

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

REMOTE SPOOLPRINT3X/400™

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

REMOTE SPOOLPRINT3X/400™

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

REMOTE SPOOLPRINT3X/400™

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.

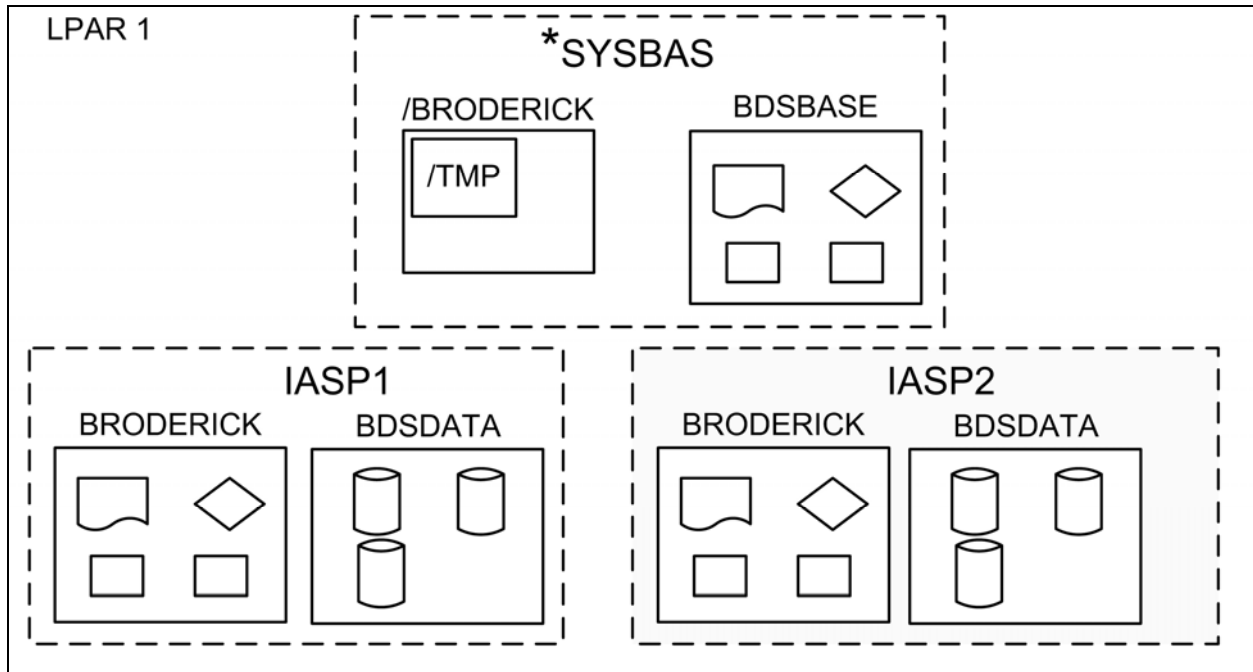


Figure 1-1: Multiple Remote SpoolPrint Instances

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.

REMOTE SPOOLPRINT3X/400™

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
```