



GUMMB
Software, Inc.

Spool Mail

Programmer's Guide and Reference



Communications and Networking

Edition Notice

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This edition applies to the licensed program SpoolMail (Program 2A55SM1), V2R4M0, 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.

A version of this manual in Adobe's Portable Document Format (PDF) is available on the web.

We welcome your comments. Send them to:

GUMBO
Software, Inc.

809 W Howe St
Seattle, WA 98119
United States of America

Phone: (206) 284-5078
Fax: (206) 284-5029
E-mail: support@gumbo.com
Web: www.gumbo.com

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Chapter 1 Introduction

What's In This Chapter

This chapter introduces you to SpoolMail. The chapter:

- o Gives an overview of SpoolMail
- o Describes the features of SpoolMail
- o Describes the conversions of SpoolMail
- o Describes SpoolMail's spooled file splitting
- o Describes SpoolMail's Logical Printer support
- o Describes SpoolMail's relationship to other products
- o Outlines future directions for the product

SpoolMail Overview

SpoolMail is an i5/OS based software utility that delivers System i5 spooled output as e-mail. SpoolMail integrates with i5/OS' built-in mail support to provide e-mail delivery of printed reports to any e-mail recipient.

SpoolMail allows your users to receive printed reports in a timely, convenient and inexpensive electronic form. Spooled output from i5/OS applications is delivered with a user's regular e-mail ready for on-line viewing and local printing. You reduce costs by avoiding the expense of printing, manual handling and postage associated with printed output. You also avoid the expense of changing your existing i5/OS applications to deliver information as e-mail. All processing is performed on the System i5, providing a stable platform for generating e-mail.

When sending the e-mail, you have a wide variety of options to tailor the delivered message to your specific needs. Addressing includes multiple recipients, copy recipients and blind copy recipients. Additionally, you can include multiple Reply-To: addresses as well as specify the e-mail address the message appears to come from. Delivery confirmation by read receipt can also be specified.

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.

SpoolMail Features

The main function of SpoolMail is accessed by running the Send Spool Mail (SNDSPMAIL) command. The command takes a spooled file and an e-mail address as input. The spooled file is retrieved from i5/OS' spool store and converted to the requested format. The converted spooled file is then sent to the e-mail address entered using i5/OS' built-in mail support. i5/OS processes the e-mail and either delivers it directly to the recipient(s) or forwards it to a mail router for delivery.

Some additional mail features of SpoolMail are:

- o Extensive ability to convert spooled files to PC files including the ability to split a spooled file into multiple e-mails based on data on the page.
- o Additional documents can be included with the generated e-mail.

- o User exit available for supplying the recipient's e-mail address from data, such as customer number, on the page.
- o Support for distribution lists via the i5/OS system distribution directory.
- o Support for direct delivery to SMTP clients without i5/OS system distribution directory entry.

Commands to help you trouble shoot and, optionally, automatically configure i5/OS to send mail are also included with SpoolMail.

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.

SpoolMail includes a work-a-like for i5/OS' Work with Spooled File (WRKSPLF) command called Work with Gumbo Spooled Files (WRKGSISPLF). It also includes a work-a-like for i5/OS' Work with Output Queue (WRKOUTQ) command called Work with Gumbo Output Queue (WRKGSIOUQ). 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 SpoolMail by entering an option number.

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

SpoolMail Conversions

SpoolMail supports all of the i5/OS spooled file print data streams:

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

SpoolMail can produce PC files in a wide variety of industry standard formats:

- o Adobe's Portable Document Format (PDF)
- o Carriage return/line feed delimited ASCII text (TXT)
- o Microsoft's Rich Text Format word processor file (RTF)
- o The world wide web's Hyper Text Markup Language (HTML)
- o Printer specific print data streams produced by I5/OS's Host Print Transform (HPT)
- o An unaltered copy of the original print data stream (NONE)
- o Adobe's PostScript (PS)
- o IBM's AFP Print File (AFP)
- o IBM's Final Form Text (FFT)
- o 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
*USERASCII						YES			
*LINE	note	note				note	YES	note	note
*AFPDSLINE	note	note				note	YES	note	note

Figure: Print Data Stream/Conversion Matrix

Note: The PDF transform is double byte enabled for Chinese/Japanese/Korean.

Note: The TXT transform is double byte enabled for *SCS.

Note: You can determine a spooled file's print data stream by displaying its attributes (option 8 from WRKOUTQ or WRKSPLF) and locating the "Printer device type" parameter.

Note: For *LINE and *AFPDSLINE full *AFPDS support is available with i5/OS V5R1M0. Specify CVTLINDTA(*YES) on the printer file.

SpoolMail's Spooled File Splitting

SpoolMail has the ability to split spooled files into multiple e-mails based on data found on each page. A request to split the spooled file is indicated by specifying the ***PAGDTA** special value as the recipient on the Send Spool Mail (SNDSPLMAIL) command. 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 and e-mailed. If the page data is not an e-mail address but other identifying information, the Address mapping program (ADDMAPPGM) parameter specifies a customer supplied program to calculate an e-mail address based on the data on the page.

For example, consider a 6 page spooled file with a 10 character branch name printed at line 7, position 12 of each page. Also consider an address mapping program that retrieves the e-mail address of a branch manager based on the name of the branch. If pages 1, 2, 3 and 6 contain "Seattle" and pages 4 and 5 contain "Redmond" then the following command generates two e-mails:

```
SNDSPLMAIL TOSMTPNAME(*PAGDTA) PAGDTA(7 12 10) ADDMAPPGM(QGPL/BRCH2MGR) ...
```

The first, sent to the manager of the "Seattle" branch, contains page 1, 2, 3 and 6 while the second, sent to the "Redmond" branch manager, contains pages 4 and 5.

The *PAGDTA special value is enabled for APF FFT HTM PDF RTF TIF and TXT conversions. For additional information see the Send Spool Mail (SNDSPLMAIL) command's help text. A skeleton address mapping program written in CL is included in the file SMSOURCE, member SKLADDMAP.

SpoolMail's 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' writer commands (WRKWTR, STRPRTWTR, ENDWTR, HLDWTR, etc.) and i5/OS' 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 e-mailing from any PC application for

any PC on your network. Combine this with SpoolMail's PDF support and you can e-mail PDF files without Acrobat.

Product Positioning

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

Number	Licensed Program
2A55RM1	Report Manager - Monitors output queues and distributes spooled files.
2A55SM1	SpoolMail - Sends spooled files as email.
2A55SAM	Spool-a-Matic - Converts spooled files into PC files.
2A55XL1	Excel-erator - Converts/emails database files into/as Excel Spreadsheets.
2A55DCR	Dicer - Merge/sort/split/duplicate spooled files.
2A55RDA	Report Designer - Edit 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:

Function	Product						
	RM1	SM1	SAM	XL1	DCR	RDA	SM2
Monitor an output queue 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 ASCII text PC file	YES	-	YES	-	-	-	-
Convert spool to PDF/RTF/HTML etc.	-	-	YES	-	-	-	-
Convert database file to Excel	-	-	-	YES	-	-	-
Email spool as ASCII text attach	YES	YES	-	-	-	-	-
Email spool as PDF/RTF/HTML etc.	-	YES	-	-	-	-	-
Email database file as Excel	-	-	-	YES	-	-	-
Email any IFS file	-	YES	-	YES	-	-	YES
Set up i5/OS SMTP & mail router	YES	YES	-	YES	-	-	YES
Edit DDS, RPG, ILE/RPG source code	-	-	-	-	-	YES	-

Figure: Product Function Comparison

Future Directions

Future releases of SpoolMail will include a broader list of spooled file conversions and features. Additionally, enhancements are often added by Program Temporary Fix (PTF).

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

Chapter 2 Installation

What's In This Chapter

This chapter describes:

- o How to install SpoolMail.
- o How to verify the installation.
- o API authority granted during installation
- o How to include the SPOOLMAIL library in a job's library list.
- o How to determine release dependencies.
- o How to test a new release while leaving the old in production.
- o How to remove SpoolMail from the system.
- o How to find additional installation information.
- o How to contact technical support.
- o How to integrate Report Manager and SpoolMail.
- o Hot site installation.

Installing The SpoolMail Licensed Program Product

Follow these instructions to install SpoolMail V2R4M0 on your System i5:

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 SpoolMail V2R4M0 on your machine. You must install an earlier version of SpoolMail or upgrade the operating system.

3. Verify that user domain objects are allowed in the libraries SPOOLMAIL 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 SPOOLMAIL 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(QVfyOBRST)
```

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(2A55SM1) 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 SPOOLMAIL and a new directory '/Gumbo/ProdData/2A55SM1' are on the system. You can access the SpoolMail menu by entering the following command:

```
GO MENU(SPOOLMAIL/SPOOLMAIL)
```

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

```
DSPPTF LICPGM(2A55SM1)
```

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

Note: Gumbo Software recommends downloading the current cumulative PTF package after installing the software.

Verifying SpoolMail Installation

You may verify that SpoolMail has been correctly installed by running the installation verification program.

- o Access the SpoolMail menu by entering the following command:

```
GO MENU(SPOOLMAIL/SPOOLMAIL)
```

- o Select the option to 'Verify that SpoolMail is installed correctly' and press enter.

If the message 'SpoolMail is installed correctly.' is displayed on the bottom of your display when the option finishes, installation is complete.

API Authority Granted During Installation

The first time the product 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 to open, read and close spooled files. This is required in order to process spooled file contents.

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 the product exists on the system. This prevents new releases from altering changes made after the initial installation.

Library List Considerations

Library SPOOLMAIL must be in the library list of jobs using SpoolMail commands, or the commands must be qualified with library SPOOLMAIL. Depending on your installation and intended use you may choose to:

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

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

SPOOLMAIL/CHGSMLAUT

Library SPOOLMAIL will be temporarily added to the product portion of the job's library list.

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

Release Considerations

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

- o A new release of i5/OS may be installed without installing a new release of SpoolMail.

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

- o A new release of SpoolMail 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 SpoolMail release. The new authorization for the release must be entered.

- o More than one release of SpoolMail may be installed on a system at one time.

By restoring SpoolMail to a library other than SPOOLMAIL a new release can be installed for testing while the current 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.

- o When a new release of SpoolMail is installed in the same library as an old release the following processing is performed in order to preserve data and authorization information:

1. All objects are saved to the save file QGPL/SM1V2R4M0.
2. Product objects that contain default settings and operational information are copied to library QTEMP.
3. The SpoolMail library is cleared.
4. SpoolMail is restored.
5. Default settings and operational information are copied to the product objects.
6. All objects duplicated to QTEMP are deleted.
7. Save file QGPL/SM1V2R4M0 is deleted.

Note: Gumbo Software recommends making a backup of the current release before installing a new release of SpoolMail.

New Release Testing

Unlike IBM licensed programs, Gumbo Software licensed programs are packaged in a way that allows multiple release to be installed on your System i5 at the same time. This feature allows you to test a new release while the current 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. Install the new release in library SM1V2R4M0 and directory '/Gumbo/ProdData/2A55SM1V2R4M0':

```
RSTLICPGM LICPGM(2A55SM1) DEV(device-name) LIB(SM1V2R4M0) REPLACERLS(*NO) LNG(2924)
          CODHOMEDIR(' /Gumbo/ProdData/2A55SM1V2R4M0 ')
```

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

```
DLTLICPGM LICPGM(2A55SM1) RLS(V2R4M0) 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.

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

Deleting the SpoolMail Licensed Program Product

Follow these instructions to remove SpoolMail from your System i5:

1. Sign on to the system as the security officer (QSECOFR).
2. Delete the product by using the Delete Licensed Program (DLTLICPGM) command:

```
DLTLICPGM LICPGM(2A55SM1) OPTION(*ALL)
```

Additional Installation Information

Additional detailed installation information and instructions can be found in the InfoCenter: [i5/OS and related software -> Install, upgrade, or delete i5/OS and related software SC41-5120](#).

Technical Support

If you encounter a problem with SpoolMail you should:

- o Review the information in Trouble Shooting chapter for a description of and solution to common problems.
- o 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:

Mailing address: Gumbo Software, Inc.
809 W Howe St
Seattle, WA 98119
United States of America

Telephone: (206) 284-5078
E-mail: support@gumbo.com
World Wide 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 e-mail 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 SpoolMail

Report Manager is a product that offers extensive spooled file manipulation capabilities, including the ability to deliver spooled files as e-mail. The e-mail delivery is limited however to <CR><LF> delimited ASCII text attachments and does not include the extensive conversion capabilities offered by SpoolMail.

SpoolMail is a product that offers extensive spooled file e-mailing capabilities, but does not provide spooled file splitting, output queue monitoring and other capabilities offered by Report Manager.

To make the capabilities of SpoolMail available for use with Report Manager perform the following steps:

1. Change the Report Manager job description RMRPTWTR to include library SPOOLMAIL 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:

```
CHGJOB JOB(RPTMGR/RMRPTWTR) INLLIBL(RPTMGR QTEMP QGPL SPOOLMAIL)
```

2. Add subscriptions to the reports that should e-mail spooled files using SpoolMail. For example to e-mail PC files as Portable Document Format from report INV310 to RMT1 SYS1, run the following command:

```
ADDRPTSUB RPT(REPORTS/INV310) USER(*USRID) USRID(RMT1 SYS1)  
OUTQ(*NONE) SNDFMT(*EMAIL) TRANSFORM(*PDFLETTER)
```

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 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. 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.

Chapter 3 SpoolMail Menu

What's In This Chapter

This chapter describes how to access the SpoolMail menu, and reviews the functions that can be performed from the menu.

Accessing The Menu

The SpoolMail commands and functions that you will use are collected on a single menu named SPOOLMAIL. To access this menu use the Go To Menu (GO) command:

```
GO MENU(SPOOLMAIL/SPOOLMAIL)
```

Library SPOOLMAIL is added to the product portion of your job's library list while the menu is displayed.

Menu Options

```
-----+-----
SPOOLMAIL                               SpoolMail                               System:  SM1
Select one of the following:
    1. Online Manual
    SpoolMail
    2. Send Spool Mail                     SNDSPLMAIL
    3. Work with Gumbo Spooled Files       WRKGSISPLF
    4. Work with Gumbo Output Queue       WRKGSIOUQ
    Verification and Set Up
    10. Verify that SpoolMail is installed correctly
    11. Mail Verification And Set Up Menu
    12. Create Device Gumbo Printer        CRTDEVGLP
    13. Change Device Gumbo Printer       CHGDEVGLP
    14. Delete Device Gumbo Printer       DLTDEVGLP
                                           More...
Selection or command
====>
F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
©) Copyright Gumbo Software, 1997, 2007. Inc. All rights reserved.
-----+-----
```

Figure: SpoolMail Menu

The SpoolMail (SPOOLMAIL) menu options are summarized below. See the detailed descriptions in later chapters for a complete description of each option.

Option 1. Online Manual

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

Option 2. Send Spool Mail

The Send Spool Mail (SNDSPLMAIL) command converts an I5/OS spooled file and sends it as e-mail to a recipient.

Option 3. Work with Gumbo Spooled Files

The Work with Gumbo Spooled Files (WRKGSISPLF) command works like I5/OS' WRKSPLF command but provides additional options to access the functions of this product.

Option 4. Work with Gumbo Output Queue

The Work with Gumbo Output Queue (WRKGSIOUQ) command works like I5/OS' WRKOUTQ command but provides additional options to access the functions of this product.

Option 10. Verify that SpoolMail is installed correctly

Installation verification checks to make sure that SpoolMail has been correctly installed.

Option 11. Mail Verification And Set Up Menu

The Mail Verification And Set Up menu provides commands to help you set up mail on your system and verify that it is operating correctly.

Option 12. Create Device Gumbo Printer

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

Option 13. Change Device Gumbo Printer

The Change Device Gumbo Printer (CRTDEVGLP) command changes a device description for a Gumbo logical printer.

Option 14. Delete Device Gumbo Printer

The Delete Device Gumbo Printer (CRTDEVGLP) command deleted a device description for a Gumbo logical printer.

Option 61. Display Current PTF Status

Displays the SpoolMail PTFs that have been applied to the software.

Option 62. Change SpoolMail Authorization

The Change SpoolMail Authorization (CHGSM1AUT) command changes the authorization value for SpoolMail. The command is used to extend a demonstration period or to permanently authorize SpoolMail for a system.

Option 63. Search Help Index

Search help index allows you to access the SpoolMail help index and search for specific information.

Option 64. Change SpoolMail Default

The Change SpoolMail Default (CHGSM1DFT) command changes values used by SpoolMail 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 e-mailing 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. 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.

Option 69. Check SpoolMail Authorization

The Check SpoolMail Authorization (CHKSM1AUT) command executes SpoolMail's authorization verification function. This allows you to determine whether and how the product is authorized for use.

Chapter 4 Set Up

What's In This Chapter

This chapter provides information on setting up your system to use SpoolMail. The chapter describes:

- o How to select a quick start mail set up procedure
- o Quick start mail set up - LAN.
- o Quick start mail set up - Domino/400 and one SMTP stack.
- o Quick start mail set up - Domino/400 and two SMTP stack.
- o Quick start steps to create a logical printer.
- o How to determine if you need to set up SMTP on your system.
- o How to use the Verify/Set Up Local SMTP (VFYLOCAL) command.
- o Manual SMTP steps you may need to perform.
- o How to determine if you need to set up a mail router on your system.
- o How to use the Verify/Set Up Mail Router (VFYROUTER) command.
- o How to set up postmaster and non-delivery accounts.
- o How to forward mail to another address.

Selecting The Quick Start Mail Set Up Procedure

There are three quick start mail set up procedures for configuring i5/OS mail services described in this chapter. The configuration procedures are:

- o Quick start mail set up - LAN.
- o Quick start mail set up - Domino/400 and one SMTP.
- o Quick start mail set up - Domino/400 and two SMTP.

You only perform one of these. If you are not running Domino/400 on the system you are setting up, proceed to the section for a typical LAN installation. If you are running Domino/400 on the system you are setting up you must select between the two Domino/400 mail set up procedures.

Our software uses i5/OS' SMTP services to deliver mail. Originally, Domino/400's SMTP stack or i5/OS' SMTP could be active on a system but not both. To use both Domino/400 and i5/OS mail services, Domino/400 is configured to use i5/OS' SMTP in place of its own. That is Domino/400 and i5/OS share a single (i5/OS) SMTP stack and no new IP address is required.

More recently, IBM has added a feature that allows i5/OS' SMTP stack to bind to a specific IP address. With this feature, both the Domino/400 and i5/OS SMTP stacks can be active at the same time. This appears to be the preferred set up as it leaves Domino/400 untouched but allows the i5/OS SMTP stack to be active. The feature requires that a new IP address be designated for the i5/OS SMTP stack.

Determine which alternative your installation will use and proceed to the one or two SMTP stack procedure.

Quick Start Mail Set Up - LAN

If yours is a typical LAN installation the following steps will get you started quickly. The typical LAN installation is an System i5 connected to a LAN with the post office (a.k.a. mail router) on a LAN attached PC running Exchange, Notes, Domino, Groupwise or similar mail server with or without a connection to the internet at large. At the typical installation this is the first application to generate email from the System i5. If any of the steps fail or yours is a more complex installation, move on to the detailed sections of this chapter.

1. Install the product on your System i5 (see the Installation chapter for details).
2. Display the product menu.
3. Run the option to verify that the product is installed correctly.
4. Display the Mail Verification And Set Up menu.
5. Run option 12 to set up the System i5.
6. Determine the name and IP number of the mail router.
7. Run option 14 to set up the mail router specifying its name and IP.

8. Return to the product menu by hitting F12.
9. Send a test to yourself using your "real" email address.
10. Check your email.

If after a reasonable time no email arrives perform the following additional steps.

1. Add your "real" email address to your directory entry by running (this example uses "real" email address "billg@acme.com" and the directory entry "MYUSER MYSYSTEM"):

```
CHGDIRE  USRID(MYUSER MYSYSTEM) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
          USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Note: If you are still signed on as QSECOFR, start a second session and sign on with your regular user profile to perform the send.

2. Display the Mail Verification And Set Up menu.
3. Run option 61 to restart/purge local mail on your system.

Note: If your System i5 is currently being used to generate email from another application, change the Clear SMTP during restart (SMTPPURGE) and Clear MSF during restart (MSFPURGE) parameters to *NO to prevent email from being deleted.

4. Send a test to yourself taking by taking the default *CURRENT.
5. Check your email.

If after a reasonable time no email arrives move on to the detailed sections of this chapter. For additional information see the Trouble Shooting chapter.

Quick Start Mail Set Up - Domino/400 One SMTP

If yours is a typical Domino for i5/OS installation, the following steps will get you started quickly and use only one SMTP stack. The typical Domino for i5/OS installation is an System i5 connected to a LAN with Domino for i5/OS installed using the Domino SMTP stack with or without a connection to the internet at large. At the typical installation this is the first application to generate email from the System i5, outside Domino. If any of the steps fail or yours is a more complex installation, move on to the detailed sections of this chapter.

Note: Additional detailed information can be found in the Redbook [Lotus Domino for i5/OS R5: Implementation SG24-5592-00](#).

1. Install the product on your System i5 (see the Installation chapter for details).
2. Display the product menu.
3. Run the option to verify that the product is installed correctly.
4. Run the End Domino Server (ENDDOMSVR) command.
5. Change the Domino Server to use i5/OS' SMTP stack:
 - A. Run the Change Domino Server (CHGDOMSVR) command.
 - B. Add *SMTP to the "Internet mail packages MAIL()" parameter.
 - C. Change the "SMTP services SMTP()" parameter from *DOMINO to *MSF.
6. Display the Mail Verification And Set Up menu.
7. Run option 12 to set up the System i5.
8. Run option 14 to set up the mail router specifying its name and IP.
9. Run option 61 to restart/purge local mail on your system.
10. Run the Start Domino Server (STRDOMSVR) command.
11. Return to the product menu by hitting F12.
12. Send a test to yourself using your "real" email address.
13. Check your email.

If after a reasonable time no email arrives perform the following additional steps.

1. Add your "real" email address to your directory entry by running (this example uses "real" email

address "billg@acme.com" and the directory entry "MYUSER MYSYSTEM"):

```
CHGDIRE  USRID(MYUSER MYSYSTEM) MSFSRVLVL(*DOMINO) PREFADR(*SMTP)
          USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Note: If you are still signed on as QSECOFR, start a second session and sign on with your regular user profile to perform the send.

2. Send a test to yourself taking by taking the default *CURRENT.
3. Check your email.

If after a reasonable time no email arrives move on to the detailed sections of this chapter. For additional information see the Trouble Shooting chapter.

Quick Start Mail Set Up - Domino/400 Two SMTP

If yours is a typical Domino for i5/OS installation, the following steps will get you started quickly using two SMTP stacks. The typical Domino for i5/OS installation is an System i5 connected to a LAN with Domino for i5/OS installed using the Domino SMTP stack with or without a connection to the internet at large. At the typical installation this is the first application to generate email from the System i5, outside Domino. If any of the steps fail or yours is a more complex installation, move on to the detailed sections of this chapter.

Note: Additional detailed information can be found in the Redbook [Lotus Domino for I5/OS R5: Implementation SG24-5592-00](#).

1. Install the product on your System i5 (see the Installation chapter for details).
2. Display the product menu.
3. Run the option to verify that the product is installed correctly.
4. Determine the i5/OS version by running:

```
DSPDTAARA DTAARA(QGPL/QSS1MRI)
```

5. For versions before V5R1M0 run DSPPTF 5769TC1 and insure that the bind to specific IP PTFs are installed:

I5/OS	Required PTFs
V4R5M0	SF60827, SF61136
V4R4M0	SF60787, SF60764
V4R3M0	SF58661, SF59663
V4R2M0	SF55697, SF55704

6. Determine the new IP address to be assigned to i5/OS' SMTP stack. If your i5/OS SMTP stack will use Domino to deliver email to internet users (the recommended approach) and you otherwise do not have an internet address for the i5/OS SMTP stack, you can use internet address "192.168.1.1" and Subnet Mask "255.255.255.0". This number is taken from the class B "192.168.0.0" network which is reserved for internal networks as described in RFC1597.

Note: This example will use 192.168.1.1.

7. Determine the **Internet Address**, **Line Description** and **Line Type** used by the existing TCP/IP interface:
 - A. Run the Configure TCP/IP (CFGTCP) command.
 - B. Select option 1: Work with TCP/IP interfaces.
 - C. Note the **Internet Address**, **Line Description** and **Line Type** used by the existing TCP/IP interface (Do not use *LOOPBACK).

Note: This example will use **Internet Address** 10.10.10.2, **Line Description** LINE01 and **Line Type** *ELAN.

8. Insure that Domino's SMTP stack is bound specifically to the IP number of the existing interface:
 - A. Prompt the CHGDOMSVR command for the Domino server and hit F10.
 - B. Locate the **TCP/IP port options** (TCPOPT) parameter.
 - C. Locate the **Internet Address** element.
 - D. If the internet address is *SYSTEM, change it to the IP number of the existing interface (In our example it is 10.10.10.2).
 - E. Restart Domino.

9. Add a TCP/IP interface for the i5/OS SMTP stack:

```
ADDTCPIFC INTNETADR(192.168.1.1) LIND(LINE01) SUBNETMASK('255.255.255.0')
```

10. Start the TCP/IP interface:

```
STRTCPIFC INTNETADR(192.168.1.1)
```

11. Create the binding data areas:

```
CRTDTAARA DTAARA(QUSRSYS/QTMSCBNDIP) TYPE(*CHAR) LEN(16)
          VALUE('192.168.1.1') TEXT('SMTP Bind To Specific IP') AUT(*USE)
CRTDTAARA DTAARA(QUSRSYS/QTMSSEBNDIP) TYPE(*CHAR) LEN(16)
          VALUE('192.168.1.1') TEXT('SMTP Bind To Specific IP') AUT(*USE)
```

Note: For V5R1M0 you can use OpsNav to accomplish the binding. See the Bindings tab of the SMTP properties page.

12. Determine your company's domain name. For us it is **gumbo.com**. For you it is probably the portion of your email address to the right of the @.

Note: This example will use acme.com.

13. Add a host table entry for the new interface:

```
ADDTCPHTE INTNETADR(192.168.1.1) HOSTNAME(('os400smtp') ('os400smtp.acme.com'))
          TEXT('I5/OS SMTP')
```

Note: If you are using DNS, make the same addition to the configuration.

14. Change the identification used by i5/OS' SMTP stack to reflect the new information:

```
CHGTCPDMN HOSTNAME('os400smtp') DMNNAME('acme.com')
```

15. Display the Mail Verification And Set Up menu.
16. Run option 12 to complete the i5/OS SMTP set up.
17. Run option 14 to set up Domino as the mail router for the i5/OS SMTP stack. Specify Domino's host name (not server name) and IP.

Note: If you will use a mail router other than Domino and you used an address from the "192.168.0.0" class B network, you must also add a TCP/IP route using the Add TCP/IP Route (ADDTCP RTE) command.

19. Return to the product menu by hitting F12.
20. Send a test to yourself using your "real" email address.
21. Check your email.

If after a reasonable time no email arrives perform the following additional steps.

1. Add your "real" email address to your directory entry by running (this example uses "real" email address "billg@acme.com" and the directory entry "MYUSER MYSYSTEM"):

```
CHGDIRE USRID(MYUSER MYSYSTEM) MSFSRVLVL(*DOMINO) PREFADR(*SMTP)
          USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Note: If you are still signed on as QSECOFR, start a second session and sign on with your regular user profile to perform the send.

2. Send a test to yourself taking by taking the default *CURRENT.
3. Check your email.

If after a reasonable time no email arrives move on to the detailed sections of this chapter. For additional information see the Trouble Shooting chapter.

Quick Start Steps To Create A Logical Printer

Once you are successfully sending e-mail you can automate the process by creating a logical printer.

1. Run option 12 and specify a printer name and port (use 1 if you are not sure).
2. Edit the SNDSPLMAIL command when prompted with SEU. Specify the recipient.
3. Move a spooled file to the output queue and release it.

Do I Need To Set Up SMTP

Our software works in conjunction with the Mail Server included in i5/OS. If you are already successfully sending email to users from your system then no further set up is required.

If you are not yet sending email from your system or are not sure that your system has been set up correctly for SMTP then continue with this chapter.

Using The SMTP Set Up Command

Verify/Set Up Local SMTP (VFYLOCAL) command performs automatic verification and set up of SMTP on your system. The command accepts a single parameter that determines if changes are made to the system. To verify the system without making any changes select option 11 on the Mail Verification And Set Up menu or run the following command:

```
VFYLOCAL SETUP(*NO)
```

To make changes to your system select option 12 on the Mail Verification And Set Up menu or run the following command:

```
VFYLOCAL SETUP(*YES):
```

In both cases SMTP verification is performed. Only if SETUP(*YES) is specified does the command try to perform set up functions. You must be authorized to perform all of the verification and set up functions or the command fails. You can insure that you are authorized to perform all functions by signing on as QSECOFR.

Note: If you prefer to manually perform the functions of this program see the Appendix.

A log of activity is created during verification and set up. To view the log run DSPJOB, take option 4 and display the last spooled file.

If errors are encountered, detailed information can be found in your joblog. To view the information generated by VFYLOCAL, run the following command after the program has completed:

```
DSPJOBLOG
```

When the joblog is displayed, press F10 to display detailed messages and F18 to position to the end of the log.

The recommended procedure is to run a verification first and review the results before running

automatic set up.

Manual SMTP Steps You May Need To Perform

Depending on your system, network configuration and your intended usage, there are several manual set up steps you may need to perform in order to use SMTP. These are described here.

- o Installing SMTP and TCP Connectivity Utilities

In order to send email from your system, SMTP support must be installed. SMTP functions are delivered free of charge with i5/OS as part of a separately installed licensed program product: 5722-TC1 (V5) or 5769-TC1 (V4) Connectivity Utilities/400. Detailed installation information and instructions can be found in [AS/400 Software Installation SC41-5120](#).

- o Changing Local Domain and Host Names

SMTP uses your system's local domain and host name to identify itself to remote SMTP hosts from which it is receiving mail or to which it is sending mail. To configure the names:

- Run the Configure TCP/IP (CFGTCP) command.
- Select option 12 (Change local domain and host names).
- Enter a domain and host name for your system.

As an example, we use gumbo.com as the domain name and the System i5 system name as the host name on our machines.

- o Creating a TCP Interface

A TCP interface establishes your System i5 identity (internet address) on a given line description. Typically the line description for a local area network is used.

In order to add a TCP interface to a line description, you must determine the internet address and subnet mask to use. If you have a network administrator or other person responsible for assigning internet addresses (a.k.a. IP numbers), contact them. If you will connect your System i5 directly to the Internet, you must request that the InterNIC assign you a network number. If you will not connect your System i5 directly to the internet, and otherwise do not have an internet address for your system, you should use internet address "192.168.1.1" and subnet mask "255.255.255.0". This number is taken from the class B "192.168.0.0" network which is reserved for internal networks as described in RFC1597. To add an interface after you have determined an internet address and subnet mask, run the following command:

```
ADDTCPIFC INTNETADR(192.168.1.1) LIND(line_description_name)
          SUBNETMASK(255.255.255.0)
```

Substitute your values for the three parameters.

- o Setting Up Local Users

A local user is someone who has a user profile (sign-on) on your System i5. You should set up each local user who will be sending email to insure that the apparent "From:" address in the email will be correct and to insure that replies reach the sender. You do not need to set up local users who will not be sending mail. To configure hypothetical user JOE SALES (user profile JOES) as joe@acme.com, perform the following:

- If Joe already has a directory entry run:

```
CHGDIRE   USRID(JOE SALES) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
          USRDFNFLD((SMTPAUSRID SMTP 'joe') (SMTPDMN SMTP 'acme.com'))
```

- If Joe doesn't have a directory entry run:

```

ADDIRE   USRID(JOE SALES) USRD('Sample entry') USER(JOES) SYSNAME(*LCL)
         MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
         USRDFNFLD((SMTPAUSRID SMTP 'joe') (SMTPDMN SMTP 'acme.com'))

```

The user is now ready to send mail from your system as joe@acme.com.

o Changing The System Start Program

You may wish to check your system's start up program to insure that the required subsystems are started automatically when your system IPLs. The following steps are recommended:

- Insure that the SMTP server starts automatically when the Start TCP/IP (STRTCP) command is run:

```
CHGSMTPA AUTOSTART(*YES)
```

- Insure that your system start up program starts TCP/IP by including the command:

```
STRTCP
```

- Insure that your system start up program starts the i5/OS Mail Server by including the command:

```
STRMSF
```

o Changing The Time Zone System Value

Note: This item applies to i5/OS releases V5R3M0 or later. If you are running a release prior to V5R3M0, see the item below.

The time stamp placed in the email is based on the system values QTIME and QTIMZON. Since most System i5 have the correct time, an incorrect time stamp usually indicates an incorrect time zone setting. For information on correctly setting the QTIMZON system value see "Time management" under "System management" at the IBM Information Center <http://www.iseries.ibm.com/infocenter>

o Changing The Universal Time Coordinate Offset System Value

Note: This item applies to i5/OS releases prior to V5R3M0 or later. If you are running V5R3M0, see the item above.

The time stamp placed in the email is based on the system values QTIME and QUTCOFFSET. While most System i5 have the correct time, few have the correct QUTCOFFSET which stands for "Coordinated universal time offset". The value specifies the difference in hours and minutes between UTC, also known as Greenwich mean time, and the current system time. The following table shows the correct setting for several time zones:

Time Zone	Standard/Day Light Savings
Atlantic Time	-04:00 / -03:00
Eastern Time	-05:00 / -04:00
Indiana	-05:00 / (no change)
Central Time	-06:00 / -05:00
Mountain Time	-07:00 / -06:00
Arizona	-07:00 / (no change)
Pacific Time	-08:00 / -07:00
Alaska Time	-09:00 / (no change)
Hawaii-Aleutian Time	-10:00 / (no change)
Dublin, Edinburgh	+00:00
London, Lisbon	+00:00
Berlin, Stockholm,	+01:00
Rome, Bern, Amsterdam	+01:00
Brussels, Vienna	+01:00
Paris, Madrid	+01:00
Prague, Warsaw	+01:00
Hong Kong, Perth	+08:00
Singapore, Taipei	+08:00

Tokyo, Osaka	+09:00
Adelaide, Darwin	+09:30
Brisbane, Canberra	+10:00
Melbourne, Sydney	+10:00
Wellington, Auckland	+12:00

Additional detailed information and instructions can be found in the [i5/OS TCP/IP Configuration and Reference SC41-5420](#).

Do I Need To Set Up A Mail Router

i5/OS SMTP support can be configured to deliver email to an external mail router when SMTP cannot find the name and address of the recipient in the system or personal alias tables or when SMTP is not able to resolve the address of the recipient.

An external mail router is a system that is running a mail application. Examples of mail applications include:

- o Microsoft Exchange Server
- o Lotus Notes Mail
- o Group Wise
- o Your Internet Service Provider's (ISP's) mail gateway

If you want the mail application to handle delivery for SMTP mail originating from the i5/OS, then continue with this chapter.

If your configuration does not include a system running a mail application, or if you are running Domino for i5/OS with one SMTP stack, you should not set up a mail router. If you intend to have i5/OS directly deliver mail to recipients, you do not need to set up a mail router.

Using The Mail Router Set Up Command

Verify/Set Up Mail Router (VFYROUTER) command performs automatic verification and set up of a mail router for your system. The command accepts a three parameters that determine if changes are made to the system and the identity of the mail router. To verify the mail router without making any changes select option 13 on the Mail Verification And Set Up menu or run the following command (substitute the name and internet address of your external mail router for "system_name" and "ip"):

```
VFYROUTER RMTSYS(system_name) INTNETADR(ip) SETUP(*NO)
```

To make changes to your system select option 14 on the Mail Verification And Set Up menu or run the following command (substitute the name and internet address of your external mail router for "system_name" and "ip"):

```
VFYROUTER RMTSYS(system_name) INTNETADR(ip) SETUP(*YES)
```

In both cases mail router verification is performed. Only if SETUP(*YES) is specified does the command try to perform set up functions. You must be authorized to perform all of the verification and set up functions or the command fails. You can insure that you are authorized to perform all functions by signing on as QSECOFR.

Note: If you prefer to manually perform the functions of this program see the Appendix.

A log of activity is created during verification and set up. To view the log run DSPJOB, take option 4 and display the last spooled file.

If errors were encountered, detailed information can be found in your joblog. To view the information generated by VFYROUTER, run the following command after the command has completed:

```
DSPJOBLOG
```

When the joblog is displayed, press F10 to display detailed messages and F18 to position to the end of the log.

The recommended procedure is to run a verification first and review the results before running set up.

Setting Up Postmaster and Non-delivery Accounts

i5/OS provides support for postmaster and non-delivery accounts and provides feedback on mail operations to these if they exist. Gumbo suggests that you set up both and forward them to a real person who can monitor for problems. This section describes how to set up these generic accounts. See [Forwarding Mail To Another Address](#) for details on setting up the forward. To create the generic accounts:

1. Create user profiles for the postmaster and non-delivery accounts by running:

```
CRTUSRPRF USRPRF(POSTMASTER) PASSWORD(*NONE) STATUS(*DISABLED) INLMNU(*SIGNOFF)
      TEXT('Postmaster Account')
CRTUSRPRF USRPRF(NONDELIVER) PASSWORD(*NONE) STATUS(*DISABLED) INLMNU(*SIGNOFF)
      TEXT('Non-delivery Account')
```

2. Determine your system's **Host name** and **Domain name** by running the command CFGTCP and taking option 12. When a period is placed between these, they are the fully qualified host name.

3. Enroll the postmaster and non-delivery accounts by running:

```
ADDIRE USRID(POSTMSTR EMAIL) USRD('Postmaster') USER(POSTMASTER) SYSNAME(*LCL)
      MSFSRVLVL(*SYSMS) PREFADR(*SMTP) USRDFNFLD((SMTPAUSRID SMTP 'postmaster')
      (SMTPDMN SMTP 'iseries.widget.com'))
ADDIRE USRID(NONDELIV EMAIL) USRD('Nondelivery') USER(NONDELIVER) SYSNAME(*LCL)
      MSFSRVLVL(*SYSMS) PREFADR(*SMTP) USRDFNFLD((SMTPAUSRID SMTP
      'nondelivery')
      (SMTPDMN SMTP 'iseries.widget.com'))
```

The accounts are now ready for use.

Forwarding Mail To Another Address

i5/OS allows you to forward email directed to one email address to another address. This is useful for example when a user's email address changes or when a specific individual should receive mail directed at generic email addresses such as `postmaster@<hostname.localdomain>` and `nondelivery@<hostname.localdomain>` set up in the previous section. To enable mail forwarding on your system, create two user-defined fields in the system distribution directory by running the following command:

```
CHGSYSDIRA USRDFNFLD((FORWARDING *NONE *ADD *ADDRESS 256)
      (FWDSRVLVL *NONE *ADD *MSFSRVLVL 1))
```

Note: You only do this step once per system, the fields are defined in the system distribution directory from then on.

Suppose the 2 generic accounts set up in the previous sections should be forwarded to the email address `billg@widget.com` for handling. Run the following commands:

```
CHGDIRE USRID(POSTMSTR EMAIL) USRDFNFLD((FORWARDING *NONE 'billg@widget.com))
      MSFSRVLVL(FWDSRVLVL *NONE) PREFADR(FORWARDING *NONE ATMIME)
CHGDIRE USRID(NONDELIV EMAIL) USRDFNFLD((FORWARDING *NONE 'billg@widget.com))
      MSFSRVLVL(FWDSRVLVL *NONE) PREFADR(FORWARDING *NONE ATMIME)
```

Note: On some systems, "ATMIME" is not defined and, in this case, use "MIME" in place of "ATMIME".

Forwarding is now set up.

Chapter 5 Implementation

What's In This Chapter

This chapter describes how to implement SpoolMail in your environment. The chapter:

- o Gives an overview of implementation choices.
- o Describes changing programs to send e-mail.
- o Describes manually sending e-mail.
- o Describes creating a Gumbo logical printer.
- o Describes sharing a Gumbo logical printer on the network.
- o Describes automatically sending e-mail.
- o Describes e-mail address formats.
- o Describes the from (originator) address.
- o Describes using distribution lists.
- o Describes adding line breaks to the message.
- o Describes digitally signing the message.
- o Describes adding user defined data to a spooled file.
- o Describes adding bookmarks to PDF files.
- o Describes adding DOCIDXTAG DDS printer file keywords.
- o Describes adding STRPAGGRP DDS printer file keywords.
- o Describes digitally signing PDF files.

Overview

The first step in implementing SpoolMail is to set up I5/OS' mail functions if this has not already been done. Refer to the Set Up chapter in this manual for detailed instructions. After set up you are ready to begin implementation.

The main function of SpoolMail is accessed by running the Send Spool Mail (SNDSPLMAIL) command. The command takes a spooled file and an e-mail address as input, converts the spooled file and sends it to the recipient. To implement SpoolMail in your environment you have four basic choices:

1. Modify each program that creates spooled files that will be e-mailed to directly run the Send Spool Mail (SNDSPLMAIL) command.
Pros: The spooled file is always sent as soon as it is created.
Cons: Programs must be modified and recompiled.
2. Manually run the Send Spool Mail (SNDSPLMAIL) command from a command line or using option 14 from the Work with Gumbo Spooled Files (WRKGSISPLF) or Work with Gumbo Output Queue (WRKGSIOUQ) display.
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 Send Spool Mail (SNDSPLMAIL) command for each spooled file placed in the printer's output queue.
Pros: No program changes, no manual intervention.
Cons: Fixed e-mail address, limited flexibility compared to Report Manager.
4. Automatically run the Send Spool Mail (SNDSPLMAIL) command using Gumbo's Report Manager.
Pros: No program changes, no manual intervention, extensive distribution and bursting options.
Cons: Additional product required.

In all cases, using I5/OS distribution lists can simplify the sending of e-mail. See the section on Using Distribution Lists later in this chapter. Also, see the following sections for a detailed discussion of the choices.

Changing Programs

SpoolMail can be implemented by changing the programs that create spooled files to send 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 send the spooled file to the distribution list INV320 REPORT:

```
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)
SNDSPLMAIL FILE(QSYSPRT) TOUSRID(INV320 REPORT)
RLSSPLF FILE(QSYSPRT) SPLNBR(*LAST) /* Now it can print */
```

The spool file is e-mailed as soon as program INV320 has completed processing.

We recommend using a distribution list with the same name as the program. This moves the distribution details outside of the program and the list of recipients can be updated without changing the program again.

Manually Sending E-mail

SpoolMail can be implemented by assigning an operator the task of manually sending spooled files. SpoolMail's Work with Gumbo Spooled Files (WRKGSISPLF) or Work with Gumbo Output Queue (WRKGSIOUQ) commands provide a convenient means of accomplishing this. Suppose the operator should send all spooled files created by user QPGMR and program INV320 in the NIGHTBATCH output queue to the distribution list INV320 REPORT. The following command displays a list of spooled files created by user QPGMR:

```
WRKGSISPLF SELECT(QPGMR)
```

The operator enters option 14 for each spooled file to send and enters the recipient 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=E-mail

Opt  File      User      Device or  User      Sts      Total  Cur
 14  QSYSPRT    QPGMR    NIGHTBATCH  INV320    RDY      1      1
 14  QSYSPRT    QPGMR    NIGHTBATCH  INV320    RDY      1      1
   QJOBLOG    QPGMR    QEZJOBLOG  TEST      RDY      2      1
   QJOBLOG    QPGMR    QEZJOBLOG  PRT02     RDY      1      1
 14  QSYSPRT    QPGMR    NIGHTBATCH  INV320    RDY      1      1
 14  QSYSPRT    QPGMR    NIGHTBATCH  INV320    RDY      1      1

                                           Bottom

Parameters for options or command
====> TOSMTPNAME(billg@acme.com)
F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F11=Change view  F12=Cancel
F17=Top  F18=Bottom  F22=Printers
(C) Copyright 1997, 2007 Gumbo Software, Inc. All rights reserved.
-----+-----
```

Figure: Work with Gumbo Spooled Files Display

By pressing enter, the spooled files are sent to INV320 REPORT. The spooled files remain on the system.

Creating A Gumbo Logical Printer

SpoolMail 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' writer commands (WRKWTR, STRPRTWTR, ENDWTR, HLDWTR, etc.) and i5/OS' 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 the product'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 i5 in Operations 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 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)
 - o Spooled file type: Advanced function printing
8. Click OK.

Note: The Operations 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 i5 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 Client 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.

Automatically Sending E-mail

Gumbo's Report Manager is a software utility that automates report distribution and spooled file management on IBM's System i5. SpoolMail 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 e-mail spooled files created by INV320 to the distribution list INV320 REPORT, run the Add Report Subscription command:

```
ADDRPTSUB RPT(INV320) USER(*USRID) USRID(INV320 REPORT) OUTQ(*NONE) SNDFMT(*EMAIL)
```

Each time an INV320 spooled file is processed, it is e-mailed to INV320 REPORT in addition to the deliveries for other subscribers.

Email Address Formats

The mail function supports the full range of email address formats, including route specifications. Valid formats for email addresses include:

- o 'mali@acme.com'
- o '<mali@acme.com>'
- o 'Mohammed Ali <mali@acme.com>'
- o '"Mohammed Ali" <mali@acme.com>'
- o 'Mohammed Ali (I am the Greatest) <mali@acme.com>'

In all of these examples the message is delivered to the mail box mali@acme.com.

From (originator) Address

The product uses the following steps to determine the From (originator) address that appears in the generated email.

- o If one of the special values is not used and an email address is entered on the From (originator) (FROM) parameter this value is used.
- o If the user profile implied by a special value specified on the FROM() parameter is enrolled in the system distribution directory and the entry contains an email address the email address is used.
- o If the user profile implied by a special value specified on the FROM() parameter is enrolled in the system distribution directory and the entry does not contain an email address an i5/OS style address is generated in the form: usrid?address@host.domain.
- o If the user profile implied by a special value specified on the FROM() parameter is not enrolled in the system distribution directory an email address is generated in the form:
[userprofile@host.domain](#)

Note: In the above, host and domain are taken from the values entered on the CFGTCP option 12 panel.

Therefore to have the correct from (originator) address on the out going email without retyping it each time, you should add or update a system distribution directory entry for each sending user profile.

To add a directory entry for user profile MYUSER run the following command: (for this example assume

the user's email address is billg@acme.com):

```
ADDIRE USRID(MYUSER MYSYSTEM) USRD('Sample entry')
      USER(MYUSER) SYSNAME(*LCL) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Note: If you are running Lotus Domino for i5/OS run:

```
ADDIRE USRID(MYUSER MYSYSTEM) USRD('Sample entry')
      USER(MYUSER) SYSNAME(*LCL) MSFSRVLVL(*DOMINO) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Note: To update an existing directory entry for user profile MYUSER run the following command:

```
CHGDIRE USRID(MYUSER MYSYSTEM) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Using Distribution Lists

There are two choices for addressing mail created by the software, direct SMTP addressing and distribution lists addressing using the system distribution directory. With direct SMTP addressing, you enter the recipient's email address on the To (recipient) parameter. No additional addressing set up is required, making this a good choice for impromptu sending to SMTP recipients. With distribution list addressing, you can set up lists of recipients that can be maintained independently of the programs that use the lists.

Using i5/OS distribution lists and system distribution directory requires additional set up and is the subject of the remainder of this section.

i5/OS' system distribution directory can contain addressing information for users. In essence you store the user's email address in a directory entry. Directory entries can be created for users who are local to the System i5 (have an i5/OS user profile) and for users who are remote (do not have an i5/OS user profile). Local users can receive their mail on the System i5 using i5/OS' POP server or from a remote mail application such as Exchange.

i5/OS Distribution lists are used to create named groups of directory entries from the system distribution directory. By sending to a distribution list, you send to each entry on the list.

To add a directory entry for local user MYUSER who has a user profile on the System i5 MYSYSTEM run the following command: (for this example assume the user's email address is billg@acme.com):

```
ADDIRE USRID(MYUSER MYSYSTEM) USRD('Sample entry')
      USER(MYUSER) SYSNAME(*LCL) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Note: If you are running Lotus Domino for i5/OS run:

```
ADDIRE USRID(MYUSER MYSYSTEM) USRD('Sample entry')
      USER(MYUSER) SYSNAME(*LCL) MSFSRVLVL(*DOMINO) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

Note: If the user already has a directory entry, change their mail service level and preferred address by running:

```
CHGDIRE USRID(MYUSER MYSYSTEM) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP 'acme.com'))
```

To add a directory entry for a remote user who will receive email mail from the System i5 run the following command: (for this example assume the user's email address is johnp@acme.com):

```
ADDIRE USRID(RMT1 EMAIL) USRD('Sample entry 2')
      USER(*NONE) SYSNAME(TCPIP) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)
      USRDFNFLD((SMTPAUSRID SMTP 'johnp') (SMTPDMN SMTP 'acme.com'))
```

Note: The choice of USRID(RMT1 EMAIL) is arbitrary, select names that are convenient. The system name must be TCPIP.

To add a directory entry for a Domino user who does not have an i5/OS user profile run the following command: (for this example assume the user's email address is suej@acme.com):

```
ADDDIRE USRID(DOMINO EMAIL) USRD('Sample entry 3')
        USER(*NONE) SYSNAME(TCPIP) MSFSRVLVL(*DOMINO) PREFADR(*SMTP)
        USRDFNFLD((SMTPAUSRID SMTP 'suej') (SMTPDMN SMTP 'acme.com'))
```

Note: The choice of USRID(DOMINO EMAIL) is arbitrary, select names that are convenient. The system name must be TCPIP.

Like directory entries, distribution list IDs have two parts. To make it convenient to manage the system, set up a naming convention for list IDs; for example, INV320 REPORT and INV330 REPORT could be list IDs for recipients of the INV320 and INV330 reports respectively. Such a convention allows lists to be easily associated with their use.

Suppose that reports created by program INV320 should be sent to billg@acme.com and to johnp@acme.com. To create a distribution list to reflect this, run the following commands:

1. Create the distribution list:

```
CRTDSTL LSTID(INV320 REPORT) LSTD('Report INV320 distribution')
```

2. Add 2 entries to the distribution list:

```
ADDSTLE LSTID(INV320 REPORT) USRID((MYUSER MYSYSTEM) (RMT1 EMAIL))
```

You are now ready to send to the two users with one command by specifying the To (distribution list) parameter:

```
... TOUSRID(INV320 REPORT)
```

Adding Line Breaks To The Message

The following CL program fragment shows how to create a message variable that contains a line break (carriage return/line feed pair):

```
...
DCL VAR(&MSG) TYPE(*CHAR) LEN(2048)
DCL VAR(&CRLF) TYPE(*CHAR) LEN(2) VALUE(X'0D25')
...
CHGVAR VAR(&MSG) VALUE('First line.' *CAT &CRLF *CAT 'Second line.')
...
```

The resulting message is:

```
First line.
Second line.
```

Digitally Signing The Message

The email produced can be, optionally, digitally signed using S/MIME Signed Message format. S/MIME (Secure / Multipurpose Internet Mail Extensions) is a standard for public key encryption and signing of email encapsulated in MIME. A signed message is an ordinary message with a digital signature added by the sender. The signature has two purposes: it identifies the sender, and it verifies that the content of the message has not been altered since the message was sent.

You create digitally signed email by specifying an **Application ID** when the email 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 send

command's new **Signing key** (SGNKEY) parameter. For the system level, specify an Application ID on the change default command's new **Signing key** (SGNKEY) parameter. The shipped default values for the **Signing key** (SGNKEY) 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 (DSPSWRSC) command.

For complete information on setting up DCM, creating and storing certificates and adding **Application IDs**, goto the iSeries Information Center (<http://www.iseries.ibm.com/infocenter>).

Adding User Defined Data To A Spooled File

The Send Spool Mail (SNDSPLMAIL) command can retrieve the To (recipient) (TOSMTPNAME) parameter which is the recipient's e-mail address and/or the From (originator) (FROM) parameter from data stored in a spooled file's user defined data parameter. The following CL code fragment shows how to store the recipients e-mail address 'joe@widget.com' and the sending user profile INFO in a spooled file's user defined data field and reference it on the Send Spool Mail (SNDSPLMAIL) command:

```
OVRPRTF      FILE(QSYSVRT) HOLD(*YES) /* Can't let it print */ +
             USRDFNDDTA('MAILTAG(joe@widget.com) MAILSENDER(INFO)')
CALL         PGM(INVLIB/INV320)
SNDSPLMAIL  FILE(QSYSVRT) TOSMTPNAME(*MAILTAG) FROM(*MAILSENDER)
RLSSPLF     FILE(QSYSVRT) SPLNBR(*LAST) /* Now it can print */
DLTOVR      FILE(QSYSVRT)
```

Adding Bookmarks To PDF Files

When converting spooled files to PDF 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 4 sample pages from a spooled file:

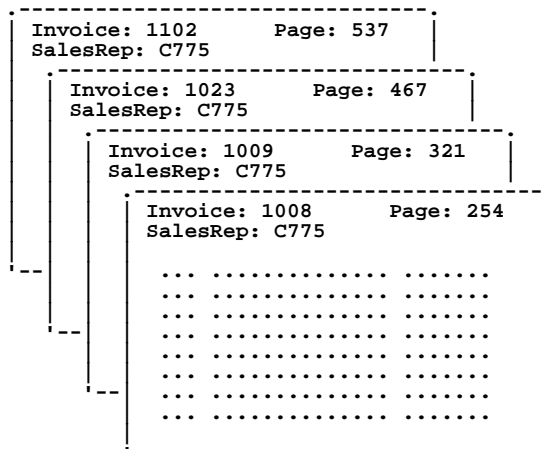


Figure: Sample Spooled File Pages

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 (invoice top level bookmark omitted for brevity):

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

See IBM's DDS Reference manual for complete details.

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 define a group of pages and assign them a name. Examples names would be "POLICY NUMBER 12345" or "CUSTOMER NUMBER 67890". The PDF conversion 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
A          ...
```

See IBM's DDS Reference manual for complete details.

Digitally Signing PDF Files

PDF files 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.

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 overrides the system level. For command level, specify an **Application ID** directly on the command's new **PDF document signing key** (PDFSGNKEY) parameter. For the system level, specify an **Application ID** on our product's change default command's new **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 (DSPSWRSC) command.

For complete information on setting up DCM, creating and storing certificates and adding **Application IDs**, goto the iSeries Information Center (<http://www.iseries.ibm.com/infocenter>).

Chapter 6 Conversions

What's In This Chapter

This chapter describes the spooled file conversions available with SpoolMail. The chapter:

- o Gives an overview of the conversion process
- o Describes the <CR><LF> delimited ASCII text conversion
- o Describes the Portable Document Format conversion
- o Describes the Rich Text Format conversion
- o Describes the Hyper Text Mark Up Language conversion
- o Describes the Tag Image File Format conversion
- o Describes the Host Print Transform conversion
- o Describes the no conversion conversion
- o Describes the PostScript conversion
- o Describes the Final Form Text conversion
- o Describes the AFP print file conversion

Overview

The Send Spool Mail (SNDSPLMAIL) command retrieves the requested spooled file from I5/OS' spool store and converts it for e-mail delivery. I5/OS applications can produce spooled files in the following data streams:

- o *SCS (SNA Character String)
- o *IPDS (Intelligent Printer Data Stream)
- o *AFPDS (Advanced Function Printing Data Stream)
- o *USERASCII (ASCII data stream)
- o *LINE (1403 line data)
- o *AFPDSLIN (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.

The Send Spool Mail (SNDSPLMAIL) command converts the spooled file in one of two ways based on the SEND parameter. With SEND(*ATTACH), which is the default, the spooled file's contents are converted into a PC file that is sent as an attachment to an e-mail message. With SEND(*NOTE) the spooled file's contents are copied directly into the body of an e-mail message.

SpoolMail can produce attached PC files in several different formats:

- o Carriage return/line feed delimited ASCII text (TXT)
- o Adobe's Portable Document Format (PDF)
- o Microsoft's Rich Text Format word processor file (RTF)
- o Hyper Text Markup Language (HTML)
- o Tag Image File Format (TIFF)
- o Printer specific print data streams produced by I5/OS' Host Print Transform (HPT)
- o An unaltered copy of the original print data stream (NONE)
- o Adobe's PostScript (PS)
- o IBM's Final Form Text (FFT)
- o 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	
*USERASCII						YES				
*LINE	note	note			note	YES	note		note	
*AFPDSLIN	note	note			note	YES	note		note	

Figure: Print Data Stream/Conversion Matrix

- Note: The PDF transform is double byte enabled for Chinese/Japanese/Korean.
- Note: The TXT transform is double byte enabled for *SCS.
- Note: You can determine a spooled file's print data stream by displaying its attributes (option 8 from WRKOUTQ or WRKSPLF) and locating the "Printer device type" parameter.
- Note: For *LINE and *AFPDSLIN full *AFPDS support is available with i5/OS V5R1M0. Specify CVTLINDTA(*YES) on the printer file.

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

The following sections describe the conversions in more detail.

<CR><LF> Delimited ASCII Text Conversion

Carriage return/line feed delimited 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 placed 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 AFPDS spooled files 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 <CR><LF> delimited ASCII PC files is TXT.

Adobe Portable Document Format Conversion

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 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 optionally conform to this standard.

Font Processing

When converting spooled files the product 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:

- o Courier (including bold, italic and bold italic)
- o Helvetica (including bold, italic and bold italic)
- o Times (including bold, italic and bold italic)
- o 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 PDFFONTIMB(*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 embed i5/OS's host resident printer emulation fonts (at the expense of file size) by specifying PDFFONTIMB(*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 files 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 the product 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 this 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
*PDFALESTATEMENT	for 5.5" x 8.5" paper size
*PDFALEEXECUTIVE	for 7.25" x 10.5" paper size
*PDFALEEDGER	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**.

World Wide Web 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. A HTML file contains HTML tags and the content of the spooled file.

The conversion generates a HTML file that specifies a fixed pitch font. The font size is determined by the value set using the product'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.

SpoolMail 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 which is sent as an attachment.

The generated file can be view by most image viewing or editing applications. Our experience is that the I5/OS support is somewhat 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 size 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' 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 Printing (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.

SpoolMail 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 which is sent as an attachment. The transform performed is controlled by the TRANSFORM() and WSCST() parameters of the Send Spool Mail (SNDSPLMAIL) command. The values specified in the Send Spool Mail (SNDSPLMAIL) command's Target coded character set id (CCSID), and Source coded character set id (SRCCSID) parameters are ignored.

The generated file can be copied by the recipient directly to a printer port for printing. For example, if the attached 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** which is the *DFT value. For complete information on the available Host Print Transforms see the Manufacturer Type and Model (MFRTYPMDL Parameter) of the CRTDEVPRN command.

No Conversion Conversion

SpoolMail can copy a spooled file's print data stream directly to a PC file without conversion. The data in the spooled file is not converted, and the Send Spool Mail (SNDSPMAIL) command's Target coded character set id (CCSID), and Source coded character set id (SRCCSID) parameters are ignored. This is most useful for delivering spooled files with a *USERASCII print data stream but works with any spooled file.

The generated file can be copied by the recipient directly to a printer port for printing. For example, if the attached 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**, which is the *DFT value, 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 Printing Data Streams (AFPDS) into PostScript. The API processes the following AFPDS objects:

- o Document
- o Presentation page
- o Presentation text data
- o IM1 image data
- o IO image (IOCA) commands
- o Presentation Text 2 (PT2) text commands
- o Overlay resources
- o Page segment resources

The API does not process the following objects:

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

SpoolMail 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 Send Spool Mail (SNDSPMAIL) command's Target coded character set id (CCSID) parameter. The Source coded character set id (SRCCSID) 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** which is the *DFT value.

IBM's Final Form Text Conversion

Final-Form Text is an extension of SCS. It is used within the OfficeVision Office environment and defines how the data streams that represent a document to be printed are organized. Each line of the input spooled file is formatted as Final Form Text based on the value specified in the Send Spool Mail (SNDSPLMAIL) command's Source coded character set id (SRCCCSID) parameter. The value specified Target coded character set id (CCSID) parameter is ignored.

The generated file can be read by any FFT capable viewer. Typically this is OfficeVision.

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

IBM 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.

SpoolMail 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 Send Spool Mail (SNDSPLMAIL) command's Target coded character set id (CCSID), 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** which is the ***DFT** value.

Chapter 7 Command Descriptions

What's In This Chapter

This chapter describes the control language (CL) commands supplied by SpoolMail. The commands are arranged in alphabetic order by command name (mnemonic). In the printed version of the manual, each description contains a syntax diagram presenting all the parameters and values that can be coded for a command. In both the printed and online version an explanation is given for all the parameters and values that can be coded for a command. A detailed explanation of the format of the command descriptions and syntax diagrams can be found in [I5/OS Control Language Reference SC41-5722](#).

Change Device Gumbo Printer (CHGDEVGLP) Command

```
+-----+
|                                     Job: B,I  Pgm: B,I  REXX: B,I  Exec
|>>--CHGDEVGLP-DEVD(-device-name--)----->
|
|                                     +--*YES--+
|+-START(---*NO---)-+
|-----+
```

PURPOSE

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

Device description (DEVD)

Specifies the name of the device description. This is a required parameter.

Start (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

```
CHGDEVGLP DEVD(GPL01)
```

This command changes a Gumbo logical printer with named GLP01.

Change SpoolMail Authorization (CHGSM1AUT) Command

```

-----+-----
Job: B,I  Pgm: B,I  REXX: B,I  Exec
>>--CHGSM1AUT--AUTH(--authorization-code--)-----+----->
|                                     +-*NONE-----+ |
|                                     +-EXPDAT(----expiration-date----)-+
>-----+----->
| +-*SYS--+ | |
+-LICTYP(----*LPAR----)-+ +-PRCMAx(----capacity----)-+
-----+-----

```

PURPOSE

The Change SpoolMail Authorization (CHGSM1AUT) command changes the authorization value for SpoolMail. The command is used to extend a demonstration period or to permanently authorize SpoolMail for a system or a partition.

Authorization number (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.

Expiration date (CCYYMMDD) (EXPDAT)

Specifies the date on which the authorization expires.

*NONE

The authorization is permanent.

expiration-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.

*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.

Change SpoolMail Default (CHGSM1DFT) Command

```

Job: B,I Pgm: B,I REXX: B,I Exec
>>--CHGSM1AUT-----
|          +-*SAME-----+ | |          +-*SAME-+ |
+-GATEWAY(---+user-ID--address---)-+ +-PDFDEFLATE(---+*YES---)-+
|          +-*NONE-----+ | |          +-*NO----+ |
-----
|          +-*SAME-----+ +-*SAME-----+ +-*SAME-----+ +-*SAME-----+ |
+-MARGIN(---left-margin---right-margin---top-margin---bottom-margin---)-+
-----
|          +-*SAME---+ | |          +-*SAME-----+ |
+-HTMFNTSIZ(---+*MINUS3---)-+ +-REFPRTDEV(---+*SYSVAL---)-+
|          +-*MINUS2-+ | |          +-*AFPYES----+ | |
|          +-*MINUS1-+ | |          +-*HPTASCII-+ |
|          +-*PLUS0--+ | |          |          |
|          +-*PLUS1---+ | |          |          |
|          +-*PLUS2---+ | |          |          |
|          +-*PLUS3---+ | |          |          |
-----
|          +-*SAME-+ +-*SAME-+ | |          +-*SAME-+ +-*SAME-+ | |          +-*SAME-+ |
+-REFOFFSET(---left-----top-----)-+ +-REFCORRECT(---left-----top-----)-+ +-PDFNPBOVL(---+*YES---)-+
|          +-*NO----+ |
-----
|          +-*SAME-----+ | |          +-*SAME-----+ | |          +-*SAME-+ | |
|          +-*NONE-----+ | |          +-*RECOMMENDED-----+ | |          |
|          <-----+ | |          |          | |          |
+-PDFFNTIME(---+*TYPE1-+-----)-+ +-PDFIMGPBL(---+*NOPREBLEND32-+-----)-+
|          +-*TYPE3-+ | |          +-*PREBLEND32---+ | |          | |
|          +-*FGID--+ | |          +-*NOPREBLEND4---+ | |          |
|          |          | |          +-*PREBLEND4---+ | |          |
-----
|          +-*SAME-----+ | |          +-*SAME-----+ | |          +-*SAME-----+ |
+-TXTRELPOS(---+*ESTIMATE-+---)-+ +-SIXSIC(---+*ORDINAL-+---)-+ +-SGNKEY(---+*NONE-+---)-+
|          +-*EXACT-+ | |          +-*RELATIVE-+ | |          +-application-id-+ |
|          +-*EXACTMOD-+ | |          |          | |          |
-----
|          +-*SAME-----+ |
+-PDFSGNKEY(---+*NONE-+---)-+
|          +-application-id-+
-----

```

PURPOSE

The Change SpoolMail Default (CHGSM1DFT) command changes values used by SpoolMail to control processing and other activities.

Internet Gateway ID (GATEWAY)

Note: This is an obsolete parameter that is no longer required to correctly process email. It is included to allow configuration of an SNADS SMTP route if desired. Unless you know you need this, you do not need this.

An Internet Gateway id is a specially configured network user id in the system distribution directory entry that switches mail to Internet/SMTP users without requiring them to be entered in the system distribution directory.

*SAME

The value is not changed.

*NONE

The context switching internet gateway is disabled.

internet-gateway-id

Specify the network id used as a context switching internet gateway.

Margins in hundredths (MARGIN)

Margins are used when converting a spooled file. The values for margins are entered in hundredths. For example, 100 means 1 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 *PDF conversions. With compression, the file is smaller but must be viewed with Adobe's Acrobat Reader 3.0 or higher. Without compression, older versions of Acrobat can view the file. The possible values are:

*SAME

The compression setting 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 font size setting 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.

reference-printer-device

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:

- o For HPT printers, this offset is often referred to as a "no print border".
- o For *IPDS printers, this offset is often referred to as an "unprintable area".
- o When set to 0s, a printer that is capable of printing edge-to-edge and with the capability turned on, is implied.
- o Under most circumstances, the offset values move text and other page elements without moving page overlays.
- o 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.
- o 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.

Previously, some of the function provided by the REFPRTDEV and REFOFFSET parameters were provided by the MARGIN and NOPRTBDR parameters.

***SAME**

The value is not changed.

Offset

Specify the offset in 1/1440ths of an inch.

Refprtdev offset correction (REFCORRECT)

Specifies offset correction values 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 an actual unprintable area, enter the size of the unprintable area 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 devices 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.

Offset

Specify the offset 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 (PDFNTIMB)

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.

***FGID**

Printer resident font specifications are converted to host resident printer emulation font resources and these are imbedded in the file.

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

CHGSM1DFT

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.

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, positional accuracy can be improved at the expense of processing time for host resident fonts.

***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 using a modified positioning algorithm employed by some printers.

Originator user ID (ORIGINATOR)

The Originator User ID is the value used when *DEFAULT is specified on Originator (USRID) parameter.

***SAME**
The value is not changed.

***CURRENT**
The user id of the user profile running the command is used.

user-id
Specify the network id used as the *DEFAULT value.

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.

Signing key (SGNKEY)

Specifies the default digital certificate used to sign email. The signature included with the email allows the recipient to validate the identity of the sender and provides additional assurance that the email has not been tampered with after it is 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 document signing key (PDFSGNKEY)

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

Examples

```
CHGSM1DFT REFPRTEDEV(PRT02)
```

This command changes the reference printer device to PRT02. The printer specific behavior is used as a reference in processing.

```
CHGSM1DFT REFPRTEDEV(*HPTASCII)
```

This command changes the reference printer device to PRT02. Processing emulates a Host Print Transform attached *ASCII printer.

Create Device Gumbo Printer (CRTDEVGLP) Command

```

-----
Job: B,I Pgm: B,I REXX: B,I Exec
>>--CRTDEVGLP-DEVD(-device-name--)---PORT(-port-number--)----->
>----->
|      +-*YES--+ |      +-*INQ--+ |      +-*LIBL/-----+ +-*QSYSOPR-----+ |
+-*ONLINE(-----*NO-----)+ +-*PRTERMSG(-----*INFO-----)+ +-*MSGQ(-----+message-queue-name-----)+
|
|      +-*BLANK-----+ |      +-*LIBCRTAUT-----+ |      +-*YES--+ |
+-*TEXT(----'description'-----)+ +-*AUT(---*CHANGE-----)+ +-*START(-----*NO-----)+
|
|      +-*ALL-----+
|      +-*USE-----+
|      +-*EXCLUDE-----+
|      +-authorization-list-name+
-----

```

PURPOSE

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.

Device description (DEVD)

Specifies the name of the device description. This is a required parameter.

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. Otherwise, it does not matter what port number you specify. This is a required parameter.

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 (PRTERMSG)

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.

QSYSOPR

Messages are sent to the QSYSOPR message queue.

message-queue-name

Specify the name of the message queue.

The possible library values are:

***LIBL:** All libraries in the job'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.

library-name: Specify the name of the library.

Text 'description' (TEXT)

Specifies text that provides a brief description.

*BLANK

No text is specified.

'description'

Specify up to 50 characters of text enclosed in apostrophes.

Start (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.

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.

authorization-list-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

```
CRTDEVGLP DEVD(GPL01)
```

This command creates a Gumbo logical printer with named GPL01. 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.

Delete Device Gumbo Printer (DLTDEVGLP) Command

```
+-----+
|>>--DLTDEVGLP-DEVD(-device-name--)-----+ Job: B,I Pgm: B,I REXX: B,I Exec |
|-----+<<|
```

PURPOSE

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

Device description (DEVD)

Specifies the name of the device description. This is a required parameter.

Examples

```
DLTDEVGLP DEVD(GPL01)
```

This command deletes a Gumbo logical printer with named GLP01.

Dump Page Index Positions (DMPPIP) Command

```
+-----+
Job: B,I Pgm: B,I REXX: B,I Exec
>>--DMPPIP--FILE(--spooled-file-name--)----->
>----->
| +-*-----+ | | +-*LAST-----+ |
+-JOB(-----job-name-----)+ +-SPLNBR(---*ONLY---)-+
|   +------user-name/-+ |
|   +-job-number/-+ |
>----->
| +-1-----+ +-*END-----+ |
+-PAGERANGE(--*ENDPAGE-----ending-page---)+
|   +-starting-page-+ |
+-----+
```

PURPOSE

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.

Spooled file name (FILE)

Specifies the name of the spooled file to be dumped.

Job name (JOB)

Specifies the name of the job that created the spooled file.

*
- The name of the job that issued the command is used.

job-name

Specify the name of the job.

user-name

Specify the user name associated with the job.

job-number

Specify the system assigned job number.

Spooled file number (SPLNBR)

Specifies the number of the spooled file to send.

*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.

spooled-file-number

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.

starting-page-number

Specify the starting page.

Element 2 Ending page

*END

Processing continues until the end of file.

ending-page-number

Specify the ending page.

Examples

```
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.

```
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 Mail Log (DSPMAILLOG) Command

```

Job: B,I Pgm: B,I REXX: B,I Exec
>>-DSPMAILLOG----->
|          +-*AVAIL-----+ +-*CURRENT---+ |
+-PERIOD(-----start-time-----)-----+
|          +-*BEGIN-----+ | +-*AVAIL----+ +-*CURRENT-+ |
+-start-date-+ +-(----end-time-----)---+ +-*END-----+
|                                     +-end-time-+
>----->
|          +-*-----+ |
+-OUTPUT(-----*PRINT-----)-+

```

PURPOSE

The Display Mail Log (DSPMAILLOG) command shows the system mail log (journal QZMF). The mail log contains information about the processing of mail.

Note: Mail journaling must be turned on. Only journal receivers in the current chain are searched.

Time period for log output (PERIOD)

Specifies the period of time for which the logged message data is shown. This parameter contains two lists of two elements each.

Beginning time

One of the following is used to specify the starting time at which or after which the data must have been logged. Any entries logged before the specified time and date are not shown.

*AVAIL

The logged data that is available for the specified starting date is shown.

start-time

Specify the time from which data for the specified date is shown. The time is specified in 24-hour format and can be specified with or without a time separator:

- o Without a time separator, specify 4 or 6 digits (hhmm or hhmmss) where hh = hours, mm = minutes, and ss = seconds. Hours, minutes and seconds must each be 2 digits; use leading zeros if necessary.
- o With a time separator, specify 5 or 8 digits where the time separator specified for your job is used to separate the hours, minutes, and seconds.

Beginning date

One of the following is used to specify the starting date on which or after which the data must have been logged. Any entries logged before the specified date are not shown.

*CURRENT

The logged data for the current day and between the specified starting and ending times (if specified) is shown.

*BEGIN

The logged data from the beginning of the log is shown.

start-date

Specify the starting date. The date must be specified in the job date format.

Ending time

One of the following is used to specify the ending time before which the data must have been logged.

*AVAIL

The logged data that is available for the specified ending date is shown.

End-time

Specify the ending time for the specified ending date that determines the logged data to be printed. See start-time for the formats in which time can be entered.

Ending date

One of the following is used to specify the ending date before which or on which the data must have been logged.

*CURRENT

The current day is the last day for which logged data is shown.

*END

The last day on which data was logged is the last day for which the logged data is shown.

end-date

Specify the ending date for which logged data is to be printed. The date must be entered in the format specified by the system values QDATFMT and, if separators are used, QDATSEP.

Output (OUTPUT)

Specifies whether the output from the command is shown at the requesting display station or printed with the job's spooled output. The possible values are:

*

Output requested by an interactive job is shown on the display. Output requested by a batch job is printed with the job's spooled output.

*PRINT

The output is printed with the job's spooled output.

Examples

```
DSPMAILLOG
```

The mail log entries for today are displayed on the screen.

```
DSPMAILLOG PERIOD((*AVAIL *BEGIN) (*AVAIL *END)) OUTPUT(*PRINT)
```

All available mail log entries in the current journal receiver chain are printed.

Display Page Data (DSPPAGDTA) Command

```

Job: B,I Pgm: B,I REXX: B,I Exec
<----- (1) ----->
>>--DSPPAGDTA--FILE(--spooled-file-name--)--PAGDTA(---+line---position---length+---)----->
+--*STRPAGGRP-----+
+--*DOCIDXTAG-----+
+--*DOCIDXPAG-----+
+--*DOCIDXGRP-----+
+--*STRPAGGRPP-----+
+--*DOCIDXTAGP-----+
+--*DOCIDXGRPP-----+
>----->
| +--*-----+ | | +--*LAST-----+ |
+--JOB(-----+job-name-----)+ +--SPLNBR(---+*ONLY-----)-+
+-----user-name/-+ +-----spooled-file-number--+
+--job-number/-+
>----->
| +--*-----+ | | +--*LIBL/------+ |
+--OUTPUT(---+*PRINT---)-+ +--OUTFILE(-----database-file-name--)-+
+--*OUTFILE--+ +--*CURLIB/-----+
+-----library-name/-+
>----->
| +--*FIRST-----+ +--*REPLACE--+ |
+--OUTMBR(---member-name---+-----)-+
+--*ADD-----+
Notes:
(1) A maximum of 12 repetitions.

```

PURPOSE

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

Spooled file name (FILE)

Specifies the name of the spooled file to display. This is a required parameter.

Page data (PAGDTA)

Specifies the location (line, position and length), on each page of the spooled file, from which data is retrieved. This is a required parameter.

line-position-length

Specify the line number, position on line, and length of data that is retrieved from each page of the spooled file.

*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.

Job name (JOB)

Specifies the name of the job that created the spooled file.

- * The name of the job that issued the command is used.

job-name

Specify the name of the job.

user-name

Specify the user name associated with the job.

job-number

Specify the system assigned job number.

Spooled file number (SPLNBR)

Specifies the number of the spooled file to send.

*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.

spooled-file-number

Specify the number of the spooled file.

Output (OUTPUT)

Specifies the kind of output generated by the command.

- * 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. Data is output in the PDPAGDRF record format which is documented in the appendix. The possible library values are:

*LIBL

The library list is used to locate the file. If the file is not

found, one is created in the current library.

*CURLIB

Use the current library for the job. If no library is specified as the current library for the job, QGPL is used.

library-name

Specify the name of the library.

Output member options (OUTMBR)

Specifies the name of the database file member that receives the output of the command. The possible name values are:

*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).

member-name

Specify the name of the member that receives the output. If it does not exist, the system creates it.

The possible values for how information is stored are:

*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.

Parameter Dependencies

OUTFILE parameter required with OUTPUT(*OUTFILE).

OUTFILE parameter can only be specified with OUTPUT(*OUTFILE).

OUTMBR parameter can only be specified with OUTPUT(*OUTFILE).

Examples

```
DSPPAGDTA FILE(QSYSVRT)
  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 the page group names added using the STRPAGGRP() DDS keyword. The spooled file processed is file number 2, QSYSVRT, from job 033194/QPGMR/MONTHEND.

```
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.

Restart/Purge Local Mail (INZLOCAL) Command

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
Job: B,I Pgm: B,I REXX: B,I Exec
>>--INZLOCAL--+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|               +-*YES--+ | |               +-*NO--+ | |               +-*YES--+ | |
+-SMTP(---*NO---)-+ +-SMTPPURGE(---*YES---)-+ +-MSF(---*NO---)-+
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|               +-*NO--+ | |
+-MSFPURGE(---*YES---)-+
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+<
```

PURPOSE

The Restart/Purge Local Mail (INZLOCAL) command ends and restarts i5/OS mail components. This may be required to clear problems or to make configuration changes immediately effective.

Restart SMTP server (SMTP)

Specifies the whether or not the SMTP server is restarted. The possible values are:

***YES**
The SMTP server is first ended then started.

***NO**
The command does not restart the SMTP server.

Clear SMTP during restart (SMTPPURGE)

Specifies the whether or not the SMTP server is purged during the restart. The possible values are:

Note: Clear means that i5/OS generated SMTP mail will be deleted. If you aren't sure, select *NO.

***NO**
Existing messages are not cleared.

***YES**
Existing messages are cleared.

Restart MSF server (MSF)

Specifies the whether or not the MSF server is restarted. The possible values are:

***YES**
The MSF server is first ended then started.

***NO**
The command does not restart the MSF server.

Clear MSF during restart (MSFPURGE)

Specifies the whether or not the MSF server is cleared during the restart.

Note: Clear means that mail server framework distributions (email) will be deleted. If you aren't sure, select *NO.

***NO**
The MSF is not cleared.

***YES**
The MSF is cleared.

Parameter dependencies

SMTP cannot be cleared unless it is also restarted.
MSF cannot be cleared unless it is also restarted.

Examples

INZLOCAL

This command restarts the SMTP server and Mail Server Framework jobs.

INZLOCAL SMTPPURGE(*YES) MSFPURGE(*YES)

This command restarts the SMTP server and Mail Server Framework jobs after purging all data they contain.

Retrieve Page Data (RTVPAGDTA) Command

```

Pgm: B,I
>>>RTVPAGDTA--FILE(--spooled-file-name--)--RTNDATA(-variable-)--PAGDTA(++line---position---length---)----->
                                     +-*STRPAGGRP-----+
                                     +-*DOCIDXTAG-----+
                                     +-*DOCIDXPAG-----+
                                     +-*DOCIDXGRP-----+
                                     +-*STRPAGGRPP-----+
                                     +-*DOCIDXTAGP-----+
                                     +-*DOCIDXGRPP-----+
>----->
|           +-1-----+           |
+-PAGE(---*LAST-----)---+
      +-page-number-+
>----->
|           +-*-----+           |           +-*LAST-----+           |
+-JOB(-----job-name-----)---+ +-SPLNBR(---*ONLY-----)---+
      +-user-name/-+           +-job-number/-+           +-spooled-file-number-+

```

PURPOSE

The Retrieve Page Data (RTVPAGDTA) command retrieves data from a specific location in a spooled file and places it into the specified CL variable.

Spooled file name (FILE)

Specifies the name of the spooled file from which data is retrieved. This is a required parameter.

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. 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. This is a required parameter.

line-position-length

Specify the line number, position on line, and length of data that is retrieved.

*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.

*STRPAGRPP

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.

Page number (PAGE)

Specifies the page number from which data is retrieved.

1 Data is retrieved from the first page of the spooled file.

***LAST**
Data is retrieved from the last page of the spooled file.

page-number
Specifies the page from which data is retrieved.

Job name (JOB)

Specifies the name of the job that created the spooled file.

The name of the job that issued the command is used.

job-name
Specify the name of the job.

user-name
Specify the user name associated with the job.

job-number
Specify the system assigned job number.

Spooled file number (SPLNBR)

Specifies the number of the spooled file to send.

***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.

spooled-file-number
Specify the number of the spooled file.

Examples

```
DSPPAGDTA FILE(QSYSVRT)
RTNDDATA(&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, QSYSVRT, from job 033194/QPGMR/MONTHEND.

Send Spool Mail (SNDSPLMAIL) Command

```

Job: B,I Pgm: B,I REXX: B,I Exec
>>--SNDSPLMAIL--FILE(--+spooled-file-name--+)-
      +-*LASTCRT-----+
+-----+
| +-*-----+ | | +-*LAST-----+ |
+-JOB(-----+--+job-name-----)+ +-SPLNBR(--+*ONLY-----+--+)-+
      +-+-----+--+user-name/-+
      +-job-number/-+
      +-spooled-file-number+
+-----+
| +-TRANSFORM(--transform--)+ | | +-*CURRENT-----+ |
+-TOSMTPNAME(--+*MAILTAG-----+--+)+
      +-*PAGDTA-----+
      +-*SPLFOWN-----+
      +-*SPLFCRT-----+
      +-*USRDFNDDTA-----+
      +-*USRDFNTXT-----+
      +-*NONE-----+
      | <------(1)-+ |
      +----e-mail-address--+
+-----+
| +-*NONE-----+ | | +-*ATTACH-----+ | | +-*DEFAULT-----+ |
+-TOUSRID(-----user-ID--address-----)+ +-SEND(--+*NOTE-----+--+)+ +-SUBJECT(--+*NONE-----+--+)-+
      +-*TEXTHTML--+
      +-*TEXTPLAIN--+
      +-*ACGCDE-----+
      +-*PRTTXX-----+
      +-*USRDFNDDTA--+
      +-*USRDFNTXT--+
      +-*USRDDTA-----+
      +-*PAGDTA-----+
      +-subject-----+
+-----+
| +-*DEFAULT--+ | | +-*DEFAULT--+ | | +-*DFT-----+ |
+-MSG(--+*NONE-----+--+)+ +-PCFILE(-----file-name-----)+ +-EXTENSION(-----attachement-extension-----)+
      +-*USRDFNDDTA--+
      +-*USRDFNTXT--+
      +-message-----+
+-----+
| +-*NONE-----+ | | +-*NONE-----+ | |
| <------(1)-+ | | <------(1)-+ | |
+-CC(--+-----e-mail-address-----+--+)+ +-BCC(--+-----e-mail-address-----+--+)+
+-----+
| +-*CURRENT-----+ | | +-*NO--+ | | +-*NONE-----+ |
+-FROM(--+*SPLFOWN-----+--+)+ +-CFMDEL(--+*YES--+--+)+ | <------(1)-+ |
      +-*SPLFCRT-----+ +-*OBS--+ +-REPLYTO(--+-----e-mail-address-----+--+)+
      +-*MAILSENDER-----+
      +-e-mail-address--+
+-----+
| +-*WINANSI-----+ | | +-*KBDTYPE-----+ |
+-CCSID(--+*UNICODE-----+--+)+ +-SRCCSID(--+*SYSVAL-----+--+)+
      +-*UTF8-----+ +-*JOBDFD-----+
      +-coded-character-set-id+ +-coded-character-set-id+
+-----+
| +-*UTF8-----+ | | +-*SRCCSID-----+ |
+-CHRENC(--+*ISO88591+--+)+ +-CMDCHRID(--+*SYSVAL-----+--+)+
      +-*ISO88592+ +-*JOBDFDCCSID-----+
      +-*ISO88595+ +-gcsid--codepage--+
      +-*ISO88596+
      +-*ISO88597+
      +-*ISO88598+
      +-*ISO88599+
      +-*BIG5-----+
+-----+
| +-*SAME-----+ +-*SAME-----+ | | +-*NO--+ |
+-PAGERANGE(--+*ENDPAGE-----+--+)+ +-DLTSPLF(--+*YES-----+--+)+
      +-starting-page+ +-*END-----+
      +-ending-page+
+-----+
| +-*STRPAGGRP-----+ | | +-*NONE-----+ |
+-PAGDTA(--+-----+--+)+ | +-*LIBL/-----+ |
      +-line----position----length+ +-ADDMAPPGM(-----+-----program-----)+
      +-*CURLIB/-----+
      +-library-name/-+

```


SNDSPLMAIL

user-name

Specify the user name associated with the job.

job-number

Specify the system assigned job number.

Spooled file number (SPLNBR)

Specifies the number of the spooled file to send. BIN(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.

spooled-file-number

Specify the number of the spooled file.

Transform to perform (TRANSFORM)

Specifies the manner in which the spooled file is converted. CHAR(15). The possible values are:

***TXT**

Use <CR><LF> Delimited ASCII Text conversion.

***TXTFF**

Use <CR><LF> Delimited ASCII Text conversion ending each page with a form feed instead of filling with blank lines.

***TXTTRIM**

Use <CR><LF> Delimited ASCII Text conversion filling all but the last page with blank lines.

***PDFLETTER**

Use PDF Adobe Portable Document Format conversion with a page size of 8.5" by 11".

***PDFLEGAL**

Use PDF Adobe Portable Document Format conversion with a page size of 8.5" by 14".

***PDFSTATEMENT**

Use PDF Adobe Portable Document Format conversion with a page size of 5.5" x 8.5".

***PDFEXECUTIVE**

Use PDF Adobe Portable Document Format conversion with a page size of 7.25" x 10.5".

***PDFLEDGER**

Use PDF Adobe Portable Document Format conversion with a page size of 11" x 17".

***PDFA3**

Use PDF Adobe Portable Document Format conversion with a page size of A3.

***PDFA4**

Use PDF Adobe Portable Document Format conversion with a page size of A4.

***PDFA5**

Use PDF Adobe Portable Document Format conversion with a page size of A5.

***PDFB4**

Use PDF Adobe Portable Document Format conversion with a page size of B4.

***PDFB5**

Use PDF Adobe Portable Document Format conversion with a page size of B5.

***PDFLETTERLEGAL**

Use PDF Adobe Portable Document Format conversion with a page size of 8.5" by 11" for drawer 1 and 8.5" by 14" for drawer 2.

***PDFLEGALLETTER**

Use PDF Adobe Portable Document Format conversion with a page size of 8.5" by 14" for drawer 1 and 8.5" by 11" for drawer 2.

***PDFALETTER**

Use PDF/A Adobe Portable Document Format conversion with a page size of 8.5" by 11".

***PDFALEGAL**

Use PDF/A Adobe Portable Document Format conversion with a page size of 8.5" by 14".

***PDFASTATEMENT**

Use PDF/A Adobe Portable Document Format conversion with a page size of 5.5" x 8.5".

***PDFAEEXECUTIVE**

Use PDF/A Adobe Portable Document Format conversion with a page size of 7.25" x 10.5".

***PDFALEDGER**

Use PDF/A Adobe Portable Document Format conversion with a page size of 11" x 17".

***PDFAA3**

Use PDF/A Adobe Portable Document Format conversion with a page size of A3.

***PDFAA4**

Use PDF/A Adobe Portable Document Format conversion with a page size of A4.

***PDFAA5**

Use PDF/A Adobe Portable Document Format conversion with a page size of A5.

***PDFAB4**

Use PDF/A Adobe Portable Document Format conversion with a page size of B4.

***PDFAB5**

Use PDF/A Adobe Portable Document Format conversion with a page size of B5.

***PDFALTRLGL**

Use PDF/A Adobe Portable Document Format conversion with a page size of 8.5" by 11" for drawer 1 and 8.5" by 14" for drawer 2.

***PDFALGLLTR**

Use PDF/A Adobe Portable Document Format conversion with a page size of 8.5" by 14" for drawer 1 and 8.5" by 11" for drawer 2.

***RTFLETTER**

Use RTF Microsoft Rich Text Format conversion with a page size of 8.5" by 11".

***RTFLEGAL**

Use RTF Microsoft Rich Text Format conversion with a page size of 8.5" by 14".

***RTFSTATEMENT**

Use RTF Microsoft Rich Text Format conversion with a page size of 5.5" by 8.5".

***RTFEXECUTIVE**

Use RTF Microsoft Rich Text Format conversion with a page size of 7.25" by 10.5".

***RTFLEDGER**

Use RTF Microsoft Rich Text Format conversion with a page size of 11" by 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.
- *TIFFG4**
Tag Image File Format Group 4 specification conversion.
- *TIFFPB**
Tag Image File Format Pack Bit specification conversion.
- *AFPPRINTFILE**
Use AFP print file conversion.
- *WSCST**
Use HPT I5/OS Host Print Transform Conversion with the specified workstation customizing object.
- *NONE**
Use no conversion conversion.
- host-print-transform**
Use HPT I5/OS Host Print Transform Conversion.

To (recipient) (TOSMTPNAME)

Specifies the e-mail address(es) to which the spooled file is sent. CHAR(128)

- *CURRENT**
The e-mail address stored in the directory entry associated with the user running the command is used.
Note: If a value is specified on the To (distribution list) (TOUSRID) parameter it overrides *CURRENT.
- *MAILTAG**
The e-mail address specified in the MAILTAG() keyword as stored in the spooled file's User Defined Data is used.
Note: Instructions for storing an e-mail address in the spooled file's User Defined Data can be found in: [Info Print Server User's Guide G544-5775](#).
- *PAGDTA**
Recipient information is taken from data on each page of the spooled file. The location of the data is specified using the Page data (PAGDTA) parameter. When no program name is specified on the Address mapping program (ADDMAPPGM) parameter, the data is used as an e-mail address. When a program name is specified on the Address mapping program (ADDMAPPGM) parameter, the data is passed to the program and the e-mail address returned by it is used. All pages with identical data are grouped together and sent as a single e-mail. Since there can be different data on various pages, *PAGDTA results in a separate e-mail for each unique data. Pages that are not associated with any recipient information (i.e. pages outside a page group and PAGDTA(*STRPAGRP) specified) are not sent.

- *SPLFOWN**
The e-mail address stored in the directory entry associated with the user that owns the spooled file is used.

- *SPLFCRT**
The e-mail address stored in the directory entry associated with the user who created the spooled file is used. This can differ from the owning user if the spooled file was created on another system.
- *USRDFNDA**
The e-mail address stored in the spooled file's User Defined Data is used.
- *USRDFNTXT**
The e-mail address stored in the spooled file's User Defined Text is used.
- *NONE**
Mail is not sent to an Internet/SMTP name.

e-mail address
Specify the e-mail address of the recipient.

To (distribution list) (TOUSRID)

Specifies the Distribution list or network user to receive the e-mail. CHAR(8), CHAR(8)

Note: If this parameter is specified and the To (recipient) (TOSMTPNAME) parameter is not specified, the entered value overrides the default value of the To (recipient) (TOSMTPNAME) parameter.

- *NONE**
A network user or distribution list is not specified.

user-id and address
Specify the user ID and address of the network user or the list ID of a distribution list.

Send as (SEND)

Specifies the manner in which the spooled file is sent. CHAR(10)

- *ATTACH**
Send the spooled file as an attached file using MIME. For the PDF transforms the MIME part specifies a content type of "application/pdf". For PostScript transforms the MIME part specifies a content type of "application/postscript". For all other transforms, "application/octet-stream" is specified.

- *TEXTHTML**
Send the results of converting the spooled file in the body of the mail message specifying content type "text/html".
Note: Some servers disregard this request and form an attachment from the message in all cases. Some servers disregard this request for the second and subsequent body parts. If this is the case, try MSG(*NONE).

- *TEXTPLAIN**
Send the results of converting the spooled file in the body of the mail message specifying content type "text/plain".
Note: Some servers disregard this request and form an attachment from the message in all cases. Some servers disregard this request for the second and subsequent body parts. If this is the case, try MSG(*NONE).

- *NOTE**
Same as *TEXTPLAIN which is preferred.

Subject (SUBJECT)

Specifies the subject for the generated e-mail. CHAR(60)

- *DEFAULT**
The subject of the e-mail is generated from spooled file attributes.

- *ACGCDE**
The spooled file's accounting code is used as the subject.

- *PRTTXT**

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The spooled file's print text is used as the subject.

*USRDFNDDTA

The spooled file's user defined data is used as the subject.

*USRDFNTXT

The spooled file's user defined text is used as the subject.

*USRDTA

The spooled file's user data is used as the subject.

*PAGDTA

The data specified using the Page data (PAGDTA) parameter is used as the subject.

*NONE

No subject is included in the e-mail.

subject

Specify the subject of the e-mail.

Message (MSG)

Specifies a short message to include in the generated e-mail. CHAR(2048)

*DEFAULT

The message in the e-mail is generated from spooled file attributes.

*USRDFNDDTA

The spooled file's user defined data is used as the message.

*USRDFNTXT

The spooled file's user defined text is used as the message.

*NONE

No message is placed in the e-mail.

message

Specify the message placed in the e-mail.

Attachment file name (PCFILE)

Specifies the file name to use when naming the attachment file. This parameter is only used when SEND(*ATTACH) is specified. CHAR(32)

*DEFAULT

A default file name is generated.

file-name

Specify the name of the attached file.

Attachment extension (EXTENSION)

Specifies the file extension to use when naming the attachment file. CHAR(3)

*DFT

The extension is determined by the transform performed:

Transform	Extension
*TXT	- TXT
*PDFxxx	- PDF
*RTFxxx	- RTF
*HTMLxxx	- HTM
*FFTxxx	- FFT
*POSTSCRIPT	- PS
*NONE	- SPL
*AFPxxx	- AFP
*TIFFxx	- TIF
<all other>	- HPT

attachment-extension

Specify the attachment file extension to use.

Cc (carbon copy) (CC)

Specifies the e-mail address(es) to which a copy is sent. CHAR(128)

*NONE

An e-mail address is not specified.

e-mail-address

Specify the e-mail address to receive a copy.

Bcc (blind carbon copy) (BCC)

Specifies the e-mail address(es) to which a blind copy is sent. CHAR(128)

*NONE

An e-mail address is not specified.

e-mail-address

Specify the e-mail address to receive a blind copy.

From (originator) (FROM)

Specifies the e-mail address that appears as the From on the generated the e-mail. You can use this to control the address used when the recipient replies to the e-mail. CHAR(128)

Note: One or more of the special values for this parameter access the system distribution directory to determine an e-mail address based on a user profile. If the user profile does not have a directory entry (i.e. the user has not been enrolled), the user name is used to construct an e-mail address. If the user has been enrolled but an e-mail address has not been specified on the directory entry, the user id and address are used to construct an e-mail address. In either case the constructed address, in all likelihood, is not a valid e-mail address. The e-mail will deliver but recipient replies will be lost (bounce).

*CURRENT

The e-mail address stored in the directory entry associated with the user running the command is used.

*SPLFOWN

The e-mail address stored in the directory entry associated with the user that owns the spooled file is used.

*SPLFCRT

The e-mail address stored in the directory entry associated with the user who created the spooled file is used. This can differ from the owning user if the spooled file was created on another system.

*MAILSENDER

The e-mail address found in the directory entry associated with the user profile specified in the MAILSENDER() keyword as stored in the spooled file's User Defined Data is used.

Note: Instructions for storing a sending user profile in the spooled file's User Defined Data can be found in: [Info Print Server User's Guide G544-5775](#).

e-mail-address

Specify the e-mail address of the originator.

Confirmation of delivery (CFMDEL)

Specifies whether a request for a read receipt is sent with the message. Message recipients can choose whether or not to send receipts. If the message recipient agrees to send a read receipt, the receipt will be sent when the message is opened.

*NO

Confirmation of delivery is not requested.

*YES

Confirmation of delivery is requested.

*OBS

Confirmation of delivery is requested as with *YES but the obsolete non-standard "Return-Receipt-To" header field is also included in the message. Some mail user/transport agents understand the obsolete field but don't understand the standard "Disposition-Notification-To" supplied by *YES.

Reply to (REPLYTO)

Specifies the e-mail address(es) to which replies should be sent when replies should go to an address other than the From (originator) (FROM) parameter or should go to multiple addresses. CHAR(128)

***NONE**

Replies are directed to the address the e-mail is from.

e-mail-address

Specify the e-mail address to which replies should be directed.

Target coded character set identifier (CCSID)

Specifies the ASCII coded character set identifier (CCSID) that is used to map all single-byte character set (SBCS) data on outgoing mail.

***WINANSI**

The default coded character set identifier (1252) is used.

***UNICODE**

ISO/IEC 10646 Universal Coded Character Set Level 2 (13488) is used.

***UTF8**

Unicode 8 bit transfer encoding (1208) is used.

coded-character-set-identifier

Specify the coded character set identifier to use.

Source coded character set identifier (SRCCSID)

Specifies the coded character set identifier (CCSID) used to create the spooled file. The possible values are:

***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 QCCSID system value.

***JOBDFI**

The system uses the current job's default coded character set identifier.

Coded-character-set-identifier

Specify the coded character set identifier to use.

Character encoding of mail (CHRENC)

Specifies the character set used to create the e-mail and MIME headers (the transfer encoding).

***UTF8**

RFC 2279 UTF-8 encoding.

***ISO88591**

ISO-8859-1 Latin 1 Western European "8-bit ASCII" encoding.

***ISO88592**

ISO-8859-2 ROECE Latin 2 Eastern European encoding.

***ISO88595**

ISO-8859-5 Cyrillic encoding.

***ISO88596**

ISO-8859-6 Arabic encoding.

***ISO88597**

ISO-8859-7 Greek encoding.

***ISO88598**

ISO-8859-8 Hebrew encoding.

***ISO88599**

ISO-8859-9 Latin 9 other Latin-using languages encoding.

***BIG5**

Traditional Chinese, Taiwan Industry Standard Big5 encoding.

Command character identifier (CMDCHRID)

Specifies the character identifier (graphic character set and code page) for the data being entered as command parameter values. The character identifier is related to the display device used to enter the command. BIN(2), BIN(2)

***SRCCSID**

The system determines the graphic character set and code page values for the command parameters from the source coded character set identifier specified on the command.

***SYSVAL**

The system determines the graphic character set and code page values for the command parameters from the QCHRID system value.

***JOBDFI**

The system determines the graphic character set and code page values for the command parameters from the job's default coded character set identifier.

graphic-character-set code-page

Specify the graphic character set and code page values used to create the command parameters. Valid values range from 1 through 9999.

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.

starting-page-number

Specify the starting page.

Element 2 Ending page***END**

Processing continues until the end of file.

ending-page-number

Specify the ending page.

Note: Not all transforms honor this parameter.

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.

Page data (PAGDTA)

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

The data is used as recipient information, either an e-mail address or data to be mapped by the program specified on the Address mapping program (ADDMAPPGM) parameter.

***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

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value stored.

*NONE

Page data location is not specified.

line-position-length

Specify the line number, position on line, and length of data that is retrieved from each page of the spooled file.

Address mapping program (ADDMAPPGM)

Specifies the name of a customer supplied program that calculates an e-mail address based on data from the spooled file. CHAR(10), CHAR(10)

When specified, the program is call by SpoolMail to calculate an e-mail address based on data retrieved by the Page data parameter. The program is passed 3 parameters. The first, CHAR(256), is filled by the program with the calculated e-mail address. The second, CHAR(256), contains the data found on the page. The third CHAR(4096), contains the spooled files attributes. See file SPOOLMAIL/SMSOURCE for more details.

*NONE

No address mapping is performed.

address-mapping-program

Specify the name of the address mapping program.

Include object (INCOBJ)

Specifies the path name of an additional object (stream file) to include in the generated e-mail message. For example a stream file containing standard terms and conditions can be included as an additional attachment. A maximum of 64 path names can be specified. For more information on specifying path names, refer to Chapter 2 of the CL Reference, SC41-5722. This parameter has two elements.

The first element specifies the object to send.

*NONE

No objects are sent.

'object-path-name'

Specify an object path name.

The second element specifies how the object is included in the e-mail. CHAR(10)

*ATTACH

Send the object as an attached file using MIME and specifying "application/octet-stream".

*TEXTPLAIN

Copy the object into the body of the mail message specifying content type text/plain. Note: Some servers disregard this request and form an attachment from the message in all cases. Some servers disregard this request for the second and subsequent body parts. If this is the case, try MSG(*NONE).

*TEXTHTML

Copy the object into the body of the mail message specifying content type text/html. Note: Some servers disregard this request and form an attachment from the message in all cases. Some servers disregard this request for the second and subsequent body parts. If this is the case, try MSG(*NONE).

*ATTACHPDF

Send the object as an attached file using MIME and specifying "application/pdf". Use this value if the attached file contains Adobe's Portable Document Format (pdf) data.

*ATTACHPS

Send the object as an attached file using MIME and specifying "application/postscript". Use this value if the

attached file contains postscript data.

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.

owner-password

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 an owner password.

user-password

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 of the PDF document is allowed.

*NO

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 BIN(2)

*V1

Version 1 encryption, which uses a 40 bit key length, and is compatible with Acrobat Reader 4.0 and lower.

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.

Note: Variable values: 0 = *V1 or 16 = *V2.

Element 8 Allow form fill-in and sign

***YES**
Form fill-in and document signing operations are allowed.

***NO**
The 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) and HTML.

***DEFAULT**
No title is placed in the generated PC file.

***ACGCDE**
The spooled file's accounting code is used as the title.

***PRTTXX**
The spooled file's print text is used as the title.

***USRDFNDA**
The spooled file's user defined data is used as the title.

***USRDFNTXX**
The spooled file's user defined text is used as the title.

***USRDTA**
The spooled file's user data is used as the title.

title
Specify the title of the PDF file.

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.

***PRTTXX**
The spooled file's print text is used as the subject.

***USRDFNDA**
The spooled file's user defined data is used as the subject.

***USRDFNTXX**
The spooled file's user defined text is used as the subject.

***USRDTA**
The spooled file's user data is used as the subject.

subject
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 PDF.

***CRTUSRPRF**
The user profile that created the spooled file is the author.

***NONE**
The generated file does not contain author information.

author
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 PDF.

***NONE**
No keywords are associated with the file.

keywords
Specify a list of keywords to associate with the file.

PDF font imbedding (PDFFONTIMB)

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.

***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.

***FGID**
Printer resident font specifications are converted to host resident printer emulation font resources and these 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. PDF documents can be configured to control the behavior of Acrobat when the

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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.

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

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'.

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'.

***TWOCLLEFT**

Display pages in two columns, with odd-numbered pages on the left. Value '3'.

***TWOCLRIGHT**

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.

zoom-percentage

Specify the percentage by which the page is magnified. Value 8 through 1600.

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.

page-number

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 PDF.

***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.

overlay

Specify the name of the media overlay to apply.

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 PDF.

***NONE**

No bookmarks are generated.

***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.

***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.

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 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.

***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.

line-number

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.

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.

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)

***NONE**

No work station customizing object is specified.

work-station-customizing-object

Specify the name of the work station customizing object.

Obsolete (Originator) (USRID)

Note: This parameter is obsolete, use the From (originator) (FROM) parameter instead. This parameter remains on the command to protect the upward compatibility of customer programs that used it. If this parameter is specified and the From (originator) (FROM) parameter is not specified, the entered value overrides the default value of the From (originator) (FROM) parameter.

Specifies the network user that originated the e-mail. CHAR(8), CHAR(8)

Parameter dependencies

When network user id *GATEWAY is specified an e-mail address must be specified.

When To (recipient) *NONE is specified network user id *GATEWAY cannot be specified.

A network user id or a To (recipient) can be specified, but not both.

At least one recipient is required.

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When recipient *PAGDTA is specified, parameter PAGDTA() must be specified.

An address mapping program is only allowed when the recipient is *PAGDTA.

When subject *PAGDTA is specified, parameter PAGDTA() must be specified.

When subject *PAGDTA is specified, parameter TOSMTPNAME(*PAGDTA) must be specified.

When USRID() is specified FROM() cannot be specified.

When send as *TEXTPLAIN is specified transform *TXT must be specified.

When transform *WSCST is specified a Workstation customizing object must be specified.

A transform or a workstation customizing object name can be specified, but not both.

When Workstation customizing object *NONE is specified transform *WSCST cannot be specified.

PDF document security can only be specified with a *PDFxxx transform.

When a page range is specified, a supporting transform must be specified.

Examples

```
SNDSPLMAIL  FILE(QSYSVRT) TOSMTP(*PAGDTA)
              TRANSFORM(*PDFLETTER)
              PAGDTA(*STRPAGGRP)
              JOB(033194/QPGMR/MONTHEND)
              SPLNBR(2) PDFBKMSRC((5 10 8 Invoice))
```

This command processes spooled file number 2, QSYSVRT from job 033194/QPGMR/MONTHEND. The spooled file is split into separate sections based on the DDS STRPAGGRP/ENDPAGGRP keywords and the sections are each converted to PDF and sent the e-mail address specified on the STRPAGGRP keyword. The spooled file contains invoice numbers printed on line 5, position 10 for a length of 8. These are used to book mark the file for quick access to individual pages.

```
SNDSPLMAIL  FILE(QSYSVRT)
              TOSMTPNAME(john_smith@widget.com)
              SEND(*TEXTPLAIN)
```

This command sends the last spooled file with name QSYSVRT from the job the job running the command. The spooled file is sent to john_smith@widget.com. The spooled file is sent in the body of the e-mail.

Verify/Set Up Local SMTP (VFYLOCAL) Command

```
+-----+
|>>--VFYLOCAL--|                                     Job: B,I  Pgm: B,I  REXX: B,I  Exec
|               |  +-*NO---+  |
|               |  +-SETUP(---*YES---)-+
|               |
+-----+
```

PURPOSE

The Verify/Set Up Local SMTP (VFYLOCAL) command verifies or sets up SMTP on the local system.

Make changes to system (SETUP)

Specifies the whether or not the command makes changes to the system. The possible values are:

*NO

The command does not make changes to the local system.

*YES

The command makes changes to the local system.

Examples

```
VFYLOCAL  SETUP(*NO)
```

This command verifies that SMTP is set up correctly on the local system.

```
VFYLOCAL  SETUP(*YES)
```

This command sets up SMTP on the local system.

Work with Gumbo Spooled File (WRKGSISPLF) Command

```

+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
>>--WRKGSISPLF-----Job: B,I Pgm: B,I REXX: B,I Exec----->
>----->
|      +-*CURRENT--+ +-*ALL-----+ +-*ALL-----+ +-*ALL-----+ |
+-SELECT(---*ALL-----+---*OUTQ-----+---*STD-----+---*user-data---)-+
|      +-user-name-+ +-device-name-+ +-form-type-+
>----->
|      +-*-----+ |
+-OUTPUT(---*PRINT---)-+
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+

```

PURPOSE

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 this product.

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. The possible values are:

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.

user-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.

device-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. The possible values are:

*

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:

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

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

```
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 8 Trouble-Shooting

What's In This Chapter

This chapter provides information and procedures useful for correcting or reporting SpoolMail problems. The chapter:

- o Describes general trouble-shooting
- o Describes software installation problems
- o Describes general mail delivery problems
- o Describes MSF specific delivery problems
- o Describes SMTP specific delivery problems
- o Describes PDF file problems
- o Gumbo Logical Printer Specific Problems
- o Describes RTF file problems
- o Describes how to create a spool save file
- o Describes how to e-mail a spool save file

General Trouble-Shooting

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

- o Check the messages in your job log:
 - Run the DSPJOBLOG command.
 - Press F10 to display detailed messages.
 - Locate the messages related to the conversion.
 - Place your cursor on each message in turn and press F1.
 - Take any corrective actions suggested by the messages.
- o Download the current cumulative PTF package from www.gumbo.com.
- o Check the bottom of the PTF page at www.gumbo.com for IBM PTFs that may be required.
- o 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.

- o Installation Verification Fails

Symptom When the installation verification option is run, verification fails.

Cause The software is not installed correctly or the installation is damaged. This can be caused for a variety of reasons including renaming a test install library in order to move a new release into production.

Solution Get the system to a clean and stable state and re-install the software by performing the following:

1. Delete the licensed program by running:

```
DLTLICPGM LICPGM(2A55SM1) RLS(*ALL) OPTION(*ALL)
```

It is okay if this fails with diagnostic CPD3D91 "Product 2A55SM1 option *ALL

release *ALL not installed."

2. Delete the product's library by running:

```
DLTLIB LIB(SPOOLMAIL)
```

It is okay if this fails with escape CPF2110 "Library SPOOLMAIL not found."

3. Delete the product's directory by running:

```
RMVLNK OBJLNK('/Gumbo/ProdData/2A55SM1')
```

It is okay if this fails with escape CPFA0A9 "Object not found. ...". But if it fails because the directory is not empty, delete the contents using WRKLNK.

4. Rebuild I5/OS' internal licensed program information by running:

```
CALL PGM(QSYS/QSZRECOV)
```

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.

General Mail Delivery Problems

This section describes common problems, causes, and solutions for general mail delivery problems. They are listed roughly in the order in which you should proceed. During general mail delivery trouble shooting you should send tests to yourself. Once this works properly, you can move on.

The bulk of the entries in this section are derived from trouble shooting performed by or with customers and in some sense presume that you have an "average" installation. The "average" installation is an System i5 connected to a LAN with the post office (a.k.a. mail router) on a LAN attached PC running Exchange, Notes or Groupwise with or without a connection to the internet at large. At the "average" installation this is the first application to generate email from the System i5. Some of the entries in this section may not apply to your situation.

- o Source Of Problem Is Unknown

Symptom	The send operation runs to completion but no mail arrives.
Cause	The problem may be with the mail router or with i5/OS, but the source is unknown.
Solution	Run PINGMAIL to generate a test message to your email address and directly deliver it to the mail router by passing i5/OS' mail machinery entirely:

Note: Substitute the name of your mail router for the value "mail_router" and substitute your email address for the value "you@domain.com" in the following command.

```
PINGMAIL RMTSYS(mail_router) SMTPNAME(you@domain.com)
```

If you receive the test message, the mail router is working correctly and an i5/OS issue is indicated. In particular, if the rest of the entries in this section do not correct the problem, you may have a DNS issue.

If you do not receive the test message then there is a problem with the mail router. You may be able to get an indication of the problem by reviewing the SMTP conversation which appears in your joblog. Run DSPJOBLOG, hit F10 and page back for details.

- o i5/OS Servers Are Down

Symptom The send operation runs to completion but no mail arrives.
Cause The i5/OS servers responsible for mail delivery may be down, particularly if the System i5 has been IPLed.
Solution Rerun VFYLOCAL to verify that all local servers are up and running:

```
VFYLOCAL SETUP(*NO)
```

If local verification fails, run option 12.

```
VFYLOCAL SETUP(*YES)
```

- o Mail Router Is Not Processing Mail

Symptom The send operation runs to completion but no mail arrives.
Cause The mail router responsible for mail delivery may be down, or not accepting mail from i5/OS.
Solution Rerun VFYROUTER to verify that the mail router is up and running:

```
VFYROUTER SETUP(*NO)
```

If mail router verification fails, run option 12.

```
VFYROUTER SETUP(*YES)
```

- o Mail Router Refuses Mail with "Funny" Originator Address

Symptom The send operation runs to completion but no mail arrives. Or mail arrives for some users but not all users, for example for all but AOL accounts.
Cause An email address has not been assigned to your directory entry and the mail router doesn't like the "funny" address i5/OS generates for the originator's address.
Solution Assign your email address to your system distribution directory entry: (assume for this example that your "User ID and Address" are "BILLG S1234567" and you "real" email address is "billg@acme.com")

```
CHGDIRE USRID(BILLG S1234567) MSFSRVLVL(*SYSMS) PREFADR(*SMTP)  
USRDFNFLD((SMTPAUSRID SMTP 'billg') (SMTPDMN SMTP  
'acme.com'))
```

Note: If the you a local Domino for i5/OS user substitute MSFSRVLVL(*DOMINO) for MSFSRVLVL(*SYSMS).

- o Mail Server Framework Is Clogged With Junk

Symptom The send operation runs to completion but no mail arrives.
Cause i5/OS' Mail Server Framework may contain dead letters or other junk that it can not deliver. This can be the result of previous attempts to set up mail on the system.
Solution Clear out i5/OS' Mail Server Framework:

Note: Only perform this procedure if you are sure there is no valid deliverable mail in the Mail Server Framework.

```
INZLOCAL SMTP(*NO) SMTPPURGE(*NO) MSF(*YES) MSFPURGE(*YES)
```

- o SMTP Servers Require Reinitialization

Symptom The send operation runs to completion but no mail arrives.
Cause i5/OS' SMTP servers may need to reinitialize. This is undocumented but our experience and discussions with i5/OS' SMTP architect confirm this.

Solution Reinitialize i5/OS' SMTP servers:

INZLOCAL SMTP(*YES) SMTPPURGE(*NO) MSF(*NO) MSFPURGE(*NO)

o SMTP Servers Are Clogged With Junk

Symptom The send operation runs to completion but no mail arrives.
Cause i5/OS' SMTP server may contain dead letters or other junk that it can not deliver. This can be the result of previous attempts to set up mail on the system.
Solution Clean out i5/OS' SMTP server:

Note: Only perform this procedure if you are sure there is no valid deliverable mail in the SMTP servers.

INZLOCAL SMTP(*YES) SMTPPURGE(*YES) MSF(*NO) MSFPURGE(*NO)

o Mail Server Framework Is Reporting Errors

Symptom The send operation runs to completion but no mail arrives.
Cause i5/OS' Mail Server Framework jobs may be unable to process mail and are reporting errors.
Solution Review job logs for the Mail Server Framework jobs:

- Work with active jobs by running the following command:
WRKACTJOB
- Page down to the QSYSWRK subsystem.
- Locate the job or jobs with the name QMSF and repeat the following steps for each job.
- Display the job by using option 5 and pressing enter.
- Display the job log by selecting option 10 and pressing enter.
- Display detailed messages by pressing F10.
- You should see a job started (CPF1124) and job submitted (CPI1125) message. If there are no other messages the Mail Server Framework is not reporting errors. (End of procedure).
- Display detailed information for each additional message by placing your cursor on the message and pressing F1.
- Take any corrective action specified in the messages.
- See the MSF Specific Delivery Problems section of this chapter.

o Mail Server Framework Is Ending Abnormally

Symptom The send operation runs to completion but no mail arrives.
Cause i5/OS' Mail Server Framework jobs may be unable to process mail and are ending abnormally.
Solution Review job logs for the Mail Server Framework jobs:

- Locate job logs for Mail Server Framework jobs that have ended by running the following command:
WRKSPLF SELECT(QMSF)
If there are no spooled output files, the Mail Server Framework is not ending abnormally (end of procedure).
- Page down to the end of the list of spooled files.
- Display the date and time of the spooled files by pressing F11. If there are no recent spooled files, the Mail Server Framework is not ending abnormally (end of procedure).
- For each recent job log repeat the following steps:
 - Display the job log by using option 5 and pressing enter.
 - Review the job log for diagnostic and escape messages.
 - Take any corrective action specified in the messages.
 - See the MSF Specific Delivery Problems section of this chapter.

o SMTP Servers Are Reporting Errors

Symptom The send operation runs to completion but no mail arrives.
Cause i5/OS' SMTP server jobs may be unable to process mail and are reporting errors.
Solution Review job logs for the SMTP server jobs:

- Work with active jobs by running the following command:
WRKACTJOB
- Page down to the QSYSWRK subsystem.
- Locate the 4 SMTP server jobs with names that start with QTSMT*. Repeat the following steps for each job.
- Display the job by using option 5 and pressing enter.
- Display the job log by selecting option 10 and pressing enter.
- Display detailed messages by pressing F10.
- You should see a job started (CPF1124) and job submitted (CPI1125) message. If there are no other messages the Mail Server Framework is not reporting errors. (End of procedure).
- Display detailed information for each additional message by placing your cursor on the message and pressing F1.
- Take any corrective action specified in the messages.
- See the SMTP Specific Problems section of this chapter.

o SMTP Servers Are Ending Abnormally

Symptom The send operation runs to completion but no mail arrives.
Cause i5/OS' SMTP server jobs may be unable to process mail and are ending abnormally.
Solution Review job logs for the SMTP server jobs:

- Locate job logs for SMTP server jobs that have ended by running the following command:
WRKSPLF SELECT(QTCP)
- If there are no spooled output files, the SMTP server jobs are not ending abnormally (end of procedure).
- Page down to the end of the list of spooled files.
- Display the date and time of the spooled files by pressing F11. If there are no recent spooled files, the SMTP server jobs are not ending abnormally (end of procedure).
- For each recent job log repeat the following steps:
- Display the job log by using option 5 and pressing enter.
- Review the job log for diagnostic and escape messages.
- Take any corrective action specified in the messages.
- See the SMTP Specific Problems section of this chapter.

MSF Problems

This sections describes problems, causes, and solutions specific to i5/OS' Mail Server Framework.

o MSF Job Log Contains QTCPTMM/ATTABOX Messages

Symptom A QMSF job is complaining about a directory such as QTCPTMM/ATTABOX.
Cause i5/OS' MSF jobs depend on specific directories in the Integrated File System which are added by installing the TCP/IP Utilities and may have been deleted.
Solution Check the existence of the TCP/IP related directories an reinstall them if they are missing by:

- Run the WRKLNK command and locate the QTCPTMM directory.
- Display QTCPTMM's contents using option 5.
- Verify that subdirectories ATTABOX, ENCODE, MAIL, SMTPBOX and TMP exist.
- If directories are missing continue with this procedure otherwise end of procedure.
- Use the DLTLICPGM command to remove the TCP/IP Utilities.
- Use the RSTLICPGM command to reinstall the TCP/IP Utilities.

- o MSF Job Log Contains "System storage threshold exceeded" Message

Symptom A QMSF job complains that "System storage threshold exceeded".
Cause i5/OS' MSF jobs stop processing mail when amount of disk space used rises above a set percentage. i5/OS is shipped with this value set to 90%.
Solution Either free disk space by deleting unused items or bump the threshold value with this procedure:

- Run the STRSST command and select option 3 Work with disk units.
- Select option 2 Work with disk configuration.
- Select option 3 Work with ASP threshold.
- Use 1=Select for the appropriate ASP (usually ASP 1).
- Press F1=Help to review help for the Change Storage Threshold display.
- Change the ASP threshold to 95% or what ever is a comfortable value for your installation.

SMTP Problems

This sections describes problems, causes, and solutions specific to i5/OS' SMTP server.

- o SMTP Retries Set To Zero

Symptom The send operation runs to completion but no mail arrives, or mail arrives for awhile then stops until the next IPL.
Cause The mail router is periodically slow or unavailable and i5/OS' SMTP attributes for retries are set too low or set to zero.
Solution Increase the retry values to give the mail router more chances at fielding the incoming mail:

- Prompt the CHGSMTPA command.
- Increase the number of retries for the retries by minute parameter.
- Increase the number of retries for the retries by day parameter.
- Press enter.

- o Multiple Garbled Email Messages Arrive

Symptom Multiple messages arrive for a send operation and the messages are garbled.
Cause i5/OS' SMTP is splitting the messages.
Solution Turn off message splitting entirely by changing the POP attributes:

```
CHGPOPA MSGSPLIT(*NOMAX)
```

- o Time On Mail Is Incorrect

Symptom Mail delivers but contains the wrong time.
Cause i5/OS' QUTCFFSET or QTIMZON system values have not been set.
Solution See: Manual SMTP Steps You May Need To Perform section of the Set Up chapter for instructions to correct these value.

PDF File Problems

This sections describes problems, causes, and solutions specific to Portable Document Format (PDF) files.

- o 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 SpoolMail.

- o 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 smooths 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.

- o 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".

- o Unable to edit PDF document with Adobe's Acrobat

Symptom When attempting to Tools-> Touch up 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.

- o 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.

- o 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. SpoolMail is not emulating the correct printer.

Solution Use the Reference printer device (REFPRTDEV) parameter of the Change SpoolMail Default (CHGSM1DFT) command to specify the name of the printer that correctly prints the spooled file.

- o 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 SpoolMail needs help determining the processing used by the printer that correctly prints the spooled file.

Solution Run the Display Device Description (DSPDEV) command for the printer. If the "Host print transform" parameter is *YES, toggle the PDF apply noprtbdr to overlay (PDFNPBOVL) parameter of the Change SpoolMail Default (CHGSM1DFT) command from *NO (the default value) to *YES or from *YES to *NO.

- o 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 SpoolMail can not determine the printer's no print border from its logical description. Examples of when this situation occurs:

- Some *SCS printers
- Some *IPDS printers with AFP(*NO)
- Ascii printers with custom WSCST specified

Solution Enter the printer's no print border values in the Refprtdev offset default (REFOFFSET) parameter of the Change SpoolMail Default (CHGSM1DFT) command.

- o 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:

- Some *IPDS printers with AFP(*YES) and no print borders
- 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 Change SpoolMail Default (CHGSM1DFT) command.

Gumbo Logical Printer Problems

This sections describes problems, causes, and solutions specific to Gumbo Logical Printers.

- o 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.

- o 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.

The source file 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.

- o 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 Software, Inc. development system can be produced using the Create Spool Save File (CRTSPLSAVF) command. To create a spool save file:

- o 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.
- o 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.
- o Determine a name for the save file. It must be a file name that does not exist in the library determined above.
- o 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.

E-mailing 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 e-mail it to Gumbo Software, Inc. by following these steps:

1. From your System i5 insure the FTP server is active by running:

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

2. From your PC open a command prompt (DOS session).
3. From your PC create a temporary directory and change to it:

```
md c:\gumbo
cd c:\gumbo
```

4. From your PC open an FTP connection to the System i5 by substituting your system's name and running:

```
ftp as400_system_name
```

5. From your PC enter a user name and password as prompted.

6. From your PC change to binary (image) mode by running:

```
binary
```

7. From your PC change to library/file/member mode by running:

```
quote site namefmt 0
```

8. From your PC download the spool save file by running (in this example the save file's name is QGPL/TEST):

```
get qgpl/test
```

9. From your PC end the ftp session by running:

```
quit
```

10. Send e-mail to support@gumbo.com after attaching file c:\gumbo\test.

Include in your e-mail a description of the problem encountered and the command parameter values you were using when it happened.

Appendix A Processing Descriptions

What's In This Appendix

This appendix provides detailed descriptions of the processing performed by SpoolMail's set up and verification programs. In highly secure environments, it may be against policy to allow third party software to change your system. If this is your situation, you can perform these steps manually. The appendix details:

- o Processing performed during SMTP verification.
- o Processing performed during SMTP set up.
- o Processing performed during mail router verification.
- o Processing performed during mail router set up.

Processing Performed During SMTP Verification

The following verification steps are performed by the Verify/Set Up Local SMTP (VFYLOCAL) command when SETUP(*NO) is specified.

Note: No changes are made to your system during verification.

- o Verify that TCP Utilities have been installed on the system.
The system is checked to insure that library QTCP exists. If the library is found then TCP Connectivity Utilities have been installed on the system.
- o Verify that SMTP has been installed on the system.
The QSYSWRK subsystem is checked to insure that it contains a routing entry with compare data of SMTPROUT. If the routing entry is found then SMTP has been installed on the system.
- o Verify that the SMTP distribution queues are present.
The system is checked for the existence of QSMTPQ distribution queue.
- o Verify that a host and domain name have been configured for the system.
 - If the host name is blank, verification fails.
 - If the domain name is blank, verification fails.
- o Verify that the system distribution directory is searchable.
A search is attempted on the system distribution directory.
- o Verify that the i5/OS Mail Server is active.
The system is checked for an active job with the job name QMSF. If one or more QMSF jobs are active then the Mail Server is active.
- o Verify that the TCP is active.
The system is checked for an active job with the job name QTCTPIP. If job QTCTPIP is active then TCP is active.
- o Verify that TCP loopback is operating correctly.
The TCP interfaces are searched to locate the *LOOPBACK internet address. The *LOOPBACK interface is started if it is not active and its internet address is PINGed to verify that TCP is operating correctly.
 - If the *LOOPBACK interface is not found, verification fails.
 - If the *LOOPBACK interface is not active and can not be started, verification fails.
 - If the *LOOPBACK interface can not be PINGed, verification fails.The *LOOPBACK interface is ended if it was started by the verification program.
- o Verify that a TCP interface is defined.
The TCP interfaces are searched to locate one or more internet addresses (excluding *LOOPBACK).

- If no interfaces are found, verification fails.
- o Verify that active TCP interfaces are reachable.
 - The TCP interfaces are searched to locate one or more internet addresses (excluding *LOOPBACK). Each interface is contacted (PINGed) to verify the connection.
 - If an interface is not active, verification fails.
 - If an interface can not be contacted, verification fails.
- o Verify that the SMTP server is active.
 - The system is checked for an active job with the job name QTSMTPSRVR or QTSMTPSRVD. If either job is active then the SMTP server is active.
- o Verify that this host's IP address can be reached by SMTP.
 - Retrieve the host and domain names for this system.
 - If the host name is blank, verification fails.
 - Verify (PING) TCP/IP connection to host name.
 - If the host is contacted, verification is complete and no further processing is performed.
 - Verify (PING) TCP/IP connection to the host.domain name.
 - If the host.domain name cannot be contacted, verification fails.
- o Verify that message splitting has been turned off.
 - The current setting can not be retrieved so no test is performed and it is assumed that splitting has not been turned off yet.

After all test are completed, a message summarizing the results is issued.

Processing Performed During SMTP Set Up

The following set up work is performed by the Verify/Set Up Local SMTP (VFYLOCAL) command when SETUP(*YES) is specified.

- o If the TCP Utilities have not been installed on the system.
 - Manual intervention is required to install the utilities. Automatic set up can not perform the installation.
- o If the SMTP has not been installed on the system.
 - Manual intervention is required to install SMTP. Automatic set up can not perform the installation.
- o If QSMTQP distribution queue is not found.
 - Create the distribution queue using the Add Distribution Queue command:
`ADDSTQ DSTQ(QSMTQP) RMTLOCNAME(TCPIPLOC) DSTQTYPE(*RPDS)`
- o If a host or domain name have not been configured.
 - Manual intervention is required to configure a host and domain name. Use option 12 (Change local domain and host names) of the Configure TCP/IP (CFGTCP) command. Automatic set up can not perform the change.
- o If the system distribution directory entry can not be searched.
 - The directory is changed to allow searches using the Change System Directory Attributes command:
`CHGSYSDIRA ALWSCH(*YES)`
- o If the i5/OS Mail Server is not active.
 - Start the Mail Server using the STRMSF command:
`STRMSF`
- o If TCP is not active.
 - Start TCP using the STRTCP command:
`STRTCP`

- o If TCP loopback is not operating correctly.
 - If missing, *LOOPBACK interface is added using command:
 ADDTCPIFC INTNETADR('127.0.0.1') LIND(*LOOPBACK) SUBNETMASK('255.0.0.0')
 MTU(576)
 - If loopback PING fails:
 Manual intervention is required to correct the problem which is beyond the scope of set up.
- o If no TCP interfaces are found.
 Manual operation is required to add an interface using the ADDTCPIFC command.
- o If no TCP interfaces can be contacted.
 Manual operation is required to correct the problem. If the interface can not be contacted because it is not active, start the interface using the STRTCPIFC command.
- o If the SMTP server is not active.
 - Start the SMTP server using the STRTCPSVR command:
 STRTCPSVR SERVER(*SMTP)
- o If the host's IP address can not be reached by SMTP.
 - If system is using a remote name server, set up fails.
 Manual operation required. Contact the remote name server's administrator to add this system's host name.
 - If multiple TCP interfaces are found, set up fails.
 Manual operation required. Add this system's name to i5/OS' host table using the ADDTCPHTE command.
 - If no TCP interfaces are found, set up fails.
 Manual operation required. Add a TCP interface using the ADDTCPIFC command.
 - An entry is added for this host using the Add TCP Host Table Entry command:
 ADDTCPHTE INTNETADR(&THISIP) HOSTNAME((&HOST)) TEXT('Entry Added By
 Gumbo Auto TCP/IP Config')
- o If message splitting has not been turned off.
 - Message splitting is turned off
 The POP attributes are changed:
 CHGPOPA MSGSPLIT(*NOMAX)

After all steps are completed, a message summarizing the results is issued.

Processing Performed During Mail Router Verification

The following verification steps are performed by the Verify/Set Up Mail Router (VFYROUTER) command when SETUP(*NO) is specified.

- Note:** No changes are made to your system during verification.
- o Verify that TCP is active.
 - The system is checked for an active job with the job name QTCPIP. If job QTCPIP is active then TCP is active.
 - o Resolve system names and internet addresses for command parameters and current mail router.
 - Verify domain name server.
 If a domain name server is configured, it is tested to insure that it is responding. If it does not respond, verification fails.
 - Retrieve currently configured mail router name and IP.
 - Resolve internet address parameter.
 If a special value was specified, it is resolved. If it can not be resolved, verification fails.
 - Resolve remote system parameter.
 If a special value was specified, it is resolved. If it can not be resolved, verification fails.

- o Edit the resulting names and IPs for conflicts.
 - Edit remote system and internet address IP.
If the IP of the remote system is different than the internet address, verification fails.
 - Edit remote system and internet address names.
If the name of the internet address is different than the remote system name, verification fails.
 - Edit current mail router and internet address IP.
If the IP of the current mail router is different than the internet address, verification fails.
- o Verify that the internet address is responding.
The internet address is PINGed to insure that it is reachable and responding. If it is not, verification fails.
- o Verify that the internet address is accepting SMTP mail.
The internet address is tested to insure that it is accepting SMTP mail from this System i5. If it is not, verification fails.
- o Verify that remote system can be located in the host table.
If a host table entry is required and not present, verification fails.
- o Verify that the mail router is configured.
If the remote system is not configured as the mail router, verification fails.

After all test are completed, a message summarizing the results is issued.

Processing Performed During Mail Router Set Up

The following set up work is performed by the Verify/Set Up Mail Router (VFYROUTER) command when SETUP(*YES) is specified.

- o If TCP is not active.
 - Start TCP using the STRTCP command:
STRTCP
- o If system name and internet address resolution fails.
 - If a domain name server is configured but not responding.
Manual intervention required. Either insure that the configured domain name server is available or remove the domain name server from this System i5 configuration using option 12 of the CFGTCP menu.
 - If the internet address parameter can not be resolved.
Manual intervention required to correct the internet address parameter.
 - If the remote system parameter can not be resolved.
Manual intervention required to correct the remote system parameter.
- o If the resolved names and IPs for conflicts.
 - If the remote system and internet address IPs are different.
Manual intervention required to correct the parameters.
 - If the remote system and internet address names are different.
Manual intervention required to correct the parameters.
 - If the current mail router and internet address IPs are different.
Manual intervention required. Either correct the parameters or remove the currently configured mail router by running the following command:
CHGSMTPA MAILROUTER(*NONE)
- o If the internet address is not responding.
Manual intervention required. Either correct the internet address or make the system at that address ready.

- o If the internet address is not accepting SMTP mail.
Manual intervention required. Either correct the internet address, or contact the system's administrator and request that the system accept SMTP from this System i5. The words you use to request this differ depending on the software running on the remote system:
 - For Microsoft's Exchange Server request that the "Internet Mail Connector" be configured and started.
 - For Lotus' cc:Mail request that the "Link to SMTP" be configured and started.
 - For all others request that the "SMTP gateway" be configured and started.

- o If the remote system can not be located in the host table.
Add an entry using the Add TCP/IP Host Table Entry (ADDTCPHTE) command:
ADDTCPHTE INTNETADR(&INTNETADR) HOSTNAME((&RMTSYS)) +
TEXT('Mail router added by Gumbo automatic configuration')

- o If the mail router is not configured.
Configure the mail router using the Change SMTP Attributes (CHGSMTPA) command:
CHGSMTPA MAILROUTER(&RMTSYS) FIREWALL(*YES)

Note: The FIREWALL() parameter is probably misnamed. When set to *YES, it instructs i5/OS to send all email through the mail router. When set to *NO, i5/OS tries to deliver the email directly. If this fails, it gives it to then gives it to the mail router.

After all steps are completed, a message summarizing the results is issued.

Appendix B Record Descriptions

What's In This Appendix

This appendix provides information on SpoolMail files and structures. The appendix:

- o Describes the display page data record

Display Page Data Record

The Display Page Data (DSPPAGDTA) command generates output files with PDPAGDRF as the record. PDPAGDRF is made up of several groups of fields that describe an element of the page.

- o 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.
- o 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.
 - PDSPPOS Position on the line the data starts. When PDLINE contains one of the special values, PDSPPOS is zero.
- o 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 C Notices

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