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This Manual applies to Release 06 Modification 02 or later of
Remote SpoolPrint3X/400™

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INTRODUCTION

Remote SpoolPrint3X/400 will automatically transfer spool file entries from a System/38, System/36, or AS/400 to remote System/38, System/36, AS/400, MVS or VM processors. Multiple remote systems can receive spool files, and multiple printers per remote system can receive spool files. The user specifies output queues on the System/38 and AS/400 (Printer ID's on the System/36) which are to be transmitted. Remote SpoolPrint3X/400 will monitor local outq's and transmit available spool entries from each monitored outq or printer ID to the specified remote system's printer. The spool entry will be deleted from the source system (unless SAVE (*YES) is specified for S/38, AS/400 spool files, or Hold after Print is specified on the S/36).

Multiple remote systems are supported. Each remote system can receive and print spool files on multiple printers. There is no limitation to the number of active remote printing tasks (Remote Writers) on a source or target system. For example the user may define 2 Remote Writers to printers P1, P2 of a remote System/36 and have 2 Remote Writers defined to Outq's QPRINT.QGPL and LPRT200.QGPL.

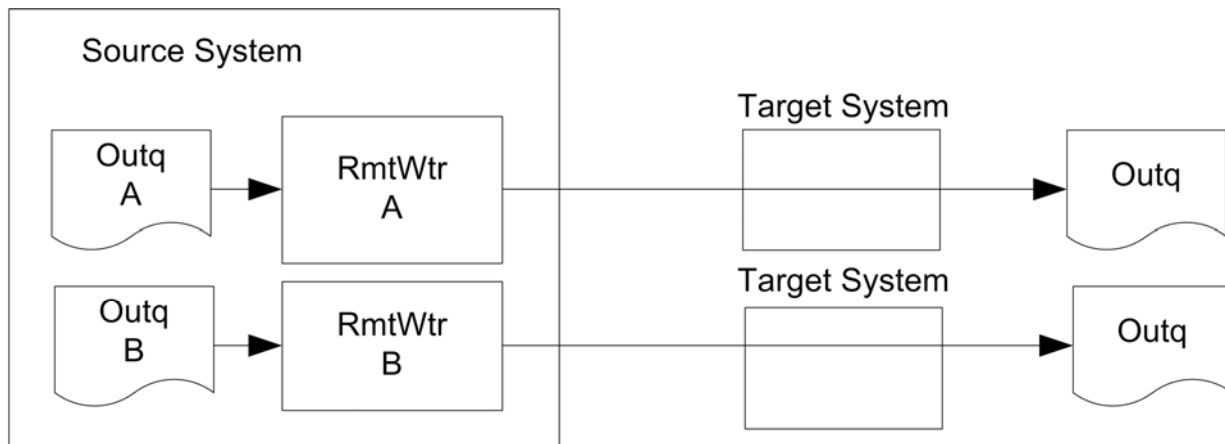


Figure 1: Example System to Remote Systems

Remote SpoolPrint3X/400 uses IBM's Advanced Program to Program Communications (APPC) to communicate with the remote systems. S/36, AS/400 APPN is supported by Remote SpoolPrint3X/400. Remote SpoolPrint/400 can also use TCP/IP to communicate to other AS/400 machines. Please note that APPC and TCP are shipped from IBM with the operating system. The remote system can be connected via a leased phone line, point-to-point or multipoint, a dial up phone line, or other common communications facilities (X.25, modem eliminators, etc). Other communications equipment such as remote control units (i.e. 5294) may be defined on the same line. Other system software packages such as DDM or Display Station Passthru may share the same line on both the source and target system.

Remote SpoolPrint3X/400 Features

There are several options available to the user when setting up a Remote Writer. Each remote writer can be tailored differently, adding flexibility to the user remote spool network. Tailoring options can be changed if desired. For S/38 or AS/400 machines, the user specifies the outq to monitor when starting the

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Remote Writer. Remote SpoolPrint3X/400 is event-driven, thus the operating system will automatically activate the Remote Writer task when a ready spool entry becomes available. The Remote Writer tasks consume no CPU or other system resource while waiting for output to send, and become active immediately.

For S/36 machines, when starting a Remote Writer the user specifies one or more of the following selection criteria: Printer ID, Forms ID, User ID. The Remote Writer will transmit only ready spool entries which match specified selection criteria. Remote SpoolPrint3X/400 will periodically monitor the spool area at a user specified time interval (i.e. 30 sec). The monitor process is extremely fast and consumes little CPU. When a spool file entry becomes ready the Remote Writer will automatically print the spool file on the specified remote printer.

The user may specify the execution priority of the remote writer on the local system. This will allow the user to prioritize the flow of information against other jobs (i.e. passthru terminals) competing for the telephone line.

Remote SpoolPrint3X/400 will optionally translate the Forms ID and Font ID of a spool entry while being transmitted. It will also translate the spool entries Lines per Page and Lines per Inch attributes into a S/370 Forms Control Buffer Name attribute. This is to allow for different naming conventions on different systems. The user can set up a translation table specifying the forms ID, remote writer, and the target forms ID.

Remote SpoolPrint3X/400 maintains the spool entry's job attributes (Job name and Job user, Print file name, Proc name).

Spool Attributes transferred:

- Job Name
- Job User ID
- Proc Name
- Number of Copies
- Forms ID
- Lines per Inch (4, 6, or 8)
- Characters per Inch (10 or 15)
- Output Priority
- Lines per Page (1 to 255)
- Overflow Line (1 to 255)
- Save (Hold after Print)
- Align
- Font ID
- Drawer
- Print Quality (Text)
- Page Rotation
- Justify

Data Compression Option

Data can be compressed by the source system and decompressed by the target system. Repetitive

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characters are compressed into 1 repetition character.

Spool Entry Logging and Accounting

Remote SpoolPrint can optionally write a record of each transferred spool entry to the Remote SpoolPrint log. Users can search the log. Information written to the log includes the date/time sent, spool file attributes, and the Remote Writer which sent the entry.

Hold on Remote System

The Remote Writer will optionally hold the transmitted spool entries on the remote system. The user can release the spool entries for printing when desired.

Automatic Line Error Recovery

If a transmission error occurs Remote SpoolPrint3X/400 will periodically attempt to contact the remote system. Once the communications link is reestablished spool file transmission is resumed automatically. The delay period between recovery attempts can be set by the user.

Previous BDS Release Compatibility

Remote SpoolPrint will support one previous release level. This will allow users to migrate to a new release of Remote SpoolPrint in an orderly fashion, instead of all systems at once. Please note that in the future all functions may not be supported, and in some circumstances back level compatibility may not be possible. Refer to Appendix F "Release Compatibility Table" for more information.

Because of differences between S/36 and S/38 or AS/400 print spool support, and to minimize operator intervention on the remote system, Remote SpoolPrint/3X will translate the following spool file attributes during transmission to the remote System/36. The user defines the translations when defining a Remote Spool Writer. Source system spool file attributes are not affected by the translation.

Output Priority

Remote SpoolPrint3X/400 will change the output priority attribute of the spool file to the user specified value during transmission to the remote System/36. The S/38 has nine output priorities (1-9), with priority 1 printed first. The System/36 has six priorities (0-5), with priority 5 being printed first. The user can specify a translation of output priorities for each of the nine S/38 output priorities.

Job Separator Pages

The user may specify if Job Separator Pages are to be printed between spool file entries printed on the remote S/36.

Defer

The user may specify whether the spool entry is to start printing on the remote S/36 immediately, or after the entry is transmitted.

S/370 Forms Control Buffer

The S/370 does not have Lines per Page or Lines per Inch attributes. It has a Forms Control Buffer Name attribute instead. Remote SpoolPrint3X/400 has a translation table to convert these attributes.

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Transfer using SNADS Features

The user has the option to use SNADS or Remote SpoolPrint/3X to transmit spool entries to the remote system. Using SNADS is available only from/to S/38 and AS/400 machines. This option is specified when defining the Remote Writer. We normally suggest using Remote SpoolPrint3X/400 to transport spool entries. Consider the following:

Remote SpoolPrint3X/400 maintains the spool entry's job attributes (Job name and Job user).

Each Remote Writer using Remote SpoolPrint3X/400 to transmit spool entries has a separate communications session. Spool entries are not queued 'single threaded' through the communications line. Thus a small (i.e. screen print) does not have to wait until a previously scheduled (possibly large) entry is completely transmitted to begin transmission.

SNADS will automatically route output through intermediate nodes to the target node. Using Remote SpoolPrint/3X without APPN, the user must define a Remote Writer at each intermediate node.

For more information on the full capability of SNA Distribution Services, refer to "Communications Administrator's Guide", SC21-8035.

Remote Writer Operations

Remote SpoolPrint3X/400 was designed to be easy to operate. The operator (or a start up program) can start a remote writer using the STRRMTWTR (S/38) or the STRRMWTR (S/36 and AS/400) commands. The operator specifies the remote writer to be started, and the outq (or S/36 printer ID) the Remote Writer will monitor for transmission. Transmission of eligible spool files will occur automatically until you cancel the remote writer using the CNLRMTWTR (S/38) or the CNLRMWTR (S/36 and AS/400) commands. After a spool entry is successfully transmitted to the remote system, it is automatically deleted from the source system (unless the spool file has an attribute of *SAVE).

The operator can display the status of active Remote Writers using the DSPRMTSTS (S/38) or the DSPRMSTS (S/36 and AS/400) commands. The Remote Writer name, the outq being monitored, and the current status (Active or Error Recovery) is displayed.

Some System/36 software components which are used in Remote SpoolPrint 3X/400 were purchased externally. One of the vendors is System Support Products, Inc.

IASPs and Multiple Remote SpoolPrint Instances

Remote SpoolPrint product libraries can be placed onto Basic and Independent ASPs, giving the Administrator great flexibility. Multiple instances of Remote SpoolPrint can be running within an LPAR. Each Remote SpoolPrint instance is independent of the other instances.

INSTALLATION

Before you begin

- 1) A compatible release of Remote SpoolPrint/400 must be installed on all systems which will be sending or receiving printed output. See Appendix F, "Release Compatibility Table" for more information.
- 2) Use these instructions if you are installing Remote SpoolPrint400 for the first time. If you are updating your existing Remote SpoolPrint software to a new release, use the Update Instructions provided with the update package.
- 3) Remote SpoolPrint/370 users: Refer to the "Remote SpoolPrint/370 Reference Manual" for setting up the S/370, and for example S/3X, AS/400 to S/370 configurations. Use this manual to install Remote SpoolPrint on the S/3X or AS/400.
- 4) A permanent or temporary password is needed once Remote SpoolPrint/400 is installed. If you have already have an instance of Remote SpoolPrint/400 running on this or any other LPAR within this CPU, you can use its permanent password for this instance. Otherwise you will need to contact Broderick Data Systems for a temporary or permanent password. If you plan to install Remote SpoolPrint/400 after business hours, you may wish to call Broderick Data Systems in advance to get your password.
- 5) Remote Distribution: See Appendix D, "Media Distribution" for information concerning distributing Remote SpoolPrint/400 media to remote sites via communications.
- 6) AS/400 users: The install procedure will create a user profile BDSUSER, password BDSPASS. See Appendix E, "AS/400 Security Considerations" for more information.
- 7) If you already have an instance of Remote SpoolPrint/400 running on this LPAR, or you have one of our other products on this LPAR, will need to update them **before** installing this instance. Refer to Appendix L, Release Compatibility for more information. Failure to do so could cause other BDS software to stop working after this instance is installed.
- 8) If you plan to install more than one instance of Remote SpoolPrint/400 on this LPAR, or you plan to install Remote SpoolPrint/400 onto APSs other than the System ASP (ASP 1), refer to Appendix J, "ASP Considerations" prior to performing the install.

Prerequisites

The following hardware and system software is needed to execute Remote SpoolPrint3X/400. Please insure that all needed equipment and system software is installed before beginning the installation.

AS/400

OS/400 Version 6, Release 1, Modification 0 or later

For TCP operation:

- TCP/IP Connectivity Utilities (57xx-TC1)

For TCP operation with Secure Socket layer (SSL):

- IBM HTTP Server for AS/400 (57xx-DG1)

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- Digital Certificate Manager (Product Option 34)
- Cryptographic Access Provider for AS/400 (57xx-AC3)

One of the following:

An available communications adaptor for each remote system (See note 2)

A TCP/IP connection to the other AS/400's that are using Remote SpoolPrint/400

Data Communications Equipment (Modems, Phone Circuit, etc.)

System/36

SSP Release 5.1 or greater with the following feature:

Base Communications FC 6001 (see note 1)

An available communications adaptor for each remote system (See note 2)

Data Communications Equipment (Modems, Phone Circuit, etc.)

Note 1

Base Communications is a no charge feature ordered from IBM. It is a prerequisite for Display Station Passthru, DDM, and other IBM communications features.

Note 2

Remote SpoolPrint3X/400 can share a communications line with other applications to the same remote system (i.e. DDM and Display Station Passthru). Remote Spool Print can also participate in a multipoint configuration. If you have any questions regarding equipment needed to execute Remote SpoolPrint/3X/400, please contact Broderick Data Systems or your local IBM Systems Engineer.

Installation

Perform the following steps for each S/36 or AS/400 in your network. Remote SpoolPrint3X/400 must be installed on every machine which will send or receive printed output.

System/36 Machines

WARNING: Refer to "Before you begin" on page 2-1 before proceeding.

- 1) Sign on to the System/36 as a security officer.
- 2) If Remote SpoolPrint is not the first product from Broderick Data Systems installed on this System/36, then you may skip this step and proceed to step
- 3) Build library BDSLIB. Enter the following command:

BLDLIBR BDSLIB,300,30

INSTALLATION

4) Restore the media from diskette

a) Place the diskette into slot 1

b) Enter the following command:

RESTORE RSPLLIB

c) Enter the following command:

Note: Remote SpoolPrint/36 requires 300 blocks and 30 directory sectors.

TOLIBR RSPLLIB,F1,,REPLACE,BDSLIB,,,,ALL,LIBRARY

Answer 0 to SYS-2594 -- Trying to copy privileged modules.

d) Delete the work file:

DELETE RSPLLIB,F1

5) Restore the control file from diskette:

RESTORE BDS.RSCT

Remote SpoolPrint/36 is now installed on the System/36. Refer to the section "Additional S/36 Setup" later in this chapter for more setup activities.

AS/400 Machines

WARNING: Refer to "Before you begin" on page 2-1 before proceeding.

1) Sign on as **QSECOFR**

2) Load the media.

3) Restore the install objects. Enter one of the following:

If you are using Tape:

**RSTOBJ OBJ(BRSPLIN*) SAVLIB(RSPL40) DEV(xxxxxx) VOL(*MOUNTED)
RSTLIB(QTEMP)**

If you are using CD-ROM:

**RSTOBJ OBJ(BRSPLIN*) SAVLIB(RSPL40) DEV(OPT01)VOL(BDS)
RSTLIB(QTEMP) OPTFILE(RSPL40)**

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If you are using a Save file:

**RSTOBJ OBJ(BRSPLIN*) SAVLIB(RSPL40) DEV(*SAVF) SAVF(mylib/myfile)
RSTLIB(QTEMP)**

Enter the lib/name of the save file containing library **RSPL40**.

4) Execute the install command. Enter one of the following:

Note: If you are planning to install Remote SpoolPrint into ASPs other than the system ASP (ASP 1), refer to Appendix J, "ASP Considerations" to determine the values for the xxxASP and xxxASPDEV parameters on the following BRSPLINS command. Refer to the command help text for more information regarding the xxxASP and xxxASPDEV parameters.

Note: If you are planning to install Remote SpoolPrint into an IASP, verify that the IASP device's status is **AVAILABLE**. Use the command WRKCFGSTS CFGTYPE(*DEV) CFGD(your-IASP-dev).

If you are using Tape or CD-ROM (Press F4 to prompt):

QTEMP/BRSPPLINS DEV(xxxxxx)

If you are using a Save file (Press F4 to prompt):

You should have a save file containing the Remote SpoolPrint media. Verify the contents and note the library saved:

DSPSAVF FILE(mylib/myfile)

The library saved should be **RSPL40**.

QTEMP/BRSPPLINS DEV(*SAVF) PGMSAVF(mylib/myfile)

Enter the save file containing library **RSPL40**.

The message "Installation of Remote SpoolPrint/400 is complete." should appear. If any other message appears, the installation may not have completed properly.

Remote SpoolPrint/3X/400 is now installed on the AS/400.

5) Access the BDS Software Server (optional).

Note: Your AS/400 must be connected to the Internet to perform this procedure.

a) If you have not done so previously, access the tailoring options screen:

BRODERICK/BRSPPLSETUP

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b) Note the fields "BDS Access Userid" and "Password". You will need a user ID and password to access some of the server options. If needed, contact BDS administration to get this information. If you add your user id and password, press **ENTER** to enter them and re-enter the setup command.

c) Press F14, E-Comm. The Software Server display will appear. Take note of the options available to you. When you are finished, press F3 to exit

Defining Network Objects

Note: If your installation is using TCP/IP to communicate to other AS/400s, refer to Appendix I. "TCP/IP Considerations" for more setup information.

Note: If your installation is currently using Display station Passthru, you can use the same objects (LIND, CUD, DEVD, DEVMODE, ICF Line and Subsystem) for Remote SpoolPrint3X/400.

Define the communications objects required to connect your Remote Spool Network. Refer to the following IBM manuals:

- AS/400 CL Reference
- S/36 ICF Base Guide and Examples
- S/36 Systems Reference
- S/36 Messages

Please note that due to the great flexibility of communications, and the endless number of unique situations that arise, this manual will not attempt to completely explain the communications setup required. Instead, Broderick Data Systems will assist you via telephone support in the configuration of your systems. Also, Appendix C, "Configuration Examples" includes working examples.

Objects needed to use Remote SpoolPrint3X/400 are as follows:

Source AS/400

For each target AS/400:

- Line Description
- Control Unit Description
- Device Description
- Device Mode Entry

For each target printer:

- Outq

Source System/36

- Line description (SETCOMM)
- ICF Line Member

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ICF Subsystem Member
*NULL user ID

For each Target Printer:

"Dummy" Printer (CNFIGSSP)

For each Target AS/400 System:

Remote Location entry (SECEDIT COMM)

Target AS/400

For each source AS/400:

Line Description
Control Unit Description
Device Description
Device Mode Entry
Subsystem Communication entry

For each target printer:

Outq

Target System/36

Line description (SETCOMM)
ICF Line Member
ICF Subsystem Member
*NULL user ID

Example configurations can be found in Appendix C, "Example Configurations". For additional assistance in the configuration of your remote spool network, contact Broderick Data Systems or your local IBM Systems Engineer.

Additional System/36 Setup

- 1) Add a user profile *NULL (using the procedure SECEDIT) if security is active.
- 2) For each System/36 which will send output to another system, configure a 'dummy' remote control unit, dial up, and enough 'dummy' printers for each source printer you will use, (refer to the section "Remote Writer Planning" below. Each Remote Writer created will need a printer ID which is not used by a real printer. Use the SSP CNFIGSSP command to define the 'dummy' control unit and printers. At IPL, the operator must stop all 'dummy' printers using the STOP PRT,xx procedure. Use the following steps as a guide:
 - a) Enter the configuration utility (CNFIGSSP).
 - b) Change a configuration, work with display stations and printers.

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- c) Add a Remote Line characteristic (option 2) for the line APPC is using if one doesn't exist. Make the line switched, manual call. SSP will issue a caution message.
 - d) Add a Remote Control Unit (option 3). Define it as a 5294. Add 1 display (code 01) and 6 printers (code PC) to port 0 and add a printer (code PC) to port 1.
 - e) Change the newly created workstation ID's (option 6) to conform to user conventions. For example, name the display R0 and the printers R1 thru R7.
 - f) Return, Exit and Save the configuration.
 - g) When all other users are off the system, apply the changes to the master configuration record.
- 3) (Optional) Add a line to procedure #STRTUP2 in library #LIBRARY to automatically enable communications at IPL and start the remote writers.

a) Enter SEU:

```
SEU #STRTUP2,P,,#LIBRARY
```

b) Add the following line:

```
ENABLE AS400A,COMM,1
```

Note: If you want your Remote Writers to start automatically at IPL, place a STOP PRT and STRRMWTR command for each desired Remote Writer after the ENABLE statement:

```
// STOP PRT,xx  
STRRMWTR S36BP1,xx
```

- 4) For each target AS/400, add a Remote Location Entry. Use the SECEDITCOMM procedure. See Appendix C, Section "AS/400 to S/36, S/38, and AS/400 Example" for more information.

Remote Writer Planning

Once network objects are defined, the user can define Remote Writers to transmit output from one system to another. The following steps should be taken to design your printer network:

- 1) Sketch your communications network. The sketch should include a box for each CPU in the network. Connect the boxes with lines representing actual or proposed communication links.
- 2) Indicate, for each CPU in the network, the object used to communicate to the remote system(s). For S/36, it will be a Remote Location name and Session Group Name. For S/38, it will be a Device Description Name and Device Mode Name. For AS/400, it will be a Remote Location Name and Device Mode Name. For example, a S/38 to S/36 link, the S/38 may use DOVERDEV1, MODE1 to communicate to the S/36 and the S/36 uses HOST38, MODE1 to communicate to the S/38.

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- 3) Identify all printers in the network which will receive output from other systems (target printers) and place them on the sketch next to the system they are connected (locally) to. Indicate the printer ID (S/36) or outq (S/38, AS/400) on the sketch.
- 4) Decide which systems will send output to the printers indicated in step 3). A dummy printer ID (S/36) or outq and library (S/38, AS/400) must be created on each system for each target printer it will send output to. This dummy printer ID/outq will be used to hold output until Remote SpoolPrint3X/400 can transmit it to the target system.

Note: Many users have confused source and target printer ID's when setting up S/36 to S/36 Remote Writers. For clarification, please remember that you indicate the printer ID of the remote S/36 (i.e. where the output is to print) when you define the Remote Writer and you indicate the printer ID of the local S/36 (i.e. the 'dummy' printer you set up) when you start the remote writer.

- 5) Create Remote Writers on each system that will send output to another system. A Remote Writer must be defined for each target printer each system will send to. For example, if S36A will send output to P1 and P2 on S36B, and to QSYSPRT.QGPL on S38A, 3 Remote Writers (and 3 dummy printers) must be created on S36A. Please note that there is no setup required on the target system (unless it is also a source system).
- 6) Start the remote writers. You may wish to place the STRRMTWTR (S/38), or STRRMWTR (S/36 and AS/400) commands into your IPL startup programs to start the Remote Writers automatically.

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AS/400

To display the Remote SpoolPrint/400 main menu, enter the following command at the command line:

GO BRODERICK/RSPL

Note: If the Remote SpoolPrint product library (BRODERICK) is located in an Independent ASP, the user must set the IASP prior to issuing Remote SpoolPrint commands. For more information, refer to Appendix J, ASP Considerations.

Then press enter and the following screen should appear:

```
RSPL                               Remote SpoolPrint/400 Main Menu™   3/22/96   11:47:48

  Remote Writer Control                               Remote Writer Definition

1. Start Remote Writer (STRMWTR)                       11. Manage Remote Writers (MNGRMWTR)
2. Cancel Remote Writer (CNLRMWTR)                     12. List Remote Writers (LSTRMWTR)
3. Display Writer Status(DSPRMSTS)                     13. Tailoring Options (BRSPLSETUP)
4. Start TCP Server (STRMSVR)
5. End TCP Server (ENDRMSVR)

  Translation Table Management                       Other Functions

21. Manage Forms Table (MNGFRMTBL)                    31. Dwnld S/36 TOLIBR Img (S36DOWNL)
22. List Forms Table (LSTFRMTBL)                      32. Dwnld S/36 Folder Img (S36DOWNF)
23. Manage Font Table (MNGFONTBL)                    33. Display RSPL Log (DSPRSLOG)
24. List Font Table (LSTFONTBL)
25. Manage S/370 FCB Tbl(MNGFCBTBL)
26. List S/370 FCB Tbl (LSTFCBTBL)

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F3=Exit      F4=Prompt   F9=Retrieve  F12=Cancel
F13=Information Assistant  F16=System main menu
```

Remote Writer Control Options

Options 1 and 2 will start and stop a remote writer. The remote writer must be created prior to being started. For more information refer to Chapter 5, "Controlling Remote Writers".

Option 3 displays status information such as the Outq which the Remote Writer is monitoring for each active Remote Writer. For more information refer to Chapter 5, "Controlling Remote Writers".

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Options 4 and 5 will start and stop the TCP Server. The TCP/IP server must be started to receive spool entries from other AS/400s using TCP/IP. For more information, refer to Appendix I, "TCP Considerations".

Remote Writer Definition Options

Options 11 and 12 are used to maintain remote writers. A remote writer must be defined for each printer on each target system which is to receive output from this system. For more information refer to Chapter 4, "Maintaining Remote Writers".

Option 13 is used to change package overall options. For more information refer to Appendix B, "Remote SpoolPrint/3X Additional Functions".

Translation Table Management Options

Options 21 thru 26 allow the user to define how certain spool file attributes will be translated during transmission. For example the user can have the AS/400 Forms ID *STD translated to 0001 when sent to a S/36. Forms ID, Font ID, and FCB ID can be translated using these options. For more information refer to Chapter 7, "Changing Forms, Font, or FCB during Transmission".

Other Commands

Options 31 thru 32 allow the AS/400 to download a file which contains a S/36 library or folder image. Refer to Appendix A, "Upload and Download Utilities" for more information. Option 33 (AS/400 only) allows the user to query the Remote SpoolPrint Log. For more information refer to Appendix B, "Additional Functions".

MAINTAINING REMOTE WRITERS

A Remote Writer must be defined to Remote SpoolPrint3X/400 before it can be started using the STRRMTWTR (S/38) or STRRMWTR (AS/400) commands. The Remote Writer definition describes attributes concerning the target system. The MNGRMTWTR (S/38) or MNGRMWTR (AS/400) commands are provided to maintain Remote Writers. The LSTRMTWTR (S/38) or LSTRMWTR (AS/400) commands are provided to print all Remote Writers.

Defining Remote Writers

To manage Remote Writers, enter the MNGRMTWTR (S/38) or MNGRMWTR (AS/400) commands. A screen listing all Remote Writers will appear. Press F6 to create a new Remote Writer. Enter the Remote Writer name and press ENTER. A new screen will appear. Enter the remote system type (S36, S38, etc.) and press ENTER. A screen similar to the one below will appear.

Remote SpoolPrint/400	1/18/95
Define Remote Writers	12:40:57
Remote Writer: BDS	Remote System Type: AS400
Outq at the Remote Sys: TARGET	Library: BRODERICK
Remote Location Name: BDS400	Name
Mode Name: *NETATR	Name, *NETATR, *DFT
Source Sys Exec Priority: 0	0=*CLS, 15-99
Comm. Error Retry Delay: 0	0=*NONE, 1-99999
Local Location Name: *LOC	Name, *LOC, *NETATR
APPC/APPN Device Desc: *LOC	Name, *LOC
APPN Network ID: *LOC	Name, *LOC, *NETATR, *NONE
APPC Security Userid: *DFT	Name, *DFT, *NONE, *USER
APPC Security Password:	
Hold on Remote System: *	Y,N,*
Remote Sys Error Action: *NONE	*NONE, *HOLD, *DELETE
Data Compress/Decompress: Y	Y,N
Target Sys Exec Priority: 25	0=*CLS, 15-99
Target Release: *CURRENT	*CURRENT, *PRV

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Remote SpoolPrint/400	1/18/95
Define Remote Writers	12:49:19
Remote Writer: AS400	Remote System Type: AS400
Log Operations:	*YES *NO
Send Held Entries:	*NO *YES *NO
Delay for Held Entries:	30 15-99999
Communications Block Size:	4092 256-4092
High Performance Option:	*NO *YES *NO
F3=Exit	F12=Return
COPR 1994 BRODERICK DATA SYSTEMS	

Note: The actual parameters on the screens above depend on the Remote System Type. Not all fields below will appear on your screen.

All parameters and their valid values are shown below.

Remote Writer Parameter

Specifies the name of the Remote Writer to be created/changed. This value must be type *NAME (1st char A-Z, other characters A-Z, 0-9). The value specified is used by the start remote writer S/38 (STRRMTWTR) and AS/400 (STRRMWTR) and cancel remote writer S/38 (CNLRMTWTR) and (CNLRMWTR) AS/400 commands.

Remote System Type Parameter

Specifies the target system type.

AS400: The target system is an AS/400 and SNA will be used.

TCP400: The target system is an AS/400 and TCP/IP will be used.

S36: The target system is a System/36.

S38: The target system is a System/38.

S370VM: The target system is a S/370 with VM RSCS installed.

S370MVS: The target system is a S/370 with MVS installed.

SNADS

Remote SpoolPrint will pass each spool entry to SNADS and SNADS will transmit the spool entries.

MAINTAINING REMOTE WRITERS

Printer ID Parameter (S36 Only)

Specifies the target printer to receive spool file entries. The value must be 2 characters (i.e. P1, P2, etc.) and must be defined on the remote system.

Outq Parameter (S38, AS400 Only)

Specifies the outq and library on the remote system which will receive the spool entries.

RSCS Loc Name, User Name Parameters

Specifies the RSCS Location name and User ID to pass to the S/370 system. VM RSCS will use the Loc and User ID to route the spool entries to its printers.

The User Name Parameter is needed only in certain networking situations on the S/370. If it is not needed in your installation, specify *NONE.

SNADS User ID Parameter (SNADS Only)

Specifies the 2 part SNADS user ID to use when passing the spool entries to SNADS.

Device Description Parameter (S/38 only)

Specifies the CPF peer device description created to communicate with the target system. For more information regarding the CPF device description, refer to Chapter 2, Installation or the CPF Control Language Reference manual.

Mode Parameter (S/38 Only)

Specifies the device mode entry added to the specified device description to use when communicating with the remote system.

*DFT: The mode entry name will be retrieved from the data area BRSPL38 lib BRODERICK. See Appendix B for information regarding changing the default mode entry.

*FIRST: The first available mode entry will be used to communicate with the remote system.

Remote Location Name Parameter (AS/400 only)

Specifies the name of the APPC/APPN Remote Location Name which communicates to the remote system.

Mode Parameter (AS/400 only)

Specifies the device mode entry to use during the transfer.

*DFT: The mode entry name will be retrieved from the data area BRSPL38 in library BRODERICK. See Appendix B for information regarding changing the default mode entry.

*NETATR: The value is retrieved from the Default Network Attributes screen. Use the command

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DSPNETA to determine the value.

Source Execution Priority Parameter

Specifies the execution priority assigned to the remote writer. The user can prioritize line utilization using this parameter. Specify a value between 15 and 99. It is recommended to select a value which is greater (lower priority) than interactive work and less than batch work executing on the source system.

*CLS: The execution priority will not be altered from the value specified by the Class BRSPL38 in library BRODERICK. This value is set at 25 when shipped from BDS.

Comm Error Retry Delay Parameter

Specifies the amount of time in seconds that the Remote Writer will delay before attempting to retransmit a spool file after a communications error has occurred. If a communications error is detected by a remote writer a message is sent to message queue QSYSOPR and the remote writer enters recovery mode. The writer will delay the specified amount of time then attempt to transmit the spool file to the target system. This process will continue until the remote writer is canceled or communications is reestablished with the target system.

300: The remote writer will delay 300 seconds (5 minutes) before attempting to transmit a spool entry after a failure has occurred.

*NONE: No communications error recovery will be attempted. If a communications error is detected, the remote writer will send a message to message queue QSYSOPR and terminate abnormally.

Local Location Name Parameter (AS/400 SNA Only)

Specifies the APPC/APPN Local Location Name to use. Please note this parameter is only needed for certain situations, communicating to a S/370. In all other situations, specify *LOC.

*LOC: The Local Location Name specified on the device description (WRKDEVD command) will be used.

*NETATR: The Default Local Location Name on the Network Attributes Display (DSPNETA command) will be used.

Device Description Parameter (AS/400 SNA Only)

Specifies the APPC/APPN Device description to use. Please note this parameter is only needed for certain situations, communicating to a S/370. In all other situations, specify *LOC.

*LOC: The name specified on the device description (WRKDEVD command) will be used.

Remote Network ID Parameter (AS/400 SNA Only)

Specifies the APPC/APPN Network ID to use. Please note this parameter is only needed if more than 1 network ID exists. In all other situations, specify *LOC.

*LOC: The name specified on the device description (WRKDEVD command) will be used.

MAINTAINING REMOTE WRITERS

*NETATR: The value is retrieved from the Default Network Attributes screen.
Use the command DSPNETA to determine the value.

AS/400 Security Userid/Password Parameter (AS/400 SNA Only)

Specifies the User profile and Password the source system will send to the target AS/400 when communications is established. For more information, see Appendix E, "AS/400 Security Considerations"

*DFT: The Userid and password values are retrieved from the Tailoring Options screen (BRSPLSETUP command).

*NONE: No Userid or password is sent.

*USER: User profile QSYSOPR, and the AVI (Already Verified Indicator) are sent.

Hold on Remote System Parameter

Specifies if the transmitted spool entries are to be placed on hold when they reach the remote system.

N: The spool entries will not be held, and will begin printing with no operator intervention.

Y: The spool entries will be held and will not print until released by an operator.

*: The spool entries will keep the same status (RDY or HLD) when placed on the remote system.

Remote System Error Action Parameter

Specifies the action taken to the spool entry on the remote system if the communications link is lost during transmission.

*NONE: No additional action is taken. The partially transmitted spool entry is closed as if completed.

*HOLD: The spool entry is held on the remote system.

*DELETE: The spool entry is deleted on the remote system.

Data Compress/Decompress Parameter

Specifies whether data compression is to be performed during transmission to the target system.

Y: Data Compression will be performed during transmission.

N: Data Compression will not be performed during transmission.

Note: The Compress parameter is not available for S/38 to S/38 and AS/400 to AS/400 Remote Writers because compressed data is always sent in these situations.

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Defer Print Parameter (S36 Only)

Specifies if the transmitted spool entries will begin printing immediately on the remote system, or wait until the entire spool entry is transmitted to begin. Specify Y to have the spool entry wait, N to begin immediately.

Remote System Exec Priority (S36 Only)

Specifies the priority the task on the remote system will execute. Specify HIGH, MEDIUM, or LOW. On the S/36, a task with HIGH gets priority over LOW.

Print Job Separator Pages Parameter (S36 Only)

Specifies, for S/36 Remote Writers, whether a job separator page is to be printed prior to printing the spool entry.

Y: Job separator pages are to be printed preceding each printed spool entry.

N: Job separator pages will not be printed.

Output Priority Conversion Parameters (S36 Only)

Specifies, for S/36 Remote Writers, a conversion table to convert from System/38 or AS/400 to System/36 output priority. Nine parameters are shown, which represents the nine output priority attribute of the spool file to be transmitted. The System/36 supports output priority values of 0 through 5, 5 being printed first. S/36 priority 0 is held (similar to *HLD status on the System/38). Therefore a translation scheme is needed to insure invalid output priorities are not sent to the System/36, and to insure output is printed on the System/36 in the desired order.

Retain Job Attributes Parameter (S38 to AS400, AS400 to S38 Only)

Specifies, for S/38 to AS/400 or AS/400 to S/38 Remote Writers only, whether job name attributes (Job Name, User ID) are to be maintained. For other combinations, job name attributes are always maintained.

Y: Job Name Attributes are to be maintained when the file arrives at the target system. Please note that if the target system is a small AS/400, throughput may be slow.

N: Job name attributes will not be maintained. The Job name and User ID attributes will be determined from the target system's task.

Target Output Class Parameter (S370VM Only)

Specifies the S/370 output class associated with the spool entry. Specify a value of A-Z or 0-9.

Default Forms Control Buffer Parameter (S370VM Only)

Specifies the forms control buffer name to use on the S/370. Please note the S/370 machines do not have Lines per Inch and Lines per Page attributes. Vertical spacing is controlled via a Forms Control Buffer. Remote SpoolPrint provides a translation table so that the correct Forms Control Buffer can be loaded prior to printing on the S/370. See chapter 7, "Changing Form, Font, or FCB During Transmission" for more information. If no translation entry is found in the table, this value is used.

MAINTAINING REMOTE WRITERS

*NONE: No Forms Control Buffer is Loaded.

Target System Release Parameter

Specifies the release of Remote SpoolPrint Software the Target system has installed. See Chapter 2, "Installation" for a table of Remote SpoolPrint releases supported.

*CURRENT: The target system has the same release of Remote SpoolPrint, or is 1 release ahead of the source system.

*PRV: The Target system Remote SpoolPrint is 1 release behind the source system.

Text Parameter

Specifies up to 50 characters of descriptive text.

Universal Character Set (UCS) Parameter (MVS only)

Specifies the UCS to send to the remote system. Specify up to 4 alphanumeric characters, or *NONE.

*NONE: No UCS value will be sent to the remote system.

Fold Parameter (MVS only)

Specifies if the remote system is to fold (upper case translate) characters. Specify Y or N. Note: If UCS *NONE is specified, Fold must be N.

Destination or NJE Node/User Parameter (MVS only)

Specifies either the Destination Name or the Network Job Entry Node ID and User ID the remote system is to route the spool entries to. Ask the remote system administrator for this information.

*NONE: The remote system will not route the spool entries to a remote System/User.

To specify an MVS Destination Name, place the Destination Name in the first field and *NONE in the second field. To specify an NJE Node/User, place the Node name in the first field and the User name in the second field.

MVS External Writer Name Parameter (MVS only)

Specifies the name of a Special Processing utility on the remote system which will process transmitted spool entries. Ask the remote system administrator for this information.

*NONE: No special processing is to be performed on the transmitted spool entries.

Log Operations Parameter

Specifies if the Remote Writer is to write a record into the Remote SpoolPrint log for each transferred entry. This parameter is ignored unless the "Log Outgoing Entries" parameter is *SELECT on the "Tailoring Options" Screen. For more information concerning logging, refer to Appendix B, "Additional Functions".

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*NO: Logging will not be performed.

*YES: This Remote Writer will perform Logging.

Send Held Entries Parameter

Specifies if the Remote Writer will send entries with a status of *HOLD.

*NO: Only entries with a status of RDY (ready) will be transferred to the remote system.

*YES: Entries with status *HOLD or *RDY will be transferred to the remote system.

Delay for Held entries Parameter

Specifies, if Send held Entries is *YES, the amount of time in seconds the Remote Writer will delay before sampling the outq. Please note that spool entries in a ready state placed into the outq will cause the Remote Writer to wake up immediately but held entries placed into the outq will not.

Block size Parameter (AS/400 SNA only)

Specifies the size of the communication block size used when writing ICF communication formats. This size corresponds to the SNA LL parameter.

Remote Address (AS/400 TCP Only)

Specifies the remote system. Specify either a host name or an IP address. If a host name is specified, the AS/400 must be able to look up the IP Address (using its Host Name Table or DNS). If an IP Address is specified, it must be in dotted decimal format (111.222.1.2).

Server Port (AS/400 TCP Only)

Specifies the TCP port number the Remote Writer will use to communicate with the Remote SpoolPrint Server on the receiving system. This value must match the value specified on the Server Attributes on the Remote system.

Sbm Job Port (AS/400 TCP Only)

Specifies, for current release support only, the TCP port number the Remote Writer will use to communicate with the Submitted Job on the remote system. Please note that the server on the remote system submits a job for each transmitted spool entry, and the submitted job communicates with this Remote Writer and generates the spool entry. Each Remote Writer must have a unique port, and will use this port to communicate with all its submitted jobs. For more information refer to Appendix I, "TCP Considerations".

This parameter is ignored unless Target Release *PRV is specified. See Appendix F for Release compatibility information.

0: The Remote SpoolPrint Server on the remote system will determine the port number.

MAINTAINING REMOTE WRITERS

Userid/Password Parameter (AS/400 TCP Only)

Specifies the User profile and Password the source system will send to the target AS/400 when TCP communications is established. If the Remote SpoolPrint Server on the remote system requires a password, this password must match it.

*NONE: No Userid or password is sent.

Secure Socket Layer (AS/400 TCP Only)

Specifies if the Secure Socket Layer (SSL) feature of TCP is used. This value must match the value specified on the Remote SpoolPrint Remote Server on the remote system. Specify one of the following:

*: The Server will determine if SSL will be used.

Y: SSL will be used.

N: SSL will not be used.

Note: SSL requires additional setup on both the sending and receiving machines. Refer to Appendix I, "TCP Considerations" for more information.

System Store Name/Password (AS/400 TCP Only)

Specifies, for SSL, the System store containing the Digital Certificate to use.

*SYSTEM: The default System Store contains the Digital Certificate.

Application ID (AS/400 TCP Only)

Specifies, for SSL, the Application ID to use to specify the Digital Certificate.

*NONE: No Application ID is specified. The Digital Certificate to use is the default for the specified System Store.

ASP Group Name (AS/400 SNA only)

Specifies the ASP Group on the Target system containing Remote SpoolPrint product libraries. Specify an ASP Group name or one of the following:

*NONE: The System Base pool (*SYSBAS) will be used.

For more information, refer to Appendix J, ASP Considerations.

System/370 Considerations

Certain Attribute values on the AS/400 are invalid on the MVS or VM system. For example FORMTYPE(*STD) is invalid in the S/370. The user must insure that valid values are translated. Remote SpoolPrint will edit check the following attributes prior to sending the spool entry.

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<u>Attribute</u>	<u>Remote Writer Action (H=Hold, E=End)</u>
Form type	H
Output Class	E
FCB Name	H
Align	H
UCS	E
Fold	E

Damaged Data Queues

When the administrator creates a Remote Writer, a data queue and data area with the same name is created in library **BRODERICK**. OS/400 can damage data queues if it halts abruptly, for example during a power failure. If a Remote Writer's data queue or data area is damaged, the administrator can recreate it by deleting the data queue or area, and then issuing a change operation (option 2) on the Remote Writer. No fields need to be actually changed. Remote SpoolPrint will create a data queue or data area if either does not exist.

Note: The administrator can also delete then restore the damaged/missing objects from a backup.

To recreate Remote SpoolPrint data queues not associated with a Remote Writer, refer to Appendix B, "Additional Functions".

CONTROLLING REMOTE WRITERS

The control of remote writers is similar to the control of CPF print writers. The STRRMTWTR (S/38) and STRRMWTR (AS/400) commands will start a remote writer and CNLRMTWTR (S/38) and CNLRMWTR (AS/400) will stop a remote writer. The DSPRMTSTS (S/38) and DSPRMSTS (AS/400) command will display the status of active Remote Writers.

If the Remote SpoolPrint product library (BRODERICK) is located in an Independent ASP, the user must set the IASP prior to issuing Remote SpoolPrint commands. For more information, refer to Appendix J, ASP Considerations.

For AS/400 TCP operations, the Remote SpoolPrint Server must be started on the receiving system. Use the STRRMSVR and ENDRMSVR commands to do this.

Starting Remote Writers

Use the STRRMTWTR (S/38) and STRRMWTR (AS/400) command to begin monitoring a source outq and transmitting spool entries to a remote system. The STRRMWTR command submits a job using Jobd BRSPL38 in library BRODERICK to subsystem BDS. The remote writer will check the specified outq for available spool entries. Any available spool entries are transmitted to the target system.

```

                                Start Remote Spool Writer (STRRMWTR)

Type choices, press Enter.

Remote Writer Name .....          Name
Source Outq to monitor ..         Name
                                   *LIBL      Name, *LIBL
Cancel if no ready files          *NO      *YES, *NO

                                           Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

The parameters of the STRRMTWTR (S/38) STRRMWTR (AS/400) command are:

RMTWTR Parameter

Specifies the Remote Writer to be started. The Remote Writer must have been defined using the MNGRMTWTR (S/38) MNGRMWTR (AS/400) commands. The Remote Writer cannot currently be active.

OUTQ Parameter

Specifies the qualified name of the outq on the source system containing spool entries to be transmitted to the remote system. The outq should not be started to any other writer (Remote Writer or CPF Print Writer).

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CNLOPT Parameter

Specifies if the Remote Writer job is to end when there are no available spool entries to print.

*NO: The Remote Writer job will not terminate when there are no ready files to transmit.

*YES: The Remote Writer job will end normally when there are no ready files to transmit. This option is useful if the communications link is dial up.

Examples

The following example starts a remote writer. The outq to be monitored and transmitted is S36P1 in library QGPL. Please note that the target printer and other information describing the characteristics of the remote writer is specified when the remote writer is created.

S/38

```
STRRMTWTR RMTWTR(S36P1) OUTQ(S36P1.QGPL) CNLOPT(*NO)
```

AS/400

```
STRRMWTR RMTWTR(S36P1) OUTQ(QGPL/S36P1) CNLOPT(*NO)
```

Stopping Remote Writers

Use the CNLRMTWTR command to stop a remote writer. If the CNLRMTWTR (S/38) or CNLRMWTR (AS/400) command is issued during transmission of a spool file, termination of the remote writer will occur after the spool file is transmitted to the target system.

Cancel Remote Writer (CNLRMWTR)	
Type choices, press Enter.	
Remote Writer Name	Name
Wait until ended to continue *NO	*YES, *NO
Wait for end Timeout (sec)	1-32767
Bottom	
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display	
F24=More keys	

The parameters of the CNLRMTWTR(S/38) and CNLRMWTR(AS/400) are as follows:

RMTWTR Parameter

CONTROLLING REMOTE WRITERS

Specifies the Remote Writer to be terminated. The Remote Writer must have been defined using the MNGRMWTR(AS/400) or MNGRMTWTR (S/38) command. The Remote Writer must currently be active.

*ALL: All active Remote Writers will be cancelled.

WAITEND Parameter

Specifies if the command is to wait until the Remote Writer has ended before continuing.

*NO: The command will return control to the caller immediately.

*YES: The command will wait until the Remote Writers have ended before returning control to the caller.

WAITDLY Parameter

Specifies, if WAITEND(*YES) is specified, the amount of time in seconds to wait before reporting an error. Specify a number in the range of 1-32767.

Example: The following AS/400 example terminates the remote writer S36P1.

```
CNLRMWTR RMTWTR(S36P1)
```

Displaying Remote Writer Status

To display the status of active Remote Writers, use the DSPRMSTS (AS/400) command. The following screen should appear:

Remote Writer Status Display				3/25/96	9:27:53	
REMOTE			CNL			
X WRITER	OUTQ	NAME	OUTQ LIB	OPT	STATUS	TEXT
_ DETQPRINT	DETQPRINT		QGPL	N	ACTIVE	To Detroit PRINT.QGPL
_ DETSHIP	DETSHIP		QGPL	N	WAIT	To Detroit SHIP.QGPL
_ DOVERP1					INACTIVE	To Dover P1
_ DOVERP2	DOVERP2		QGPL	N	RECOVERY	To Dover (Accounting)
1-WRKOUTQ	2-STRRMWTR	9-CNLRMWTR			CMD-3 EXIT	CMD-5 REDISPLAY

The DSPRMSTS command has the following parameters:

X (Option)

Specify 1 (WRKOUTQ) to display the outq the Remote Writer is monitoring. Specify 2 (STRRMWTR)

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to start the Remote Writer. Specify 9 (CNLRMWTR) to cancel a Remote Writer.

REMOTE WRITER

Displays the Remote Writer name.

OUTQ NAME, OUTQ LIB

Shows the outq on the source system which is being monitored by the remote writer. This field was specified on the STRRMWTR command.

CNL OPT (Cancel option)

Shows whether the Remote Writer will end when there are no available entries in the outq being monitored. This field was specified on the STRRMWTR command.

STATUS

Shows the current status of the remote writer.

ACTIVE: The remote writer is currently sending a spool entry to the remote system.

WAIT: The Remote Writer is waiting for available spool entries to be placed into the outq.

INACTIVE: The Remote Writer has not been started.

RECOVERY: The Remote Writer has detected an error while sending a spool entry. The Remote Writer will wait the specified amount of time before retrying the transmission.

CANCEL: A cancel command (CNLRMWTR) has been issued to this Remote Writer. The Remote Writer will end when it finishes sending the current spool entry.

STARTING: The Remote Writer is in the process of starting up.

Remote SpoolPrint Server

The Remote SpoolPrint Server must be started prior to transferring spool entries via TCP into the system. For more information refer to Appendix I, "TCP considerations". Use the STRRMSVR and ENDRMSVR commands to control the server. The STRRMSVR command has no parameters. The ENDRMSVR command has the following parameters:

WAITEND Parameter

Specifies if the command is to wait until the Remote Writer has ended before continuing.

*NO: The command will return control to the caller immediately.

*YES: The command will wait until the Server job has ended before returning control to the caller.

WAITDLY Parameter

CONTROLLING REMOTE WRITERS

Specifies, if WAITEND(*YES) is specified, the amount of time in seconds to wait before reporting an error. Specify a number in the range of 1-32767.

USING THE REMOTE WRITER “WAKE UP” FUNCTION

Note: Release 4.0 or later of Remote SpoolPrint3X/400 uses the event management feature of the operating system and does not periodically execute to test the contents of an outq. Thus the "Wake Up" Function is no longer supported.

CHANGING FROM, FONT, OR FCB DURING TRANSMISSION

Remote SpoolPrint3X/400 will optionally translate Form or Font ID's, or S/370 FCB's during transmission to the remote system. This feature is useful when the source and target systems have different Forms ID naming conventions. The translation can be different for each remote writer. For example the forms ID 'CHECK9INCH' can be translated to 'CHK9' when transmitted to Remote System A, and translated to 'CK9I' when transmitted to Remote System B. A forms translation table is used to define the translation scheme.

Before a Remote Writer transmits a spool entry, the entry's Forms ID is checked in the table. First Remote SpoolPrint3X/400 checks for a table entry which matches both the Forms ID and the Remote Writer name. If a match is found, the Forms ID is changed. If no match is found, the table is checked for an entry which matches the Forms ID and has *ANY for the Remote Writer Name. If a match is found, the forms ID is changed. If no match is found, no translation takes place. Font ID and FCB Translation is similar to Form ID Translation.

Managing the Forms Translation Table

To enter, update, or delete forms translation entries, at the command line enter, MNGFRMTBL, then press enter. The following screen should appear:

```
Remote SpoolPrint/400™
Maintain the Forms Translate Table

Option (A, C, or D):      A

Source Forms ID: _____
Remote Writer Name: _____ or *ANY

Target Forms ID: _____
Text: _____

CMD-3  EXIT
```

The MNGFRMTBL command has the following parameters:

Option

Specify A (Add), C (Change), or D (Delete). Changes made will take affect immediately.

Source Forms ID

Specifies the Forms ID on the source system which is to be translated when encountered.

Remote Writer Name

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Specifies the Remote Writer name. Both the Forms ID and Remote Writer name are used to test for translation. A value of *ANY specifies that any remote writer will use this entry for translation.

Target Forms ID

Specifies the Forms ID to substitute. Please note that the System/36 Forms ID must be no longer than 4 characters. The remaining characters will be truncated.

Text

Specify descriptive text.

Listing the Forms Translation Table

Use the LSTFRMTBL command to list Forms Translation Table entries. Output generated will use the printer file BRSPFORML in library BRODERICK.

Managing the Font Translation Table

To enter, update, or delete font translation entries, at the command line enter, MNGFONTBL, then press enter. The following screen should appear:

```
Remote SpoolPrint/400™
Maintain the Font Translate Table

Option (A, C, or D):      A

Source Font ID: _____
Remote Writer Name: _____ or *ANY

Target Font ID: _____
Text: _____

CMD-3  EXIT
```

The MNGFONTBL command has the following parameters:

Option

Specify A (Add), C (Change), or D (Delete). Changes made will take affect immediately.

Source Font ID

Specifies the Font ID on the source system which is to be translated when encountered.

CHANGING FROM, FONT, OR FCB DURING TRANSMISSION

Remote Writer Name

Specifies the Remote Writer name. Both the Font ID and Remote Writer name are used to test for translation. A value of *ANY specifies that any remote writer will use this entry for translation.

Target Font ID

Specifies the Font ID to substitute. Please note that a System/36 Font ID must be 2 hex characters.

Text

Specify descriptive text.

Listing the Font Translation Table

Use the LSTFONTBL command to list Forms Translation Table entries. Output generated will use the printer file BRSPFONTL in library BRODERICK.

Managing the FCB Translation Table

To enter, update, or delete FCB translation entries, at the command line enter MNGFCBTBL, then press enter. The following screen should appear:

```
Remote SpoolPrint/400™
Maintain S/370 FCB Translation Table

Option (A, C, or D):          A

Remote Writer Name: _____ or *ANY
Source Lines per Page:  66      1-255
Source Lines per Inch:  6       1-99

Target S/370 FCB: _____
Text: _____

CMD-3 EXIT
```

The MNGFCBTBL command has the following parameters:

Option

Specify A (Add), C (Change), or D (Delete). Changes made will take affect immediately.

Remote Writer Name

REMOTE SPOOLPRINT 3X/400™

Specifies the Remote Writer name. A value of *ANY specifies that any remote writer will use this entry for translation.

Source Lines Per page:

Specify the lines per page to use for translation.

Source Lines Per inch

Specify the lines per inch to use for translation.

Target S/370 FCB Name:

Specifies the FCB name to substitute. Please note that a System/370 FCB name must be type *NAME.

Text

Specify descriptive text.

Listing the FCB Translation Table

Use the LSTFCBTBL command to list FCB Translation Table entries. Output generated will use the printer file BRSPLFCBL in library BRODERICK.

REMOTE SPOOLPRINT/36 MAIN MENU

To display the Remote SpoolPrint36 main menu, enter the following command at the command line:

MENU RSMAIN,BDSLIB

Then press Enter, and the following screen should appear:

```
MENU: RSMAIN

1. Start Remote Writer (STRRMWTR)      13. Manage Rmt Writers (MNGRMWTR)
2. Cancel Remote Writer (CNLRMWTR)     14. List Rmt Writers (LSTRMWTR)
3. Display Rmt Status (DSPRMSTS)       15.
4. Upload a Libr to S38 (S38UPLB)      16. Manage Forms Table (MNGRMFCT)
5. Upload a Fldr to S38 (S38UPFD)      17. List Forms Table (LSTRMFCT)
6. Display RSPL Log (DSPRSLOG)         18. Manage Font Table (MNGFONT)
7. Display ICF Subsystems (D I)        19. List Font Table (LSTFONT)
8. Display APPC Groups (D A)           20. Manage FCB Table (MNGFCB)
9. Display Users (D U)                 21. List FCB Table (LSTFCB)
10. Display Printer (D P)              22.
11.                                     23.
12.                                     24.

Ready for option number or command
```

Remote Writer Control Options

Options 1 and 2 will start and stop a remote writer. The remote writer must be created prior to being started. Option 3 will display the status of active Remote Writers. For more information refer to Chapter 9, "Controlling Remote Writers".

Options 4 and 5 will transfer a library or folder to a remote System/38. For more information regarding the object distribution refer to Appendix A, "Remote SpoolPrint3X/400 Object Distribution".

Option 6 will allow users to query the Remote SpoolPrint Log. Refer to Appendix B, "Additional Functions" for more information.

Remote Writer Definition Options

Options 13 and 14 are used to maintain remote writers. A remote writer must be defined for each printer on each target system which is to receive output from this Source System/36. For more information concerning defining Remote Writers, refer to Chapter 10, "Maintaining Remote Writers".

REMOTE SPOOLPRINT 3X/400™

Translation Table Options

Options 16 thru 21 maintain translation tables which allow the Form, Font and S/370 FCB translation to take place. For more information refer to Chapter 11, "Forms, Font, and S/370 FCB Translation".

SSP Commands

Options 7 through 10 provide access to SSP commands as a convenience to the user.

MAINTAINING REMOTE WRITERS

A Remote Writer must be defined to Remote Spool Print/36 before it can be started using the STRRMWTR command. The Remote Writer definition describes attributes concerning the target system. The user defines the Remote Writer at the source system; no user definition is needed at the target system. The MNGRMWTR command is provided to maintain remote writers:

- Create a Remote Writer
- Change a Remote Writer attributes
- Delete a Remote Writer

Two commands are supplied to display/print remote writers and their attributes:

- DSPRMWTR** Display a Remote Writer
- LSTRMWTR** List all Remote Writers

To create, change, or delete a remote writer, use the MNGRMWTR command. Enter the Remote Writer name to create and press ENTER. Enter the Remote System Type (S36, S38, etc.) and press ENTER. The following screen should appear. (Please note that not all parameters will appear.)

```
Prg:RS10                    Add/Change/Delete Remote Writers          Mode: Update

Remote Writer Name: _____
Remote System Type: _____            (S36 or S38)
                                  Outq: _____            S38 Library:_____
                                  Remote Location: _____            Session Group:_____
Wait Interval (sec):00030
Source Execution Priority: MEDIUM            (HIGH,MEDIUM,LOW)
Target Execution Priority: 25                (15-99)
Target Printer Defaults CPI: 10                LPI: 6
                                  Error Retry Delay: 00600            00000 = No retry on communication error)
                                  Data Compression: Y                (Y or N)
                                  Defer Print (Y/N): Y                (Y or N)
Print Held Entries Y/N): N                Hold After Print (Y/N): N
                                  Proc to Evoke: _____
Output Priority 1: 5            (1-9)
Output Priority 2: 5            (1-9)
Output Priority 3: 5            (1-9)
Output Priority 4: 5            (1-9)
Output Priority 5: 5            (1-9)            Retain Job Attr: N
APPC Security Userid/Passw: BDSUSER            BDSPASS          Name, *DFT, *NONE, *USER
                                  Target System Release: *CURRENT            *CURRENT *PRV
Remote Writer Description: _____

CMD3=Prior Selection          CMD4=Delete Writer          CMD7=Exit
```

REMOTE SPOOLPRINT3X/400™

Creating Remote Writers

To create a Remote Writer enter a new Remote Writer name. A remote writer must be created for each target printer accessed by Remote Spool Print/36. There is no (theoretical) limit to the number of remote writers that can be defined. Multiple remote writers can be created for a given remote printer if desired. For example if the user desires spool entries from 2 printer ID's to print on the same target S/36 printer, two remote writers need to be created, both having the same target printer defined. Refer to the section "Create/Change Parameters" below for more information.

Changing Remote Writers

To change the attributes of a remote writer, enter the remote writer name. The remote writer's existing attributes will appear. The new attributes will take effect when the remote writer is started. Refer to the section "Create/Change Parameters" below for information.

Deleting Remote Writers

To delete a remote writer, enter the remote writer name. The remote writer's attributes will appear. Press CMD-4 to enter delete mode, then CMD-4 again to confirm the deletion. If the Remote Writer is currently active it will be canceled.

Create/Change Parameters

The default values of the add mode are shown below.

Remote Writer Name

Specifies the name of the Remote Writer to be created/changed. The value specified is used by the start remote writer (STRRMWTR) and cancel remote writer (CNLRMWTR) commands.

Remote System Type

Specifies the target system type.

S36: The target system is a System/36.

S38: The target system is a System/38.

AS400: The target system is an AS/400.

VM: The target system is a S/370 with VM RSCS.

MVS: The target system is a S/370 with MVS

Log Operations

Specifies if the Remote Writer will log the transferred spool entries to the Remote SpoolPrint Log. Refer to Appendix B, "Additional Functions" for more information.

MAINTAINING REMOTE WRITERS

*NO: The Remote Writer will not write entries to the log.

*YES: A log entry will be written for each transmitted spool entry.

Printer ID (S36)

Specifies, for remote S/36 systems, the 2 character Printer ID (i.e. P1, P2, etc) to place to transmitted output.

Outq (S38, AS400)

Specifies the qualified name of the output queue (i.e. QPRINT.QGPL) which is to receive transmitted output.

RSCS Location, User ID (VM)

Specifies the RSCS Location and User ID. VM RSCS will use these parameters to determine which printer to send the output to. The RSCS User ID is needed only in certain S/370 networking situations. Specify *NONE to indicate no RSCS User ID is needed.

Remote Location

Specifies the Remote Location name of the target system to use to establish communications. This value must match the Remote Location value used when the desired ICF Subsystem Member was configured using the CNFIGICF command (Screen 29.0).

Session Group

Specifies the APPC Session Group to use. This value must match a Session Group defined to the desired ICF Subsystem Member (CNFIGICF Screen 42.0)

Wait Interval

Specifies the amount of time in seconds the remote writer will wait if no available spool entries are found in the spool file. Please note that the specified delay is performed only after no available entries are found in the source spool file. At start up and after a spool file is transmitted to the target printer, Remote SpoolPrint/3X/400 will immediately check the spool file for more available spool entries.

30: The remote writer will delay 30 seconds between testing the spool file for available entries.

Source Execution Priority

Specifies the execution priority assigned to the job on the source System/36 associated with the remote writer. The user can prioritize line utilization using this parameter. Specify HIGH, MEDIUM, or LOW.

Target Execution Priority

Specifies the execution priority assigned to the job on the target system. Specify HIGH, MEDIUM, or LOW for remote S/36 systems, or a value between 15 and 99 for remote S/38 or AS/400 systems.

Target Printer Defaults

REMOTE SPOOLPRINT3X/400™

In certain situations the CPI and LPI attributes are stored internally on the S/36 as zero. In this situation you must tell the Remote Writer the values to use.

Error Retry Delay Parameter

Specifies the amount of time in seconds that the Remote Writer will delay before attempting to retransmit a spool file after a communications error has occurred. If a communications error is detected by a remote writer a message is sent to the system console and the remote writer enters recovery mode. The writer will delay the specified amount of time then attempt to transmit the spool file to the target system. This process will continue until the remote writer is canceled or communications is reestablished with the target System.

600: The remote writer will delay 600 seconds (10 minutes) before attempting to transmit a spool entry after a communications failure has occurred.

0: No communications error recovery will be attempted. If a communications error is detected, the remote writer will send a message to the system console and terminate.

If the target system is a S/38 or AS/400, insure that the priority limit parameter on the user profile defined for this system has a value low enough for the incoming priorities. Otherwise the S/38 or AS/400 may ignore the priority specified.

Defer Print Parameter

Specifies whether the spool file is to start printing immediately or after the file is completely transmitted to the remote system.

Y: The spool entry will not begin to print until it is completely transmitted to the target system.

N: The spool entry will begin printing on the target systems immediately.

Print Held Entries Parameter

Specifies if the Remote Writer is to send spool entries which are on hold to the remote system.

N: Spool entries on hold will not be considered ready by the Remote Writer. The Remote Writer will not send the spool entry to the remote system until it is released.

Y: Spool entries on hold are considered ready by the Remote Writer and will be transferred to the remote system. The transferred spool entries will not be held when they reach the remote system.

Hold After Print Parameter (Sys/36 Only)

Specifies if the Remote Writer is to hold or delete the spool entry after it has been transferred to the remote system. Please note that spool entries with the HOLD-Y (Hold After Print) attribute will always be held by the Remote Writer.

N: The Remote Writer will delete the spool entry after it has been transferred to the remote system.

MAINTAINING REMOTE WRITERS

Y: The Remote Writer will hold the spool entry after it has been transferred to the remote system.

Note: Print Held entries and Hold After Print cannot both be Y.

Proc to Evoke Parameter

If specified, indicates the procedure that the Remote Writer will evoke after each spool entry has been transferred. This procedure can be created by the user, and should be placed into #LIBRARY. The following parameters are passed to the procedure:

Remote Writer Name
Spool ID

The evoked procedure executes independently of the Remote Writer, and no checking is performed by the Remote Writer.

Output Priority Parameters

Specifies a conversion table to convert from System/36 to System/38 or AS/400 output priority. The System/36 supports output priority values of 0 through 5, 5 being printed first. S/36 priority 0 is held (similar to *HLD status on the System/38). Therefore a translation scheme is needed to insure invalid output priorities are not sent to the System/38 or AS/400, and to insure output is printed on the remote system in the desired order.

Retain Job Attr

Specifies, for S38 or AS400 Remote Writers, if the job name and job user attributes are to be maintained. Maintaining job name and user attributes may cause slow throughput.

N: Job name and Job user attributes are not maintained.

Y: Job name and job user attributes are maintained.

Hold on Remote System Parameter

Specifies if the transmitted spool entries are to be placed on hold when they reach the remote system.

N: The spool entries will not be held, and will begin printing with no operator intervention.

Y: The spool entries will be held and will not print until released by an operator.

Remote System Error Action Parameter

Specifies the action taken to the spool entry on the remote system if the communications link is lost during transmission.

*NONE: No additional action is taken. The partially transmitted spool entry is closed as if completed.

*HOLD: The spool entry is held on the remote system.

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*DELETE: The spool entry is deleted on the remote system.

Target Output Class Parameter (VM Only)

Specifies the S/370 output class associated with the spool entry. Specify a value of A-Z or 0-9.

Default Forms Control Buffer Parameter (VM Only)

Specifies the forms control buffer name to use on the S/370. Please note the S/370 machines do not have Lines per Inch and Lines per Page attributes. Vertical spacing is controlled via a Forms Control Buffer. Remote SpoolPrint provides a translation table so that the correct Forms Control Buffer can be loaded prior to printing on the S/370. See chapter 7, "Changing Form, Font, or FCB During Transmission" for more information. If no translation entry is found in the table, this value is used.

*NONE: No Forms Control Buffer is Loaded.

Remote Writer Description

Specifies up to 50 characters of descriptive text.

AS/400 Security Userid/Password Parameter (AS/400 Only)

Specifies the User profile and Password the source system will send to the target AS/400 when communications is established. For more information, see Appendix E, "AS/400 Security Considerations"

*DFT: The Userid and password values are retrieved from the Tailoring Options screen (RSCTRL procedure).

*NONE: No Userid or password is sent.

*USER: User profile QSYSOPR, and the AVI (Already Verified Indicator) are sent.

Target System Release Parameter

Specifies the release of Remote SpoolPrint Software the Target system has installed. See Chapter 2, "Installation" for a table of Remote SpoolPrint releases supported.

*CURRENT: The target system has the same release of Remote SpoolPrint, or is 1 release ahead of the source system.

*PRV: The Target system Remote SpoolPrint is 1 release behind the source system.

Universal Character Set (UCS) Parameter (MVS only)

Specifies the UCS to send to the remote system. Specify up to 4 alphanumeric characters, or *NONE.

*NONE: No UCS value will be sent to the remote system.

Fold Parameter (MVS only)

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Specifies if the remote system is to fold (upper case translate) characters. Specify Y or N. Note: If UCS *NONE is specified, Fold must be N.

NJE Node, User ID Parameter (MVS only)

Specifies the Network Job Entry Node ID and User ID the remote system is to route the spool entries to. Ask the remote system administrator for this information.

*NONE: The remote system will not route the spool entries to a remote System/User.

Note: Both Node and User must be specified as *NONE, or neither can be specified.

MVS External Writer Name Parameter (MVS only)

Specifies the name of a Special Processing utility on the remote system which will process transmitted spool entries. Ask the remote system administrator for this information.

*NONE: No special processing is to be performed on the transmitted spool entries.

CONTROLLING REMOTE WRITERS

The STRRMWTR command will start a remote writer and CNLRMWTR will stop a remote writer. The DSPRMSTS command will display the status of active Remote Writers. The User controls Remote Writers at the source system; no user intervention is needed at the remote system.

Starting Remote Writers

Use the STRRMWTR command to begin monitoring a source printer and transmitting spool entries to a remote system. The STRRMWTR command evokes a job using Job name '@@' preceding the remote writer name. The remote writer will check the spool file for available spool entries. Any available spool entries are transmitted to the target system. When no available spool entries defined to the specified printer/forms/user ID, the Remote Writer begins to periodically test the spool file, waiting for available spool entries.

The user may use either the printer ID, the forms ID, the user ID, or any combination as criteria for selecting spool entries to transmit. If specified, a spool entry's corresponding attribute must match before it is selected for transmission to the remote system. The STRRMWTR command format is:

STRRMWTR remote writer,printer ID,forms ID,cancel option,user ID

Remote Writer Parameter

Specifies the Remote Writer to be started. The Remote Writer must have been defined and cannot currently be active.

Printer ID Parameter

Specifies the name of the printer on the source system containing spool entries to be transmitted to the remote system. The printer specified should not be started. Otherwise unpredictable results may occur.

Forms ID Parameter

Specifies the name of the forms ID on the source system which is to be transmitted to the remote system.

Cancel Option Parameter

Specifies, for S/36 Remote Writers, if the Remote Writer job is to end when there are no available spool entries to print.

N: The Remote Writer job will not terminate when there are no ready files to transmit.

Y: The Remote Writer job will end normally when there are no ready files to transmit. This option is useful if the communications link is dial up.

User ID Parameter

Specifies the User ID on the source system which is to be transmitted.

Note: printer ID, forms ID, and user ID cannot all be blank.

REMOTE SPOOLPRINT3X/400™

Example: The following example starts the remote writer S38P1. The printer ID to be monitored and transmitted is printer ID 'R1'. All available spool entries with an attribute of 'R1' will be transmitted to the remote system. Please note that the target printer and other information describing the characteristics of the remote writer is specified when the remote writer is created.

```
STRRMWTR S38P1,R1,,N
```

Stopping Remote Writers

Use the CNLRMWTR command to stop a remote writer. If the CNLRMWTR command is issued during transmission of a spool file, termination of the remote writer will occur after the spool file is transmitted to the target system. If the remote writer is currently in a wait state, the job will end after the wait is completed. The CNLRMWTR command format is:

```
CNLRMWTR remote writer name
```

Remote Writer name Parameter

Specifies the Remote Writer to be terminated. The Remote Writer must have been defined using the MNGRMWTR command. The Remote Writer must currently be active.

*ACT: All active Remote Writers will be cancelled.

Example: The following example terminates the remote writer S38P1.

```
CNLRMWTR S38P1
```

Displaying Remote Writer Status

To display the status of active Remote Writers use the command DSPRMSTS. The following screen will appear:

Prg: RS41		Display Writer Status				
<u>Writer Name</u>	<u>Writer Description</u>	<u>Status</u>	<u>Pr ID</u>	<u>Form ID</u>	<u>User ID</u>	<u>Cnl Opt</u>
BQPRIN	System/38 B (Dover)	QPRINT,QGPL	ACTIVE	R1		N
BPAGE	System/38 B (Dover)	PAGE, QGPL	ACTIVE	R2		N
AQPRINT	System/38 A (Dover)	QPRINT, QGPL	ACTIVE	R3		N

Cmd7=Exit

Writer Name

Shows active Remote Writer name.

CONTROLLING REMOTE WRITERS

Writer Description

Shows the descriptive text of the Remote Writer.

Status

Displays the current state of the Remote Writer.

ACTIVE: The Remote Writer is sending a spool entry to the remote system.

WAIT: The Remote Writer is waiting for available entries to send.

CANCEL: A CNLRMWTR command has been issued to the Remote Writer. The Remote Writer will cancel after sending the current spool entry.

COMERR: A communications error has been detected during transmission to the remote system and error recovery has been started.

Printer ID

Shows the printer ID the Remote Writer is monitoring for available spool entries. This parameter was specified on the STRRMWTR command.

Forms ID

Shows the forms ID the Remote Writer is monitoring for. This parameter was specified on the STRRMWTR command.

Cnl Opt (Cancel Option)

Shows whether the Remote Writer will cancel when there are no available spool entries. This parameter was specified on the STRRMWTR command.

CHANGING FORM, FONT, AND FCB ID'S DURING TRANSMISSION

Remote SpoolPrint3X/400 will optionally translate Forms ID's and Font ID's and S/370 FCB Names during transmission to the remote system. This feature is useful when the source and target systems have different Forms ID naming conventions. The translation can be different for each remote writer. For example the forms ID 'CHK9' can be translated to 'CHECK9I' when transmitted to Remote System A, and translated to 'CK9I' when transmitted to Remote System B. A forms translation table is used to define the translation scheme.

Before a Remote Writer transmits a spool entry, the entry's Forms ID is checked in the table. First Remote SpoolPrint3X/400 checks for a table entry which matches both the Forms ID and the Remote Writer name. If a match is found, the Forms ID is changed. If no match is found, the table is checked for an entry which matches the Forms ID and has *ANY for the Remote Writer Name. If a match is found, the forms ID is changed. If no match is found, no translation takes place. The Remote Writer translates Font ID's and FCB Names using the same algorithm.

Managing the Forms Translation Table

To enter, update, or delete forms translation entries, use the command **MNGRMFCT**. The following screen should appear:

```
Prg:RS30                      Remote SpoolPrint/3X                      Mode:XXXX
                               Maintain the Forms Translate Table

                               Source Forms ID:_____
                               Remote Writer Name:_____ or *ANY
                               Target Forms ID:_____

                               Text:_____

                               CMD3=Prior Selection  CMD4=Delete  Cmd7=Exit
```

The MNGRMFCT command has the following parameters:

Source Forms ID

Specifies the Forms ID on the source system which is to be translated when encountered.

Remote Writer Name

Specifies the Remote Writer name. Both the Forms ID and Remote Writer name are used to test for translation. A value of *ANY specifies that any remote writer will use this entry for translation.

Target Forms ID

REMOTE SPOOLPRINT 3X/400™

Specifies the Forms ID to substitute. Please note that the System/36 Forms ID must be no longer than 4 characters. The remaining characters will be truncated.

Text

Specify descriptive text.

Listing the Forms Translation Table

Use the LSTRMFCT command to list Forms Translation Table entries.

Managing the Font Translation Table

To enter, update, or delete font translation entries, use the command MNGFONT. The following screen should appear:

```
Prg:RS32                      Remote SpoolPrint/3X                      Mode:XXXX
                               Maintain the Font Translate Table

                               Source Font ID:_____
Remote Writer Name:_____      or  *ANY

                               Target Font ID:_____
                               Text:_____

CMD3=Prior Selection    CMD4=Delete    Cmd7=Exit
```

The MNGFONT command has the following parameters:

Source Font ID

Specifies the Font ID on the source system which is to be translated when encountered.

Remote Writer Name

Specifies the Remote Writer name. Both the Font ID and Remote Writer name are used to test for translation. A value of *ANY specifies that any remote writer will use this entry for translation.

Target Font ID

Specifies the Font ID to substitute. Please note that the System/36 Font ID must be 2 hex characters.

Text

Specify descriptive text.

Listing the Font Translation Table

CHANGING FORM, FONT, AND FCB ID'S DURING TRANSMISSION

Use the LSTFONT command to list Font Translation Table entries.

Managing the FCB Translation Table

To enter, update, or delete S/370 FCB translation entries, use the command MNGFCB. The following screen should appear:

```
Prg:RS34                      Remote SpoolPrint/36                      Mode:XXXX
                                Maintain the S/370 FCB Translate Table

                                Remote Writer Name:_____ or *ANY
                                Source Lines per Page:_____
                                Source Lines per Inch:_____
                                Target FCB Name:_____
                                Text:_____

                                CMD3=Prior Selection    CMD4=Delete    Cmd7=Exit
```

The MNGFCB command has the following parameters:

Remote Writer Name

Specifies the Remote Writer name. The Remote Writer name, Lines per Inch, and Lines per Page values are used to test for translation. A value of *ANY specifies that any remote writer will use this entry for translation.

Source Lines per Page

Specifies the Lines per Page attribute to use for translation.

Source Lines per Inch

Specifies the Lines per Inch attribute to use for translation.

Target FCB Name

Specifies the FCB Name to substitute. Please note that the FCB Name must exist on the remote system.

Text

Specify descriptive text.

Listing the FCB Translation Table

Use the LSTFCB command to list S/370 FCB Translation Table entries.

APPENDIX A: UPLOAD AND DOWNLOAD UTILITIES

Remote SpoolPrint/3X/400 has 4 upload/download utilities which may be useful to the user. The utilities are:

- S/38, AS/400 to S/36 Library Image Download
- S/38, AS/400 to S/36 Folder Image Download
- S/36 to S/38, AS/400 Library Image Upload
- S/36 to S/38, AS/400 Folder Image Upload

S/38, AS/400 to S/36 Library Image Download

The command S36DOWNL command will transmit an 8 char file which is in a S/36 TOLIBR format to the specified System/36 and use the TOLIBR command to place the contained members into the Specified System/36 Library. Duplicate members are replaced. At the command line, enter S36DOWNL and press enter. The following screen should appear:

Download Source to S/36 (S36DOWNL)

Type choices, press Enter.

Remote Location Name.....		Name
Mode		Name, *NETATR
File to Transfer.....		Name
		Name
File Member		Name
S/36 Library Name.....	*MEMBER	Name, *MEMBER

Bottom

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

The S36DOWNL command has the following parameters:

REMLOCNAME Parameter

Specifies the name of the APPC/APPN Remote Location Name which communicates to the remote system.

DEVD Parameter (S/38 ONLY)

Specifies the name of the *PEER device description which communicates to the remote system.

REMOTE SPOOLPRINT 3X/400™

MODE Parameter

Specifies the device mode entry to use during the transmission.

FILE Parameter

Specifies the S/38 file.library which is to be transmitted. The file record length must be 8 characters for Library images, or 256 characters for Folder images.

MEMBER Parameter

Specifies the file member to transmit.

S36LIBNAME Parameter

Specifies the name of the library to receive the update contained in the transmitted file.

S/38, AS/400 to S/36 Folder Image Download

The command S36DOWNF command will transmit a 256 char file which is in a S/36 SAVEFLDR format to the specified System/36 and use the RESTFLDR command to place the contained members into the Specified System/36 Folder. At the command line, enter S36DOWNF and press enter. The following screen should appear:

Download Folder to S/36 (S36DOWNF)

Type choices, press Enter.

Remote Location Name		Name	
Mode		Name	
File to Transfer		Name	
		Name	
File Member	Name		
S/36 Folder Name	*MEMBER	Name, *MEMBER	

Bottom

F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

The command S36DOWNF has the following parameters:

REMLOCNAME Parameter

Specifies the name of the APPC/APPN Remote Location Name which communicates to the remote system.

APPENDIX A: UPLOAD AND DOWNLOAD UTILITIES

DEVD Parameter (S/38 ONLY)

Specifies the name of the *PEER device description which communicates to the remote system.

MODE Parameter

Specifies the device mode entry to use during the transmission.

FILE Parameter

Specifies the S/38 file.library which is to be transmitted. The file record length must be 8 characters for Library images, or 256 characters for Folder images.

MEMBER Parameter

Specifies the file member to transmit.

S36FDR Parameter

Specifies the name of the folder to receive the update contained in the transmitted file.

S/36 to S/38, AS/400 Library Upload

The S38UPLB command will transmit the specified S/36 library to the remote System/38 or AS/400 and place it into the specified file, library, member. At the command line, enter S38UPLB then press enter. The following screen should appear:

The command S38UPLB has the following parameters:

S/36 LIBRNAME Parameter

Specifies the name of the Library on the local System/36 to transmit.

RMTFILE NAME Parameter

Specifies the name of the file residing on the remote System/38 or AS/400 which is to receive the data.

RMTLIBR NAME Parameter

Specifies the name of the library where the file resides.

RMTMEMBER Name Parameter

Specifies the System/38 or AS/400 file member to receive the data.

APPC REMLOC Parameter

Specifies the Remote Location defined (when configuring the ICF Subsystem member) to communicate to the remote System/38 or AS/400.

APPC SESSIONGROUP Parameter

Specifies the APPC session group defined (when configuring the ICF Subsystem member) to use during transmission.

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S/36 to S/38, AS/400 Folder Upload

The S38UPFD command will transmit the specified S/36 folder to the remote System/38 or AS/400 and place it into the specified file, library, member. Upon successful transmission, the previous contents of the file member are replaced. At the command line, enter S38UPFD then press enter. The following screen should appear:

```

                                S38UPLD Procedure
                                Upload a S/36 Folder to a S/38 File      Optional-*

S/36 folder name ..... _____
S/38 file name ..... _____
      Library ..... _____
      Member ..... _____
Remote location name ..... _____
Session group name ..... _____
APPC User ID ..... DFT, Name, NONE, USER _____ *
APPC Password ..... Name, NONE _____ *

                                Cmd7: Exit
                                HELP

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```

The S38UPFD command has the following parameters:

S/36 FDRNAME Parameter

Specifies the name of the Folder on the local System/36 to transmit.

RMTRFILE NAME Parameter

Specifies the name of the file residing on the remote System/38 or AS/400 which is to receive the data.

RMTLIBR NAME Parameter

Specifies the name of the library where the file resides.

RMTMEMBER Name Parameter

Specifies the System/38 or AS/400 file member to receive the data.

APPC REMLOC Parameter

Specifies the Remote Location defined (when configuring the ICF Subsystem member) to communicate to the remote System/38 or AS/400.

APPC SESSIONGROUP Parameter

Specifies the APPC session group defined (when configuring the ICF Subsystem member) to use during transmission.

APPENDIX B: ADDITIONAL FUNCTIONS

This Appendix describes additional functions included with Remote SpoolPrint3X/400.

System/38, AS/400 Tailoring Options

Please note that the tailoring options apply only to System/38 and AS/400 machines. To access the additional functions display, enter the command BRSPLSETUP. The following screen should appear: (The data fields on your screen may appear slightly different).

Remote SpoolPrint/400		xx/xx/xx
Setup Display		14:04:59
Rel: XX	CPU Serial: XXXXXXXXX	System Name: XXXXXXX
Mod: XX	Model: XXX	Proc Feat: XXXX
PTF: XXXX	LPAR Num: XXXX	Proc Grp: XXX
Permanent Password: 1ABCDEF2G3HIJ456		Hex Digits (0-9, A-F)
Temporary Password: A1B2C3D4E5F6		Hex Digits (0-9, A-F)
High Avail Password: 1ABCDEF2G3HIJ456		Hex Digits (0-9, A-F)
Dft Dev Mode: BLANK		Name, *NETATR
User Exit Pgm 1: N		Y, N
Dft User Profile: *CREATE		Name, *CREATE
Delete User Profile: Y		Y, N
APPC User ID, Password: BDSUSER	BDSPASS	Name, *NONE, *USER
User Exit Pgm 2: N		Y, N
Log Outgoing Spool Ent: *SELECT		*ALL, *NONE, *SELECT
Log Incoming Spool Ent: *SELECT		*ALL, *NONE, *SELECT
BDS Access User, Passw:		character
CMD-3 Exit w/o Update F10=TCP Server		F14=BDS SwSvr

The BRSPLSETUP command has the following parameters:

REL/MOD/PTF

Specifies the release, modification, and PTF level of Remote SpoolPrint3X/400. This value should match the value printed on your Remote SpoolPrint3X/400 media.

Password

You will be instructed to enter this field when you receive your permanent/temporary passwords from BDS. If this machine is being replicated to a High Availability machine, specify the Permanent Password for the HA machine in the High Avail Password field. This will allow you to cut over to the HA machine

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without changing passwords. Note: You must purchase an HA license from Broderick Data Systems in order to receive an HA password.

Exp Date (S/36 & S/38 ONLY)

Used to calculate the end of the trial period.

Dft Dev Mode (Default Device Mode)

Specifies the device mode to use if DEVMODE(*DFT) is specified when creating a Remote Writer. This field is mainly used for compatibility with earlier releases; you should define the device mode when creating the Remote Writer.

User Exit Pgm 1

Specifies if Remote SpoolPrint3X/400 is to call a user written program.

Remote SpoolPrint3X/400 will optionally call a program BRSPLEXIT1 in library *LIBL immediately before deleting (or holding if SAVE(*YES)) the transmitted spool entry. The exit program can be compiled by the user to perform certain tasks. For example the user may wish to print the spool file on another printer or keep all printed output in a special 'archive' outq. A sample exit program is provided in the source file BRSP38SRC in library BRODERICK.

To activate the exit program, enter 'Y' on the User Exit Pgm 1 field. To deactivate the user exit program, enter 'N'. The parameters passed to the user exit program are:

<u>Num</u>	<u>Description</u>	<u>Type</u>	<u>Length</u>
1	Spool File Job Name	Character	10
2	Spool File Job User ID	Character	10
3	Spool File Job Number	Character	6
4	Spool File Name	Character	10
5	Spool File Number	Character	6
6	Save Attribute (*YES or *NO)	Character	10
7	Perform Cancel/Hold	Character	4

Please note that the Remote Writer Name can be retrieved by using the RTVJOBA command. The Job's name is the Remote Writer name.

Upon returning from the exit program, Remote SpoolPrint3X/400 will check the Perform Cancel/Hold parameter, and only delete/hold the spool file if it's value is '*YES'.

Dft User Profile/Delete User Profile

Specifies, only for S/38 to S/38 or AS/400 to AS/400 Remote Writers which are not using SNADS, how to process User profiles. In order to maintain job user information when the spool entry is passed to the target System/38 or AS/400, Remote SpoolPrint3X/400 will need the user profile on the target system. In many S/38 or AS/400 installations the user profile used to create the spool entry may not exist on the target system. The user has the option to either create the user profile, or use a default user profile.

APPENDIX B: ADDITIONAL FUNCTIONS

Specify *CREATE to allow Remote SpoolPrint3X/400 to create a user profile if it does not currently exist on the target system, or specify a default user profile. If a default user profile is specified, all transmitted spool entries which have a user profile attribute which does not exist on the target system will adopt the default user profile. Please note that all user profiles created by Remote SpoolPrint3X/400 will have a password of *NONE, and text 'Created by Remote SpoolPrint/3X'.

If Remote SpoolPrint3X/400 creates the user profile, the Delete User Profile field will determine if the created user profile is to be deleted. Deleting the user profile will not affect the transmitted spool entry.

Note: The Dft User Profile and Delete User Profile fields are specified on the Target System/38 or AS/400 (the system which the output is to be printed). If output is transferred through intermediate System/38 or AS/400 machines, the fields must be set on those machines as well. (Most other Remote SpoolPrint3X/400 parameters are specified on the source system.)

AS/400 Security Userid/Password

Specifies the User profile and Password the source system will send to the target AS/400 when communications is established. For more information, see Appendix E, "AS/400 Security Considerations"

*NONE: No Userid or password is sent.

*USER: User profile QSYSOPR, and the AVI (Already Verified Indicator) are sent.

User Exit Pgm 2 (AS/400 only)

Specifies if Remote SpoolPrint is to call a user written program.

Remote Writers sending to an MVS system will optionally call a user written program BRSPLEXIT2 in lib BRODERICK prior to sending each spool entry. The exit program can perform the following two tasks: Alter spool attributes (including MVS Destination Name) and specify a Translate Table. The following parameters are passed to program BRSPLEXIT2:

<u>Num</u>	<u>Description</u>	<u>Type</u>	<u>Length</u>
1	Remote Writer Name	Character	10
2	Spool Filer Attributes	Character	512
3	Do the Translate (Y/N)	Character	1
4	Translate Table	Character	256

The translate option will translate each data record sent to the remote system, using the table supplied in parameter 4. The Translate Table will be initialized to 256 hex zeros (H'00') by the Remote Writer at startup. To translate data, build the Translate Table in parameter 4 and place a 'Y' in parameter 3. To build the translate table, place the desired value for each hex value at the corresponding offset in the table. For example, if you want to change each X'01' in the data to X'40', place the value X'40' at position 1 in the Translate Table. Position 2 in the table corresponds to X'02', position 3 corresponds to X'03', etc.

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Position 256 in the table corresponds to X'00'. An example Translate Table which translates lower case characters to upper case is provided in data area BRSPLUCXL. An example exit program 2, which loads this translate table is provided in source file BRSPL38SRC.

BDS Access User ID and Password

Specifies the user ID and password needed to access the BDS Software Server. Contact BDS Administration for your user ID and password.

Remote SpoolPrint Logging

Remote SpoolPrint (S/36, AS/400 only) has the ability to write a record for each transferred spool entry into a file called the Remote SpoolPrint Log. Options allow the Administrator to specify if Incoming and/or Outgoing spool entries are to be logged, and which Remote Writers to log. To Specify Logging, display the Tailoring Options screen by entering the following:

AS/400 BRSPLSETUP
S/36 RSCTRL

The following parameters define logging:

Log Outgoing Spool Entries:

Specifies if spool entries sent to another system will be logged.

*SELECT: Only Remote Writers which specify "Log Operations" *YES will log transferred spool entries.

*ALL: All Remote Writers will log transferred spool entries.

*NONE: No Remote Writers will log spool entries.

Log Incoming Spool Entries:

Specifies if spool entries sent from another system into this system will be logged.

*SELECT: Only entries sent by Remote Writers which are performing logging on the sending system will be logged.

*ALL: All incoming spool entries will be logged.

*NONE: No incoming spool entries will be logged.

Querying the Remote SpoolPrint Log

The contents of the Remote SpoolPrint Log can be accessed using two methods:

APPENDIX B: ADDITIONAL FUNCTIONS

- 1) Users can write queries against file BRODERICK/BRSPLOG on the AS/400 or BDS.RSLG on the S/36. This file is externally described and its fields can be displayed by issuing the following command:

DSPFFD BRODERICK/BRSPLOG

The file BRSPLOG has logical view BRSPLOG1 defined for it, which is keyed on date and time. Users can use either file, or create other logical files.

- 2) Users can use the DSPRSLOG command supplied by Remote SpoolPrint to query the log. If selected the following screen appears:

Display Remote SpoolPrint Log			
Display Specifications			
Enter values to limit the search:			
Start Date/Time: 19960322	000000	End Date/Time: 99999999	999999
Operation: *ALL		Sub-Operation: *ALL	
INBOUND/OUTBOUND: *ALL		Remote Writer: *ALL	
Sending:	Sys Name: *ALL	Outq: *ALL	*ALL
	Job: *ALL	User: *ALL	Num: *ALL
Receiving:	Sys Name: *ALL	Outq: *ALL	*ALL
	Job: *ALL	User: *ALL	Num: *ALL
	Spool Entry: *ALL	User: *ALL	Num: *ALL
		File: *ALL	FNum: *ALL
F3=Exit			

To narrow down the number of records displayed, enter values for one or more of the above fields and press ENTER. The following screen will appear:

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Display Remote SpoolPrint Log						
5=Display						
X	Date	Time	In/Out	Sub-Oper	Rmt Writer	SplJobNam SplFilNam
_	1994/04/18	11:36:10	INCOMING	RECEIVE	BPRT01	
_	1994/04/18	11:36:22	OUTGOING	STRRTWTR	R1	
_	1994/04/18	11:36:33	OUTGOING	SEND	R1	
_	1994/04/18	11:36:34	MONITOR	COMERR	R1	

F3=Exit

Place a '5' (display) next to desired entries or press ENTER to return to the Search display.

Managing the Remote SpoolPrint Log

The Administrator should periodically clear or save the Remote SpoolPrint log if logging is in effect. As mentioned above the Log data is placed into file BRSPLOG (AS/400) or BDS.RSLG (S/36). To clear the log enter the following command:

AS/400 CLRPFM BRODERICK/BRSPLOG

**S/36 DELETE BDS.RSLG,F1
SLIB BDSLIB
RSFBLD**

Unlocking System/36 Spool Entries

Remote SpoolPrint/36 places a lock on the spool entry while it is transmitting the entry to a remote system. The entry, when displayed using the D P command, appears with a 'C' next to the priority attribute, similar to when a COPYPRT command is using the entry. Normally the lock is removed when Remote SpoolPrint finishes using the spool entry. This prevents other tasks from altering the entry while it is being transmitted.

If for some reason the Remote Writer is canceled or ends abnormally while it has the spool entry locked, the entry must be unlocked manually. To unlock a locked spool entry, use the following procedure:

RSUNLOCK spool id

'spool id' specifies the spool entry (i.e. SP0001, SP0307) to be unlocked.

For example, to unlock spool id SP0005, use the following command:

APPENDIX B: ADDITIONAL FUNCTIONS

RSUNLOCK SP0005

Warning: Be careful not to unlock tasks which are being used by the COPYPRT command.

Remote SpoolPrint Server

The Remote SpoolPrint Server task processes incoming transfer requests for TCP400 Remote Writers on other systems. Access the Server Options screen by pressing F10:

Remote SpoolPrint/400	1/02/13
TCP Server Options	13:21:31
Server Port: <u>3550</u>	0=None, 1-65535
First Subport: <u>0</u>	0=None, 1-65535
Number of Subports: <u>0</u>	Number
Address/Name: _____	
<hr/>	
User ID/Password: <u>BDSUSER</u>	<u>BDSPASS</u> Name, *NONE
Secure Socket Layer: <u>N</u>	Y, N
System Store Name: <u>*SYSTEM</u>	
<hr/>	
System Store Password: _____	
Application ID: <u>*NONE</u>	
<hr/>	
Listen Backlog: <u>50</u>	1-2000
<hr/>	
CMD-3 Exit w/o Update	ENTER Update F10=ApplID

Server Port

Specifies the TCP port number the Remote SpoolPrint Server will listen on. Remote Writers sending to this system must specify this port number on their Server Port parameter. It is recommended to not specify a port in the range 1-1024; these ports are reserved for system functions.

To see a list of ports used by registered TCP servers on your system, use the IBM WRKSRVTBLE command. Select a number that is not already reserved by another server. Remote SpoolPrint will place an entry in this table with the following attributes:

Service: bds-rspl-tcp-server
Port: <your port>
Protocol: tcp
Text: BDS Remote SpoolPrint
Alias: *NONE

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First Subport and Number of Subports

Specifies, for compatibility with previous releases, the pool of TCP port numbers the Remote Writers will use to communicate with the Submitted Job on this system. Specify a first port and number of ports. As Remote Writers communicate with this machine, the Server will assign subports to them from this pool. Note that the Remote Writer can specify the subport to use for submitted jobs. Also note that current releases of Remote SpoolPrint no longer use subports. For more information refer to Appendix I, “TCP Considerations”.

Address/Name:

Specifies the IP Address or Host Name to listen on. Requests that come in on the specified Address/Name will be processed. If an IP address is specified, it must be in dotted decimal format (111.222.1.2). If a Host Name is specified, the AS/400 must be able to look up its IP address (using Host Name Table or DNS).

*ZERO: All addresses that the AS/400 is capable of processing will be listened to.

Userid/Password Parameter:

Specifies the User profile and Password the source system must send when TCP communications is established.

*NONE: No Userid or password is required.

Note: The User ID parameter does not need to match a user profile on the system.

Secure Socket Layer:

Specifies, for Remote Writers that do not define SSL, if the Secure Socket Layer (SSL) feature of TCP will be used. Specify Y or N.

Note: SSL requires additional setup on both the sending and receiving machines. Refer to Appendix I, “TCP Considerations” for more information.

System Store Name/Password:

Specifies, for SSL, the System store containing the Digital Certificate to use.

*SYSTEM: The default System Store contains the Digital Certificate.

Application ID:

Specifies, for SSL, the Application ID to use to specify the Digital Certificate.

*NONE: No Application ID is specified. The Digital Certificate to use is the default for the specified System Store.

Listen Backlog:

Specifies the number of incoming connection requests that can be queued up before the system starts rejecting them. Specify a number between 1 and 2000. Note that this number does not limit the number of

APPENDIX B: ADDITIONAL FUNCTIONS

connections that can be processed at a time; it limits the number that are waiting to be accepted and passed to a batch job by the server. Once the Server passes a connection to a submitted job, it accepts the next connection request.

Creating Application ID's

To allow Remote SpoolPrint to access a Digital Certificate, you may need to create an Application ID. This function is provided by Remote SpoolPrint from the Server Options display. You may also create and delete Application IDs using other methods if desired. Access the Application ID screen by pressing F10:

Remote SpoolPrint/400	1/02/13
Manage Application ID	13:21:31
Press F6 to add the following Application ID, F9 to delete:	
Prefix: BDS_BRODERICK_RSPL40_	
Application ID: <u>RMTWTR</u>	
Description: <u>Broderick Data Systems Remote SpoolPrint/400</u>	
F3=Exit F12=Exit	

Prefix:

To simplify the definition and edit process, Remote SpoolPrint automatically attaches this value to the front of the ID you specify.

Application ID:

Specify the value that (appended to the prefix) will be the Application ID to create or delete.

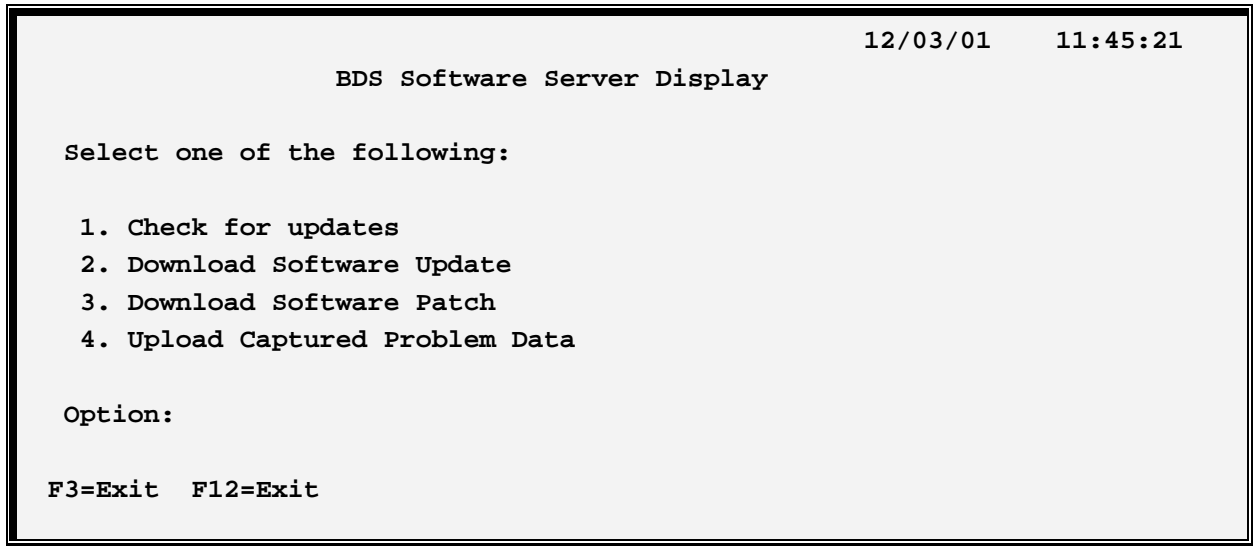
Description

Specify Descriptive text.

Access the BDS Software Server

If **F14** is chosen, the screen showing BDS Software Server options is displayed. To access the BDS Software Server the AS/400 must be connected to the Internet. The following display will appear:

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Some of the following options require a user ID and password. If you do not have one, contact BDS Administration. These options use the Internet to connect to a server at Broderick Data Systems. Therefore your AS/400 must be connected to the Internet. If behind a firewall, the firewall must allow outbound sessions through it.

Check for updates

Retrieves the latest available release of the product. Displays the BDS and OS/400 prerequisites releases required to install the latest release of the product.

Download Software Update

Downloads the latest release of the product into save files on your system. The update procedure can then be done using these save files. The product may be active and running while you perform this download.

Download Software Patch

Downloads objects into a save file on your system. Usually you will use this option while working with BDS tech support.

Upload Captured Problem Data

Uploads a save file on your system (containing objects that you have saved) into a save file on the BDS server. Usually you will use this option while working with BDS tech support.

F3 (Return)

Press F3 to exit.

F12 (Return)

Press F12 to exit.

APPENDIX B: ADDITIONAL FUNCTIONS

Rebuilding Damaged Data Queues

Remote SpoolPrint uses several data queues during its processing. OS/400 can damage data queues if it halts abruptly, for example during a power failure. The **RCTRSPLQ** (Recreate Remote SpoolPrint Data Queues) command will recreate non-Remote Writer data queues that are deleted or damaged. Refer to Chapter 4 “Maintaining Remote Writers”, section “Damaged Data Queues” to rebuild data queues associated with a Remote Writer. The user can use the **RCTRSPLQ** command to rebuild deleted/damaged queues. The following data queues can be recreated:

BRODERICK/BDSUSRPRF

For each data queue selected, the **RCTRSPLQ** command will do the following:

- Attempt to delete the data queue
- Recreate the data queue
- Change the owner to QSECOFR

Note: The administrator may choose to delete/restore the damaged data queue from a backup or from the Remote SpoolPrint media.

To rebuild data queues, end the function that has the problem or end all Remote SpoolPrint functions and subsystem BDS. From a command line, enter the **RCTRSPLQ** command and press **F4**. Select the queues to recreate by selecting *YES and press **ENTER**. Check the job log to make sure the queues are created properly.

APPENDIX C: EXAMPLE CONFIGURATIONS

The following examples are provided for first time communications users. The examples are provided to assist in configuring APPC communications. If you are currently using Display Station Passthru, or other utilities which uses APPC the examples will not apply.

S/38 to S/36, S/38 Example Configuration

The following example illustrates a System/38 connected as the primary to a System/36 and a System/38.

System/38 A

```
CRTLIND LIND(LINE1) LINNBR(A3) TYPE(*SDLCP) CNN(*MP) RATE(009600)
NONRTNZ(*YES) WIRE(4 4) DCEGRP(*A) EXCHID(02200000) TEXT('Line 1')
```

```
CRTCUD CUD(S36) TYPE(*PEER) MODEL(0000) CTLADR(01A3) LINE(LINE1)
EXCHID(03E00001) DLYFEAT(*YES) LINKTYPE(*SDLCSEC) TEXT('System/36')
```

```
CRTDEVD DEVD(S36) DEVADR(0101A3) DEVTYPE(*PEER) MODEL(0000) CTLU(S36)
LCLLU(S38A) RMTLU(S36) TEXT('System/36')
```

```
ADDDEVMODE DEVD(S36) MODE(RSPOOL) MAXSSN(16) PREBNDSSN(1) MAXSRCSSN(8)
MAXCNV(16) INPACING(3) OUTPACING(3) MAXLENRU(512)
```

```
CRTCUD CUD(S38B) TYPE(*PEER) MODEL(0000) CTLADR(02A3) LINE(LINE1)
EXCHID(02200002) DLYFEAT(*YES) LINKTYPE(*SDLCSEC) TEXT('System/38 B')
```

```
CRTDEVD DEVD(S38B) DEVADR(0102A3) DEVTYPE(*PEER) MODEL(0000) CTLU(S38B)
LCLLU(S38A) RMTLU(S38B) TEXT('System/38 B')
```

```
ADDDEVMODE DEVD(S38B) MODE(RSPOOL) MAXSSN(16) PREBNDSSN(1) MAXSRCSSN(8)
MAXCNV(16) INPACING(3) OUTPACING(3) MAXLENRU(512)
```

```
CRTJOB JOB(RSPOOL) TEXT('Remote SpoolPrint/3X/400')
```

```
CRTUSRPRF USRPRF(RSPOOL) PASSWORD(*NONE) PTYLMT(1) SPCAUT(*JOBCTL)
JOB(RSPOOL) TEXT('Remote Spool Print/3X/400')
```

```
CHGJOB JOB(RSPOOL) USRPRF(RSPOOL)
```

```
ADDCMNE SBS(xxxxx) DEV(S36) MODE(RSPOOL) JOB(RSPOOL) DFTUSR(RSPOOL)
```

```
ADDCMNE SBS(xxxxx) DEV(S38B) MODE(RSPOOL) JOB(RSPOOL) DFTUSR(RSPOOL)
```

Note: The subsystem to contain the above routing entry is your choice. Consider the following suggestions:

The subsystem's maxjobs parameter should not be restricted. Therefore we do not recommend using QBATCH.

REMOTE SPOOLPRINT3X/400™

The subsystem must have a routing entry of *PGMEVOKE before the *ANY entry. See QINTER or QSNADS for an example.

If you frequently terminate your interactive subsystem we do not recommend adding the communications entry to it.

The above JOBD, USRPRF, and ADDCMNE commands are only used if the System/38 is the target system. The jobd, usrprf, and addcmne are only used by CPF to determine which subsystem and job user name to assign tasks evoked from other systems, and are not needed if the system is the source to the other system. Examples: If people are passing thru into this system the above are needed. If remote writers are defined on the other system which move output into this system, the above are needed.

Avoid having the same DEVD/MODE specified in two or more subsystems' communications entries. If the same DEVD/MODE is in two (or more) subsystems, the subsystem started first will allocate the DEVD/MODE.

We recommend that you have separate device mode entries for interactive and printers . This will allow you to tailor the device mode's the pacing count and RU size such that printing tasks have a minimum impact on interactive response time. Please note that printers connected to a remote control unit (i.e. 5294) cannot be tailored in this fashion.

System/38 B

```
CRTLIND LIND(LINE1) LINNBR(20) TYPE(*SDLCS) CNN(*MP) STNADR(02) RATE(009600)
NONRTNZ(*YES) WIRE(4 4) DCEGRP(*A) EXCHID(02200002) TEXT('Line 1')
```

```
CRTCUD CUD(S38A) TYPE(*PEER) MODEL(0000) CTLADR(0120) LINE(LINE1)
EXCHID(02200000) LINKTYPE(*SDLCPRI) TEXT('System/38 A')
```

```
CRTDEVD DEVD(S38A) DEVADR(010120) DEVTYPE(*PEER) MODEL(0000) CTLU(S38A)
LCLLU(S38B) RMTLU(S38A) TEXT('System/38 A')
```

```
ADDDEVMODE DEVD(S38A) MODE(RSPOOL) MAXSSN(16) PREBNDSSN(1) MAXSRCSSN(8)
MAXCNV(16) INPACING(3) OUTPACING(3) MAXLENRU(512)
```

```
CRTJOB JOB(RSPOOL) TEXT('Remote SpoolPrint/3X/400')
```

```
CRTUSRPRF USRPRF(RSPOOL) PASSWORD(*NONE) PTYLMT(1) SPCAUT(*JOBCTL)
JOB(RSPOOL) TEXT('Remote Spool Print/3X/400')
```

```
CHGJOB JOB(RSPOOL) USRPRF(RSPOOL)
```

```
ADDCMNE SBS(xxxxx) DEV(S38B) MODE(RSPOOL) JOB(RSPOOL) DFTUSR(RSPOOL)
```

(Please refer to the notes on adding communications entries listed earlier.)

APPENDIX C: EXAMPLE CONFIGURATIONS

System/36

- 1) Configure the communications line:

SETCOMM 1,MULTTRIB,NOLOCK,NRZI,NOCONCAR,,,,,IBMLPDA,,9600BPS,0

- 2) Configure ICF Line Member:

- a) Enter Command CNFIGICF

- b) Screen 1.0:

1. Configuration member name	LINE1
2. Library name	COMM
3. Select	1

- c) Screen 2.0

Option:	3 (SNA)
---------	---------

- d) Screen 4.0:

1. SNA member type	2 (SNA/SDLC line mbr)
2. Will APPC or APPN be used?	Y

- e) Screen 12.0

1. Data Link Protocol	2 (Secondary)
2. Line Type	1 (Nonswitched)
5. Local System's Station Addr	01
6. Local System's XID in hex	00001

- f) Screen 12.5:

1. Option	1 (Create)
2. Remote System Name	S38A

- g) Screen 13.0

1. Remote System Type	2 (Peer)
3. Remote system's block	022
4. Remote system's Station XID	00000

- h) Screen 12.5:

CMD-7 (End)

- 3) Configure ICF Subsystem Member:

- a) Screen 1.0:

1. Configuration member name	AS400A
2. Library name	COMM
3. Select	1 (Create)

- b) Screen 2.0:

1. Select	3 (SNA)
-----------	---------

REMOTE SPOOLPRINT3X/400™

- c) Screen 4.0:
 - 1. SNA member type 1 (SNA Subsystem mbr)
- d) Screen 21.0:
 - 1. Select subsystem type 6 (APPC)
(Press ENTER)
 - 2. Line member name LINE1
- e) Screen 22.0:
 - 1. Local location name S36
- f) Screen 29.0:
 - 1. Select 1 (Create)
 - 2. Remote location name S38A
 - 3. Remote system name S38A
- g) Screen 30.0:
 - 1. Activate location at ENABLE Y
 - 2. Send alerts to this location N
- h) Screen 41.0:
 - 1. Single-session location N
 - 2. Stay operational Y
- i) Screen 42.0:
 - 1. Select 1 (Create)
 - 2. Session Group Name RSPPOOL
- j) Screen 43.0:
 - 1. Session group type 2 (Batch)
 - 2. Maximum session limit 32
 - 3. Nbr of locally cntr sessions 16
 - 4. Nbr of pre-established sessions 01
- k) Screen 44.0:
 - 1. Receive pacing value 03
 - 2. Maximum receive RU size 512
 - 3. Acquire remotely cntrd sessions Y
- l) Screen 42.0:
 - Press CMD-7 (End)
- m) Screen 29.0:
 - Press CMD-7 (End)
- n) Screen 1.0:
 - Press CMD-7 (Exit ICF)

APPENDIX C: EXAMPLE CONFIGURATIONS

S/36 to S/36 Example Configuration

System/36 A

- 1) Configure the communications line:

```
SETCOMM 1,NONSWTCH,NOLOCK,NRZI,NOCONCAR,,,,,IBMLPDA,,9600BPS,0
```

- 2) Configure ICF Line Member:

- a) Enter Command CNFIGICF

- b) Screen 1.0:

1. Configuration member name	S36BLINE
2. Library name	COMM
3. Select	1

- c) Screen 2.0:

Option	3 (SNA)
--------	---------

- d) Screen 4.0:

1. SNA member type	2 (SNA/SDLC line mbr)
2. Will APPC or APPN be used?	Y

- e) Screen 12.0:

1. Data Link Protocol	1 (Primary)
2. Line Type	1 (Nonswitched)
6. Local System's XID in hex	00000

- f) Screen 12.5:

1. Option	1 (Create)
2. Remote System Name	S36B

- g) Screen 13.0:

1. Remote System Type	2 (Peer)
2. Remote System's station address	01
3. Remote system's block	03E
4. Remote system's Station XID	00001

- h) Screen 12.5:

CMD-7 (End)

- 3) Configure ICF Subsystem Member:

- a) Screen 1.0:

1. Configuration member name	S36BSUB
2. Library name	COMM
3. Select	1 (Create)

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- b) Screen 2.0:
1. Select 3 (SNA)
- c) Screen 4.0:
1. SNA member type 1 (SNA Subsystem mbr)
- d) Screen 21.0:
1. Select subsystem type 6 (APPC)
(Press ENTER)
2. Line member name S36BLINE
- e) Screen 22.0:
1. Local location name S36A
- f) Screen 29.0:
1. Select 1 (Create)
2. Remote location name S36B
3. Remote system name S36B
- g) Screen 30.0:
1. Activate location at ENABLE Y
2. Send alerts to this location N
- h) Screen 41.0:
1. Single-session location N
2. Stay operational Y
- i) Screen 42.0:
1. Select 1 (Create)
2. Session Group Name RSPPOOL
- j) Screen 43.0:
1. Session group type 2 (Batch)
2. Maximum session limit 16
3. Nbr of locally cntr sessions 08
4. Nbr of pre-established sessions 01
- k) Screen 44.0:
1. Receive pacing value 03
2. Maximum receive RU size 512
3. Acquire remotely cntrd sessions Y
- l) Screen 42.0:
Press CMD-7 (End)
- m) Screen 29.0:
Press CMD-7 (End)

APPENDIX C: EXAMPLE CONFIGURATIONS

- n) Screen 1.0:
Press CMD-7 (Exit ICF)

System/36 B

- 1) Configure the communications line:

```
SETCOMM  
1,NONSWTCH,NOLOCK,NRZI,NOCONCAR,,,,,IBMLPDA,,9600BPS,0
```

- 2) Configure ICF Line Member:

- a) Enter Command CNFIGICF

- b) Screen 1.0:

1. Configuration member name	S36ALINE
2. Library name	COMM
3. Select	1

- c) Screen 2.0:

Option:	3 (SNA)
---------	---------

- d) Screen 4.0:

1. SNA member type	2 (SNA/SDLC line mbr)
2. Will APPC or APPN be used?	Y

- e) Screen 12.0:

1. Data Link Protocol	2 (Secondary)
2. Line Type	1 (Nonswitched)
5. Local System's Station Addr	01
6. Local System's XID in hex	00001

- f) Screen 12.5:

1. Option	1 (Create)
2. Remote System Name	S36A

- g) Screen 13.0:

1. Remote System Type	2 (Peer)
3. Remote system's block	03E
4. Remote system's Station XID	00000

- h) Screen 12.5:

CMD-7 (End)

- 3) Configure ICF Subsystem Member:

- a) Screen 1.0:

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- | | |
|---|-----------------------|
| 1. Configuration member name | S36ASUB |
| 2. Library name | COMM |
| 3. Select | 1 (Create) |
| b) Screen 2.0: | |
| 1. Select | 3 (SNA) |
| c) Screen 4.0: | |
| 1. SNA member type | 1 (SNA Subsystem mbr) |
| d) Screen 21.0: | |
| 1. Select subsystem type
(Press ENTER) | 6 (APPC) |
| 2. Line member name | S36ALINE |
| e) Screen 22.0: | |
| 1. Local location name | S36B |
| f) Screen 29.0: | |
| 1. Select | 1 (Create) |
| 2. Remote location name | S36A |
| 3. Remote system name | S36A |
| g) Screen 30.0: | |
| 1. Activate location at ENABLE | Y |
| 2. Send alerts to this location | N |
| h) Screen 41.0: | |
| 1. Single-session location | N |
| 2. Stay operational | Y |
| i) Screen 42.0: | |
| 1. Select | 1 (Create) |
| 2. Session Group Name | RSPOOL |
| j) Screen 43.0: | |
| 1. Session group type | 2 (Batch) |
| 2. Maximum session limit | 16 |
| 3. Nbr of locally cntr sessions | 08 |
| 4. Nbr of pre-established sessions | 01 |
| k) Screen 44.0: | |
| 1. Receive pacing value | 03 |
| 2. Maximum receive RU size | 512 |
| 3. Acquire remotely cntrd sessions | Y |
| l) Screen 42.0: | |
| Press CMD-7 (End) | |

APPENDIX C: EXAMPLE CONFIGURATIONS

m) Screen 29.0:
Press CMD-7 (End)

n) Screen 1.0:
Press CMD-7 (Exit ICF)

AS/400 to S/36, S/38, AS/400 Example

The following example shows an AS/400 connected to an AS/400, a S/38, and a S/36.

AS/400 A

```
CRTLNSDLC LIND(LINE1) RSRcname(LIN011) ROLE(*PRI) CNN(*MP) EXCHID(05600000)
MAXCTL(32) TEXT('Line 1')
```

```
CRTMODD MODD(RSPOOL) MAXSSN(16) MAXCNV(16) LCLCTLSSN(8) PREESTSSN(1)
INPACING(3) OUTPACING(3) MAXLENRU(512) TEXT('Remote SpoolPrint/3X/400')
```

```
CRTCTLAPPC CTLD(AS400B) LINKTYPE(*SDLC) APPN(*NO) LINE(LINE1)
RMTNETID(*NONE) EXCHID(05600001) STNADR(01) TEXT('AS/400 B')
```

```
CRTDEVAPPC DEVD(AS400B) RMTLOCNAME(AS400B) LCLLOCNAME(AS400A)
RMTNETID(*NONE) CTL(AS400B) MODE(*NETATR RSPOOL) APPN(*NO)
```

```
CRTCTLAPPC CTLD(S38) LINKTYPE(*SDLC) APPN(*NO) LINE(LINE1) RMTNETID(*NONE)
EXCHID(02200002) STNADR(02) TEXT('S/38')
```

```
CRTDEVAPPC DEVD(S38) RMTLOCNAME(S38) LCLLOCNAME(AS400A) RMTNETID(*NONE)
CTL(S38) MODE(*NETATR RSPOOL) APPN(*NO)
```

```
CRTCTLAPPC CTLD(S36) LINKTYPE(*SDLC) APPN(*NO) LINE(LINE1) RMTNETID(*NONE)
EXCHID(03E00003) STNADR(03) TEXT('S/36')
```

```
CRTDEVAPPC DEVD(S36) RMTLOCNAME(S36) LCLLOCNAME(AS400A) RMTNETID(*NONE)
CTL(S36) MODE(*NETATR RSPOOL) APPN(*NO)
```

In this example, subsystem QCMN must be started prior to sending output to AS/400 A using Remote SpoolPrint3X/400.

AS/400 B

```
CRTLNSDLC LIND(LINE1) RSRcname(LIN011) CNN(*MP) ROLE(*SEC) EXCHID(05600001)
TEXT('Line 1') CRTMODD MODD(RSPOOL) MAXSSN(16) MAXCNV(16) LCLCTLSSN(8)
PREESTSSN(1) INPACING(3) OUTPACING(3) MAXLENRU(512) TEXT('Remote
SpoolPrint/3X/400')
```

```
CRTCTLAPPC CTLD(AS400A) LINKTYPE(*SDLC) APPN(*NO) LINE(LINE1)
```

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RMTNETID(*NONE) EXCHID(05600000) STNADR(01) TEXT('AS/400 A')

CRTDEVAPPC DEVD(AS400A) RMTLOCNAME(AS400A) LCLLOCNAME(AS400B)

RMTNETID(*NONE) CTL(AS400A) MODE(*NETATR RSPOOL) APPN(*NO)

In this example, subsystem QCMN must be started prior to sending printed output to AS/400 B using Remote SpoolPrint/3X/400.

System/38

CRTLIND LIND(LINE1) LINNBR(20) TYPE(*SDLCS) CNN(*MP) STNADR(02) RATE(009600)

NONRTNZ(*YES) WIRE(4 4) DCEGRP(*A) EXCHID(02200002) TEXT('Line 1')

CRTCUD CUD(AS400A) TYPE(*PEER) MODEL(0000) CTLADR(0120) LINE(LINE1)

EXCHID(05600000) LINKTYPE(*SDLCPRI) TEXT('AS400')

CRTDEV D DEV(AS400A) DEVADR(010120) DEVTYPE(*PEER) MODEL(0000) CTLU(AS400A)

LCLLU(S38) RMTLU(AS400A) TEXT('AS/400 A')

ADDDEV MODE DEV(AS400A) MODE(RSPOOL) MAXSSN(16) PREBNDSSN(1)

MAXSRCSSN(8) MAXCNV(16) INPACING(3) OUTPACING(3) MAXLENRU(512)

CRTJOB JOB(RSPOOL) TEXT('Remote SpoolPrint/3X/400')

CRTUSRPRF USRPRF(RSPOOL) PASSWORD(*NONE) PTYLMT(1) SPCAUT(*JOBCTL)

JOB(RSPOOL) TEXT('Remote Spool Print/3X/400')

CHGJOB JOB(RSPOOL) USRPRF(RSPOOL)

ADDCMNE SBS(xxxxx) DEV(S38B) MODE(RSPOOL) JOB(RSPOOL) DFTUSR(RSPOOL)

(Please refer to the notes on adding communications entries listed earlier.)

System/36:

1) Configure the communications line:

SETCOMM 1,MULTTRIB,NOCLOCK,NRZI,NOCONCAR,,,,,IBMLPDA,,9600BPS,0

2) Configure ICF Line Member:

a) Enter Command CNFIGICF

b) Screen 1.0:

1. Configuration member name	LINE1
2. Library name	COMM
3. Select	1

APPENDIX C: EXAMPLE CONFIGURATIONS

c) Screen 2.0:

Option: (SNA)

d) Screen 4.0:

1. SNA member type 2 (SNA/SDLC line mbr)
2. Will APPC or APPN be used? Y

e) Screen 12.0:

1. Data Link Protocol 2 (Secondary)
2. Line Type 1 (Nonswitched)

5. Local System's Station Addr 03
6. Local System's XID in hex 00003

f) Screen 12.5:

1. Option 1 (Create)
2. Remote System Name AS400A

g) Screen 13.0:

1. Remote System Type 2 (Peer)

3. Remote system's block 056
4. Remote system's Station XID 00000

h) Screen 12.5:

CMD-7 (End)

3) Configure ICF Subsystem Member:

a) Screen 1.0:

1. Configuration member name AS400A
2. Library name COMM
3. Select 1 (Create)

b) Screen 2.0:

1. Select 3 (SNA)

c) Screen 4.0:

1. SNA member type 1 (SNA Subsystem mbr)

d) Screen 21.0:

1. Select subsystem type 6 (APPC)
(Press ENTER)
2. Line member name LINE1

e) Screen 22.0:

1. Local location name S36

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- f) Screen 29.0:
- | | |
|-------------------------|------------|
| 1. Select | 1 (Create) |
| 2. Remote location name | AS400A |
| 3. Remote system name | AS400A |
- g) Screen 30.0:
- | | |
|---------------------------------|---|
| 1. Activate location at ENABLE | Y |
| 2. Send alerts to this location | N |
- h) Screen 41.0:
- | | |
|----------------------------|---|
| 1. Single-session location | N |
| 2. Stay operational | Y |
- i) Screen 42.0:
- | | |
|-----------------------|------------|
| 1. Select | 1 (Create) |
| 2. Session Group Name | RSPOOL |
- j) Screen 43.0:
- | | |
|------------------------------------|-----------|
| 1. Session group type | 2 (Batch) |
| 2. Maximum session limit | 32 |
| 3. Nbr of locally cntr sessions | 16 |
| 4. Nbr of pre-established sessions | 1 |
- k) Screen 44.0:
- | | |
|------------------------------------|-----|
| 1. Receive pacing value | 03 |
| 2. Maximum receive RU size | 512 |
| 3. Acquire remotely cntrd sessions | Y |
- l) Screen 42.0:
Press CMD-7 (End)
- m) Screen 29.0:
Press CMD-7 (End)
- n) Screen 1.0:
Press CMD-7 (Exit ICF)
- 4) Set Communications Security for each AS/400:
- a) Enter communications security:
- SECEDIT COMM
- b) Press Cmd-5 (Add)
- c) Add Screen:
- | | |
|-------------------------------------|--------|
| Remote Location Name | AS400A |
| Location Password*NULL | |
| Require User password to start each | |

APPENDIX C: EXAMPLE CONFIGURATIONS

Procedure
Comment

N
Remote SpoolPrint

AS/400 TCP/IP Example

Remote SpoolPrint, an APPC based product, can communicate across a TCP/IP network. To do this the AS/400 must be set up to use AnyNet, a no-charge feature that comes with OS/400. An example for setting up your AS/400 to run APPC over TCP/IP is located in the IBM manual “Communications Configuration”, SC41-5401. Look at Appendix A, APPC over TCP Example. You can access the IBM Manual from one of the following sources:

- + IBM Softcopy Library CD, Host Communications Bookshelf
- + IBM’s website, as400.ibm.com, Library, Online Library, Category: Host Communications

APPENDIX D: ELECTRONIC MEDIA DISTRIBUTION

The user can distribute Remote SpoolPrint3X/400 to remote systems electronically, thus the user can install or update Remote SpoolPrint3X/400 on similar remote systems (i.e. AS/400 to AS/400's). A working APPC/APPN link to the remote system, and a file transfer program such as FileXfer3X/400 is needed to do this. Below are the steps you must perform to transmit Remote SpoolPrint3X/400 to remote systems. Please note that a thorough knowledge of the operating systems involved is suggested.

S/38 or AS/400 Machines

The S/38 and AS/400 media consists of 1 library:

RSPL40

The steps to distribute Remote SpoolPrint are:

Source System

- 1) Restore library RSPL40 from the BDS media.
- 2) Create a save file SAVRSPL.
- 3) Save library RSPL40 into save file SAVRSPL.
- 4) Delete the library RSPL40.
- 5) Transmit the save file to the remote system(s).

Remote System(s)

- 1) Create and receive the transmitted save file, if necessary.
- 2) Proceed with the update or install instructions with the following:

When requested to restore the install or update objects into library QTEMP, use the save file option. Specify *SAVF for device description. Enter save file SAVRSPL.

When executing the install or update command (BRSPLINS or BRSPLUPD) use the save file option. Specify *SAVF for device description. Enter save file SAVRSPL.

Remote SpoolPrint will be installed or updated.

S/36 Machines

The S/36 media consists of 2 files:

RSPLLIB
BDS.RSCT

Please note that the file BDS.RSCT is not used during the update process. Thus the user will not need to

REMOTE SPOOLPRINT3X/400™

transmit BDS.RSCT if an update is being performed.

The steps needed to transmit Remote SpoolPrint/36 are:

Source system

- 1) Restore file RSPLLIB from your media diskette.
- 2) If BDS.RSCT must be distributed (install), you may have the situation where you need to restore a different version of BDS.RSCT from diskette than you have on your disk. Please note BDS.RSCT has only 1 record and is maintained by the proc RSCTRL. You may wish to perform the following.

- End all Remote Writers
- Rename BDS.RSCT on disk
- Restore the BDS.RSCT from diskette
- Rename the restored BDS.RSCT to XMT.RSCT
- Rename the old BDS.RSCT back
- Restart Remote Writers

- 3) Transmit the files created in steps 1) and 2) to the remote systems.

Remote System

- 1) Follow the install or update instructions. Skip the step instructing you to restore RSPLLIB from diskette. You have already loaded it electronically.
- 2) For install processes, when the instructions ask you to restore BDS.RSCT, rename the transmitted file instead.

Remote SpoolPrint/36 will be installed or updated.

APPENDIX E: AS/400 SECURITY CONSIDERATIONS

APPC communications to an AS/400 allows the administrator many options concerning security. Remote SpoolPrint incorporates some of these security options. In order to use them, additional communications setup may be necessary on all systems. Please note that this section only applies if you are sending to an AS/400. If sending to a S/36 or S/38, this section does not apply.

Remote SpoolPrint supports SNA Application Program Security, which gives the administrator the ability to send User Profile information when the communications link between programs is established. The administrator has the following choices:

- User profile and password passed
- User profile and the AVI (Already Verified Indicator) flag passed
- No user profile or password passed

To specify security parameters to Remote SpoolPrint, use the MNGRMTWTR (S/38, AS/400) command or MNGRMWTR (S/36) proc. As shipped from BDS, Remote SpoolPrint will send the User profile and password. For most operations, sending User profile and password is recommended. Before deciding which security method to use, the administrator should consider the following:

Going to a new release of OS/400 will erase any changes made to Subsystem QCMN. Thus BDS software may appear not to work correctly after an IBM release update. If the user is unaware or forgets this, the printer network may be done after an update until BDS or IBM can be reached. For this reason, we do not recommend sending with no security user information.

Auditors may not allow a user profile and password to be accessed via unsecured screens on a remote system (S/36 RSCTRL proc, AS/400 and S/38 BRSPLESETUP command, etc.) The additional setup needed for sending the AVI flag may be warranted.

The administrator may not wish to increase the security level on the S/36 or AS/400 so that a user profile and the AVI flag can be sent.

When Remote SpoolPrint sends a user profile and the AVI flag, user profile QSYSOPR is sent.

Sending no user profile or password is easy to implement. The only additional setup required is to enter the following command on the target AS/400(s):

```
CHGCMNE SBS(D(QCMN) DEV(*ALL) DFTUSER(QUSER)
```

Sending User Profile and password is the easiest method to implement (no setup changes are necessary), if all systems are at the required system security level.

Passing User Profile and Password

To send a user profile and password, the following conditions must be met:

Target AS/400

- 1) System Security level must be 20 or greater (DSPSYSVAL QSECURITY).

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- 2) The passed User profile must exist on the target AS/400, and the correct password must be passed.

S/36

- 1) Password security or greater must be active.
- 2) A Remote Location entry (SECEDIT COMM proc) with Require user password=N must be configured. See Appendix C, Section "AS/400 to AS/400, S/36, and S/38 Example" for an example.

S/38

No changes required.

Source AS/400

- 1) System Security level must be 20 or greater (DSPSYSVAL QSECURITY).

Passing User Profile and AVI Flag

To send a user profile and the AVI flag, the following conditions must be met:

Target AS/400

- 1) If APPN(*NO) is specified on the APPC control unit, SECURELOC(*YES) must be specified on APPC device description(s) that communicate to the source system(s).
- 2) If APPN(*YES) is specified on the APPC control unit, a configuration list type *APPCRMT must exist, and have an entry for the remote location, with SECURE LOC = *YES specified. (WRKCFGL command).

S/36

- 1) Must have at least Password security active.
- 2) A Remote Location entry (SECEDIT COMM proc) with Require user password=N must be configured. See Appendix C, Section "AS/400 to AS/400, S/36, and S/38 Example" for an example.

S/38

No changes required.

Source AS/400

- 1) Security level 20 or greater must be active.

Passing No User Profile or Password

To send no user profile or password, the following conditions must be met:

Target AS/400

- 1) The Subsystem QCMN communications entry DEVICE(*ALL) MODE(*ANY) must have a valid default user profile (i.e. QUSER).

APPENDIX E: AS/400 SECURITY CONSIDERATIONS

S/36

No changes required.

S/38

No changes required.

Source AS/400

No changes required.

APPENDIX F: RELEASE COMPATIBILITY TABLE

To ease the scheduling of updates of BDS software, Remote SpoolPrint will support one back release on another system. To support a back release, Target Release=*PRV must be specified on the Remote Writer definition. The following tables show the oldest releases of Remote SpoolPrint which is considered current for compatibility purposes, and the oldest releases of Remote SpoolPrint which are considered a previous release. Please note these tables do not address future releases. If a location has a release more current than the values below, you must use its documentation to determine compatibility.

Current Release Table

The following table shows the oldest release of Remote SpoolPrint the remote system can have and still be considered a current release. (Target Release = *CURRENT on the Remote Writer definition). For example A S/36 loads the current software. To determine if a remote AS/400 is compatible:

- 1) Go down the row S/36.
- 2) Verify the release is indeed considered the current release.
- 3) Go down to the row AS/400.
- 4) Compare this number with the AS/400's Release.

AS/400 SNA: 0503 0000
 AS/400 TCP: 0601 0000
 S/38: 0501 0000
 S/36: 0503 0000
 S/370 MVS: 0501 0000
 S/370 VM: 0501 0000

Previous Release Table

The following table shows the oldest release the remote system can have and still be compatible with the local system. The Remote Writer description must have Target Release=*PRV. The values are shown in rrrm pppp format. Release 05 modification 00 PTF 9101 would be 0500 9101. For example, A S/36 loads the current software. To determine if a remote AS/400 is compatible:

- 1) Go down the row S/36.
- 2) Go across to the column AS/400.
- 3) Compare this number with the AS/400's Release.

		Remote System				
		<u>AS/400</u>	<u>S/38</u>	<u>S/36</u>	<u>MVS</u>	<u>VM</u>
Local System	AS/400	0502 0000	0501 0000	0501 0000	0501 0000	05 01 0000
	S/38	0501 0000	0501 0000	0501 0000	0501 0000	05 01 0000
	S/36	0501 0000	0501 0000	0501 0000	0501 0000	05 01 0000
	MVS	0501 0000	0501 0000	0501 0000		
	VM	0501 0000	0501 0000	0501 0000		

APPENDIX F: RELEASE COMPATIBILITY TABLE

		Remote System	
		<u>AS/400TCP</u>	
Local System	AS/400TCP		0600 0000

APPENDIX G: PROBLEM DETERMINATION

If Remote SpoolPrint is not working correctly the problem can be traced to many sources. Below are procedures you can use to locate the area causing the problem. To avoid costly delays in contacting our technical support staff, we request you use these procedures listed below first. If you are still unable to correct the problem, we ask that you call our technical support staff as soon as practical.

General

Some common problems can easily be found by checking the following:

Verify the following:

Remote SpoolPrint is installed on both the sending and receiving systems.

Passwords (temporary or permanent) have been set on both systems.

Your communications link between the two systems is active and working correctly. You can verify this by checking other functions which use the same comm link. For example verify if IBM's Display Station Passthru, SNADS, or DDM is working correctly, if you are also using any of these. For example, another person at the remote system may be performing maintenance and might have the link down.

Check to see if the operating system (OS/400) has been updated recently, and if Remote SpoolPrint has worked since the update. You may need to reapply changes to OS/400 (change communications entry in subsystem QCMN, etc.)

Consider if Remote SpoolPrint has worked before, and if so, determine when it quit working. Ask other personnel what changes have been made to the communications network. You may need to change your Remote Writer descriptions to reflect changes made.

If none of the situations above appear to be your problem, you first need to determine which system has the problem. To do this we recommend you continue with the procedures below, starting with your sending system. When an error occurs the sending system usually generates enough error information to determine which system has the problem.

AS/400 Sending System

The first thing you need to do is check the information presented on the "Display Writer Status" screen. This will tell you if the Remote Writer is still executing and will help you locate the Remote Writer's joblog. If the Remote Writer does not display on this screen it has finished execution and its joblog has been printed. This screen will also tell the outq the remote writer is monitoring and if the Remote Writer has experienced a communications error. However the information provided here assumes the Remote Writer is working correctly and can provide misleading information if it isn't. Therefore, do not rely too heavily on this screen for problem determination.

If the Remote Writer is still executing, the next step is to determine its status. Enter the command Work with Active Jobs (WRKACTJOB). Under subsystem BDS you should see the Remote Writer. Note its status (EVTW, DEQW, MSGW, ICFW, or RUN).

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EVTW (Event wait)

This status indicates the Remote Writer has no spool entries to send. Verify the source outq is in a Release status and it contains spool entries with a Ready status.

DEQW (Dequeue wait)

On Remote SpoolPrint release 5.2 or later this status indicates either the Remote Writer is in a wait state (there are no spool entries to send) or it is in communications error state. On earlier releases, this status only indicates a communications error state. Verify the source outq has spool entries to send. If so skip to "Locating the Joblog" below.

MSGW (message wait)

A function check has occurred. Skip to "Remote Writer still Executing" below.

ICFW (ICF wait)

The Remote Writer has given data to APPC to transmit, and is waiting for APPC to send the data to the remote system. Press F-11 (display elapsed data) and periodically (every 15 seconds) press F-5 (refresh). Look at the CPU (not CPU%) and AuxIO values to determine if the task is hung or is executing. If the task is hung the problem is probably one of two things: Either there is a function check has occurred on the receiving system or your communications link is itself has a problem. Please note that at startup, the Remote Writer may sit in an ICFW state for up to two minutes trying to establish communications with the receiving program. In this case the job will usually terminate abnormally. If so skip to "Locating the Joblog" below. If the Remote Writer does not terminate after a few minutes skip to the section "AS/400 Receiving System" below. If the problem is not found, you must investigate your communications link. Contact your communications administrator, IBM, or Broderick Data Systems if you need assistance.

RUN

The Remote Writer is probably executing normally. If output moves very slowly you may have a performance problem on either your sending or receiving system, (or an intermediate system if APPN is used) or your communications line is being heavily utilized. On very rare occasions the Remote Writer could be stuck in a loop. If so contact Broderick Data Systems.

Locating the Joblog

Next you must find the joblog produced by the Remote Writer. The joblog is the single most useful piece of information used for problem determination (for any problem, not only Remote SpoolPrint). In fact you will probably not be able to determine the problem without it. If you are unable to find the joblog we suggest you recreate the problem by starting the Remote Writer again.

Remote Writer still executing

If the Remote Writer is still executing, to display the Remote Writer's joblog perform the following:

Enter the WRKSBS command with no parameters.

Select option 8 (work with subsystem jobs) at subsystem BDS.

Note: If you have Remote SpoolPrint release 5.2 or later you can issue the command WRKACTJOB instead of the above commands.

APPENDIX G: PROBLEM DETERMINATION

Select option 5 (work with job) at the Remote Writer line.
Select option 10 (job log).
Press F-10 (detailed messages)
Press F-18 (end of log) if necessary
Skip to the section "Remote Writer Joblog Analysis" below.

Remote Writer finished execution

If the Remote Writer has finished execution the joblog will be in a spool entry with file name QPJOBLOG. First determine if the joblog has printed on a printer and if so, go to the printer and retrieve the print out. Most systems however route joblogs to an outq which does not print to a printer. If so you must locate this outq and find the joblog in it. If you were the user which started the Remote Writer you can speed up this process by issuing a Work Submitted Jobs (WRKSBMJOB) command. Locate a job with the same name as the Remote Writer name and select option 8 (work with spool entries).

Select option 5 (display spool entry) at file QPJOBLOG or route the spool entry to a printer. At the control field type in "B" (bottom) and press enter.

Remote Writer Joblog Analysis

Please note that the job log contains the same information regardless if the Remote Writer is still active or if you are viewing the spool entry QPJOBLOG after the Remote Writer completed execution. If viewing the joblog as part of an active Remote Writer, remember to place your cursor on a desired message and press the HELP key to view the detailed message. In either case if your installation has modified the Logging Level from the values shipped from BDS, not all needed information may be present. If you suspect this, verify that Job Description BRSPL38 in library BRODERICK contains Logging level LOG(4 0 *NOLIST). If not we recommend you change the logging level and recreate the problem. Also some installations change the LOGCLPGM parameter to *YES. This degrades the Remote Writer's performance and produces many messages in the joblog, which makes it difficult to locate relevant messages. If so, you may wish to change the job description BRSPL38 and recreate the error.

We recommend you start at the bottom of the joblog and work towards the top. This is because there are many messages at the start of the joblog which look like errors but are actually normal operation. Please note if the Remote Writer has completed execution you may see several messages at the end of the log which are the normal result of the Remote Writer requesting an abnormal termination.

There many possible error situations and so you must look inquisitively at the joblog to determine the problem. Some of the more common messages are listed below:

The message "Communications error occurred while ... APPC RC=xxxx" appears. This message means is almost always preceded by a system message describing a communication error. The message may appear cryptic but generally is one of the following:

"Cannot allocate objects needed for device". This message is usually the result of the Remote Writer defined incorrectly or the link is not active. To verify perform the following:

- 1) Enter the command Work with Configuration Status (WRKCFGSTS *LIN) and press enter.

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- 2) Scroll until you find the Line, Control Unit, and Device which communicates with the receiving system. Verify all are ACTIVE.
- 3) Select option 8 (work with description) at the Device Description line and press enter. Select option 5 (display) and press enter.
- 4) Write down the following information:
 - Remote Location Name
 - Local Location name
 - Remote Network ID
 - Mode(s)
- 5) Press enter and enter the command DSPMODSTS xxxxxx where xxxxxx is the device description. Verify the mode you are using is status STARTED. If the Mode you are using is status RESET or doesn't appear, your link has a configuration problem or you are using the wrong Mode. Contact the communications administrator to correct the problem.
- 6) Edit the Remote Writer description. Verify this information agrees with the Device description. If not, make the appropriate changes and stop/restart the Remote Writer.

"Evoke Request was rejected...". This message means the sending system asked the receiving system to start our receiving program, but the remote system could not start the receiving program. There are many reasons for this. Skip to the section "AS/400 Receiving System" to determine the problem.

"Remote system abnormally terminated the conversation". This message means the receiving program started executing and then it discovered a problem. Skip to the section "AS/400 Receiving System" to determine the problem.

"Function check. XXX-YYYY unmonitored". Remote SpoolPrint is in error. XXX-YYYY is the CPF message detected. Below are the only situations where a function check does not mean Remote SpoolPrint has a serious problem. In all other situations answer "D" to the message to produce a dump of the program in error, answer "D" to each function check as a result, locate the joblog the Remote Writer generates, and call Broderick Data Systems.

CPF-5424 Internal Failure ... OS/400 detected a bug in its software. This situation is rare for OS/400 version 2 or later. Issue a "C" to each message received until the Remote Writer is cancelled. Then restart the Remote Writer. This situation usually occurs when a temporary hardware error occurred and OS/400 did not recover correctly (i.e. a bad modem). If you receive numerous occurrences of this message you should begin hardware problem determination procedures.

CPF-5425 Device varied off while in use. An operator varied off the APPC device the Remote Writer was using, probably as a result of a communications link failure. For some reason OS/400 does not return a negative return code to the Remote Writer, but issues an escape message (function check) instead. To recover, issue a "C" to this message and any that follow until the Remote Writer is cancelled. Then restart the Remote Writer.

APPENDIX G: PROBLEM DETERMINATION

AS/400 Receiving System

Most problems on the receiving system will appear on the message queue QSYSOPR. Please note that on some AS/400 systems, there is another message queue QSYSMSG which will receive certain APPC error messages. To determine if your system has this message queue, enter the command DSPMSG QSYSMSG. For sake of discussion, this chapter will refer to both message queues as QSYSOPR. Please remember if you have QSYSMSG you will always need to check both queues for messages.

The following messages and their meanings commonly occur in QSYSOPR: "**Program start request for device xxxxxx was rejected with reason code yyy,zzzz**". The system tried to start our receiving program, but could not. OS/400 is very flexible (complicated) and there are many things that can go wrong when starting an evoked job. The three digit reason code (yyy) gives the specific problem. Please note that an in depth knowledge of OS/400 work management (Job Queues, Classes, Subsystems, etc.) may be needed to understand the reason code. You may need to show the reason code to your communications administrator or your system programmer. The three digit reason codes and their meanings are listed in the following manuals:

Communications: Programmer's Guide, Chapter 11 Communications Error Handling, Section Failed Program Start Requests.

Communications: APPC/APPN Users Guide, Appendix A Return Codes, Section Program Start Request Errors.

System/38 Communications Programmers Guide

Any one of these manuals can be used. The most common reason codes and your response are listed below:

715: Neither password nor user ID was provided and no default user profile was specified in the communications entry. This reason code usually occurs after a new release of OS/400 is installed on the receiving system. The user may note the AS/400 can send spool entries but cannot receive them from other systems. If so the subsystem QCMN was changed by your installation and the new release of OS/400 removed those changes. For a quick solution issue the following command (Please note that subsystem QCMN must be terminated first, which will end all passthru sessions into this AS/400):

```
CHGCMNE SBS(D(QCMN) DEV(*ALL) DFTUSER(QUSER)
```

Since updates to a new release of OS/400 are infrequent, the above change may be forgotten when the next release is installed. Since installations usually install new OS/400 releases during nights and weekends, Remote SpoolPrint may be affected for a long period before the problem is found. A better solution is to review Appendix E, "AS/400 Security Considerations". Remote SpoolPrint is able to send user ID and password information to the receiving AS/400 if a few conditions are met. For S/36 source systems the only change needed in most cases is to enter the SECEDIT COMM procedure and add an entry for the AS/400's remote location. For S/38 and AS/400 source systems, the only change needed in most cases is to edit the Remote Writer description and change the APPC User ID and password fields.

"**Outq xxxxx.xxxxxx not found**" The target outq you specified on the Remote Writer does not exist on the receiving system. Change the Remote Description on the sending system.

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"Your password has expired" Call BDS to receive a temporary or permanent password. Verify you have received an invoice and it has been paid to receive a permanent password. If you have not received an invoice you may call to request this sent. You will receive an extension on your temporary password until the invoice has been paid.

"Function Check ..." Remote SpoolPrint has a problem. Please call BDS as soon as possible.

APPENDIX H: REMOTE SPOOLPRINT COMMANDS

To access any of these commands, you may execute from the command line or from the Remote SpoolPrint Main Menu, with appropriate authorization.

BRSPPLNS	Install Remote SpoolPrint
RSCTRL	Remote SpoolPrint/36 Setup
BRSPPLSETUP	Remote SpoolPrint 38/400Setup
BRSPPLUPD	Update to new Release
CNLRMTWTR	S/38 Stop Remote Writer
CNLRMWTR	S/36,AS/400 Stop Remote Writer
DSPRMTSTS	S/38 Display Active Remote Writer
DSPRMSTS	S/36, AS/400 Display Active Remote Writer
DSPRSLOG	Display Remote SpoolPrint Log
LSTFCBTBL	List the FCB Translation Table
LSTFONTBL	List the Font Translation Table
LSTFRMTBL	List the Forms Translation
LSTRMTWTR	S/38 List Remote Writer Description
LSTRMWTR	S/36, AS/400 List Remote Writer Description
MNGFCBTBL	Manage S/370 FCB Translation Table
MNGFONTBL	Manage Font Translation Table
MNGFRMTBL	Manage Forms Translation Table
MNGRMTWTR	S/38 Manage Remote Writer Description
MNGRMWTR	S/36, AS/400 Manage Remote Writer Description

APPENDIX I: TCP CONSIDERATIONS

This chapter shows the areas needed to use TCP to send spool entries from one AS/400 to another.

Planning Guide

The following steps are recommended to set up TCP/IP processing on your AS/400.

Connect your AS/400 to the network. Contact your gateway for detailed information. Contact IBM and telecomm providers to acquire the required equipment if needed.

Install IBM Software. Refer to the Prerequisites section in Chapter 2, “Installation” for prerequisite IBM software.

Decide whether to use Secure Socket Layer. SSL is more secure but requires more setup and consumes more resources to transmit spool entries.

Create/Buy/Install a Digital Certificate This step is only needed if you are running Secure Socket Layer. You can purchase a Digital Certificate or be your own CA and create/distribute/install your own Digital Certificate.

Assign Ports Determine which port each Receiving system Server will listen on.

Setup/Start the Remote SpoolPrint Server Refer to Appendix B, “Additional Functions” section “Remote SpoolPrint Server Options”.

Create Remote Writers Refer to Chapter 4, “Managing Remote Writers”.

Remote SpoolPrint Server

In order to receive entries from other AS/400 systems via TCP, a Remote SpoolPrint Server job must be started. Prior to starting the server it must be configured. The following configuration options must be decided:

IP Addresses to listen on. Determine which IP address to listen on, or all.

Port for the server to listen on. See “TCP Port Usage” below.

Secure Socket layer. See “Secure Socket Layer” below.

User ID/Password. If set, all Remote Writers sending to this system must provide matching

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information.

Refer to Appendix B, “Additional Functions” Section “Remote SpoolPrint Server” for the Server setup options.

Once set up, the Server must be started. We recommend the Server job be always running. Thus you should place the start command somewhere in your IPL startup stream.

TCP Port Usage

Remote SpoolPrint/400 needs a TCP port to send from one system to another. Each Receiving system's Server job will listen on the specified port. As shipped from BDS, the receiving systems will listen on port 3550 (servers on different systems can have the same number).

Remote SpoolPrint uses the IBM Service Table to reserve an unused port. You can use the WRKSRVTBLE command to view the Service Table. The service name used by Remote SpoolPrint is:

bds-rspl-tcp-server

Note: If the above service name does not appear in the service table, reenter the port values using the Tailoring Options display (BRSPLSETUP, F-10).

TCP Subport Usage (Previous Releases)

With release 6.1, Remote SpoolPrint greatly simplified its TCP port usage. The subport pool is no longer needed to transmit spool entries. This section only applies if you need to receive spool entries from other systems that are on a previous release of Remote SpoolPrint. See Appendix F for release compatibility.

Remote SpoolPrint/400 needs several TCP ports to send from one system to another. Each Receiving system's Server job must listen on a port. As shipped from BDS, the receiving systems will listen on port 3550 (servers on different systems can have the same number). Each Remote Writer will also need another port to communicate to a job submitted by the Server job. In the example below the Server job assigned port 3551 to Remote Writer A and 3552 to Remote Writer B,

The administrator must assign ports for the Servers and all submitted jobs. There are two ways to assign a port number to the submitted jobs. You can set up pools of ports for submitted jobs and let the Server assign them to Remote Writers as they connect, or you can assign the port number of the submitted job on the Remote Writer description. For most installations, it is easier to let the Server assign the ports for the submitted jobs.

Note: The Server keeps track of which ports in its pool it assigns to each Remote Writers. The server does not track the ports that the Remote Writers specify. If you assign submitted job ports on the Remote

APPENDIX I: TCP CONSIDERATIONS

Writer description, you must take care that no other task uses that port.

The difficult part of assigning ports is determining if other non-Remote SpoolPrint tasks are already using them. Use the OS/400 NETSTAT command, then Work with Connection Status to see a list of ports on your AS/400 being used. You should also contact IBM for a list of Ports its servers use.

For most installations, the default ports (Svr=3550, subport = 3551-3600) will work correctly.

The ports must not be blocked by network gear such as routers or firewalls. The sending system is the client and the receiving system is the server.

Secure Socket Layer Considerations

Remote SpoolPrint/400 can use SSL to encrypt transmitted data. The administrator must decide whether to use SSL or not. In general, if you are using the internet to communicate between AS/400s, we strongly recommend you use SSL. Otherwise, we recommend not using SSL.

Using SSL requires that a Digital Certificate be installed on both AS/400s. To set up and process Digital Certificates, additional (no charge) IBM software must be installed on the AS/400. See the Prereqs in Chapter 2 for more information.

SSL also adds overhead to the transmission. You will notice a reduction in throughput when using SSL.

Note: Setting up a Digital Certificate on the AS/400 is an involved process. We recommend you contact the IBM Support Center for assistance if you are new to this area of AS/400 operations.

You will install your Digital Certificate into a System Store. Each System Store can have a default certificate. If your Digital Certificate is not the default certificate for the System Store that you install it in, you will need to create an Application ID. Application IDs tell the application (Remote SpoolPrint) which Digital Certificate within a System Store to use.

Remote SpoolPrint provides a utility to create an Application ID. Refer to Appendix B “Additional Functions” section “Creating Application ID’s”. Once created, you must use IBM products such as Digital Certificate Manager to assign the Application ID to a System Store.

Setup Example

The following steps provide an example of implementing TCP using Remote SpoolPrint/400.

1) Connect your AS/400 to the network. In this example, our AS/400 is already configured to access

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the network. To see if your system is connected to the internet, from an AS/400 command line enter:

PING *other.AS400.machine*

You should receive messages stating replies took xxx milliseconds. If not, your AS/400 is unable to connect to the other machines on the network. It may be behind a firewall or not set up properly. In this case you must have the network administrator give the AS/400 access to the other machines on the network.

Note: We have found many AS/400 administrators who are reluctant to connect their AS/400 to the Internet. We find this ironic because the AS/400 has arguably the best security features of any server on the market.

2) Install IBM Software. Refer to the Prerequisites in Chapter 2, “Installation” in this example we had TCP installed and ordered the following software from IBM:

Digital Certificate Manager (Product Option 34)
IBM HTTP Server for AS/400 (5769-DG1)
Cryptographic Access Provider for AS/400 (5769-AC3)

Note: There is no charge for these products.

To check to see if the prereqs are on your system, perform the following:

a. On the AS/400 bring up the license product menu:

GO LICPGM

b. Select option 10, Display installed licensed programs.

c. Press F11 twice to display Product Options. Verify the existence of Digital certificate Manager, 57xxSS1 option 34.

Note: xx=22 in Version 5, 69 in Version 4.

d. Scroll through the list, and verify the existence of the other prerequisites:

57xxAC3	Crypto Access Provider 128-bit for AS/400
57xxDG1	IBM HTTP Server for AS/400
57xxTC1	TCP/IP Connectivity Utilities for AS/400

If an item is not in the list, you will need to contact IBM to order it.

3) Decide whether to use Secure Socket Layer. See above for more information.

4) Create Certificate (SSL only). Creating a Digital Certificate is an involved process, with many options. We recommend you contact IBM Support Center to assist you. You will need a Digital

APPENDIX I: TCP CONSIDERATIONS

Certificate on each system using SSL.

5) Create/Assign an Application ID (SSL Only). In this example, we are not making our Digital Certificate the System store's default. Thus we need to create an Application ID and assign our certificate to it.

a. From an AS/400 command line enter the following:

BRODERICK/BRSPLESETUP

From the "Setup Display" screen, press **F10** (Server options) and press **F10** (ApplID).

b. The Application ID screen will appear. You may change the name if you need to. Otherwise, press **F6** (Create). Press **F6** to confirm. Exit (**F3**) back to the command line.

c. From the Digital Certificate Manager Display, click "Work with Secure Applications". Click the button next to:

BDS_BRODERICK_RSPL40_RMTWTR

Click "Work with System Certificate".

d. The Certificate you created in step 3 should appear in the list of certificates. Click its radio box and click "Assign New Certificate". Click OK on the confirmation screen.

e. Again, Click the **BDS_BRODERICK_RSPL40_RMTWTR** radio button and click "Work with Certificate Authority".

f. For each CA in the list that you are using, click its radio button and then click "Trust". The word "Yes" will appear in the Trusted column.

6) Assign Ports. In this example, we will use the Defaults. Contact your Network personnel to have them set up the firewalls at both sites to allow port 3550 to pass through the firewall.

7) Setup the Remote SpoolPrint Server. On each system that will receive spool entries, configure the Server job. Refer to Appendix B "Additional Functions", section "Remote SpoolPrint Server Options" for more information.

In our example we will monitor all IP addresses, use SSL, and use the default system store:

a. From an AS/400 command line enter the following:

BRODERICK/BRSPLESETUP

From the "Setup Display" screen, press **F10** (Server options).

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b. The Server options screen will appear. Fill in the following parameters:

SSL: Y
System store password: *(your password)*
Application ID: BDS_BRODERICK_RSPL40_RMTWTR

Press **ENTER** twice to return to the command line.

c. Start the Server job. Enter the following command:

BRODERICK/STRMSVR

Note: You should place the above command in your IPL startup stream.

8) Set up Remote Writers.

a. From the Sending AS/400 command line enter the following:

GO BRODERICK/RSPL

b. Select option 11, "Manage Remote Writers", Press **ENTER** to show all. Press **F6** to add. Enter a name and Press **ENTER**. For Remote system type enter TCP400 and press **ENTER**.

c. Enter the following:

Outq at the rmt system (your choice)
Remote Address (your.host.name)
Text Example

Press **ENTER**. On the next Screen, enter the following:

Secure Socket Layer Y
System Store Name *SYSTEM
System Store Password (your password)
Application ID BDS_BRODERICK_RSPL40_RMTWTR

Press **ENTER**. Press **F12** to enter Add Mode and press **F3** to return to the main Menu.

ASP Considerations

Remote SpoolPrint supports Basic and Independent Auxiliary Storage Pools (ASPs, or Disk Pools). Remote SpoolPrint supports multiple instances per LPAR. The administrator has several choices when deciding which ASP to install Remote SpoolPrint product libraries. This appendix will describe the issues involved in moving Remote SpoolPrint libraries to different ASPs, and installing multiple Remote SpoolPrint instances in an LPAR.

The following containers make up the Remote SpoolPrint product:

- Base Objects Library (**BDSBASE**) – Objects that must remain in the *SYSBAS IASP.
- Programs Library (**BRODERICK**) – Programming objects, temporary data and User Data objects (files, etc.).

The administrator should be familiar with ASPs before moving Remote SpoolPrint libraries to different ASP locations or implementing multiple Remote SpoolPrint instances. For more information on OS/400 ASP capabilities, visit the IBM Knowledge Center:

<https://www.ibm.com/support/knowledgecenter>

Use IBM's search function; search for "disk pools". There are also excellent IBM Redbooks available. Here is a list of some:

Independent ASPs A Guide to Moving Applications to IASPs	SG24-6802
IBM i 6.1 IASPs: A Guide to Quick Implementation of Independent ASPs	SG24-7811

Setup/System Considerations

When planning your ASP selection for your Remote SpoolPrint installation, consider the following:

- Moving Remote SpoolPrint objects to different ASPs is optional. The administrator should consider the advantages and disadvantages before moving. BDS recommends you don't move Remote SpoolPrint product libraries unless you see a clear advantage to moving them.
- Library **BDSBASE** must be in the *SYSBAS ASP (ASP 1 – 32). Multiple Remote SpoolPrint instances, along with other BDS products, will share the one **BDSBASE** library.
- Library **BRODERICK** can be in the *SYSBAS ASP or an Independent ASP.
- Check application ASP needs. Please note that the ASP Group setting allows only one non-*SYSBAS IASP to be accessed at a time by a user job. Consider a user application that writes reports to an outq in an IASP. If Remote SpoolPrint libraries are in a different IASP, Remote SpoolPrint tasks such as Remote Writers will not be able to access the outq or its spool entries. This includes Remote SpoolPrint tasks that access spool entries via Job Name/File Name attributes, such as the Remote Writer task. Only objects and spool entries that reside within the same ASP Group as Remote

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SpoolPrint can be accessed by Remote SpoolPrint.

- ASP IPL startup delay. Some ASP devices may not automatically vary on during IPL. Even if the devices do automatically vary on during IPL, the time it takes for the ASP devices to become AVAILABLE can be significant, and libraries on the ASPs are not accessible until the ASP is available. If you place Remote SpoolPrint product libraries on ASPs other than ASP 1, you should modify your startup procedures to account for this delay. For example your IPL startup stream should submit a job to start Remote SpoolPrint processes instead of starting them directly. It should test for the existence of library BRODERICK (the tested lib should be in an ASP), and delay/loop until the lib is found. Then issue Remote SpoolPrint STRxxx commands.
- Entire System Save. The IBM Save All function (option 21) does not save the contents of IASPs. An instance's library **BRODERICK** that exists on an IASP must be saved after the Save All function completes.

Operational Considerations

When running Remote SpoolPrint commands, consider the following:

- Set the ASP Group before running Remote SpoolPrint commands. There are several different ways to do this, including:
 - The IBM SETASPGRP command.
 - User Profile (via Job Description).
 - Submit Job Command
 - Job Description

Note: Do not modify the ASP Group parameters in BDS-supplied objects.

- Remote SpoolPrint asynchronous jobs (Remote Writers, etc.) will retain the ASP Group that was active when the start command was issued. Any jobs submitted by the task will also retain the same ASP Group.
- The Remote Writer Description (AS400 and AS400TCP types) contains an ASPGRP parameter, which specified the ASPGRP to access for the target and submitted tasks running on the target system.
- To determine the ASP Group of a Remote SpoolPrint asynchronous job (or any job), run the WRKACTJOB command and display the job (option 5). Take option 2 (Display job definition attributes).

ASP Considerations

Moving Product Libraries to other ASPs

To move a Remote SpoolPrint instance's library to another ASP, be aware of the operational considerations listed above. Also, be aware of the following:

- All BDS products within the library(s) are moved during the move operations.

The procedure to move the Remote SpoolPrint library(s) is as follows:

- Stop all operations in that instance for all BDS products.
- Back up the library.
- Remove the library from all active jobs' library lists.
- Perform the following operations on the library: SAVLIB, DLTLIB, RSTLIB.
- Restart BDS product operations.

You can also use the **BDSMOVLIB** command, which automates the Save/Delete/Restore operations for you, and performs some checking/verification. See the "BDS Move Lib Utility" below for more information.

BDS Move Lib Utility

The **BDSMOVLIB** command will move Broderick Data Systems product libraries to another ASP. The Pgm objects library (**BRODERICK**), Data objects library (**BDSDATA**), the Base objects library (**BDSBASE**), or any combination can be moved. All Broderick Data Systems functions must be stopped. No object locks can be on any moved library, including the lock that occurs when the library is in a job's library list. The user should verify no job is locking the intended Libraries by using the **WRKOBJLCK** command. It is recommended that QSECOFR, or a user profile with *SECADM authority perform this command.

In order to move libraries, **SAVLIB** and **RSTLIB** commands are performed. The intermediate save media can be a save file or magnetic tapes (including virtual tape devices). It is recommended to use the Save File option unless disk space is a concern.

The **BDSMOVLIB** command and its associated objects reside in library **BRODERICK**. If you wish to move **BRODERICK**, you will need to make a copy of the following objects in another library (i.e. MYLIB), add that library to your library list (and remove **BRODERICK**) and run the **BDSMOVLIB** command from the new library:

BDSMOVLIB	*CMD
BDS13	*PGM
BDSHELP	*PNLGRP

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Following is the screen and parameters of the **BDSMOVLIB** command.

```
Move BDS Libs to other ASPs (BDSMOVLIB)

Type choices, press Enter.

Device . . . . . *SAVF _____ Name, *SAVF
      + for more values _____
Volume Identifier . . . . . *MOUNTED _____ Character value, *MOUNTED
      + for more values _____
Base Lib (BDSBASE) ASP Number . *SYS _____ 1-32, *SYS, *NOMOVE
Pgm Lib (BRODERICK) ASP Number . *SYS _____ 1-32, *SYS, *NOMOVE
Pgm Lib (BRODERICK) ASP Device . *SYSBAS _____ Name, *SYSBAS
Data Lib (BRODERICK) ASP Number *SYS _____ 1-32, *SYS, *NOMOVE
Data Lib (BDSDATA) ASP Device . *SYSBAS _____ Name, *SYSBAS
SAVF for lib objs in transit . . BDSTSAVF _____ Name, *LIBL
                               QTEMP _____ *YES, *NO

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

Device (DEV) Parameter

Specifies the name of the device used to hold objects in transit during the move operations. Specify up to four devices. The device name must exist on the system.

Note: During the move operations, the specified media contains a full SAVLIB instance of the library being moved. In the event of a failure during the restore phase of the move, the specified media may be used to manually move the library. For this reason, if the **BDSMOVLIB** command is submitted to batch and DEV(*SAVF) is specified, a library other than **QTEMP** should be considered.

The possible values are:

***SAVF:** The move operation is done using the save file specified by the SAVF for lib objs in transit.

device-name: Specify the name of the tape device(s) used for the move operation. Specify up to 4 devices.

Volume Identifier (VOL) Parameter

Specifies, for tape devices, the Volume(s) to check for.

The possible values are:

ASP Considerations

***MOUNTED:** No volume-id checking is performed. The mounted volume is used.

volume-id: Specify the name of the volumes(s) to be checked for during the move operation. Specify up to 5 volumes.

Note: If a library's data is expected to continue onto more than one tape, it is recommended to specify the actual volume IDs instead of *MOUNTED.

Base Lib (BDSBASE) ASP Number (BASASP) Parameter

Specifies the destination ASP Number for the Base objects library (**BDSBASE**). This value must be different than the Base Lib's existing ASP number.

The possible values are:

***SYS:** The System ASP (ASP = 1) is the destination ASP.

***NOMOVE:** The Base objects Lib is not moved.

number: Specify the destination User ASP number, from 1 to 32.

Pgms Lib (BRODERICK) ASP Number (PGMASP) Parameter

Specifies the destination ASP Number for the Pgm objects library (**BRODERICK**). Use this parameter instead of the PGMASPDEV parameter if you wish to specify a Basic ASP (1 - 32). This value must be different than the Pgm Lib's existing ASP number.

The possible values are:

***SYS:** The System ASP (ASP = 1) is the destination ASP.

***NOMOVE:** The Pgm objects Lib is not moved.

number: Specify the destination User ASP number, from 1 to 32.

Pgms Lib (BRODERICK) ASP Device (PGMASPDEV) Parameter

Specifies the destination ASP Device for the Pgm objects library (**BRODERICK**). Use this parameter instead of the PGMASP parameter if you wish to specify an Independent ASP (33 - 256).

The possible values are:

***SYSBAS:** The value specified in the ASP Number parameter (PGMASP) is used.

name: Specify the ASP Device name. This name must exist and must be in an AVAILABLE status.

Data Lib (BDSDATA) ASP Number (DTAASP) Parameter

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Specifies the destination ASP Number for the Data objects library (**BDSDATA**). Use this parameter instead of the DTAASPDEV parameter if you wish to specify a Basic ASP (1 - 32). This value must be different than the Data Lib's existing ASP number.

The possible values are:

***SYS:** The System ASP (ASP = 1) is the destination ASP.

***NOMOVE:** The Data objects Lib is not moved.

number: Specify the destination User ASP number, from 1 to 32.

Data Lib (BDSDATA) ASP Device (DTAASPDEV) Parameter

Specifies the destination ASP Device for the Data objects library (**BDSDATA**). Use this parameter instead of the DTAASP parameter if you wish to specify an Independent ASP (33 - 256).

The possible values are:

***SYSBAS:** The value specified in the ASP Number parameter (DTAASP) is used.

name: Specify the ASP Device name. This name must exist and must be in an AVAILABLE status.

SAVF for lib objs in transit (SAVF) Parameter

Specifies the name and library of the save file that contains the objects in transit during move operations.

The possible values are:

BDSTSAVF: File BDSTSAVF will be used.

save-file-name: Specify the name of the save file to use when performing the move operations. If the save file does not exist, it will be created.

The possible Library values are:

QTEMP: The library **QTEMP** is used to locate the save file.

library-name: Specify the name of the library to be searched.

Running Multiple Remote SpoolPrint Instances in an LPAR

Multiple instances of Remote SpoolPrint can run within an LPAR. Each instance runs independently, though some objects are shared by all instances, including:

ASP Considerations

- Library **BDSBASE** and its objects
 - Subsystem BDS and its subcomponents.
 - The BDS User profile coordinator (BDSUSRPRF).

All instances can be active and running at the same time. Each instance must contain a copy of library **BRODERICK** in its own unique IASP.

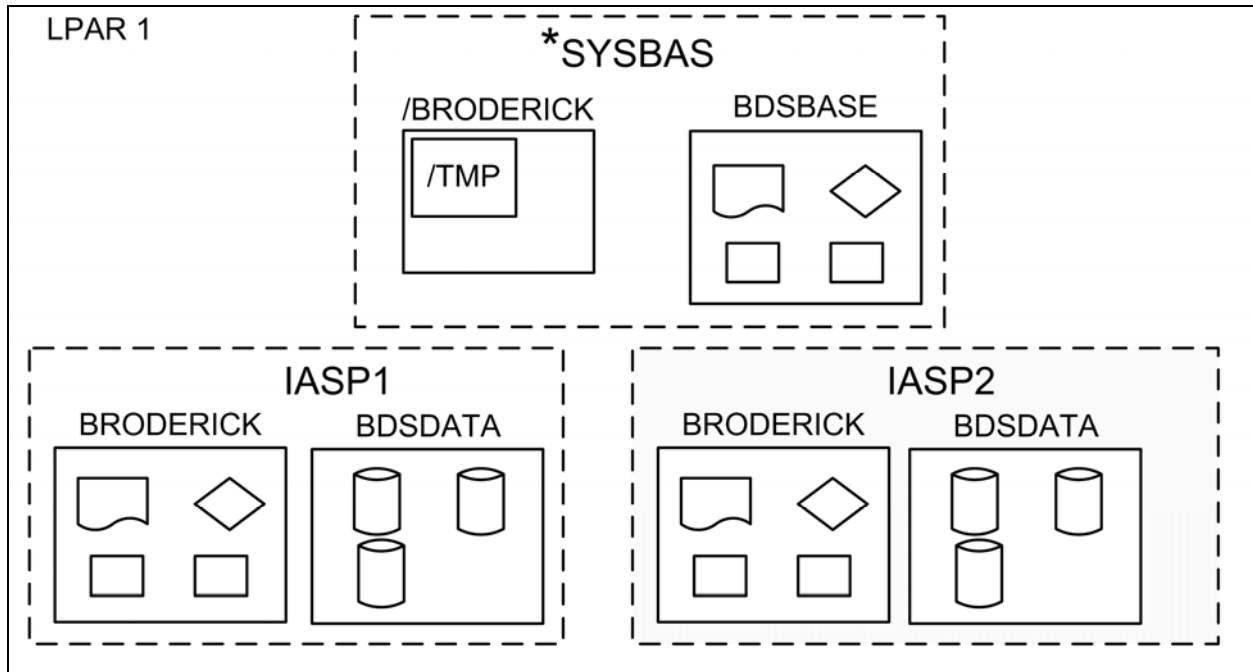


Figure 1-1: Multiple Remote SpoolPrint Instances

Note: Remote SpoolPrint does not use library **BDSDATA**, but other BDS products in may.

When running multiple Remote SpoolPrint instances, consider the following:

- Library **BRODERICK** cannot reside in the ***SYSBASE IASP**. See “Moving Product Libraries to other ASPs” in this appendix for more information on moving library **BRODERICK** to an IASP.
- Library **BDSBASE** must remain in the ***SYSBAS IASP, ASP (1 – 32)**.
- You must install and update each instance separately. For example, if you have Remote SpoolPrint instances installed in IASPs **IASP1** and **IASP2**, you must run the update procedure twice.
- To update or install an instance of Remote SpoolPrint, all instances in the LPAR must be stopped.
- For each instance, library **BRODERICK** must be backed up and restored as a separate entity. For example if you have 2 instances, you must back up both instances of library **BRODERICK** in order to be able to recover data if needed.

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Note: You can restore an instance's **BRODERICK** library into another IASP to create another instance.

- If you are Mirroring our product, each instance must be mirrored as a separate entity. You must mirror ALL objects in **BRODERICK** in order for a recovery to be successful.
- Remote Writer names should be unique across the LPAR. For example you cannot have a Remote Writer named R1 in 2 different instances within the same LPAR running at the same time.
- TCP: Each Remote SpoolPrint instance that receives spool entries from other source machines via TCP must have its own TCP server defined and running. Each TCP server must listen on a unique port. The Remote Writer definition on the source system refers to the desired instance on the target system by specifying the corresponding IP address and port number.

To work with an instance of Remote SpoolPrint, you simply set your job's ASP Group. For example:

```
SETASPGRP IASP1
STRRMWTR RMT1
SETASPGRP IASP2
STRRMWTR RMT2
```

Inter-Product Release Compatibility Table

This chapter describes the procedures to determine if the new release of Remote SpoolPrint is compatible with existing instances of BDS software that are installed on this LPAR. To determine the existing software's release, run the corresponding command for each/all instances of BDS software installed on this LPAR.

<u>Product</u>	<u>Command</u>
Spool Organizer/400	BRODERICK/BSOSETUP
Remote SpoolPrint/400	BRODERICK/BRSPLESETUP
FileXfer/400	BRODERICK/BXFERSETUP
E-mail Utilities/400	BRODERICK/BEMSETUP
Spool PDF Overlay/400	BRODERICK/BOVSETUP

Note: If needed, set the ASP Group to the proper value (**SETASPGRP**) if needed before running the above commands.

The following table shows the other products' oldest release that is compatible with the new release of Remote SpoolPrint/400:

<u>Product</u>	<u>Release</u>
Spool Organizer/400	5.7 0000
Remote SpoolPrint/400	6.2 0000
FileXfer/400	5.2 0000
E-mail Utilities/400	1.0 0000
Spool PDF Overlay/400	1.0 0000

Any installed BDS instance with a release that is earlier than the above values is not compatible with the new release and must be updated at the same time this Remote SpoolPrint instance is updated. Failure to update non-compatible BDS software instances could cause other BDS software to stop working after this Remote SpoolPrint install/update is performed.

You can update the BDS software instances in any order.

For example, if the **BRODERICK/BSOSETUP** command shows that Spool Organizer 5.6 1701 is installed on this LPAR, it must be updated along with updating Remote SpoolPrint.