulation font resources and these are imbedded in the file.
*TRUETYPE	TrueType and OpenType fonts are imbedded in the file.

Text relative positioning (TXTRELPOS)

Specifies the accuracy with which relative text positioning operations are processed. Most i5/OS spooled files use absolute text positioning operations which are processed exactly. For spooled files and print resources that contain relative moves, use blank padding to position text, or underline variable pitch text, positional accuracy can be improved at the expense of processing time.

*SAME	The value is not changed.
*ESTIMATE	Relative text positions are calculated using the font's average character increment.
*EXACT	Relative text positions are calculated using each character's exact character increment in the host resident font.
*EXACTMOD	Relative text positions are calculated using each character's exact character increment in the host resident font.
	Note: This is the same as *EXACT but uses a modified positioning algorithm employed by some printers.

PDF image process blending (PDFIMGPBL)

Specifies the default setting for image process blending which gives you control over image blending in the generated PDF.

The *NOPREBLEND32, *PREBLEND32, *NOPREBLEND4, *PREBLEND4 parameter values define the way in which banded (usually color) 32 bit and 4 bit image data is managed. When *NOPREBLEND32 and *NOPREBLEND4 are specified, the generated PDF takes advantage of the blending facilities implemented in Acrobat 5.0 and higher to significantly reduce the i5/OS processing required to render full color images. However, these images do not display properly in Acrobat 4 and below, 4 bit images may be too dark, and the file size may be larger and the file may take longer to display. With *PREBLEND32 and *PREBLEND4 you can specify that additional processing be performed on your system to "pre-blend" images before placing them into the generated PDF. In particular, color matching for pure 4 bit images may also be improved. The recommended settings are *NOPREBLEND32 and *PREBLEND4.

*SAME	The value is not changed.
*RECOMMENDED	Use the recommended settings of *NOPREBLEND32 *PREBLEND4.
*NOPREBLEND32	Do not pre-blend 32 bit images.
*PREBLEND32	Use image pre-blending on 32 bit images.
*NOPREBLEND4	Do not pre-blend 4 bit images.
*PREBLEND4	Use image pre-blending on 4 bit images.

Note: *BLENDOVL and *NOBLENDOVL are obsolete and have no effect.

Spool Index SCS Control (SIXSIC)

Specifies the spooled file indexing method for *SCS files in the presence of lines per inch (LPI) changes or font changes within a page. Spooled file indexing occurs when line and position values are required to process a request. Examples are filtering, or specifying page data. This setting can only affect the determination of line numbers if the spooled file contains *SCS and if the LPI or font changes within a page.

*SAME	The value is not changed.
*ORDINAL	This is the recommended value. Line numbers and position numbers are calculated using a deterministic, repeatable method that typically returns line and position values as they were specified in the DDS for the printer file.
*RELATIVE	This value gives the original indexing behavior. The method returns line and position numbers that may vary from page to page for data that otherwise appears in the same position. The variance depends on the data's position relative to preceding data on the page.

PDF document signing key (PDFSGNKEY)

Specifies the digital certificate used to sign Portable Document Format (PDF) files.

The PDF documents produced can be, optionally, digitally signed. The signature included in the PDF document allows the identity of the author to be validated and provides additional assurance that the PDF document has not been tampered with after it was signed.

A certificate is referenced by specifying the name (Application ID) of an object signing application created using i5/OS's Digital Certificate Manager.

*SAME	The value is not changed.
*NONE	No signing operation is performed.
application-id	Specify the application identifier to use in the signing operation.

PDF border correction 1440ths (NOPRTBDR)

This is an obsolete parameter whose value is no longer used and is ignored. Use REFOFFSET() instead.

Examples

Example 1:

```
CHGSAMDFT   PDFDEFLATE(*NO)
```

This command changes the *PDF generation to omit compression. The file created by the *PDF transforms are suitable for viewing with Acrobat 2.0 or higher.

Example 2:

```
CHGSAMDFT   PDFSGNKEY(*NONE)
```

This command removes the default PDF signing key.

Check Spool-a-Matic Authorization (CHKSAMAUT)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Check Spool-a-Matic Authorization (CHKSAMAUT) command executes Spool-a-Matic's authorization verification function. This allows you to determine whether and how the product is authorized for use.

Parameters

Keyword	Description	Choices	Notes
MSGQ	Message queue	Single values: ***NONE** Other values: *Qualified object name*	Optional, Positional 1
	Qualifier 1: Message queue	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	

Message queue (MSGQ)

Specifies a message queue that should receive messages if the product is not permanently authorized.

Single values

*NONE   Messages are not sent to an external message queue.

Qualifier 1: Message queue

name   Specify the name message queue that receives messages.

Qualifier 2: Library

*LIBL   All libraries in the thread's library list are searched.
*CURLIB   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name   Specify the name of the library.

Examples

Example 1:

```
CHKSAMAUT
```

This command executes Spool-a-Matic's authorization verification function to determine whether and how the product is authorized for use.

Example 2:

```
CHKSAMAUT   MSGQ(QSYSOPR)
```

This command executes Spool-a-Matic's authorization verification function to determine whether and how the product is authorized for use. If the product is not permanently authorized for use a failure message is sent to the system operator's message queue.

Create Device Gumbo Printer (CRTDEVGLP)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Create Device Gumbo Printer (CRTDEVGLP) command creates a device description for a Gumbo logical printer.

A Gumbo logical printer is a printer device that performs spooled file processing instead of printing on paper. As with other printer devices, you use i5/OS's writer commands (WRKWTR, STRPRTWTR, ENDWTR, HLDWTR, etc.) and i5/OS's configuration commands (WRKCFGSTS, VFYCFG, etc.) to control a Gumbo logical printer's operation.

When you create a Gumbo logical printer using the Create Device Gumbo Printer (CRTDEVGLP) command, a source file with the same name is create in library QUSRSYS. The source file contains a member with the same name as the printer and in the source member is a single Control Language (CL) command. As a Gumbo logical printer processes, it runs this command once for each spooled file in the output queue.

Parameters

Keyword	Description	Choices	Notes
DEVD	Device description	*Name*	Required, Positional 1
PORT	Port number	0-65535	Required, Positional 2
ONLINE	Online at IPL	***YES**, *NO	Optional
PRTERRMSG	Printer error message	***INQ**, *INFO	Optional
MSGQ	Message queue	*Qualified object name*	Optional
	Qualifier 1: Message queue	*Name*, **QSYSOPR**	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
START	Start printer writer now	***YES**, *NO	Optional
TEXT	Text 'description'	*Character value*, ***BLANK**	Optional
AUT	Authority	*Name*, ***LIBCRTAUT**, *CHANGE, *ALL, *USE, *EXCLUDE	Optional

Device description (DEVD)

Specifies the name of the device description.

This is a required parameter.

name Specify the name of the device.

Port number (PORT)

Specifies the port number of the Gumbo logical printer. Valid values range from 0 to 65535 and must be unique across all printer devices on the system which have device class *LAN. You should also avoid "well known" and "registered" ports such as 25 and 9100. Otherwise, it does not matter what port number you specify.

This is a required parameter.

0-65535 Specify the port number to use.

Online at IPL (ONLINE)

Specifies whether this device is automatically varied on at initial program load (IPL).

*YES This device is varied on automatically at IPL.
*NO This device is not varied on automatically at IPL.

Printer error message (PRTERRMSG)

Specifies whether the device has inquiry messages or informational messages for recoverable errors.

*INQ   Inquiry messages are sent for recoverable errors.
*INFO   Informational messages are sent for recoverable errors.

Message queue (MSGQ)

Specifies the qualified name of the message queue to which operational messages for this device are sent.

Element 1: Message queue

QSYSOPR   Messages are sent to the QSYSOPR message queue.
name   Specify the name of the message queue.

Qualifier 2: Library

*LIBL   All libraries in the thread's library list are searched.
*CURLIB   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name   Specify the name of the library.

Start printer writer now (START)

Specifies whether a printer writer is automatically started as soon as the Gumbo logical printer is created.

*YES   A printer writer is started immediately.
*NO   A printer writer is not started now.

Text 'description' (TEXT)

Specifies text that provides a brief description.

*BLANK   No text is specified.
character-value   Specify up to 50 characters of text enclosed in apostrophes.

Authority (AUT)

Specifies the authority you are giving to users who do not have specific authority to the object, who are not on the authorization list, or whose group has no specific authority to the object.

*LIBCRTAUT   The authority for the object is the same as the value specified on the **Create authority** prompt (CRTAUT parameter) of the library in which the object is being created. If the value specified on the **Create authority** prompt (CRTAUT parameter) is changed, the new value will not effect any existing objects.

*CHANGE   Change authority allows the user to perform basic functions on the object, however, the user cannot change the object. Change authority provides object operational authority and all data authority.

*ALL   The user can perform all operations except those limited to the owner or controlled by authorization list management authority. The user can control the object's existence, specify the security for the object, change the object, and perform basic functions on the object. The user cannot transfer ownership of the object.

*USE   Use authority provides object operational authority and read authority.

*EXCLUDE   Exclude authority prevents the user from accessing the object.

name   Specify the name of an authorization list to be used for authority to the object. Users included in the authorization list are granted authority to the object as specified in the list. The authorization list must exist when the object is created.

Examples

Example 1:
```
CRTDEVGLP  DEVD(GPL01)
```

This command creates a Gumbo logical printer with named GLP01. The CL command executed by the print driver program is contained in member GLP01 in the source physical file QUSRSYS/GLP01. The device is automatically varied on at IPL.

Create Spool Save File (CRTSPLSAVF)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Create Spool Save File (CRTSPLSAVF) command creates a save file containing a spooled file and all its related resources. The save file is suitable for emailing with a problem report.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*	Required, Positional 1
SAVF	Save file	*Qualified object name*	Required, Positional 2
	Qualifier 1: Save file	*Name*	
	Qualifier 2: Library	*Name*, ***CURLIB**	
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional
SAVRSC	Save resources	***YES**, *NO, Y, N	Optional
MSG	Message	*Character value*, ***NONE**	Optional

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

> **name**   Specify the name of the spooled file.

Save file (SAVF)

Specifies the name of the save file that is used to contain spooled file data. The saved file must not exist and will be created by the command.

This is a required parameter.

Qualifier 1: Save file

> **name**   Specify the save file name.

Qualifier 2: Library

> ***CURLIB**   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
> **name**   Specify the name of the library.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

> *****   The job that issued the command.

Qualifier 1: Job name

> **name**   Specify the name of the job. CHAR(10)

Qualifier 2: User

> **name**   Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

> **000000-999999**   Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

> ***LAST**   The highest numbered spooled file with the specified file name is used.
> ***ONLY**   The number of the only spooled file with the specified file name is used.
> **1-999999**   Specify the number of the spooled file.

Save resources (SAVRSC)

Specifies if external resource such as overlays and page segments are included in the save file.

> ***YES**   Resources are saved.
> ***NO**   Resources are not saved.

Message (MSG)

Specifies a short message to include in the save file.

> ***NONE**   No message is included.
> **character value**   Specify a short message to include in the save file.

Examples

Example 1:

```
CRTSPLSAVF  FILE(QSYSPRT) SAVF(QGPL/PRBRPT)
```

This command creates save file PRBRPT in library QGPL. The last spooled file named QSYSPRT is saved along with its resources. The current job is searched to locate the file.

Example 2:

```
CRTSPLSAVF  FILE(QPQUPRFIL) SAVF(NEWPRB) SPLNBR(3)
```

The file named QPQUPRFIL which is spooled file number 3 in the job executing this command is saved to save file NEWPRB. The save file is placed in job's *CURLIB.

Delete Device Gumbo Printer (DLTDEVGLP)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Delete Device Gumbo Printer (DLTDEVGLP) command deletes a device description for a Gumbo logical printer.

Note: If a writer is active it is ended. If the device is varied on, it is varied off.

Parameters

Keyword	Description	Choices	Notes
DEVD	Device description	*Name*	Required, Positional 1

Device description (DEVD)

Specifies the name of the device description.

This is a required parameter.

name   Specify the name of the device.

Examples

Example 1:

```
DLTDEVGLP   DEVD(GPL01)
```

This command deletes a Gumbo logical printer with named GLP01.

Dump Page Index Positions (DMPPIP)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Dump Page Index Positions (DMPPIP) command prints the line and position values, for data found in the spooled file, as calculated by the software. These are used to specify data selection criteria for the spooled file.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*, *LASTCRT	Required, Positional 1
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional, Positional 2
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional, Positional 3
PAGERANGE	Page range to print	*Element list*	Optional, Positional 4
	Element 1: Starting page	*Integer*, **1**, *ENDPAGE	
	Element 2: Ending page	*Integer*, ***END**	

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

*LASTCRT	The last spooled file created by the current job or thread is identified using the QSPRILSP api and processed. This is useful for jobs that create spooled files under other user profiles, which consequently end up in the user's QPRTJOB. When *LASTCRT is specified, the JOB() and SPLNBR() parameters are ignored.
name	Specify the name of the spooled file.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*	The job that issued the command.

Qualifier 1: Job name

name	Specify the name of the job. CHAR(10)

Qualifier 2: User

name	Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999	Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Page range to print (PAGERANGE)

Specifies the starting and ending pages to process.

Element 1: Starting page

1	Processing begins at page 1.
*ENDPAGE	The starting page to print is the ending page to print. Only the ending page is printed.
integer	Specify the starting page.

Element 2: Ending page

*END	Processing continues until the end of file.
integer	Specify the ending page.

Examples

Example 1:
```
DMPPIP      FILE(QSYSPRT)
                JOB(033194/QPGMR/MONTHEND) SPLNBR(2)
```

This command dumps data position information for spooled file number 2, QSYSPRT, from job 033194/QPGMR/MONTHEND.

Example 2:
```
DMPPIP      FILE(QSYSPRT) PAGERANGE(3 4)
```

This command dumps data position information for the last spooled file with name QSYSPRT from the job running the command. Only the data for pages 3 and 4 is dumped.

Display Page Data (DSPPAGDTA)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Display Page Data (DSPPAGDTA) command shows the contents of a spooled file's pages at specified locations. The contents can be shown, printed, or directed to database output file (OUTFILE).

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*, *LASTCRT	Required, Positional 1
PAGDTA	Page data	Values (up to 12 repetitions): *Element list*	Required, Positional 2
	Element 1: Line	1-255, *STRPAGGRP, *DOCIDXTAG, *DOCIDXPAG, *DOCIDXGRP, *STRPAGGRPP, *DOCIDXTAGP, *DOCIDXGRPP	
	Element 2: Position	1-378, 0	
	Element 3: Length	1-64, 0	
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional, Positional 3
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional, Positional 4
OUTPUT	Output	*****, *PRINT, *OUTFILE	Optional
OUTFILE	File to receive output	*Qualified object name*	Optional
	Qualifier 1: File to receive output	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
OUTMBR	Output member options	*Element list*	Optional
	Element 1: Member to receive output	*Name*, ***FIRST**	
	Element 2: Replace or add records	***REPLACE**, *ADD	

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

*LASTCRT	The last spooled file created by the current job or thread is identified using the QSPRILSP api and processed. This is useful for jobs that create spooled files under other user profiles, which consequently end up in the user's QPRTJOB. When *LASTCRT is specified, the JOB() and SPLNBR() parameters are ignored.
name	Specify the name of the spooled file.

Page data (PAGDTA)

Specifies the location (line, position and length), on the page of the spooled file, from which data is retrieved. INT(2), INT(2), INT(2)

This is a required parameter.

Element 1: Line

*STRPAGGRP	Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.
*DOCIDXTAG	Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXPAG   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "page" level are processed.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXGRP   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*STRPAGGRPP   Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the keyword was specified directly on each subsequent page in the group.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXTAGP   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXGRPP   Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

1-255   Specify the line number where the data is located on the page.

Element 2: Position

1-378   Specify the position where the data is located in the line. Valid values range from 1 through 378. The value specified plus the data length should be less than the number of print positions in the spooled file.

Element 3: Length

1-64   Specify the length of the data. The value specified plus the start position should be less than the number of print positions in the spooled file.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*   The job that issued the command.

Qualifier 1: Job name

name   Specify the name of the job. CHAR(10)

Qualifier 2: User

name   Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999   Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Output (OUTPUT)

Specifies the kind of output generated by the command. CHAR(10)

*	The output is displayed (if requested by an interactive job) or printed with the job's spooled output (if requested by a batch job).
*PRINT	The output is printed with the job's spooled output.
*OUTFILE	The output is directed to the database file specified on the File to receive output prompt (OUTFILE parameter).

File to receive output (OUTFILE)

Specifies the name and library of the database file to which the output of the command is directed. If the file does not exist, the command creates one in the specified library. CHAR(10) CHAR(10)

Qualifier 1: File to receive output

name	Specify the name of the file to which the output of the command is directed.

Qualifier 2: Library

*LIBL	All libraries in the thread's library list are searched.
*CURLIB	Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name	Specify the name of the library.

Data is output in the PDPAGDRF record format which is documented in the appendix.

Output member options (OUTMBR)

Specifies the name of the database file member that receives the output of the command. CHAR(10) CHAR(10)

Element 1: Member to receive output

*FIRST	The first member in the file receives the output. If it does not exist, the system creates a member with the name of the file specified in the File to receive output prompt (OUTFILE parameter). If the member already exists, you have the option to add new records to the end of the existing member or clear the member and then add the new records.
name	Specify the name of the member that receives the output. If it does not exist, the system creates it.

Element 2: Replace or add records

*REPLACE	The system clears the existing member and adds the new records.
*ADD	The system adds the new records to the end of the existing records.

Examples

Example 1:
```
DSPPAGDTA   FILE(QSYSPRT)
            PAGDTA((3 4 10) (*STRPAGGRP))
            JOB(033194/QPGMR/MONTHEND) SPLNBR(2)
```

This command displays data from line 3, position 4 for a length of 10 from each page in the spooled file as well as the page group names added using the STRPAGGRP() DDS keyword. The spooled file processed is file number 2, QSYSPRT, from job 033194/QPGMR/MONTHEND.

Example 2:
```
DSPPAGDTA   FILE(INVOICE) PAGDTA((*DOCIDXTAG))
              OUTPUT(*OUTFILE)
              OUTFILE(HISTORY/INVSPLF)
              OUTMBR(*FIRST *ADD)
```

This command retrieves data stored in DOCIDXTAG() DDS keywords for all pages of the spooled file INVOICE found in the current job. The data is added to the first member of the file INVSPLF found in library HISTORY.

Error messages

Parameter dependencies

GCM7014	OUTFILE parameter required with OUTPUT(*OUTFILE).
GCM7015	OUTFILE parameter can only be specified with OUTPUT(*OUTFILE).
GCM7016	OUTMBR parameter can only be specified with OUTPUT(*OUTFILE).

Extract AFP Resources (EXTAFPRSC)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Extract AFP Resources (EXTAFPRSC) command creates a file containing a member for each AFP resource found in an *AFPDS spooled file's external resource group. The file is suitable for creating local copies of AFP resources using the i5/OS commands.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*	Required, Positional 1
OUTFILE	File to receive output	*Qualified object name*	Required, Positional 2
	Qualifier 1: File to receive output	*Name*	
	Qualifier 2: Library	*Name*, ***CURLIB**	
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

name   Specify the name of the spooled file.

File to receive output (OUTFILE)

Specifies the name and library of the database file to which the output of the command is directed. If the file does not exist, the command creates one in the specified library. CHAR(10) CHAR(10)

This is a required parameter.

Qualifier 1: File to receive output

name   Specify the name of the file to which the output of the command is directed.

Qualifier 2: Library

*LIBL   All libraries in the thread's library list are searched.
*CURLIB   Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name   Specify the name of the library.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*   The job that issued the command.

Qualifier 1: Job name

name   Specify the name of the job. CHAR(10)

Qualifier 2: User

> ***name***   Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

> ***000000-999999***   Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

> **<u>*LAST</u>**   The highest numbered spooled file with the specified file name is used.
> **ONLY**   The number of the only spooled file with the specified file name is used.
> ***1-999999***   Specify the number of the spooled file.

Examples

Example 1:

```
EXTAFPRSC  FILE(QSYSPRT) OUTFILE(QGPL/AFPRSC)
```

This command extracts AFP resources to file AFPRSC in library QGPL. The last spooled file named QSYSPRT is processed. The current job is searched to locate the file.

Example 2:

```
EXTAFPRSC  FILE(INVOICES) OUTFILE(QGPL/NEWRSC) SPLNBR(3)
```

The file named INVOICES which is spooled file number 3 in the job executing this command is processed and resources placed in file NEWRSC in library QGPL.

Retrieve Page Data (RTVPAGDTA)

Where allowed to run:

Batch program (*BPGM)

Interactive program (*IPGM)
Threadsafe: No

The Retrieve Page Data (RTVPAGDTA) command retrieves data from a specific location in a spooled file. The requested data is returned in a Control Language (CL) program variable.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*, *LASTCRT	Required, Positional 1
RTNDATA	CL var for data (1-255)	*Character value*	Required, Positional 2
PAGDTA	Page data	*Element list*	Required, Positional 3
	Element 1: Line	1-255, *STRPAGGRP, *DOCIDXTAG, *DOCIDXPAG, *DOCIDXGRP, *STRPAGGRPP, *DOCIDXTAGP, *DOCIDXGRPP	
	Element 2: Position	1-378, 0	
	Element 3: Length	1-255, 0	
PAGE	Page number	*Unsigned integer*, **1**, *LAST	Optional, Positional 4
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional, Positional 5
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional, Positional 6

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

*LASTCRT	The last spooled file created by the current job or thread is identified using the QSPRILSP api and processed. This is useful for jobs that create spooled files under other user profiles, which consequently end up in the user's QPRTJOB. When *LASTCRT is specified, the JOB() and SPLNBR() parameters are ignored.
name	Specify the name of the spooled file.

CL var for data (1-255) (RTNDATA)

Specifies the CL variable which is to receive the data returned by the command. The variable can have a declared length between 1 and 255 and it must be as long as or longer than the requested data length. (CHAR).

This is a required parameter.

Page data (PAGDTA)

Specifies the location (line, position and length), on the page of the spooled file, from which data is retrieved. INT(2), INT(2), INT(2)

This is a required parameter.

Element 1: Line

*STRPAGGRP	Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the

printed page and the length is derived from the value stored.

*DOCIDXTAG　　Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXPAG　　Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "page" level are processed.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXGRP　　Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*STRPAGGRPP　　Data specified on the DDS STRPAGGRP() keyword is retrieved. These keywords inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the keyword was specified directly on each subsequent page in the group.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXTAGP　　Data specified on the DDS DOCIDXTAG() keyword is retrieved. Tags specified at both the "page" level and "group" level are processed. "Group" level tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

*DOCIDXGRPP　　Data specified on the DDS DOCIDXTAG() keyword is retrieved. Only tags specified at the "group" level are processed. These tags inherit the page number of the next page to occur in the spooled file and are propagated to subsequent pages in the page group. Propagation processing gives the appearance that the "group" level tag was specified directly on each subsequent page in the group.

This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

1-255　　Specify the line number where the data is located on the page.

Element 2: Position

1-378　　Specify the position where the data is located in the line. Valid values range from 1 through 378. The value specified plus the data length should be less than the number of print positions in the spooled file.

Element 3: Length

1-64　　Specify the length of the data. The value specified plus the start position should be less than the number of print positions in the spooled file.

Page number (PAGE)

Specifies the page number from which data is retrieved. INT(4)

1　　Data is retrieved from the first page of the spooled file.
*LAST　　Data is retrieved from the last page of the spooled file.
integer　　Specifies the page from which data is retrieved.

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*	The job that issued the command.

Qualifier 1: Job name

name	Specify the name of the job. CHAR(10)

Qualifier 2: User

name	Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999	Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Examples

Example 1:

```
RTVPAGDTA   FILE(QSYSPRT)
              RTNDATA(&CUSTNO) PAGDTA(3 4 10)
              JOB(033194/QPGMR/MONTHEND) SPLNBR(2)
```

This command retrieve data from line 3, position 4 for a length of 10 from the first page in the spooled file and places the data in the variable &CUSTNO. The spooled file processed is file number 2, QSYSPRT, from job 033194/QPGMR/MONTHEND.

Spool Convert (SPLCONVERT)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Spool Convert (SPLCONVERT) command converts an i5/OS spooled file into a PC file in i5/OS's Integrated File System.

Parameters

Keyword	Description	Choices	Notes
FILE	Spooled file name	*Name*, *LASTCRT	Required, Positional 1
TOOBJ	Object	*Character value*, *ACGCDE, *CRTSYS, *CRTUSR, *FILE, *FILE8, *FORMTYPE, *JOBNAM, *JOBNAM8, *JOBNBR, *JOBUSR, *JOBUSR8, *OUTQ, *PAGDTA, *PAGECOUNT, *PAGECNTZ, *PGM, *PGM8, *PRTTXT, *SPLCDAT, *SPLCTIM, *SPLCCYY, *SPLCYY, *SPLCMM, *SPLCDD, *SPLNBR, *SPLNBRZ, *USRDTA, *USRDFNDTA, *USRDFNTXT	Required, Positional 2
JOB	Job name	Single values: ***** Other values: *Qualified job name*	Optional, Positional 3
	Qualifier 1: Job name	*Name*	
	Qualifier 2: User	*Name*	
	Qualifier 3: Number	000000-999999	
SPLNBR	Spooled file number	1-999999, *ONLY, ***LAST**	Optional, Positional 4
TRANSFORM	Transform to perform	*Character value*, ***TXT**, *PDFLETTER, *PDFLEGAL, *PDFSTATEMENT, *PDFEXECUTIVE, *PDFLEDGER, *PDFA3, *PDFA4, *PDFA5, *PDFB4, *PDFB5, *PDFLETTERLEGAL, *PDFLEGALLETTER, *PDFALETTER, *PDFALEGAL, *PDFASTATEMENT, *PDFAEXECUTIVE, *PDFALEDGER, *PDFAA3, *PDFAA4, *PDFAA5, *PDFAB4, *PDFAB5, *PDFALTRLGL, *PDFALGLLTR, *PDFPAGESIZE, *RTFLETTER, *RTFLEGAL, *RTFSTATEMENT, *RTFEXECUTIVE, *RTFLEDGER, *RTFA3, *RTFA4, *RTFA5, *RTFB4, *RTFB5, *HTMLBASIC, *POSTSCRIPT, *AFPPRINTFILE, *AFPPRINTFILE2, *TIFFLETTER, *TIFFLEGAL, *TIFFEXECUTIVE, *TIFFLEDGER, *TIFFA3, *TIFFA4, *TIFFA5, *TIFFB4, *TIFFB5, *TIFFCONT80, *TIFFCONT132, *TIFF, *TIFFG4, *TIFFPB, *FFTBASIC, *TXTFF, *TXTTRIM, *TXTTRIMFL, *WSCST, *NONE, *NONEPDF, *WSCSTLETTER, *WSCSTLEGAL, *WSCSTEXECUTIVE, *WSCSTA4, *WSCSTA5, *WSCSTB5, *WSCSTCONT80, *WSCSTCONT132, *CRLF, *PDF, *PDFLETTERBASIC, *PDFLEGALBASIC, *PDFA4BASIC, *PDF811, *PDF814, *PDF811814, *PDF814811, *RTF811, *RTF814	Optional
REPLACE	Replace PC file data	*NO, ***YES**, Y, N	Optional
WSCST	Workstation customizing object	Single values: ***NONE** Other values: *Qualified object name*	Optional
	Qualifier 1: Workstation customizing object	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
TRGCCSID	Target coded character set id	1-65533, *UNICODE, ***WINANSI**, *UTF8, *BIG5, *GBK, *ISO88591, *ISO88592, *ISO88595, *ISO88597, *ISO88598, *ISO88599, *USASCII, *ISO-8859-1, *ISO-8859-2, *ISO-8859-5, *ISO-8859-7, *ISO-8859-8, *ISO-8859-9, *US-ASCII	Optional
SRCCCSID	Source coded character set id	1-65533, ***KBDTYPE**, *SYSVAL, *JOBDFT	Optional
DTAAUT	Data authorities	***ALL**, *NONE, *RWX, *RX, *RW, *WX, *R, *W, *X, *EXCLUDE, *INHERIT	Optional
OWNER	Owner	*Name*, ***CURUSRPRF**, *SPLFOWN	Optional
CRTDIR	Create directories	***NO**, *YES, Y, N	Optional
PAGERANGE	Page range to print	Single values: *SPLF Other values: *Element list*	Optional
	Element 1: Starting page	*Integer*, **1**, *ENDPAGE	
	Element 2: Ending page	*Integer*, ***END**	
DLTSPLF	Delete file after processing	***NO**, *YES, Y, N	Optional
PAGDTA	Page data	Single values: ***STRPAGGRP** Other values: *Element list*	Optional

	Element 1: Line	1-255	
	Element 2: Position	1-378	
	Element 3: Length	1-64	
PDFDOCSEC	PDF document security	*Element list*	Optional
	Element 1: Owner password	*Character value*, **' '**, *NONE	
	Element 2: User password	*Character value*, **' '**, *NONE	
	Element 3: Allow print	***YES**, *NO, 0, 1	
	Element 4: Allow change	***YES**, *NO, 0, 1	
	Element 5: Allow copy	***YES**, *NO, 0, 1	
	Element 6: Allow annotation	***YES**, *NO, 0, 1	
	Element 7: Encryption specification	***V1**, *V2, 0, 16	
	Element 8: Allow form fill-in and sign	***YES**, *NO, 0, 1	
	Element 9: Allow accessibility inspection	***YES**, *NO, 0, 1	
	Element 10: Allow document assembly	***YES**, *NO, 0, 1	
	Element 11: Allow print as image	***YES**, *NO, 0, 1	
PDFDOCTTL	PDF document title	*Character value*, ***NONE**, *ACGCDE, *PRTTXT, *USRDTA, *USRDFNDTA, *USRDFNTXT	Optional
PDFDOCSBJ	PDF document subject	*Character value*, ***DEFAULT**, *ACGCDE, *PRTTXT, *USRDTA, *USRDFNDTA, *USRDFNTXT	Optional
PDFDOCATH	PDF document author	*Character value*, ***CRTUSRPRF**, *NONE	Optional
PDFDOCKWD	PDF document keywords	*Character value*, ***NONE**	Optional
PDFFNTIMB	PDF font imbedding	Single values: ***DEFAULT**, *NONE, *TYPES13 Other values (up to 5 repetitions): ***DEFAULT**, *NONE, *TYPE3, *TYPE1, *TYPES13, *FGID, *TRUETYPE, 0, 1, 2, 3, 4, 8, -3	Optional
PDFDOCOPN	PDF document open options	*Element list*	Optional
	Element 1: Initial page mode	***DEFAULT**, *PAGEONLY, *BOOKMARK, *THUMBNAIL, *FULLSCREEN, X'00', 1, 2, 3, 4	
	Element 2: Page mode after *FULLSCREEN	***DEFAULT**, *PAGEONLY, *BOOKMARK, *THUMBNAIL, X'00', 1, 2, 3	
	Element 3: Page layout	***DEFAULT**, *SINGLEPAGE, *ONECOL, *TWOCOLLEFT, *TWOCOLRIGHT, X'00', 1, 2, 3, 4	
	Element 4: Hide tool bars	***NO**, *YES, 0, 1	
	Element 5: Hide menu bar	***NO**, *YES, 0, 1	
	Element 6: Hide user interface elements	***NO**, *YES, 0, 1	
	Element 7: Resize window to initial page	***NO**, *YES, 0, 1	
	Element 8: Center window on screen	***NO**, *YES, 0, 1	
	Element 9: Display document title	***NO**, *YES, 0, 1	
	Element 10: Magnification	8-1600, ***DEFAULT**, *PAGE, *WIDTH, *HEIGHT, *PCT1600, *PCT800, *PCT400, *PCT200, *PCT150, *PCT125, *PCT100, *PCT75, *PCT50, *PCT25	
	Element 11: Page number	*Integer*, ***DEFAULT**, *LAST	
PDFOVL	PDF media overlay	Single values: ***NONE**, *GREENBAR, *BLUEBAR, *COPY Other values: *Qualified object name*	Optional
	Qualifier 1: PDF media overlay	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
PDFBKMSTY	PDF bookmark style	***ONELEVEL**, *NONE, *TWOLEVEL, 0, 1, 2	Optional
PDFBKMSRC	PDF bookmark data source	Values (up to 8 repetitions): *Element list*	Optional
	Element 1: Line	1-255, ***DOCIDXTAGP**, *DOCIDXTAG, *DOCIDXTAGG, *STRPAGGRP	
	Element 2: Position	1-378, 0	
	Element 3: Length	1-64, 0	
	Element 4: Name	*Character value*	
FIDELITY	Fidelity	*Name*, ***RESOURCE**, *CONTENT	Optional
OBJATR	Object attribute	Single values: ***NONE** Other values (up to 2 repetitions): *Element list*	Optional
	Element 1: Attribute	*DISKSTGOPT	
	Element 2: Value	*NORMAL, *MINIMIZE, *DYNAMIC	
PDFSGNKEY	PDF document signing key	Single values: ***DEFAULT**, *NONE Other values: *Element list*	Optional
	Element 1: Application ID	*Character value*	

Spooled file name (FILE)

Specifies the name of the spooled file to process. CHAR(10)

This is a required parameter.

*LASTCRT	The last spooled file created by the current job or thread is identified using the QSPRILSP api and processed. This is useful for jobs that create spooled files under other user profiles, which consequently end up in the user's QPRTJOB. When *LASTCRT is specified, the JOB() and SPLNBR() parameters are ignored.
name	Specify the name of the spooled file.

Object (TOOBJ)

Specifies the path name of the object (PC file) to create.

For more information on specifying path names, see *Programming > Control language > CL concepts > i5/OS objects > Object naming rules* topic in the IBM i Information Center at http://www.iseries.ibm.com/infocenter. CHAR(5000)

This is a required parameter.

path-name	Specify up to 5000 characters of path name. For example to create a file with name abc.txt in a directory with name mydirectory, specify '/mydirectory/abc.txt'

Spool-a-Matic provides several special values that can used to construct dynamic object (PC file) names. When the special values are found, the associated data is blank trimmed and substituted into the path specified when it is processed. If the data associated with a special value is blank, "BLANK" is substituted. If the data associated with a special value contains characters not allowed in a object name, question marks ('?') for example, the name will be invalid and the command will fail. The special values must be delimited by an underscore ('_') a period ('.') a slash ('/' or '\') or another special value (which starts with '*').

The spooled file splitting special values are:

*PAGDTA	The spooled file is split according to the criteria specified in the Page data (PAGDTA) parameter. A PC file is created for each unique value found and contains all the pages that had the value.

The spooled file attribute related special values are:

*ACGCDE	Accounting code CHAR(15).
*CRTSYS	System created on originally CHAR(8). This can differ from the current system's name if the spooled file was sent from another System i.
*CRTUSR	User creating originally CHAR(10). This can differ from the *JOBUSR value if the spooled file was sent from another System i.
*FILE	Spooled file name CHAR(10).
*FILE8	Same as *FILE truncated to CHAR(8).
*FORMTYPE	Spooled file form type CHAR(10). Make sure special values in the data are compatible with usage. For example few file systems allow * in a name. If the form type is *STD, the name will be invalid.
*JOBNAM	Name portion of the job containing the spooled file CHAR(10).
*JOBNAM8	Same as *JOBNAM truncated to CHAR(8).
*JOBNBR	Job number of the job containing the spooled file CHAR(6).
*JOBUSR	User portion of the job containing the spooled file CHAR(10).
*JOBUSR8	Same as *JOBUSR truncated to CHAR(8).
*OUTQ	Output queue the file is on CHAR(10).
*PAGECOUNT	Spooled file page count converted to text. CHAR(6) or more.
*PAGECNTZ	Spooled file page count converted to text with leading zeros removed. Length varies.
*PGM	Program that opened the file CHAR(10).
*PGM8	Same as *PGM truncated to CHAR(8).
*PRTTXT	Print text CHAR(30).
*SPLCDAT	Date the spooled file was open CHAR(7) CYYMMDD.
*SPLCTIM	Time the spooled file was opened CHAR(6) HHMMSS.
*SPLCCYY	Century-year portion of the date the spooled file was open CHAR(3) CYY.

*SPLCYY	Year portion of the date the spooled file was open CHAR(2) YY.
*SPLCMM	Month portion of the date the spooled file was open CHAR(2) MM.
*SPLCDD	Day portion of the date the spooled file was open CHAR(2) DD.
*SPLNBR	Spooled file number converted to text. CHAR(6).
*SPLNBRZ	Spooled file number converted to text with leading zeros removed. Length varies.
*USRDFNDTA	User defined data CHAR(255).
*USRDFNTXT	User-defined text taken from the user profile when the spooled file was created CHAR(100).
*USRDTA	User data CHAR(10).

Job name (JOB)

Specifies the job that contains the spooled file.

Single values

*	The job that issued the command.

Qualifier 1: Job name

name	Specify the name of the job. CHAR(10)

Qualifier 2: User

name	Specify the name that identifies the user profile under which the job is run. CHAR(10)

Qualifier 3: Number

000000-999999	Specify the system assigned job number. CHAR(6)

Spooled file number (SPLNBR)

Specifies the number of the spooled file. INT(4)

*LAST	The highest numbered spooled file with the specified file name is used.
*ONLY	The number of the only spooled file with the specified file name is used.
1-999999	Specify the number of the spooled file.

Transform to perform (TRANSFORM)

Specifies the manner in which the spooled file is transformed. CHAR(15)

*TXT	Use ASCII Text conversion.
*TXTFF	Use ASCII Text conversion ending each page with a form feed instead of filling with blank lines.
*TXTTRIM	Use ASCII Text conversion filling all but the last page with blank lines.
*TXTTRIMFL	Use ASCII Text conversion filling all but the last page with blank lines. In addition, each line is padded with blanks to the full width of the spooled file.
*PDFLETTER	Use PDF Portable Document Format conversion with a page size of 8.5" x 11".
*PDFLEGAL	Use PDF Portable Document Format conversion with a page size of 8.5" x 14".
*PDFSTATEMENT	Use PDF Portable Document Format conversion with a page size of 5.5" x 8.5".
*PDFEXCUTIVE	Use PDF Portable Document Format conversion with a page size of 7.25" x 10.5".
*PDFLEDGER	Use PDF Portable Document Format conversion with a page size of 11" x 17".
*PDFA3	Use PDF Portable Document Format conversion with a page size of A3.
*PDFA4	Use PDF Portable Document Format conversion with a page size of A4.
*PDFA5	Use PDF Portable Document Format conversion with a page size of A5.
*PDFB4	Use PDF Portable Document Format conversion with a page size of B4.
*PDFB5	Use PDF Portable Document Format conversion with a page size of B5.
*PDFLETTERLEGAL	Use PDF Portable Document Format conversion with a page size of 8.5" x 11" for drawer 1 and 8.5" x 14" for drawer 2.
*PDFLEGALLETTER	Use PDF Portable Document Format conversion with a page size of 8.5" x 14" for drawer 1 and 8.5" x 11" for drawer 2.

*PDFALETTER	Use PDF/A Portable Document Format conversion with a page size of 8.5" x 11".
*PDFALEGAL	Use PDF/A Portable Document Format conversion with a page size of 8.5" x 14".
*PDFASTATEMENT	Use PDF/A Portable Document Format conversion with a page size of 5.5" x 8.5".
*PDFAEXCUTIVE	Use PDF/A Portable Document Format conversion with a page size of 7.25" x 10.5".
*PDFALEDGER	Use PDF/A Portable Document Format conversion with a page size of 11" x 17".
*PDFAA3	Use PDF/A Portable Document Format conversion with a page size of A3.
*PDFAA4	Use PDF/A Portable Document Format conversion with a page size of A4.
*PDFAA5	Use PDF/A Portable Document Format conversion with a page size of A5.
*PDFAB4	Use PDF/A Portable Document Format conversion with a page size of B4.
*PDFAB5	Use PDF/A Portable Document Format conversion with a page size of B5.
*PDFALTRLGL	Use PDF/A Portable Document Format conversion with a page size of 8.5" x 11" for drawer 1 and 8.5" x 14" for drawer 2.
*PDFALGLLTR	Use PDF/A Portable Document Format conversion with a page size of 8.5" x 14" for drawer 1 and 8.5" x 11" for drawer 2.
*PDFPAGESIZE	Use PDF Portable Document Format conversion using the page size as described by the spooled file's attributes.
*RTFLETTER	Use RTF Microsoft Rich Text Format conversion with a page size of 8.5" x 11".
*RTFLEGAL	Use RTF Microsoft Rich Text Format conversion with a page size of 8.5" x 14".
*RTFSTATEMENT	Use RTF Microsoft Rich Text Format conversion with a page size of 5.5" x 8.5".
*RTFEXCUTIVE	Use RTF Microsoft Rich Text Format conversion with a page size of 7.25" x 10.5".
*RTFLEDGER	Use RTF Microsoft Rich Text Format conversion with a page size of 11" x 17".
*RTFA3	Use RTF Microsoft Rich Text Format conversion with a page size of A3.
*RTFA4	Use RTF Microsoft Rich Text Format conversion with a page size of A4.
*RTFA5	Use RTF Microsoft Rich Text Format conversion with a page size of A5.
*RTFB4	Use RTF Microsoft Rich Text Format conversion with a page size of B4.
*RTFB5	Use RTF Microsoft Rich Text Format conversion with a page size of B5.
*HTMLBASIC	Use HTML Hyper Text Markup Language Format conversion.
*POSTSCRIPT	Use PostScript conversion.
*FFTBASIC	Use FFT IBM Final Form Text conversion.
*TIFFLETTER	Use TIFF Tag Image File Format Group 4 specification conversion with letter size paper implied.
*TIFFLEGAL	Use TIFF Tag Image File Format Group 4 specification conversion with legal size paper implied.
*TIFFEXECUTIVE	Use TIFF Tag Image File Format Group 4 specification conversion with executive size paper implied.
*TIFFLEDGER	Use TIFF Tag Image File Format Group 4 specification conversion with ledger size paper implied.
*TIFFA3	Use TIFF Tag Image File Format Group 4 specification conversion with A3 size paper implied.
*TIFFA4	Use TIFF Tag Image File Format Group 4 specification conversion with A4 size paper implied.
*TIFFA5	Use TIFF Tag Image File Format Group 4 specification conversion with A5 size paper implied.
*TIFFB4	Use TIFF Tag Image File Format Group 4 specification conversion with B4 size paper implied.
*TIFFB5	Use TIFF Tag Image File Format Group 4 specification conversion with B5 size paper implied.
*TIFFCONT80	Use TIFF Tag Image File Format Group 4 specification conversion with continuous 8.0 inch paper implied.
*TIFFCONT132	Use TIFF Tag Image File Format Group 4 specification conversion with continuous 13.2 inch paper implied.
*TIFF	Use TIFF Tag Image File Format Group 4 specification conversion.
*TIFFPB	Use TIFF Tag Image File Format Pack Bit specification conversion.
*AFPPRINTFILE	Use Afp print file conversion. Page segments and overlays, but not fonts, are included in the generated file.
*AFPPRINTFILE2	Use Afp print file conversion. Page segments, overlays and fonts are included in the generated file.
*WSCST	Use HPT i5/OS Host Print Transform conversion with the specified workstation customizing object.
*NONE	Use no conversion conversion.
*NONEPDF	Same processing as *NONE but with an implied default extension of .PDF. This is useful for processing *USERASCII spooled files containing .PDF documents.
character-value	Use HPT i5/OS Host Print Transform conversion.

Replace PC file data (REPLACE)

Specifies whether or not data in the PC file should be replaced if the object already exists. If the object does not exist, it is created. CHAR(1)

*YES　　　　　　　Data in an existing object is replaced.

*NO	Data in an existing object is not replaced and an error is generated.

Workstation customizing object (WSCST)

Specifies the work station customizing object used to transform the spooled file when TRANSFORM(*WSCST) is specified. CHAR(10), CHAR(10)

Single values

*NONE	No work station customizing object is specified.

Element 1: Workstation customizing object

name	Specify the name of the work station customizing object.

Qualifier 2: Library

*LIBL	All libraries in the thread's library list are searched.
*CURLIB	Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name	Specify the name of the library.

Target coded character set id (TRGCCSID)

Specifies the target coded character set identifier (CCSID) that is used to map data in the generated file. INT(4)

*WINANSI	The default coded character set identifier (1252).
*UNICODE	ISO/IEC 10646 Universal Coded Character Set Level 2 (13488).
*UTF8	Unicode 8 bit transfer encoding (1208).
*ISO88591	ISO-8859-1 Latin 1 Western European "8-bit ASCII" (819).
*ISO88592	ISO-8859-2 ROECE Latin 2 Eastern European (912).
*ISO88595	ISO-8859-5 Cyrillic (915).
*ISO88597	ISO-8859-7 Greek (813).
*ISO88598	ISO-8859-8 Hebrew (916).
*ISO88599	ISO-8859-9 Latin 9 other Latin-using languages (920).
*BIG5	Traditional Chinese, Taiwan Industry Standard PC Data Mixed for Big5 (950).
integer	Specify the coded character set identifier to use.

Source coded character set id (SRCCCSID)

Specifies the coded character set identifier (CCSID) used to create the spooled file. INT(4)

*KBDTYPE	The system determines the coded character set identifier value from the QKBDTYPE system value.
*SYSVAL	The system determines the coded character set identifier value from the QCHRID system value.
*JOBDFT	The system uses the current job's default coded character set identifier.
integer	Specify the coded character set identifier to use.

Data authorities (DTAAUT)

Specifies the *PUBLIC data authorities assign to the created PC file. CHAR(10)

*ALL	The *PUBLIC is given *RWX authority to perform all operations on the object except those limited to the owner or controlled by object existence, object management, object alter, and object reference authority. The *PUBLIC can change the object and perform basic functions on the object. *RWX authority provides object operational authority and all the data authorities.
*NONE	The *PUBLIC does not have any of the data authorities to the object.
*RWX	The *PUBLIC is given *RWX authority to perform all operations on the object except those limited to the owner or controlled by object existence, object management, object alter, and object reference authority. The *PUBLIC can change the object and perform basic functions on the object. *RWX authority provides object operational authority and all the data authorities.
*RX	The *PUBLIC is given *RX authority to perform basic operations on the object, such as run a program or display the contents of a file. The user is prevented from changing the object. *RX authority provides object operational

authority and read and execute authorities.

*RW	The *PUBLIC is given *RW authority to view the contents of an object and change the contents of an object. *RW authority provides object operational authority and data read, add, update, and delete authorities.
*WX	The *PUBLIC is given *WX authority to change the contents of an object and run a program or search a library or directory. *WX authority provides object operational authority and data add, update, delete, and execute authorities.
*R	The *PUBLIC is given *R authority to view the contents of an object. *R authority provides object operational authority and data read authority.
*W	The *PUBLIC is given *W authority to change the contents of an object. *W authority provides object operational authority and data add, update, and delete authorities.
*X	The *PUBLIC is given *X authority to run a program or search a library or directory. *X authority provides object operational authority and data execute authority.
*EXCLUDE	Exclude authority prevents the *PUBLIC from accessing the object.
*INHERIT	The *PUBLIC and other authorities to the object are copied as follows. The owner, primary group, and public data and object authorities (*R, *W, *X, *OBJEXIST, *OBJMGT, *OBJALTER, and *OBJREF) are copied from the parent directory's owner, primary group, and public data and object authorities. In addition, the private authorities (if any) and authorization list (if any) are copied from the parent directory. If the new file has a different owner than the parent directory and the new file's owner has a private authority in the parent directory, that private authority is not copied from the parent directory. The authority for the owner of the new file is copied from the owner of the parent directory.

Owner (OWNER)

Specifies the user profile that is the owner of the newly created object. CHAR(10)

*CURUSRPRF	The object is owned by the current effective user of the current job or thread.
*SPLFOWN	Ownership of the object is transferred to the owner of the spooled file. If the current effective user does not have *ADD data authority to the spooled file owner's profile, ownership of the object is determined in the same manner as *CURUSRPRF.
name	Specify the user profile that is the owner of the newly created object. If the current effective user does not have *ADD data authority to the user profile, or if the profile does not exist, ownership of the object is determined in the same manner as *CURUSRPRF.

Create directories (CRTDIR)

Specifies whether or not directories in the object name should be created if they do not exist. CHAR(1)

*NO	Directories are not created.
*YES	Directories are created.

Page range to print (PAGERANGE)

Specifies the starting and ending pages to process.

Single values

*SPLF	The page range specified in the spooled file's attributes is used.

Element 1: Starting page

1	Processing begins at page 1.
*ENDPAGE	The starting page to print is the ending page to print. Only the ending page is printed.
integer	Specify the starting page.

Element 2: Ending page

*END	Processing continues until the end of file.
integer	Specify the ending page.

Delete file after processing (DLTSPLF)

Specifies whether or not to delete the specified spooled file after it has been successfully processed.

*NO	Do not delete the spooled file.
*YES	Delete the spooled file after it has been successfully processed.
	Note: :This value can not be used when the command is run by a Gumbo logical printer.

Page data (PAGDTA)

Specifies the location (line, position and length), on the page of the spooled file, from which data is retrieved.
INT(2), INT(2), INT(2)

Single values

*STRPAGGRP	Page data is retrieved from the value stored in the DDS STRPAGGRP keyword that is associated with each page of the spooled file.
	This value is only valid with *AFPDS spooled files. Position and length are ignored as data does not appear on the printed page and the length is derived from the value stored.

Element 1: Line

1-255	Specify the line number where the data is located on the page.

Element 2: Position

1-378	Specify the position where the data is located in the line. Valid values range from 1 through 378. The value specified plus the data length should be less than the number of print positions in the spooled file.

Element 3: Length

1-64	Specify the length of the data. The value specified plus the start position should be less than the number of print positions in the spooled file.

PDF document security (PDFDOCSEC)

Specifies how Portable Document Format (PDF) files are secured.

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

PDF documents can be encrypted to protect their contents from unauthorized access. An encrypted PDF document has two passwords: an owner password and a user password. The PDF document also specifies operations that should be restricted even when the PDF document is decrypted. When opening an encrypted PDF document, Adobe's Acrobat Reader prompts for a password, if one is required. When the correct user password is supplied, the PDF document is opened and decrypted but operations are restricted; when the owner password is supplied, all operations are allowed. The owner password is required to change these passwords and restrictions.

A PDF document is encrypted whenever a user or owner password or restrictions are supplied for the PDF document. However, a user is prompted for a password on opening a PDF document only if the PDF document has a user password.

Element 1: Owner password CHAR(32)

*NONE	The PDF document does not have an owner password. Unlike most special values, this is case sensitive.
character value	Specify the password required to perform owner functions for the PDF document (case sensitive).

Element 2: User password CHAR(32)

*NONE	The PDF document does not have a user password. Unlike most special values, this is case sensitive.
character value	Specify the password required to open the PDF document (case sensitive).

Element 3: Allow print

*YES	Printing of the PDF document is allowed.
*NO	The PDF document can not be printed.

Element 4: Allow change

*YES	Changing of the PDF document is allowed.
*NO	The PDF document can not be changed.

Element 5: Allow copy

*YES	Copying from the PDF document is allowed.
*NO	Portions of the PDF document can not be copied.

Element 6: Allow annotation

*YES	Annotation of the PDF document is allowed.
*NO	The PDF document can not be annotated.

Element 7: Encryption specification INT(2)

*V1	Version 1 encryption, which uses a 40 bit key length, and is compatible with Acrobat Reader 4.0 and lower. Value 0.
	Note: Version 1 only implements the first four permissions: "Allow print", "Allow change", "Allow copy", and "Allow annotation". Other permissions are ignored and readers treat them as if *YES was specified.
*V2	Version 2 encryption using a key length 128 bits. Version 2 encryption requires Acrobat Reader 5.0 or higher. Value 16.

Element 8: Allow form fill-in and sign

*YES	Form fill-in and document signing operations are allowed.
*NO	The PDF document can not be signed nor forms filled in.

Element 9: Allow accessibility inspection

*YES	Text and graphics can be extracted from the document for the sole purpose of making the contents accessible through assistive technologies such as screen readers or Braille output.
*NO	Accessibility inspection is not allowed.

Element 10: Allow document assembly

*YES	Document assembly operations, including insertion, rotation, deletion of pages and creation of bookmarks and thumbnails, are allowed.
*NO	Document assembly operations are not allowed.

Element 11: Allow print as image

*YES	Allow the document to be printed if "print as image" is selected.
*NO	Do not allow the document to be printed as an image.

Note: The permissions are each CHAR(1) and take a value of '0' = *NO or '1' = *YES.

PDF document title (PDFDOCTTL)

Specifies the title of the generated Portable Document Format (PDF) PC file. CHAR(256).

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

*NONE	No title is placed in the generated PC file.
*ACGCDE	The spooled file's accounting code is used as the title.
*PRTTXT	The spooled file's print text is used as the title.
*USRDTA	The spooled file's user data is used as the title.
*USRDFNDTA	The spooled file's user defined data is used as the title.
*USRDFNTXT	User-defined text taken from the user profile when the spooled file was created is used as the title.
character value	Specify the title of the PDF file.

Note: Also used with HTML conversions.

PDF document subject (PDFDOCSBJ)

Specifies the subject of the generated Portable Document Format (PDF) PC file. CHAR(256).

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

*DEFAULT	A default subject is placed in the generated PC file.
*ACGCDE	The spooled file's accounting code is used as the subject.
*PRTTXT	The spooled file's print text is used as the subject.
*USRDTA	The spooled file's user data is used as the subject.
*USRDFNDTA	The spooled file's user defined data is used as the subject.
*USRDFNTXT	User-defined text taken from the user profile when the spooled file was created is used as the subject.
character value	Specify the subject of the PDF file.

PDF document author (PDFDOCATH)

Specifies the author of the generated Portable Document Format (PDF) PC file. CHAR(256).

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

*CRTUSRPRF	The user profile that created the spooled file is the author.
*NONE	The generated file does not contain author information.
character value	Specify the author of the PDF file.

PDF document keywords (PDFDOCKWD)

Specifies the keywords associated with the generated Portable Document Format (PDF) PC file. CHAR(256).

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

*NONE	No keywords are associated with the file.
character value	Specify a list of keywords to associate with the file.

PDF font imbedding (PDFFNTIMB)

Specifies, by font type, which font definitions are included in the generated PDF file. Imbedding fonts improves the fidelity of the PDF at the expense of file size.

*DEFAULT	The default setting is used. To change the default setting use the CHGSAMDFT command.
*NONE	No font definitions are included in the file. All fonts are mapped to Acrobat built-ins.
*TYPE1	Outline font resources are imbedded in the file.
*TYPE3	Raster font resources are subsetted and imbedded in the file.
*TYPES13	Both raster and outline font resources are imbedded in the file.
*FGID	Printer resident font specifications are converted to host resident printer emulation font resources and these are imbedded in the file.
*TRUETYPE	TrueType and OpenType fonts are imbedded in the file.

PDF document open options (PDFDOCOPN)

Specifies how the Acrobat work area appears when a user first opens the PDF document.

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

PDF documents can be configured to control the behavior of Acrobat when the document is opened. The configuration settings are the same as those found in the full version of Acrobat under File > Document Properties > Open Options. With the settings, you can control the Initial View, Window Options, and User Interface Options in effect when the document is opened. You can for example configure the document to hide the Acrobat menu bar, tool bar and window controls and to display in full screen mode when it is opened.

Element 1: Initial page mode CHAR(1)

*DEFAULT	The PDF document does not specify an initial page mode and the viewer's user default settings are used when the document is opened. Value x'00'.
*PAGEONLY	Only the page displays, bookmarks and thumbnails are hidden when the document is opened. Value '1'.
*BOOKMARK	Bookmarks and pages are displayed when the document is opened. Value '2'.
*THUMBNAIL	Thumbnails and pages are displayed when the document is opened. Value '3'.
*FULLSCREEN	Full-screen mode is displayed, with no menu bar, window controls, or any other window visible when the document is opened. Value '4'.

Element 2: Page mode after *FULLSCREEN CHAR(1)

Specifies how to display the document on exiting full-screen mode. This entry is meaningful only if *FULLSCREEN is specified for "Page mode after *FULLSCREEN"; it is ignored otherwise.

*DEFAULT	The PDF document does not specify a page mode and the viewer's user default settings are used. Value x'00'.
*PAGEONLY	Only the page displays, bookmarks and thumbnails are hidden. Value '1'.
*BOOKMARK	Bookmarks and pages are displayed. Value '2'.
*THUMBNAIL	Thumbnails and pages are displayed. Value '3'.

Element 3: Page layout CHAR(1)

*DEFAULT	The PDF document does not specify a page layout and the viewer's user default settings are used. Value x'00'.
*SINGLEPAGE	Display one page at a time. Value '1'.
*ONECOL	Display pages in a single column. Value '2'.
*TWOCOLLEFT	Display pages in two columns, with odd-numbered pages on the left. Value '3'.
*TWOCOLRIGHT	Display pages in two columns, with odd-numbered pages on the right. Value '4'.

Element 4: Hide tool bars CHAR(1)

*NO	The viewer's tool bars are visible. Value '0'.
*YES	The viewer's tool bars are hidden. Value '1'.

Element 5: Hide menu bar CHAR(1)

*NO	The viewer's menu bar are visible. Value '0'.
*YES	The viewer's menu bar are hidden. Value '1'.

Element 6: Hide user interface elements CHAR(1)

*NO	The viewer's user interface elements are visible. Value '0'.
*YES	The viewer's user interface elements, such as scroll bars and navigation controls, are hidden leaving only the document's contents visible. Value '1'.

Element 7: Resize window to initial page CHAR(1)

*NO	The document's window is not resized. Value '0'.
*YES	Resize the document's window to fit the size of the first displayed page. Value '1'.

Element 8: Center window on screen CHAR(1)

*NO	The document's window is not changed. Value '0'.
*YES	Position the document's window in the center of the screen. Value '1'.

Element 9: Display document title CHAR(1)

*NO	Display the name of the PDF file containing the document in the window's title bar. Value '0'.
*YES	Display the document's title in the window's title bar. Value '1'.

Element 10: Magnification INT(2)

*DEFAULT	Size the page using the viewer's default user setting. Value 0.
*PAGE	Size the page to just fit within the window both horizontally and vertically. Value -1.
*WIDTH	Size the page to just fit within the window horizontally. Value -2.
*HEIGHT	Size the page to just fit within the window vertically. Value -3.

8-1600	Specify the percentage by which the page is magnified.

Element 11: Page number INT(4)

*DEFAULT	The first page is displayed when the document is opened. Value 0.
*LAST	The last page is displayed when the document is opened. Value -1.
integer	Specify the page number that is displayed when the document is opened.

PDF media overlay (PDFOVL)

Specifies an overlay to be added to the media (paper) before the contents of the page are rendered. All other content on the page overwrites the content of this overlay. If the spooled file contains an overlay made up of a large image, for example, the contents of this overlay may not be visible. The overlay may not contain other print resources such as page segments. CHAR(8), CHAR(10)

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

Single values

*NONE	The PDF document does not have a media overlay.
*GREENBAR	An overlay that emulates green bar paper is used.
*BLUEBAR	An overlay that emulates blue bar paper is used.
*COPY	The word "COPY" in large faint letters diagonally across the paper is used.

Qualifier 1: PDF media overlay

| *name*	Specify the name of the media overlay to apply.

Qualifier 2: Library

*LIBL	All libraries in the thread's library list are searched.
*CURLIB	Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name	Specify the name of the library.

PDF bookmark style (PDFBKMSTY)

Specifies the style of Portable Document Format (PDF) bookmarks generated from the bookmark data. INT(4).

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

*ONELEVEL	The name of each bookmark data source becomes a top level bookmark and these are listed in ascending order. Within each top level bookmark, each unique data value is listed, again in ascending order. If a data value appears on more than one page, then within the data value the page numbers are listed in order.
*NONE	No bookmarks are generated.
*TWOLEVEL	In addition to the structure provided by *ONELEVEL cross reference information is also provided. For each top level bookmark/data value, each other top level bookmark/data value that occurs on the same pages are listed within it. For example, if bookmark "SalesRepId" "C775" appears on same pages (254, 321, 467) as "InvoiceNumber" "1009", "1023" and "1102" the follow is generated:

```
└─SALESREPID
 ├─C775
 │    ├─INVOICENUMBER
 │    │    ├─1009
 │    │    ├─1023
 │    │    └─1102
 │    └─PAGE
 │         ├─254
 │         ├─321
 │         └─467
```
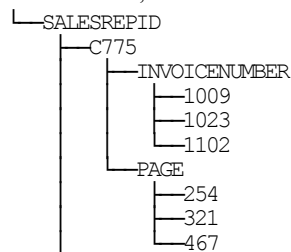
PDF bookmark data source (PDFBKMSRC)

Specifies the data to be used in generating Portable Document Format (PDF) bookmarks.

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

Four elements make up a data source specification: line, position, length and name. The most important is line which influences the meaning of the other 3.

Element 1: Line

*DOCIDXTAGP Bookmarks are generated from the "attribute-name" / "attribute-value" pairs added to the spooled file using the DDS DOCIDXTAG() keyword. Only pairs found at the page level are considered. Pairs at the group level (outside of a page) are ignored.

Position and length are ignored as data does not appear on the printed page and the length is derived from the data entered.

If name is omitted, all "attribute-name"s that occur in the spooled file are included, each creating a top level bookmark. If a name is specified, only the "attribute-name" / "attribute-value" pairs with the specified name are included.

*DOCIDXTAGG Processing is identical to that of *DOCIDXTAGP except that only pairs at the group level (outside of a page) are considered and pairs at the page level are ignored. Group level pairs inherit the page number of the next page to occur in the spooled file.

*DOCIDXTAG Processing is identical to that of *DOCIDXTAGP except that all pairs, regardless of level, are considered. Group level pairs inherit the page number of the next page to occur in the spooled file.

*STRPAGGRP Bookmarks are generated from the "group-name"s added to the spooled file using the DDS STRPAGGRP() keyword. The "group-name"s are listed under a single top level bookmark.

Position and length are ignored as data does not appear on the printed page and the length is derived from the data entered.

If name is omitted, "Page group" is used as the name of the generated top level bookmark. If a name is specified, it is used as the name of the generated top level bookmark.

1-255 Bookmarks are generated from the print information found in the spooled file. Each page is inspected and the data at line/position/length on each is used as the value of a bookmark.

If name is omitted, "Line xx Position yy Length zz" is used as the name of the generated top level bookmark. The actual values specified are substituted for xx, yy and zz. If a name is specified, it is used as the name of the generated top level bookmark.

Element 2: Position

1-378 Specify the position where the data is located in the line. Valid values range from 1 through 378. The value specified plus the data length should be less than the number of print positions in the spooled file.

Element 3: Length

1-64 Specify the length of the data. The value specified plus the start position should be less than the number of print positions in the spooled file.

Element 4: Name

character value Specify the bookmark name.

When selecting DBCS data from *SCS data, the shift out/shift in (SO/SI) characters must be included by the position/length specification.

Fidelity (FIDELITY)

Specifies whether conversion continues when errors are encountered. CHAR(10)

*RESOURCE Conversion stops when print resources referenced by the spooled file are not found.
*CONTENT Conversion continues when errors are found.

Object attribute (OBJATR)

Specifies additional attributes for the generated file and is similar in function to the CHGATR command. Each attribute is specified as an attribute/value pair. If an attribute is specified more than once, the last one wins. INT(4) INT(4)

<u>*NONE</u>	No additional attributes are specified.
*DISKSTGOPT	Determines how auxiliary storage is allocated by the system for the object. This attribute can only be specified for byte stream files in the Root (/), QOpenSys and User-defined file systems. This attribute will be ignored for *TYPE1 byte stream files. Valid values are:

*NORMAL	The auxiliary storage will be allocated normally. That is, as additional auxiliary storage is required, it will be allocated in logically sized extents to accommodate the current space requirement, and anticipated future requirements, while minimizing the number of disk I/O operations. If the *DISKSTGOPT attribute has not been specified for an object, this value is the default.
*MINIMIZE	The auxiliary storage will be allocated to minimize the space used by the object. That is, as additional auxiliary storage is required, it will be allocated in small sized extents to accommodate the current space requirement. Accessing an object composed of many small extents may increase the number of disk I/O operations for that object.
*DYNAMIC	The system will dynamically determine the optimum auxiliary storage allocation for the object, balancing space used versus disk I/O operations. For example, if a file has many small extents, yet is frequently being read and written, then future auxiliary storage allocations will be larger extents to minimize the number of disk I/O operations. Or, if a file is frequently truncated, then future auxiliary storage allocations will be small extents to minimize the space used. Additionally, information will be maintained on the byte stream file sizes for this system and its activity. This file size information will also be used to help determine the optimum auxiliary storage allocations for this object as it relates to the other objects sizes.

PDF document signing key (PDFSGNKEY)

Specifies the digital certificate used to sign Portable Document Format (PDF) files.

Note: This parameter is ignored for transforms except those that generate Adobe's Portable Document Format (PDF).

The PDF documents produced can be, optionally, digitally signed. The signature included in the PDF document allows the identity of the author to be validated and provides additional assurance that the PDF document has not been tampered with after it was signed.

A certificate is referenced by specifying the name (Application ID) of an object signing application created using i5/OS's Digital Certificate Manager.

<u>*DEFAULT</u>	The certificate previously entered using the CHGSAMDFT command is used.
*NONE	No signing operation is performed.
application-id	Specify the application identifier to use in the signing operation.

Examples

Example 1:
```
SPLCONVERT  FILE(QSYSPRT) TOOBJ('/ACCT/MONTHEND.TXT')
            JOB(033194/QPGMR/MONTHEND) SPLNBR(2)
```

This command converts spooled file number 2, QSYSPRT from job 033194/QPGMR/MONTHEND into a text file with name MONTHEND.TXT in directory ACCT in the Integrated File System.

Example 2:
```
SPLCONVERT  FILE(QSYSPRT)
            TOOBJ('/QOpenSys/websamp/*SPLCDAT.html')
            TRANSFORM(*HTMLBASIC)
```

This command converts the last spooled file with name QSYSPRT from the job running the command. The spooled file is convert into an HTML web page. The PC file uses the creation date of the spooled file as its name and is placed in directory websamp in the QOpenSys file system.

Example 3:
```
SPLCONVERT  FILE(QSYSPRT)
            TOOBJ('/data/branch.*pagdta/sales.*splcdat.pdf')
            PAGDTA(3 10 8) PDFBKMSRC((5 10 30 Customer))
            TRANSFORM(*PDFLETTER)
```

This command converts the last spooled file with name QSYSPRT from the job running the command. The spooled file contains data for multiple branches with the branch number printed on each page at line 3, position 10 and the number is 8 positions long. Each page of the spooled file pertains to a customer and the customer's name is found on line 5, position 10 and is 30 positions long. The spooled file is converted to PDF with one file created for each branch and placed into a directory with a name based on the branch number (branch.1234 for example). The file for each branch includes the creation date of the spooled file as its name and includes book marks to provide quick access to a particular customers information.

Error messages

Parameter dependencies

SAMD002	When transform *WSCST is specified a Workstation customizing object must be specified.
SAMD003	A transform or a workstation customizing object name can be specified, but not both.
SAMD004	When Workstation customizing object *NONE is specified transform *WSCST cannot be specified.
PDFD001	PDF document security can only be specified with a *PDFxxx transform.
SAMD001	When a page range is specified, a supporting transform must be specified.

Work with Gumbo Output Queue (WRKGSIOUTQ)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Work with Gumbo Output Queue (WRKGSIOUTQ) command works like i5/OS's Work with Output Queue (WRKOUTQ) command but provides additional options to access the functions of Spool-a-Matic.

Parameters

Keyword	Description	Choices	Notes
OUTQ	Output queue	*Qualified object name*	Required, Positional 1
	Qualifier 1: Output queue	*Name*	
	Qualifier 2: Library	*Name*, ***LIBL**, *CURLIB	
OUTPUT	Output	*****, *PRINT	Optional, Positional 2

Output queue (OUTQ)

Specifies the name of the Output queue and the library where it resides.

This is a required parameter.

Qualifier 1: Output queue

name	Specify the name of the output queue.

Qualifier 2: Library

*LIBL	All libraries in the thread's library list are searched.
*CURLIB	Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.
name	Specify the name of the library.

Output (OUTPUT)

Specifies the kind of output generated by the command. CHAR(10)

*	The output is displayed (if requested by an interactive job) or printed with the job's spooled output (if requested by a batch job).
*PRINT	The output is printed with the job's spooled output.

Examples

Example 1:
```
WRKGSIOUTQ  OUTQ(PRT01)
```

This command allows you to work with all of the spooled files on the PRT01 output queue.

Example 2:
```
WRKGSIOUTQ  OUTQ(QGPL/QPRINT)
```

This command allows you to work with all of the spooled files on the QPRINT output queue in library QGPL.

Work with Gumbo Spooled Files (WRKGSISPLF)

Where allowed to run: All environments (*ALL)
Threadsafe: No

The Work with Gumbo Spooled Files (WRKGSISPLF) command works like i5/OS's Work with Spooled Files (WRKSPLF) command but provides additional options to access the functions of Spool-a-Matic.

Parameters

Keyword	Description	Choices	Notes
SELECT	Select files for	*Element list*	Optional, Positional 1
	Element 1: User	*Name*, ***CURRENT**, *ALL	
	Element 2: Print device	*Name*, ***ALL**, *OUTQ	
	Element 3: Form type	*Character value*, ***ALL**, *STD	
	Element 4: User data	*Character value*, ***ALL**	
OUTPUT	Output	*****, *PRINT	Optional, Positional 2

Select files for (SELECT)

Specifies the criteria used to further select spooled files for display. Selection criteria consist of 4 elements. Only spooled files that match each of the values are selected.

Element 1: User

*CURRENT	Spooled files created by the user of the current job are selected.
*ALL	All spooled files are selected regardless of the user creating them.
name	Specify a user name. Only spooled files created by the user are selected.

Element 2: Print device

*ALL	All spooled files are selected regardless of the device or output queue.
*OUTQ	All files on any user-created output queue are selected. A user-created output queue is any output queue that is not automatically created by a device. A user-created output queue does not generally have the same name as a device, but if it does, it does not reside in library QUSRSYS.
name	Specify a device name. Only files on the device created output queue for that device are selected. A device created output queue is one that has the same name as a device and resides in the QUSRSYS library. Unless it already exists, it will automatically be created by the system when the device is created. A device created output queue cannot be deleted.

Element 3: Form type

*ALL	All spooled files are selected regardless of their form type.
*STD	Only files that specify the standard form type are selected.
form-type	Specify the form type to select the file.

Element 4: User data

*ALL	All spooled files are selected regardless of their user data.
user-data	Specify the user data to select the file.

Output (OUTPUT)

Specifies the kind of output generated by the command. CHAR(10)

*	The output is displayed (if requested by an interactive job) or printed with the job's spooled output (if requested by a batch job).
*PRINT	The output is printed with the job's spooled output.

Examples

Example 1:

```
WRKGSISPLF  SELECT(*ALL *ALL *ALL *ALL)
```

This command allows you to work with all of the spooled files on the system.

Example 2:

```
WRKGSISPLF  SELECT(CASMITH *ALL *ALL MEMO)
```

This command allows you to work with all of the spooled files on the system for the user named CASMITH that have MEMO specified in the user data for the spooled file.

Chapter 7 Trouble-Shooting

What's In This Chapter

This chapter provides information and procedures useful for correcting or reporting Spool-a-Matic problems. The chapter:

- Describes general trouble-shooting.
- Describes software installation problems.
- Describes PDF file problems.
- Describes Gumbo Logical Printer problems.
- Describes RTF file problems.
- Describes how to create a spool save file.
- Describes how to email a spool save file.

General Trouble-Shooting

If a command from Spool-a-Matic fails to run to completion or if the results you receive are different than those expected, perform these items:

- Check the messages in your job log:
    1. Run the DSPJOBLOG command.
    2. Press F10 to display detailed messages.
    3. Locate the messages related to the error.
    4. Place your cursor on each message in turn and press F1.
    5. Take any corrective actions suggested by the messages.
- Download the current cumulative PTF package from www.gumbo.com.
- Check the bottom of the PTF page at www.gumbo.com for IBM PTFs that may be required.
- Review the detailed trouble shooting procedures in this chapter for solutions related to your problem.

If you are unable to correct the problem, prepare a problem report and contact your service provider.

Software Installation Problems

This sections describes problems, causes, and solutions specific to software installation.

- Installation Generates "Directory not registered. (C G)"

Symptom	During installation inquiry message id CPA3DE4 "Directory not registered. (C G)" is issued.
Cause	i5/OS has lost the relationship between the product and the directory and hence the message.
Solution	You can safely take a "G" to this message. You will receive the message 3 times.

- Installation Fails

Symptom	Installation fails and diagnostic message id CPF9898 "Unable to clear old release. Is the software being used?." appears in the job log. Or, when the installation verification option is run, verification fails with diagnostic message id CPD0C2E appearing in the job log.
Cause	This usually arises from attempting to install a new release over an old release while objects in the old release are in use.
Solution	End the jobs that are holding locks on (using) objects from the old release and perform the installation again.

- Installation Fails or Installation Verification Fails

Symptom	Installation or installation verification fails and messages in the job log do not help in recovering.
Cause	The software is not installed correctly or the installation is damaged. This can be caused for a variety of reasons including renaming of libraries, directories, or objects that make up the product.
Solution	Get the system to a stable, consistent state completely removing the product then re-install the product by performing the following:

1. Delete the licensed program by running:
   ```
   DLTLICPGM  LICPGM(2A55SAM) RLS(*ALL)
                OPTION(*ALL)
   ```

   Note: It is okay if this fails with diagnostic CPD3D91 "Product 2A55SAM option *ALL release *ALL not installed."

2. Delete the product's library by running:
   ```
   DLTLIB  LIB(SPLAMATIC)
   ```

   Note: It is okay if this fails with escape CPF2110 "Library SPLAMATIC not found."

3. Delete the product's directories by running:
   ```
   RMVDIR  DIR('/Gumbo/ProdData/2A55SAM/doc') RMVLNK(*YES)
   RMVDIR  DIR('/Gumbo/ProdData/2A55SAM/tmp') RMVLNK(*YES)
   RMVDIR  DIR('/Gumbo/ProdData/2A55SAM') RMVLNK(*YES)
   ```

   Note: It is okay if these fail with escape CPFA0A9 "Object not found. ...". But if any fail because a directory is not empty, delete the contents using WRKLNK.

   If there are no other *GUMBO* products installed:

   ```
   RMVDIR  DIR('/Gumbo/ProdData')
   RMVDIR  DIR('/Gumbo')
   ```
4. Rebuild i5/OS's internal licensed program information by running:
   ```
   CALL  PGM(QSYS/QSZRECOV)
   ```

   Note: This takes several minutes depending on machine size.

5. Install the product according to the instructions in the Installation chapter.
6. Enter your authorization code.

PDF File Problems

This section describes problems, causes, and solutions specific to Portable Document Format (PDF) files.

- Pages are blank

Symptom	The file is generated and displayed without error however the pages displayed are blank.
Cause	By default, files are compressed as specified in version 1.2 of the PDF specification. This requires Acrobat 3.0 or higher to view correctly.
Solution	Update your copy of the Acrobat viewer to 3.0 or later or turn off compression by changing the default values for Spool-a-Matic using the CHGSAMDFT command.

- Displayed text is light or missing

Symptom	The file is generated and displayed without error however the displayed text is light (gray instead of black) and hard to read, or missing.
Cause	By default, Acrobat smoothes text causing it to appear bleached out.
Solution	From the Acrobat reader select File > Preferences > General. Deselect the "Smooth Text and Monochrome Images" check box.

- Data truncated when PDF document printed

Symptom	The file is generated and displayed without error however when it is printed, data is truncated.
Cause	The original spooled file's page size may be bigger than the paper size of the selected printer, or may

	contain print in the printer's unprintable area.
Solution	After selecting File > Print, select the "Shrink to Fit" check box before pressing "OK".

- Unable to edit PDF document with Adobe's Acrobat

Symptom	When attempting to Tools > TouchUp Text, you receive the message: "Touch-Up could not parse this page".
Cause	Acrobat is enforcing restrictions on font usage.
Solution	Select Help > Acrobat Guide. Review the information found under: Modifying PDF documents; Editing pages and text; Editing text; Revising text for a detailed explanation and work arounds.

- Text Is Reduced and Does Not Fill Page

Symptom	When viewing the document, the text is small and does not use the entire page.
Cause	The printer files PAGESIZE parameter is set incorrectly. Most commonly, the intended page size is 8.5" x 11" but the printer file specifies PAGESIZE(66 132).
Solution	Correct the printer file's page size parameter to accurately reflect the intended page size using the CHGPRTF command.

- Overlay Or Data Misaligned On Page

Symptom	Overlay or print data or both are placed incorrectly with respect to upper left corner of page.
Cause	Different printers position print using different algorithms. Spool-a-Matic is not emulating the correct printer.
Solution	Use the Reference printer device (REFPRTDEV) parameter of the CHGSAMDFT command to specify the name of the printer that correctly prints the spooled file.

- Overlay And Data Still Misaligned On Page

Symptom	Overlay is misaligned with respect to print data. The correct Reference printer device has been specified.
Cause	Spool-a-Matic needs help determining the processing used by the printer that correctly prints the spooled file.
Solution	Run the Display Device Description (DSPDEVD) command for the printer. If the "Host print transform" parameter is *YES, toggle the PDF apply noprtbdr to overlay (PDFNPBOVL) parameter of the CHGSAMDFT command from *NO (the default value) to *YES or from *YES to *NO.

- Overlay And Data Still Misaligned On Page

Symptom	Overlay is misaligned with respect to print data. The correct Reference printer device has been specified.
Cause	Spool-a-Matic can not determine the printer's no print border from its logical description. Examples of when this situation occurs: o Some *SCS printers o Some *IPDS printers with AFP(*NO) o Ascii printers with custom WSCST specified
Solution	Enter the printer's no print border values in the Refprtdev offset default (REFOFFSET) parameter of the CHGSAMDFT command.

- Overlay And Data Still Misaligned On Page

Symptom	Overlay is misaligned with respect to print data. The correct Reference printer device has been specified.
Cause	There is a discrepancy between the printer's logical description and its actual no print border values. Examples of when this situation occurs:

	o Some *IPDS printers with AFP(*YES) and no print borders.
	o Ascii printers with actual values different from values found in WSCST or MFRTYPMDL parameter
Solution	Enter the no print border values' discrepancy in the Refprtdev offset correction (REFCORRECT) parameter of the CHGSAMDFT command.

Gumbo Logical Printer Specific Problems

This sections describes problems, causes, and solutions specific to Gumbo Logical Printers.

- Spooled Files Go On Hold

Symptom	The Gumbo Logical Printer is running but it fails to produce results and the spooled files are placed on hold.
Cause	The printer is encountering an error while processing the spooled files.
Solution	Display the joblog for the printer writer and correct the error:

    Note: In this example the printer's name is GLP01. Substitute the name of your device in its place.

1. Run WRKJOB JOB(GLP01)
2. If the "Select Job" prompt appears, select the job that is active.
3. From the "Work with Job" take option 10 to display the joblog.
4. Press F10.
5. Review the messages for error information.
6. For detailed information, place your cursor on a message and press F1.
7. Correct the errors shown.

- Printer Generates Inquiry Messages

Symptom	A Gumbo Logical Printer is working correctly but generates operator intervention inquiry messages such as "Load form type *STD" while processing spooled files.
Cause	The printer was started with "Message option" *INQMSG which is the start on the STRPRTWTR command.
Solution	End and restart the writer specifying "Message option" *NOMSG.

    Note: In this example the printer's name is GLP01. Substitute the name of your device in its place.

1. End the writer.
   ```
   ENDWTR WTR(GLP01)
   ```
2. Restart the writer specifying *NOMSG.
   ```
   STRPRTWTR DEV(GLP01) FORMTYPE(*ALL *NOMSG) WTR(GLP01)
   ```

The source file SPLAMATIC/QPDDSRC contains additional information and solutions to product specific problems.

RTF File Problems

This sections describes problems, causes, and solutions specific to Rich Text Format (RTF) files.

- Text Is Reduced and Does Not Fill Page

Symptom	When viewing the document, the text is small and doesn't use the entire page.
Cause	The printer files PAGESIZE parameter is set incorrectly. Most commonly, the intended page size is 8.5" x 11" but the printer file specifies PAGESIZE(66 132).
Solution	Correct the printer file's page size parameter to accurately reflect the intended page size using the CHGPRTF command.

Creating a Spool Save File

A save file containing all the information needed to transport and reproduce a spooled file on a *GUMBO* development system can be produced using the Create Spool Save File (CRTSPLSAVF) command. To create a spool save file:

- Determine the identity of the spooled file to be saved. A spooled file's identity consists of the file's name, the name/user/number of the job that created it, and the spooled file's number within the job. You can find this information using option 8 from the Work with Spooled Files (WRKSPLF) or Work with Output Queue (WRKOUTQ) commands among others.
- Determine a library to contain the save file. Typically this is your test library. If you do not have a test library, QGPL can be used.
- Determine a name for the save file. It must be a file name that does not exist in the library determined above.
- Run the Create Spool Save File (CRTSPLSAVF) command entering the information from the preceding steps.

    Note: The command allows for a short message to be included in the save file. Use this to describe the reason for the save file and to include contact information such as your name and phone number.

In saving the spooled file the command creates a temporary library. It retrieves the contents and attributes of the spooled file and stores these in a user space. Any resources used (such as page segments or overlays) are duplicated to the temporary library. Data areas containing various system values and the message are placed in the library. After creating the requested save file, the library is saved to it and finally the temporary library is deleted.

Emailing A Spool Save File

Once a spool save file has been created using the Create Spool Save File (CRTSPLSAVF) command you can download it to your PC and email it to *GUMBO* by following these steps:

Note: [PC] denotes an operation performed on your PC. [i] denotes an operation performed on your System i.

1. [i] Insure the FTP server is active by running:

    ```
    STRTCPSVR SERVER(*FTP)
    ```

2. [PC] Choose Start > Programs > Accessories > Command Prompt to open a command prompt (DOS session).
3. [PC] Create a temporary directory and change to it:

    ```
    md c:\gumbo
    cd c:\gumbo
    ```

4. [PC] Open an FTP connection to the System i by substituting your system's host name and running:

    ```
    ftp host_name
    ```

5. [PC] Enter a user name and password as prompted.
6. [PC] Change to binary (image) mode by running:

    ```
    binary
    ```

7. [PC] Change to library/file/member mode by running:

    ```
    quote site namefmt 0
    ```

8. **[PC]** Download the spool save file by running (in this example the save file's name is QGPL/TEST):

```
get qgpl/test
```

9. **[PC]** End the ftp session and the command prompt by running:

```
quit
exit
```

10. **[PC]** Send email to support@gumbo.com after attaching file c:\gumbo\test.

Include in your email a description of the problem encountered and the command parameter values you were using when it happened.

Appendix A Record Descriptions

What's In This Appendix

This appendix provides information on Spool-a-Matic files and structures. The appendix:

- Describes the display page data record.

Display Page Data Record

The display page data record PDPAGDRF is in model file SAPAGDD which is used by the Display Page Data (DSPPAGDTA) command to generate output files.

PDPAGDRF is made up of several groups of fields that describe an element of the page.

- Spooled file. These fields provide information about the spooled file from which the data was taken.

PDJSYS	Name of the system where the job that created the spooled file ran.
PDJJOB	Name of the job that created the spooled file.
PDJUSR	Name of the user who produced the spooled file.
PDJNBR	Number of the job in the system.
PDJSPF	Name of the spooled file.
PDJSP#	Spooled file number within the job.

- Location. These fields describe the location of the data in the spooled file.

PDPAGE	Page number.
PDLINE	Line number the data appears on. The possible special values and their meanings are:

-53 = *DOCIDXTAG	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at either the page level or group level.
-54 = *DOCIDXPAG	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the page level.
-55 = *DOCIDXGRP	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the group level.
-56 = *STRPAGGRP	The data was added to the spooled file using the DDS STRPAGGRP() keyword.
-57 = *DOCIDXTAGP	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the page level, group level or was propagated from the group level to all pages in the group.
-58 = *DOCIDXGRPP	The data was added to the spooled file using the DDS DOCIDXTAG() keyword at the group level or was propagated from the group level to all pages in the group.
-59 = *STRPAGGRPP	The data was added to the spooled file using the DDS STRPAGGRP() keyword or was propagated from the keyword to all pages in the page group.

PDPOS	Position on the line the data starts. When PDLINE contains one of the special values, PDPOS is zero.

- Data. These fields contain the data.

PDVLEN	Length of data contained in the following field.
PDVDTA	Data retrieved from the page. When PDLINE is one of the special values related to the DDS STRPAGGRP() keyword, PDVDTA contains the "group-name" specified. When PDLINE is one of the special values related to the DDS DOCIDXTAG() keyword, PDVDTA contains the "attribute-value" specified.

PDNLEN   Length of data contained in the following field.

PDNDTA   Name data. When PDLINE is one of the special values related to the DDS DOCIDXTAG() keyword, PDNDTA contains the "attribute-name" specified otherwise it is blank.

Appendix B Notices

Notices

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Appendix C Order Form

```
Name       _____
Company    _____
Address    _____
City/State/Zip _____
Country    _____
Phone      _____
Email      _____
```

I have read and agree with the Spool-a-Matic Software License Agreement. I am ordering the following licenses:

```
System Wide License  -- or --  Partition License
                     Proc.                      Prt. Proc.
-- Serial Number ---  Group    -- Serial Number ---  No.  Count
_____  _____    _____  ___  _____
_____  _____    _____  ___  _____
_____  _____    _____  ___  _____
```

See the Price List for pricing information. The current Price List is available at www.gumbo.com. License price includes one year of maintenance services. Add the amount shown on the price list for each additional year of maintenance services. In Washington state include sales tax (your local rate or 9.5%.

```
Licenses . . . . . . . . . . . . . . . . . . .  _____
Maintenance  . . . . . . . . . . . . . . . .  _____
In WA state, add sales tax . . . . . . . . . .  _____
Total enclosed . . . . . . . . . . . . . . .  _____
Signature _____  Date _____
Title _____
```

Make checks payable to:

GUMBO
Software, Inc.

```
809 W Howe St
Seattle, WA 98119
United States of America
Phone:  (206) 284-5078
Email:  support@gumbo.com
Web:    www.gumbo.com
```

Rev: 2001/12/21

Appendix D License Agreement

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Gumbo Software, Inc. grants to the purchaser, permanent license to use Spool-a-Matic on the specified serial number and processor group IBM System i. For system licenses the grant is specific to the system as a whole. For partition licenses the grant is specific to a partition number (ID) and maximum processing capacity. This license is not transferable and not exclusive.

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Updates

Gumbo Software, Inc. may from time to time update Spool-a-Matic to correct defects or add enhancements. Purchaser will receive updates for a period of one year from date of purchase.

Rev: 2001/09/22