Read This First

To: Licensees of Parallel Systems Support Programs for AIX Version 2,

Subject: Program Number 5765-529 — Release 03
Features 6237, 6238, 5908, 5371, 5915, 5380

Thank you for your order. The material you have received is listed on the enclosed Packing List. Please review the Packing List to ensure you have received all items listed.

Please review the following publications prior to installing your SP system.

- *IBM RS/6000 SP: Planning, Volume 2, Control Workstation and Software Environment*.
- *IBM Parallel System Support Programs: Administrative Guide*
- *IBM Parallel System Support Programs: Installation and Migration Guide*

The most current information is available as READMEs, and is on the respective tape as indicated.

Also included in this order is the most current recommended corrective service for this product. Please review the service README file for details on the installation of service. View the softcopy service README files the same way you would view the softcopy README for the product tape(s) (Instructions are included later in this document).

Included in this Memo to Licensees are:

- Summary of Enhancements
- Additional Resource Information
- **PSSP Compatibility, Limitations, Restrictions & Prerequisites**
- IBM Parallel System Support Programs for AIX packaging
- Viewing the softcopy README documents from tape
- AIX 4.2.1 and AIX 4.3.0 Minimal Images

- List of Program Materials

Summary of Enhancements

Parallel System Support Programs (PSSP) V2.3 provides significant expansion in programming models, new RS/6000 SP (SP) node enablement, exploitation of high availability infrastructure, and quality enhancements. PSSP V2.3 runs on AIX Version 4.2.1, or later; or optionally, AIX Version 4.3.0 in binary compatibility mode.

- PSSP supports new symmetric multiprocessor (SMP) 604e High Nodes
- PSSP supports a multi-threaded, standards compliant Message Passing Interface (MPI), via Parallel Environment while maintaining single-threaded MPI support.
- PSSP includes support for the RS/6000 SP Switch Router which provides high-speed communications between the SP and external networks. By connnecting directly to the SP Switch, the SP Switch Router offers significantly improved SP I/O performance.
- PSSP includes a Low-level Applications Programming Interface (LAPI) that provides a flexible active message style communications programming model on the SP Switch.
- The 2992 and 2993 hardware Ethernet adapters are now supported for SP LAN use, both for the POWER2 Super Chip (P2SC) and SMP nodes.
- SP Perspectives, PSSP's new system management user interface, eases system administration with improved performance for start up and execution of functions, scalability with small/large icon size and vertical panes, and enhanced on-line help with improved index capability.

Additional Resource Information

The following "Redbooks", explaining the "how to" of many of the pieces and parts of the SP system and its software, are available.

ITSO available redbooks

```
SG24-2071-00 Integrating Tivoli on the RS/6000 SP  (Available July 97)
SG24-4928-00 RS/6000 SP: Survival Guide  (Available July 97)
SG24-2081-00 RS/6000 SP HACMP Enhanced Scalability (Available August 97)
SG24-2080-00 RS/6000 SP PSSP 2.3 Presentation (Available August 97)
SG24-4873-00 RS/6000 SP Monitoring: Keeping it Alive
SG24-4778-00 RS/6000 SP: Problem Determination Guide
SG24-4838-00 RS/6000 SP High Availability Infrastructure
SG24-4868-00 RS/6000 SP PSSP 2.2 Technical Presentation
SG24-4946-00 Writing Reliable AIX Daemons
SG24-4541-01 RS/6000 Scalable POWERparallel System: Scientific and Technical
SG24-4658-00 Migrating and Managing Data on RS/6000 SP with DB2 PE
SG24-4695-00 Backup, Recovery and Availability with DB2 PE
SG24-4542-00 RS/6000 Scalable POWERparallel Systems: PSSP V2 Presentation
GG24-2563-00 RS/6000 SP System Management: Easy, Lean and Mean
GG24-4499-00 ADSTAR Distributed Storage Manager/6000 on 9076 SP2
GG24-4344-00 Introduction to Parallel Processing and Scalable POWERparallel
```

To preview or browse other recently published redbooks, visit the ITSO redbooks home page:

```
http://www.redbooks.ibm.com
```

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```
FTP.ALMADEN.IBM.COM
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GET ITSOPUB.TXT
GET ITSOCAT.TXT
```

PSSP Compatibility, Limitations, Restrictions & Pre-requisites

Please refer to the README files within Parallel System Support Programs for AIX (PSSP for AIX) software for any restrictions or advisories as well as any required service before you begin to install your SP system.

Additional Restrictions and Considerations

Installation Corrections

- It is important to have the proper level of **perfagent** installed on the control workstation prior to the installation of **pssp.installp**. For AIX 4.2.1, install **perfagent** 2.2.1.0 or later and any required service (5765-654 feature 7014). For AIX 4.3.0, install **perfagent** 2.2.30.0 or later and any required service.

  Note: The installation of service for AIX 4.2.1 APAR IX68740 is required to run with PSSP 2.3

Installation Consideration

- To address a customer requirement, we changed the way we allocate and deallocate resources. If setup_server (or spbootins, which calls setup_server) is run while a node is installing, setup_server will no longer deallocate the resources from the installing node. Instead, the code detects that the node is installing or migrating, and issues an informational message that the state of the node was left unchanged. A disadvantage of this test is that if you want to change a node from "install" mode to "disk" mode, you have to first explictly deallocate the install resources by using the **unallnimres** command. You can then run spbootins or setup_server to allocate the disk resources.
- In PSSP 2.3, the Performance Toolbox Parallel Extensions graphical user interface (spperfmon) is now shipped as part of PSSP, in an install image called **ssp.ptpegui**. In PSSP 2.2, spperfmon was shipped with Performance Toolbox Parallel Extensions (ptpe), a priced feature of PSSP, in a fileset called **ptpe.gui**.

  In order to insure that spperfmon is properly installed on your system when you install PSSP 2.3, please observe the following guidelines:

  – If you are upgrading a system where ptpe and PSSP 2.2 are already installed, simply install PSSP 2.3, making sure that **ssp.ptpegui** gets installed as well. The installation process will correctly recognize that the **ssp.ptpegui** fileset shipped with PSSP 2.3 is a complete supersede of the **ptpe.gui** fileset shipped with ptpe.

  – If you are installing PSSP 2.3 on a new system, be aware that the **ssp.ptpegui** fileset will not install until you purchase and install ptpe, because **ssp.ptpegui** requires the base ptpe fileset, **ptpe.program**, to be installed first.

  – If for some reason you needed to reinstall ptpe after installing ptpe and PSSP 2.3, the install process would not allow the older **ptpe.gui** fileset to be installed over the new **ssp.ptpegui** fileset shipped with PSSP 2.3. This is the desired behavior, since the version of spperfmon shipped in **ptpe.gui** will not work with PSSP 2.3.

System Administration Consideration

Note: The **cshutdown** and **cstartup** commands may be run by members of the shutdown group as well as root from the Control Workstation.

Topology Services Consideration

- Prior to AIX 4.2.1, Topology Services required setting the network option **nonlocsrcroute** to 1 to enable IP source routing (The default is 0). In AIX 4.2.1 some additional network options have been added for IP source routing as follows: **ipsrcroutesend**, **ipsrcrouterecv**, and **ipsrcrouteforward**. The defaults are 1 for **ipsrcroutesend** and **ipsrcrouteforward** and 0 for **ipsrcrouterecv**. Topology Services sets all four of these options to 1 so that the Reliable message feature of Topology Services, which utilizes IP source routing will continue to work. Disabling any of these network options can prevent the Reliable messaging service from working properly.

AIX Considerations

Note: When using a *mksysb*, any AIX corrective service (PTFs) applied to that *mksysb* must also be placed in the lppsource directory and the Shared Product Object Tree (SPOT) must be updated. The AIX corrective service applied to the minimal images is listed under the "Software Requirements" section in this document.

In order to update the SPOT, perform the following steps on the control workstation and all of the boot/install servers:

- Deallocate the SPOT from all clients using the **unallnimres** command.
- On the control workstation only, copy the install images for PTFs to the lppsource directory that corresponds to the appropriate SPOT. For example, copy the PTFs into /spdata/sys1/install/aix421/lppsource.
- For Boot Install Server (BIS) nodes, it is necessary to add the BIS hostname to the /.rhosts file on the control workstation.
- Issue **nim -O check -F <lppsourceName>**
- Issue **smit nim_res_op**
- Select the appropriate SPOT.
- Select the "update_all" function.
- Hit <F4> in the "Source of Install Images" field and select the appropriate lppsource.
- Hit enter twice to initiate the update
- After the update completes, run **setup_server** to reallocate the SPOT to the necessary clients.

Note: The following AIX 4.2.1 APAR is not in the minimal image and must be installed on both the control workstation and the nodes.

- Perfagent (PTX Agent component)

```
IX68740  harmld core dumps (compatibility problem)
```

Note: The following APARs are in the minimal image and must be installed on both the control workstation and the nodes should you choose not to use the minimal image.

– AIX 4.2.1 - **REQUIRED**

```
AIX 4.2.1 Maintenance APAR          - IX58183
AIX 4.2.1 UPDATES REQUIRED FOR PSSP - IX69993
AIX 4.2.1 APAR                      - IX70175
AIX 4.2.1 APAR                      - IX74063
```

– AIX 4.3.0 - **REQUIRED**

```
AIX 4.3.0 APAR                      - IX72883
AIX 4.3.0 APAR                      - IX74149
```

Note: The following AIX 4.3 APARs are **NOT** in the minimal image and must be installed on both the control workstation and the nodes.

```
AIX 4.3.0 APAR                      - IX74009
AIX 4.3.0 APAR                      - IX74059
```

Note: The following PSSP 2.3 APAR must be applied for support on AIX 4.3.0.

```
PSSP 2.3  APAR                      - IX73694
```

System Management considerations

- The **syspar_ctrl** command with the -r option only needs to be run when migrating a node (changing a node's SDR code_version attribute using spbootins), adding a node, or deleting a node. If you are having problems getting "host_responds" working then use the **syspar_ctrl** command with combinations of the -D and -A options or -c and -A to stop and delete (or clean) and then add and start the partition sensitive subsystems.

Migration considerations

- **Publications Considerations**

  Technical updates to the *IBM Parallel System Support Programs for AIX: Installation and Migration Guide* can be found on the Web under the following url:

  `http://www.rs6000.ibm.com/resource/aix_resource/sp_books/pssp/index.html`

- **Migrating nodes running PSSP 1.2 or PSSP 2.1 to PSSP 2.3**

  Any customer migrating nodes from PSSP 1.2 or PSSP 2.1 to PSSP 2.3 will need to install APAR IX70015 on the control workstation, after the control workstation is migrated to PSSP 2.3 but prior to migrating any node from PSSP 1.2 or 2.1 to PSSP 2.3.

  If APAR IX70015 is not available when you start migrating your nodes then a work around would be to insert Step 4a prior to Step 4, or step 6a prior to Step 6 as indicated below in the appropriate sections in Chapter 4, "Migrating to the Latest Level of PSSP" in the *IBM Parallel System Support Programs for AIX: Installation and Migration Guide*.

  Failure to install APAR IX70015 on the control workstation or failure to follow these modified node migration instructions may result in hanging your control workstation. Stopping and starting the

heartbeat (hb) subsystem, just prior to running **syspar_ctrl -r** (refresh), allows hb to form a new group of nodes that will be running PSSP 1.2 or PSSP 2.1. This allows hb to get around a coding error that can cause the hb daemon to use a large amount of CPU on the control workstation which makes the control workstation appear to be in a hung state.

```
Migration Install of Nodes to AIX 4.2.1 and PSSP 2.3
  Step 4a: Stop and Start Heartbeat
    syspar_ctrl -k -G hb
    syspar_ctrl -s -G hb
  Step 4: Refresh System Partition-Sensitive Subsystems
    syspar_ctrl -r -G

mksysb Install of Nodes
  Step 4a: Stop and Start Heartbeat
    syspar_ctrl -k -G hb
    syspar_ctrl -s -G hb
  Step 4: Refresh System Partition Sensitive Subsystems
    syspar_ctrl -r -G

Upgrade Nodes to AIX 4.2.1 and PSSP 2.3
  Step 6a: Stop and Start Heartbeat
    syspar_ctrl -k -G hb
    syspar_ctrl -s -G hb
  Step 6: Refresh System Partition Sensitive Subsystems
    syspar_ctrl -r -G
```

- **Installation/Migration**

  To address a customer requirement, we changed the way we allocate and deallocate installation/migration resources. If setup_server (or spbootins, which calls setup_server) is run while a node is installing/migrating setup_server will no longer deallocate the resources from the installing/migrating node. Instead, the code detects that the node is installing/migrating, and issues an informational message that the state of the node was left unchanged. A disadvantage of this test is that if you want to change a node from "install" mode to "disk" mode, you have to first explicitly deallocate the install / migrate resources by using the **unallnimres** command. You can then run spbootins or setup_server to allocate the disk resources.

- **Partitioned systems**

  If your SP system is partitioned the following section should be added at the end of each step listed below in Chapter 4, "Migrating to the Latest Level of PSSP" in the *IBM Parallel System Support Programs for AIX: Installation and Migration Guide*.

```
Migrate the Control Workstation from PSSP 1.2 to PSSP 2.3:
  Step 5: Verify Control Workstation Interfaces

Migrate the Control Workstation from PSSP 2.1 to PSSP 2.3:
  Step 4: Verify Control Workstation Interfaces

Migrate the Control Workstation from PSSP 2.2 to PSSP 2.3:
  Step 4: Verify Control Workstation Interfaces
```

If your system is partitioned please verify that the aliases for each of your system partitions are still defined in /etc/rc.net. Also, verify the aliases are still defined by issuing the command:

```
netstat -in
```

If they are no longer defined due to the AIX Migration they must be redefined before continuing with your PSSP migration. Edit the /etc/rc.net file, looking for the template provided for changing the inet0 to an alias. Follow the template and edit the file to define alias IP addresses and names, for example:

```
 /usr/sbin/ifconfig tr0 alias 129.40.127.101 netmask 255.255.255.0 up >>$logfile 2>&1
```

After editing the /etc/rc.net file, make sure it has execute permission, then either execute the rc.net script or enter the **ifconfig** command directly, for example:

```
 ifconfig tr0 alias 129.40.127.101 netmask 255.255.255.0 up
```

For complete details on how to create aliases for your system partitions refer to section "Before You Define System Partitions" in the *Parallel System Support Programs for AIX: Administration Guide*.

- **Migrating from AIX 4.2.0 to AIX 4.2.1**

  A reboot of the Control Workstation and any node that you are migrating from AIX 4.2.0 to 4.2.1 (or later) is required after the AIX migration is complete and prior to migrating/upgrading the PSSP. Insert Step 3a into the Control Workstation migration section after step 3, and Step 2b: into the Node migration section after step 2 in Chapter 4. "Migrating to the Latest Level of PSSP" in the *IBM Parallel System Support Programs for AIX: Installation and Migration Guide* as indicated in the next two paragraphs.

```
Migrate the Control Workstation from PSSP 2.2 to PSSP 2.3,
  Step 3.  Verify AIX Migration
  Step 3a. Reboot the Control Workstation
   If you just upgraded your Control Workstation from AIX 4.2.0 to AIX
   4.2.1 you need to reboot the Control Workstation at this time so
   changes to the kernel can take effect.

Upgrade Nodes to AIX 4.2.1 and PSSP 2.3
  Step 2:  Verify AIX Migration
  Step 2b: Reboot the Node
   If you just upgraded your node from AIX 4.2.0 to AIX 4.2.1 you need
   to reboot the node at this time so changes to the kernel can take
   effect.
```

- **Migrating to AIX 4.3.0**

Before migrating your nodes to AIX 4.3.0 you must ensure that the required 4.3.0 APARs are included in your **lppsource** and built into your SPOT. If your have already built your SPOT without the APARs you will need to update your SPOT after you've included the fixes in your **lppsource**. Under "AIX Considerations" starting on page 5 you will find the required APARs and "How to update your SPOT".

- **Migration to PSSP 2.3 and Automounter Replacement**

  PSSP 2.3 has replaced its use of the AMD automounter with the AIX Automount Daemon available as part of AIX. When migrating to PSSP 2.3 from a previous PSSP level, the introduction of PSSP support for the AIX Automount Daemon may impact existing Automount installations. The following paragraph should be added to the automounter migration discussion in the listed sections of "Chapter 4, Migrating to the Latest Level of PSSP" in the *IBM Parallel System Support Programs for AIX: Installation and Migration Guide*.

```
Migrate the Control Workstation from PSSP 1.2 to PSSP 2.3:
  Step 17: Configure PSSP Services and Set Up Site Environment

Migrate the Control Workstation from PSSP 2.1 to PSSP 2.3:
  Step 19: Configure PSSP Services and Set Up Site Environment

Migrate the Control Workstation from PSSP 2.2 to PSSP 2.3:
  Step 17: Configure PSSP Services and Set Up Site Environment
```

  If the Site Environment variables amd_config and filecoll_config are both set to true, services_config will add the following new entries to the user.admin file collection list file (/var/sysman/sup/user.admin/list):

```
upgrade ./etc/auto.master
upgrade ./etc/auto/maps/auto.*
upgrade ./etc/auto/cust/*
```

  If any of these files currently exist on some of your nodes, they will be replaced during the next supper update. For example, if you are currently running the AIX automounter on some nodes and are using an /etc/auto.master file, this file will be replaced and may disrupt your automounter execution. You may wish to turn off file collections or add the individual files to that node's supper exclude file before running the services_config command in this step.

- **Migrating IBM Virtual Shared Disks**

  For Oracle customers - The fix to APAR IX69650 must be installed to prevent a timing problem between IBM Virtual Shared Disks and Oracle. If this fix is not installed you must delay the **hc.activate** script (which allows Oracle to come up) until the IBM Virtual Shared Disks have stabilized.

  The following steps are provided to assist in the migration of IBM Virtual Shared Disks from PSSP 2.2 to PSSP 2.3. This prepares the database servers and IBM Virtual Shared Disk nodes for migration. After performing the following steps refer to Chapter 4, "Migrating to the Latest Level of PSSP" in the *IBM Parallel System Support Programs for AIX: Installation and Migration Guide* for migrating instructions from AIX and PSSP.

Step 1 Shutdown Oracle Instance on Node

This step is optional for nodes not running an instance of an Oracle database.

```
dsh -w <node> "su - oracle -c opsctl stop -s inst -i <instance #>"
```

Step 2 Stop IBM Virtual Shared Disk on Node

This step is optional for nodes not running Oracle instances. You stop the IBM Virtual Shared Disk on the node which initiates a takeover.

```
dsh -w <node> /usr/lpp/csd/bin/ha.vsd stop
```

Step 3 Disable Node from IBM Virtual Shared Disk Configuration

This step is optional for nodes with no IBM Virtual Shared Disks. It disables the node from the IBM Virtual Shared Disk configuration.

```
/usr/lpp/csd/bin/updatevsdnode -n <node_number> -a none
```

To verify that the node has been removed from the IBM Virtual Shared Disk configuration, enter the command:

```
SDRGetObjects Node node_number==<node_number> node_number VSD_adapter
```

The value returned for VSD_adapter should be the null string, "".

- **HACWS Considerations**
  - **mksysb Considerations**

    In Chapter 6 of the *IBM Parallel System Support Programs for AIX: Installation and Migration Guide* **ADD** the following:

    In an HACWS environment, you should have a mksysb of both the primary and backup control workstations for restoration. After restoring the mksysb, do **NOT** run **install_cw** as instructed.
  - **Avoiding false Adapter Failures**

    To avoid false adapter failures on configurations without standby adapters in the "Managing a High Availability control workstation configuration" chapter of the Administrative Guide add the following after the **netmon.cf** file configuration:

    Issue **/usr/sbin/no -0 bcastping=1**

Hardware Requirements

- An RS/6000 SP system including one control workstation for each SP system.
- The control workstation must be operational prior to the SP system installation. It also must be operational before the Customer Service representative for the SP system is called for maintenance.

Software Requirements

Note: Customers ordering hardware separately must ensure access to the latest update of AIX.

Parallel System Support Programs Version 2 Release 3 Requirements:

- AIX 4.2.1 (5765-C34, or 5765-655), or later, on the control workstation; or optionally, AIX 4.3.0 (5765-C34) in binary compatibility mode.

  The following fixes have been applied to the minimal **mksysb** Image for AIX 4.2.1. If you do not use this minimal **mksysb** image, the fixes must be applied to your AIX 4.2.1 operating system prior to creating your **mksysb** image which you will use to install your nodes. Whichever image you use you must update your SPOT and lppsource directory with these fixes.

  ```
  AIX 4.2.1 APAR - IX58183
  AIX 4.2.1 APAR - IX69993
  AIX 4.2.1 APAR - IX70175
  AIX 4.2.1 APAR - IX74063

  AIX 4.3.0 APAR - IX72883
  AIX 4.3.0 APAR - IX74149
  ```

  Note: The following fixes have **NOT** been applied to the minimal image and must be applied to your AIX 4.3.0 operating system prior to creating your **mksysb** image.

  ```
  AIX 4.3.0 APAR - IX74009
  AIX 4.3.0 APAR - IX74059
  ```

  Note: The following PSSP 2.3 APAR must be applied for support on AIX 4.3.0.

  ```
  PSSP 2.3  APAR                      - IX73694
  ```

- C for AIX V 3.1, or later (5765-423) or C++ for AIX V3.1, or later (5765-421) (At least one concurrent use license). Either of these products is necessary for service of PSSP for AIX. Without the compiler's preprocessor, dump diagnosis tools like crash will not function fully. At least a one-user license must be obtained, but if you intend to do C development work, you will have to decide how many users you wish supported at a given time.
- IBM Performance Toolbox V2.2, Agent Component (5765-654).
- The LAPI function, which is within PSSP, requires Parallel Environment V2.3. If this optional function is not used then Parallel Environment is not required.

Note: The license for PSSP V2.3, with the exception of the HACWS and PTPE optional features, is included in the SP hardware price. However, PSSP must be separately ordered.

IBM Performance Toolbox Parallel Extensions (PTPE) (a separately priced feature of PSSP V2.2 or V2.3.) Requirements:

- Performance Toolbox for AIX V2.2 (5765-654)
  - The Agent Component must be installed on each node that you want to monitor.

– The Performance Manager is required to be on at least one node or workstation in the network for monitoring.

HACWS (a separately priced feature of PSSP V2.3) Requirements:

- On both of the control workstations:
  – HACMP V4.2.1 (5765-A86)

    Note: HACMP V4.2.1 is supported on the control workstations, but **ONLY** the HACMP Enhanced Scalability feature is supported on the SP nodes. Refer to the HACMP 4.2.1 Software Announcement for support of other HACMP 4.2.1 features on PSSP V2.3.

    Note: HACMP V4.2.1 Enhanced Scalability feature is not supported on the control workstation.
  – AIX 4.2.1 (or later) (5765-C34 or 5765-655)
  – PSSP V2.3 (5765-529)

Service

The URL address of the RS/6000 SP service and support information is located on the Internet at the following URL:

```
http://www.rs6000.ibm.com/support/sp/
```

This page contains all the service bulletins and flashes as well as PTF and APAR reports for all current releases of PSSP, LoadLeveler, PE, NetTAPE, PVMe, PIOFS and RVSD.

Compatibility

Since the SP system and PSSP use IBM RS/6000 POWER2, PowerPC, POWER architecture, and run on AIX 4.2.1 or AIX 4.3.0, programs written for the RS/6000 machines will run on properly configured SP processor nodes without recompilation. In some cases additional performance may be achieved by recompiling with the latest versions of the IBM XL Fortran compilers to further exploit the POWER2 and PowerPC technology.

PSSP V2.3 is a functional enhancement of AIX Parallel System Support Programs V2.2. PSSP V2.2 will remain orderable.

When running with PSSP V2.3, the following products must be at the levels specified below:

- LoadLeveler (5765-145) V1R3
- IBM Parallel Environment for AIX (5765-543) V2R3
- IBM Recoverable Virtual Shared Disk (5765-444) V1R2, or IBM Recoverable Virtual Shared Disk (5765-646) V2R1
- IBM Parallel ESSL (5765-422) V1R2
- Network Tape Access and Control System (5765-637) V1R2
- NetTape Tape Library Connection (5765-643) V1R2

- Parallel I/O File System (5765-297) V1R2
- HACMP Enhanced Scalability feature **ONLY** (5765-A86) V4R2M1.
- CLIO/S (5648-129) V2R2

Limitations

IBM PVMe for AIX V2.2: This product is not supported on PSSP V2.3, nor does PVMe V2.2 execute on SMP nodes.

Existing system partitions for PSSP V1.2, for PSSP V2.1, or for PSSP V2.2 can coexist with PSSP V2.3. However, the same partition cannot contain both PSSP V1.2 and PSSP V2.1 nodes.

PSSP V2.3 is the last release that provides software enhancements to the High Performance Switch.

PSSP V2.3 is the last release of PSSP to support a direct migration from PSSP V1.2.

Nodes that have an integrated 2980 Ethernet adapter cannot be installed over a 2992 or 2993 Ethernet adapter.

Migration and Coexistence

The following service must be applied to your existing SP system prior to migrating your control workstation to PSSP 2.3. Coexistence also requires this service.

The minimum service level for PSSP 1.2 support is the following subset of PTF set 23 which consists of the following PTFs:

Component Sub_component	Pre-Req PTF	Curr PTF
PSSP		
mte	U435390	U438913
ssp.authent		U443336
ssp.basic	U436609	U445251
ssp.clients	U436610	U442809
ssp.css	U436611	U445250
ssp.docs	U436612	U444473
ssp.gui	U436613	U444041
ssp.jm	U435401	U444042
ssp.public	U436614	U442519
ssp.sysctl	U436615	U441309
ssp.sysman	U436616	U444468

IBM Virtual Shared Disk and IBM Recoverable Virtual Shared Disk customers need to de-install the **rcsd.hahc** component prior to installing csd 2.3 and rcsd 2.1

Installation of PSSP V2.2 with AIX 4.1.4 requires the installation of AIX PTFs on the AIX PSSP V2.1 (AIX 4.1.4) nodes, which contain the fixes for the following APARs:

APAR # IX58039
APAR # IX60723
APAR # IX60742

The minimum service level for PSSP 2.1 support is PTF set 23 which consists of the following PTFs:

Component Sub_component	Pre-Req PTF	Curr PTF
PSSP		
ssp.authent	U443266	
ssp.basic	U443258	U450056
ssp.clients	U443261	U450058
ssp.cmi	U443265	
ssp.csd.hsd	U443264	U449163
ssp.csd.vsd	U443260	U450057
ssp.css	U443256	U450054
ssp.docs	U443268	U449900
ssp.gui	U443263	U450059
ssp.hacws		U449901
ssp.jm	U443262	U450060
ssp.public	U443259	
ssp.sysctl	U443267	
ssp.sysman	U443257	U450053
ssp.top	U443255	

The minimum service level for PSSP 2.2 support is PTF set 11 which consists of the following PTFs:

Component Sub_component	Pre-Req PTF	Curr PTF
PSSP		
ssp.basic		U451775
ssp.clients		U451779
ssp.csd.gui		U449667
ssp.csd.hsd		U451780
ssp.csd.sysctl		U450516
ssp.csd.vsd		U451776
ssp.css		U451773
ssp.docs		U451771
ssp.gui		U451782
ssp.ha		U451778
ssp.hacws		U449227
ssp.jm		U451781
ssp.public		U449209
ssp.sysman		U451774

IBM Parallel System Support Programs for AIX Packaging

The RS/6000 SP system software includes the IBM Parallel System Support Programs for AIX (PSSP), a comprehensive suite of applications for the installation, operation, management, and administration of the RS/6000 SP system. PSSP provides a single point of control for administrative tasks and helps increase productivity by letting administrators view, monitor, and control system operation.

Packaging

The IBM Parallel System Support Programs for AIX are packaged as the following **installp** images:

- **pssp**
- **spimg**
- **ssp.csd**
- **ssp.ptpegui**

The following are optional separately priced features:

- **ssp.hacws**
- **ptpe**

pssp

The **installp** image for **pssp** contains the code to install, operate and manage your RS/6000 SP system. The options in this package include:

ssp.basic: The following support functions are included in this option:

- Installation and configuration
- System operation and monitoring
- Distributed shell
- Login control
- System Data Repository (SDR)

ssp.gui: This option contains the SP Perspectives GUI as well as the graphical user interface for the System Monitor.

ssp.sysman: This option contains the following functions:

- Time services
- User management
- File collections
- Accounting
- Parallel management commands

- Error Log Management

ssp.jm: This option contains the **Resource Manager** facility for allocating nodes to run parallel jobs, and for tracking parallel jobs across the RS/6000 SP system. It allows space sharing and time sharing of nodes as well as interactive and batch execution of parallel jobs.

ssp.st: This option contains a library and commands that support an application programming interface for loading, unloading, and querying the status of job switch tables.

ssp.css: **Communications Subsystem Support** performs switch initialization during system bring-up, and automatic switch reconfiguration following switch detected errors. CSS also provides software error detection codes for all messages, and concurrent servicing of SP nodes and frames through message retry following a switch fault. This option also contains the switch clock API.

ssp.spmgr: This option contains the SNMP Manager support that acts as a trap monitor.

ssp.top: This option contains directories and files for supported system partitioning configurations, as well as the System Partitioning Aid, a tool for creating customized system partition configurations to suit your needs. **ssp.top** includes:

- Subdirectories for SP system sizes
- Subdirectories for partition configurations for SP system sizes
- Layout directories for partition configurations
- A layout text file that describes the configuration
- Topology and nodelist files for the configuration
- The System Partitioning Aid

ssp.top.gui contains the graphical user interface for the System Partitioning Aid.

ssp.topsvcs: This option contains the Topology Services/ES.

ssp.ha: This option contains subsystems for high availability, including heartbeat, Group Services, and Event Management.

ssp.pman: This option contains the Problem Management subsystem. The Problem Management subsystem provides configurable access to Event Management client and resource monitor function. It includes daemons, commands, utilities, and scripts.

ssp.authent: This option contains the server (daemon) code that provides Kerberos ticket-granting services, and primary and secondary database administration. It also contains a number of privileged utility commands for manipulating the local Kerberos database. This option can be installed on the control workstation or on other RS/6000 workstations that are configured as Kerberos server systems. It is not installed on the RS/6000 SP nodes.

ssp.sysctl: **Sysctl** is an authenticated client/server system for running commands remotely and in parallel. Sysctl consists of a server daemon, commands, configuration files, and a client shell program.

ssp.clients: This option provides the nonprivileged (user) Kerberos commands, as well as client support for authenticated services, namely the SP System Monitor that runs on an RS/6000 SP control workstation and the **kshell** service of the SP authenticated remote commands (Kerberos-authenticated **rsh** and **rcp**). This option is required on the control workstation and is automatically installed on every SP node. It can also be installed on any other RS/6000 workstation on which you desire these capabilities.

ssp.perlpkg: This option contains Perl 4.036 and Perl 5.002 programs and libraries.

ssp.public: This option contains tar files of full public distributions of Perl (Practical Extraction and Report Language), NTP (Network Time Protocol), SUP (System Update Protocol), Tcl (Tool Command Language), TclX (Tool Command Language Extended), Tk (Tcl-based Tool Kit for X-windows), and Expect (Programmed dialogue with interactive programs).

ssp.docs: This option contains the PostScript, man page, and html files for PSSP documentation.

spimg

The **spimg** installp image contains a **mksysb**, or multiple **mksysb**s, of an AIX 4.2.1 or AIX 4.3.0 system that you can use to install AIX 4.2.1 or AIX 4.3.0 version on the nodes in your RS/6000 SP system, after you have successfully installed and configured your control workstation. This minimal system is composed of the basic operating system, extensions, networking and basic utilities. It is provided as a base for getting your RS/6000 SP system up and running quickly.

To install an **spimg** for a particular AIX operating system level, choose the appropriate **spimg** fileset to install. For example, to install the AIX 4.2.1 level of the **spimg**, choose the fileset named **spimg.421** and replace the package name "**spimg**" in the instructions with the chosen fileset name "**spimg.421**".

Note: The AIX 4.3.0 **spimg** is approximately 25 MB larger than the AIX 4.2.1 **spimg** due to the 64 bit architecture.

The images currently provided are: **spimg.421**, and **spimg.430**

You should customize one of these images to meet the needs of your production environment. Instructions for customizing the minimal image are in the *Parallel System Support Programs: Installation and Migration Guide*.

ssp.csd

This image provides the IBM Virtual Shared Disk and the IBM Virtual Shared Disk Data Striping Device (HSD) function for the SP system. The IBM Virtual Shared Disk function allows each node in the cluster to access a disk as if it were local to the node, even though the disk is not physically attached to all RS/6000 SP nodes. The HSD is a device driver that lets application programs stripe data across the physical disks in multiple IBM Virtual Shared Disks. The **csd** image is split into five install options:

ssp.csd.vsd IBM Virtual Shared Disk Device Driver, Methods and Commands.

ssp.csd.cmi IBM Virtual Shared Disk Configuration Management Support which includes the SMIT panels and the commands to interface with the System Data Repository (SDR).

ssp.csd.hsd IBM Virtual Shared Disk Data Striping Device. The **ssp.csd.vsd** and **ssp.csd.cmi** options must be installed on all SP nodes that are to be used as either IBM Virtual Shared Disk server or client nodes. The **ssp.csd.hsd** option must be installed on all nodes with IBM Virtual Shared Disks, if data striping will be used.

ssp.csd.sysctl IBM Virtual Shared Disk commands that use Sysctl function.

ssp.csd.gui The graphical user interface for IBM Virtual Shared Disks.

ssp.ptpegui

This option contains the graphical user interface for the Performance Toolbox Parallel Extensions for AIX. It completely supersedes the **ptpe.gui** option shipped with the Performance Toolbox Parallel Extensions (ptpe) install image. If you intend to use the ptpe graphical user interface with PSSP 2.3, you must install **ssp.ptpegui** after the ptpe.program option contained in the ptpe install image has been successfully installed.

ssp.hacws

The **ssp.hacws** install option supports the High Availability Control Workstation (HACWS) function. HACWS provides automatic fail over and reintegration to a backup control workstation should the primary control workstation become unavailable.

Note: This is an optional separately priced feature.

ptpe

This image provides the Performance Toolbox Parallel Extensions for AIX, a performance monitor that provides access to performance information about RS/6000 SP hardware and software. The **ptpe** image is split into three options:

ptpe.docs Performance Toolbox Parallel Extensions for AIX documentation, including a PostScript file and hypertext version (accessible with the **InfoExplorer** tool).

ptpe.gui The graphical user interface for the Performance Toolbox Parallel Extensions for AIX.

Note: This option will work only with PSSP 2.2. In order to use the ptpe graphical user interface with PSSP 2.3, you must install the **ssp.ptpegui** install image after successfully installing the **ptpe.program** option.

ptpe.program The Performance Toolbox Parallel Extensions for AIX program.

Note: This is an optional separately priced feature.

Other IBM Products

A large number of system and application software products developed by IBM can be run on the SP system. For example:

- IBM LoadLeveler
  - Distributed, network-wide job management
- IBM Parallel Environment for AIX
  - Parallel application development and execution
  - Message passing parallel task communications
- IBM Parallel I/O File System
  - Data file system for parallel access to large files
- ADSM/6000
  - System and user data management
- PTX/6000
  - Performance monitoring
- NetView for AIX
  - Enterprise network management
- Trouble Ticket for AIX
  - Problem management
- PSF/6000
  - Printing support
- Job Scheduler for AIX
  - Schedules production batch workload in a distributed AIX environment

Independent Software Vendor Products

There is an aggressive program in place to enable and encourage independent software vendors to enable and port their applications to the RS/6000 SP system.

Viewing softcopy of the README documents from tape

To view a softcopy of any READMEs from the IBM Software Manufacturing Solutions (ISMS) tape:

- View the components on the tape with this command:

  ```
  installp -l -d /dev/rmt0.1
  ```

  Find the desired component name, then

- View a softcopy of any README from the ISMS tape with the following command. Please note it may take several minutes to display each file.

  ```
  installp -i -d /dev/rmt0.1  ssp
  installp -i -d /dev/rmt0.1  ssp.csd
  installp -i -d /dev/rmt0.1  ssp.hacws (Optional - separate tape)
  installp -i -d /dev/rmt0.1  ssp.ptpe (Optional - separate tape)
  installp -i -d /dev/rmt0.1  spimg (separate tape)
  ```

- After installation, the READMEs can be found in the following directories:

  ```
  /usr/lpp/ssp/README
  /usr/lpp/csd/README
  /usr/lpp/hacws/README (Optional)
  /usr/lpp/ptpe/README (Optional)
  /usr/lpp/spimg/README
  ```

AIX System Minimal mksysb Image and Required AIX PTFs

AIX 4.2.1 Image Content

The following fixes have been applied to the minimal **mksysb** image for AIX 4.2.1. If you do not use this minimal **mksysb** image, the fixes must be applied to your AIX 4.2.1 operating system prior to creating your **mksysb** image which you will use to install your nodes. Whichever image you use you must update your SPOT and lppsource directory with these fixes according to the instructions listed in "AIX Considerations" under "Additional Restrictions" in this document.

```
IX58183
IX69993
IX70175
IX74063
```

Here is the lslpp -l output from the AIX 4.2.1 minimal image:

```
Fileset                      Level  State  Description
----------------------------------------------------------------------------
X11.msg.en_US.Dt.helpmin   4.2.0.0    C    AIX CDE Minimum Help Files -
                                            U.S. English
bos.acct                   4.2.1.1    C    Accounting Services
bos.adt.debug              4.2.1.5    C    Base Application Development
                                            Debuggers
bos.adt.lib                4.2.1.1    C    Base Application Development
                                            Libraries
bos.diag.com               4.2.1.4    C    Common Hardware Diagnostics
bos.diag.rte               4.2.1.5    C    Hardware Diagnostics
bos.diag.util              4.2.1.2    C    Hardware Diagnostics Utilities
bos.iconv.com              4.2.1.0    C    Common Language to Language
                                            Converters
bos.ifor_ls.client         4.2.1.0    C    iFOR/LS License System Client
                                            Utilities
bos.info.en_US.smit_help   4.2.1.0    C    Help for SMIT - U.S. English
bos.loc.iso.en_US          4.2.1.0    C    Base System Locale ISO Code Set
                                            - U.S. English
bos.mp                     4.2.1.7    C    Base Operating System
                                            Multiprocessor Runtime
bos.msg.en_US.diag.rte     4.2.0.1    C    Hardware Diagnostics Messages -
                                            U.S. English
bos.msg.en_US.mp           4.2.0.0    C    Base Operating System MP Runtime
                                            Msgs - U.S. English
bos.msg.en_US.net.tcp.client
                           4.2.0.6    C    TCP/IP Messages - U.S. English
bos.msg.en_US.rte          4.2.0.3    C    Base Operating System Runtime
                                            Messages - U.S. English
```

```
bos.msg.en_US.txt.tfs      4.2.0.0    C    Text Formatting Services
                                             Messages - U.S. English
bos.net.nfs.client         4.2.1.7    C    Network File System Client
bos.net.nis.client         4.2.1.0    C    Network Information Service
                                             Client
bos.net.tcp.client        4.2.1.13    C    TCP/IP Client Support
bos.net.tcp.smit           4.2.1.0    C    TCP/IP SMIT Support
bos.perf.diag_tool         4.2.1.0    C    Performance Diagnostic Tool
bos.perf.pmr               4.2.1.0    C    Performance PMR Data Collection
                                             Tool
bos.rte                    4.2.1.0    C    Base Operating System Runtime
bos.rte.Dt                 4.2.0.0    C    Desktop Integrator
bos.rte.ILS                4.2.1.0    C    International Language Support
bos.rte.SRC                4.2.1.1    C    System Resource Controller
bos.rte.X11                4.2.0.0    C    AIXwindows Device Support
bos.rte.aio                4.2.1.2    C    Asynchronous I/O Extension
bos.rte.archive            4.2.1.1    C    Archive Commands
bos.rte.bind_cmds          4.2.1.3    C    Binder and Loader Commands
bos.rte.boot               4.2.1.2    C    Boot Commands
bos.rte.bosinst            4.2.1.0    C    Base OS Install Commands
bos.rte.commands           4.2.1.3    C    Commands
bos.rte.compare            4.2.1.0    C    File Compare Commands
bos.rte.console            4.2.1.2    C    Console
bos.rte.control            4.2.1.7    C    System Control Commands
bos.rte.cron               4.2.1.0    C    Batch Operations
bos.rte.date               4.2.1.0    C    Date Control Commands
bos.rte.devices            4.2.0.0    C    Base Device Drivers
bos.rte.devices_msg        4.2.1.1    C    Device Driver Messages
bos.rte.diag               4.2.1.3    C    Diagnostics
bos.rte.edit               4.2.1.0    C    Editors
bos.rte.filesystem         4.2.1.4    C    Filesystem Administration
bos.rte.iconv              4.2.1.0    C    Language Converters
bos.rte.ifor_ls            4.2.1.0    C    iFOR/LS Libraries
bos.rte.im                 4.2.1.1    C    Input Methods
bos.rte.install            4.2.1.4    C    LPP Install Commands
bos.rte.jfscomp            4.2.0.0    C    JFS Compression
bos.rte.libc               4.2.1.6    C    libc Library
bos.rte.libcfg             4.2.1.0    C    libcfg Library
bos.rte.libcur             4.2.1.3    C    libcurses Library
bos.rte.libdbm             4.2.1.0    C    libdbm Library
bos.rte.libnetsvc          4.2.1.1    C    Network Services Libraries
bos.rte.libpthreads        4.2.1.2    C    libpthreads Library
bos.rte.libqb              4.2.1.0    C    libqb Library
bos.rte.libs               4.2.1.6    C    libs Library
bos.rte.loc                4.2.1.0    C    Base Locale Support
bos.rte.lvm                4.2.1.8    C    Logical Volume Manager
bos.rte.man                4.2.1.0    C    Man Commands
bos.rte.methods            4.2.1.0    C    Device Config Methods
bos.rte.misc_cmds          4.2.1.2    C    Miscellaneous Commands
```

```
bos.rte.net                 4.2.0.0    C    Network
```

```
bos.rte.odm                 4.2.1.0    C    Object Data Manager
bos.rte.printers            4.2.1.3    C    Front End Printer Support
bos.rte.security            4.2.1.6    C    Base Security Function
bos.rte.serv_aid            4.2.1.0    C    Error Log Service Aids
bos.rte.shell               4.2.1.7    C    Shells (bsh, ksh, csh)
bos.rte.streams             4.2.1.2    C    Streams Libraries
bos.rte.tty                 4.2.1.7    C    Base TTY Support and Commands
bos.sysmgt.loginlic         4.2.1.0    C    License Management
bos.sysmgt.serv_aid         4.2.1.5    C    Software Error Logging and Dump
                                            Service Aids
bos.sysmgt.smit             4.2.1.1    C    System Management Interface Tool
                                            (SMIT)
bos.sysmgt.sysbr            4.2.1.4    C    System Backup and BOS Install
                                            Utilities
bos.sysmgt.trace            4.2.1.1    C    Software Trace Service Aids
bos.terminfo.com.data       4.2.0.0    C    Common Terminal Definitions
bos.terminfo.dec.data       4.2.1.0    C    Digital Equipment Corp. Terminal
                                            Definitions
bos.terminfo.ibm.data       4.2.0.0    C    IBM Terminal Definitions
bos.terminfo.pc.data        4.2.0.0    C    Personal Computer Terminal
                                            Definitions
bos.terminfo.rte            4.2.1.0    C    Run-time Environment for AIX
                                            Terminals
bos.txt.spell               4.2.0.0    C    Writer's Tools Commands
bos.txt.spell.data          4.2.0.0    C    Writer's Tools Data
bos.txt.tfs                 4.2.1.0    C    Text Formatting Services
                                            Commands
bos.txt.tfs.data            4.2.0.0    C    Text Formatting Services Data
bos.up                      4.2.1.7    C    Base Operating System
                                            Uniprocessor Runtime
devices.base.diag           4.2.1.0    C    Base System Diagnostics
devices.base.rte            4.2.1.1    C    RISC System 6000 Base Device
                                            Software
devices.common.IBM.async.diag
                            4.2.1.0    C    Common Serial Adapter
                                            Diagnostics
devices.common.IBM.cx.rte   4.2.1.0    C    CX Common Adapter Software
devices.common.IBM.disk.rte
                            4.2.1.0    C    Common IBM Disk Software
devices.common.IBM.ethernet.rte
                            4.2.1.1    C    Common Ethernet Software
devices.common.IBM.fda.diag
                            4.2.0.0    C    Common Diskette Adapter and
                                            Device Diagnostics
devices.common.IBM.fda.rte
                            4.2.0.0    C    Common Diskette Device Software
devices.common.IBM.ktm_std.diag
                            4.2.1.0    C    Common Keyboard, Mouse, and
```

```
                                                Tablet Device Diagnostics
devices.common.IBM.ppa.diag
                            4.2.1.0    C    Common Parallel Printer Adapter
                                            Diagnostics
devices.common.IBM.ppa.rte
                            4.2.0.0    C    Common Parallel Printer Adapter
                                            Software
devices.common.IBM.scsi.rte
                            4.2.1.0    C    Common SCSI I/O Controller
                                            Software
devices.common.base.diag    4.2.1.0    C    Common Base System Diagnostics
devices.graphics.com        4.2.1.0    C    Graphics Adapter Common
                                            Software
devices.mca.8d77.diag       4.2.1.0    C    8-bit SCSI I/O Controller
                                            Diagnostics
devices.mca.8d77.rte        4.2.1.0    C    8-bit SCSI I/O Controller
                                            Software
devices.mca.8d77.ucode      4.2.0.0    C    8-bit SCSI I/O Controller
                                            Microcode
devices.mca.8ee4.X11        4.2.0.0    C    AIXwindows Color Graphics
                                            Display Adapter Software
devices.mca.8ee4.diag       4.2.0.0    C    Color Graphics Display Adapter
                                            Diagnostics
devices.mca.8ee4.rte        4.2.1.0    C    Color Graphics Display Adapter
                                            Software
devices.mca.8ef2.com        4.2.1.0    C    Common Integrated Ethernet
                                            Software
devices.mca.8ef2.diag       4.2.1.0    C    Integrated Ethernet Adapter
                                            (8ef2) Diagnostics
devices.mca.8ef2.diag.com   4.2.1.0    C    Common Integrated Ethernet
                                            Diagnostics
devices.mca.8ef2.rte        4.2.1.0    C    Integrated Ethernet Adapter
                                            (8ef2) Software
devices.mca.8ef3.diag       4.2.1.0    C    Integrated Ethernet Adapter
                                            (8ef3) Diagnostics
devices.mca.8ef5.diag       4.2.1.0    C    Ethernet High-Performance LAN
                                            Adapter (8ef5) Diagnostics
devices.mca.8ef5.rte        4.2.1.0    C    Ethernet High-Performance LAN
                                            Adapter (8ef5) Software
devices.mca.8efc.com        4.2.1.0    C    Common 16-bit SCSI I/O
                                            Controller Software
devices.mca.8efc.diag       4.2.1.0    C    16-bit SCSI I/O Controller
                                            Diagnostics
devices.mca.8efc.rte        4.2.1.0    C    16-bit SCSI I/O Controller
                                            Software
devices.mca.8f62.rte        4.2.1.9    C    IBM MCA 10/100 Mb Ethernet
                                            Adapter Software (8f62)
devices.mca.8f95.diag       4.2.1.0    C    Ethernet High-Performance LAN
                                            Adapter (8f95) Diagnostics
```

```
devices.mca.8f95.rte       4.2.1.0    C    Ethernet High-Performance LAN
                                           Adapter (8f95) Software
devices.mca.8f97.com       4.2.1.2    C    Common SSA Adapter (8f97)
                                           Software
devices.mca.8f97.rte       4.2.1.0    C    SSA Adapter (8f97) Software
devices.mca.8f98.diag      4.2.0.0    C    Integrated Ethernet Adapter
                                           (8f98) Diagnostics
devices.mca.8f98.rte       4.2.1.0    C    Integrated Ethernet Adapter
                                           (8f98) Software
devices.mca.8fba.com       4.2.1.0    C    Common NCR53C7XX SCSI Software
devices.mca.8fba.diag      4.2.0.0    C    Standard NCR53C720 SCSI
                                           Diagnostics
devices.mca.8fba.rte       4.2.1.0    C    Standard NCR53C720 SCSI Software
devices.mca.8fc8.com       4.2.1.0    C    Common Token Ring Software
devices.mca.8fc8.diag      4.2.1.0    C    Token Ring High-Performance
                                           Adapter (8fc8) Diagnostics
devices.mca.8fc8.rte       4.2.1.0    C    Token Ring High-Performance
                                           Adapter (8fc8) Software
devices.mca.8fc8.ucode     4.2.0.0    C    Token Ring High-Performance
                                           Adapter (8fc8) Microcode
devices.mca.df5f.com       4.2.0.0    C    Standard I/O Adapter Common
                                           Software
devices.mca.df5f.rte       4.2.0.0    C    Standard I/O (df5f) Adapter
                                           Software
devices.mca.df9f.diag      4.2.0.0    C    Direct Attached Disk Diagnostics
devices.mca.df9f.rte       4.2.0.0    C    Direct Attached Disk Software
devices.mca.edd0.com       4.2.1.0    C    Common Async Adapter Support
devices.mca.edd0.diag      4.2.0.0    C    8-Port Asynchronous Adapter
                                           EIA-232 Diagnostics
devices.mca.edd0.rte       4.2.0.0    C    8-Port Asynchronous Adapter
                                           EIA-232 Software
devices.mca.eff0.rte       4.2.1.0    C    X.25 CoProcessor/2 or
                                           Multiport/2 Adapter Software
devices.mca.ffe1.diag      4.2.0.0    C    128-Port Asynchronous Adapter
                                           Diagnostics
devices.mca.ffe1.rte       4.2.1.0    C    128-Port Asynchronous Adapter
                                           Software
devices.mca.ffe1.ucode     4.2.0.0    C    128-Port Asynchronous Adapter
                                           Microcode
devices.msg.en_US.base.com
                           4.2.0.2    C    Base System Device Software
                                           Messages - U.S. English
devices.msg.en_US.diag.rte
                           4.2.0.2    C    Device Diagnostics Messages -
                                           U.S. English
```

```
devices.msg.en_US.rspc.base.com
                          4.2.0.0    C    RISC PC Software Messages - U.S.
                                          English
devices.msg.en_US.sys.mca.rte
                          4.2.0.0    C    Micro Channel Bus Software
                                          Messages - U.S. English
devices.pci.14104500.rte  4.2.1.0    C    SSA Adapter (14104500) Software
devices.rs6ksmp.base.rte  4.2.0.0    C    Multiprocessor Base System
                                          Device Software
devices.scsi.disk.diag.com
                          4.2.1.0    C    Common Disk Diagnostic Service
                                          Aid
devices.scsi.disk.diag.rte
                          4.2.1.0    C    SCSI CD_ROM, Disk Device
                                          Diagnostics
devices.scsi.disk.rspc    4.2.0.0    C    RISC PC SCSI CD-ROM, Disk,
                                          Read/Write Optical Device
                                          Software
devices.scsi.disk.rte     4.2.1.0    C    SCSI CD-ROM, Disk, Read/Write
                                          Optical Device Software
devices.scsi.tape.diag    4.2.1.0    C    SCSI Tape Device Diagnostics
devices.scsi.tape.rspc    4.2.1.0    C    RISC PC SCSI Tape Device
                                          Software
devices.scsi.tape.rte     4.2.1.0    C    SCSI Tape Device Software
devices.sio.fda.diag      4.2.0.0    C    Diskette Adapter and Device
                                          Diagnostics
devices.sio.fda.rte       4.2.1.0    C    Diskette Adapter Software
devices.sio.ktma.com      4.2.0.0    C    Common Keyboard Tablet & Mouse
                                          Device and Adapter Software
devices.sio.ktma.diag     4.2.1.0    C    Keyboard Tablet & Mouse Device
                                          and Adapter Diagnostics
devices.sio.ktma.rte      4.2.1.0    C    Keyboard Tablet & Mouse Device
                                          and Adapter Software
devices.sio.ppa.diag      4.2.0.0    C    Parallel Printer Adapter
                                          Diagnostics
devices.sio.ppa.rte       4.2.1.0    C    Parallel Printer Adapter
                                          Software
devices.sio.sa.diag       4.2.0.0    C    Built-in Serial Adapter
                                          Diagnostics
devices.sio.sa.rte        4.2.0.0    C    Built-in Serial Adapter Software
devices.ssa.IBM_raid.rte  4.2.1.3    C    SSA Raid Manager Software
devices.ssa.disk.rte      4.2.1.3    C    SSA DASD Software
devices.ssa.network_agent.rte
                          4.2.1.1    C    SSA Network Agent Support
devices.ssa.tm.rte        4.2.1.1    C    Target Mode SSA Support
devices.sys.mca.rte       4.2.1.0    C    Micro Channel Bus Software
devices.sys.slc.diag      4.2.0.0    C    Serial Optical Link Diagnostics
devices.sys.slc.rte       4.2.1.0    C    Serial Optical Link Software
```

```
devices.tty.rte            4.2.1.1    C    TTY Device Driver Support
                                             Software
printers.msg.en_US.rte     4.2.0.0    C    Printer Backend Messages - U.S.
                                             English
printers.rte               4.2.1.0    C    Printer Backend
ssadiskmcode.DFHC.obj     3.2.0.88    C    SSA DFHC Disk ROS microcode
ssamcode.networkraid.obj  3.2.0.50    C    SSA Network RAID Adapter
                                             microcode
ssamcode.pcinetworkraid.obj
                          3.2.0.50    C    SSA Network RAID Adapter
                                             (14104500) microcode
xlC.cpp                    3.1.4.4    C    C for AIX Preprocessor
xlC.msg.en_US.cpp          3.1.4.2    C    C for AIX Preprocessor Messages
                                             en_US
xlC.msg.en_US.rte          3.1.4.0    C    C Set ++ for AIX Application
                                             Runtime Messages en_US
xlC.rte                    3.1.4.7    C    C Set ++ for AIX Application
```

AIX 4.3.0 Image Content

The following fixes have been applied to the minimal **mksysb** image for AIX 4.3.0. If you do not use this minimal **mksysb** image, the fixes must be applied to your AIX 4.3.0 operating system prior to creating your **mksysb** image which you will use to install your nodes. Whichever image you use you must update your SPOT and lppsource directory with these fixes according to the instructions listed in "AIX Considerations" under "Additional Restrictions" in this document.

```
IX72883
IX74149
```

Here is the lslpp -l output from the AIX 4.3.0 minimal image:

```
Fileset                      Level  State  Description
----------------------------------------------------------------------------
X11.Dt.helpmin             4.3.0.0    C    AIX CDE Minimum Help Files
X11.msg.en_US.Dt.helpmin   4.3.0.0    C    AIX CDE Minimum Help Files -
                                            U.S. English
bos.acct                   4.3.0.0    C    Accounting Services
bos.adt.debug              4.3.0.0    C    Base Application Development
                                            Debuggers
bos.adt.lib                4.3.0.0    C    Base Application Development
                                            Libraries
bos.diag.com               4.3.0.1    C    Common Hardware Diagnostics
bos.diag.rte               4.3.0.1    C    Hardware Diagnostics
bos.diag.util              4.3.0.1    C    Hardware Diagnostics Utilities
bos.help.msg.en_US.com     4.3.0.0    C    WebSM/SMIT Context Helps - U.S.
                                            English
bos.help.msg.en_US.smit    4.3.0.0    C    SMIT Context Helps - U.S.
                                            English
bos.html.en_US.topnav.navigate
                           4.3.0.1    C    Top Level Navigation - U. S.
                                            English
bos.iconv.com              4.3.0.0    C    Common Language to Language
                                            Converters
bos.iconv.ucs.com          4.3.0.0    C    Unicode Base Converters for AIX
                                            Code Sets/Fonts
bos.loc.iso.en_US          4.3.0.0    C    Base System Locale ISO Code Set
                                            - U.S. English
bos.mp                     4.3.0.3    C    Base Operating System
                                            Multiprocessor Runtime
bos.msg.En_US.mp           4.3.0.0    C    Base Operating System MP
                                            Messages - U.S. English IBM-850
bos.msg.en_US.diag.rte     4.3.0.0    C    Hardware Diagnostics Messages -
                                            U.S. English
```

```
bos.msg.en_US.mp           4.3.0.0    C    Base Operating System MP
                                             Messages - U.S. English
bos.msg.en_US.net.tcp.client
                           4.3.0.2    C    TCP/IP Messages - U.S. English
bos.msg.en_US.rte          4.3.0.0    C    Base Operating System Runtime
                                             Msgs - U.S. English
bos.msg.en_US.txt.tfs      4.3.0.0    C    Text Formatting Services
                                             Messages - U.S. English
bos.net.ncs                4.3.0.0    C    Network Computing System 1.5.1
bos.net.nfs.client         4.3.0.3    C    Network File System Client
bos.net.nis.client         4.3.0.0    C    Network Information Service
                                             Client
bos.net.tcp.client         4.3.0.2    C    TCP/IP Client Support
bos.net.tcp.server         4.3.0.1    C    TCP/IP Server
bos.net.tcp.smit           4.3.0.0    C    TCP/IP SMIT Support
bos.perf.diag_tool         4.3.0.0    C    Performance Diagnostic Tool
bos.perf.pmr               4.3.0.0    C    Performance PMR Data Collection
                                             Tool
bos.rte                    4.3.0.1    C    Base Operating System Runtime
bos.rte.Dt                 4.3.0.0    C    Desktop Integrator
bos.rte.ILS                4.3.0.0    C    International Language Support
bos.rte.SRC                4.3.0.0    C    System Resource Controller
bos.rte.X11                4.3.0.0    C    AIXwindows Device Support
bos.rte.aio                4.3.0.0    C    Asynchronous I/O Extension
bos.rte.archive            4.3.0.0    C    Archive Commands
bos.rte.bind_cmds          4.3.0.0    C    Binder and Loader Commands
bos.rte.boot               4.3.0.0    C    Boot Commands
bos.rte.bosinst            4.3.0.0    C    Base OS Install Commands
bos.rte.commands           4.3.0.0    C    Commands
bos.rte.compare            4.3.0.0    C    File Compare Commands
bos.rte.console            4.3.0.0    C    Console
bos.rte.control            4.3.0.0    C    System Control Commands
bos.rte.cron               4.3.0.0    C    Batch Operations
bos.rte.date               4.3.0.0    C    Date Control Commands
bos.rte.devices            4.3.0.0    C    Base Device Drivers
bos.rte.devices_msg        4.3.0.0    C    Device Driver Messages
bos.rte.diag               4.3.0.0    C    Diagnostics
bos.rte.edit               4.3.0.0    C    Editors
bos.rte.filesystem         4.3.0.0    C    Filesystem Administration
bos.rte.iconv              4.3.0.0    C    Language Converters
bos.rte.ifor_ls            4.3.0.0    C    iFOR/LS Libraries
bos.rte.im                 4.3.0.0    C    Input Methods
bos.rte.install            4.3.0.3    C    LPP Install Commands
bos.rte.jfscomp            4.3.0.0    C    JFS Compression
bos.rte.libc               4.3.0.2    C    libc Library
bos.rte.libcfg             4.3.0.0    C    libcfg Library
bos.rte.libcur             4.3.0.0    C    libcurses Library
bos.rte.libdbm             4.3.0.0    C    libdbm Library
```

```
bos.rte.libnetsvc          4.3.0.0    C    Network Services Libraries
bos.rte.libpthreads        4.3.0.0    C    pthreads Library
bos.rte.libqb              4.3.0.0    C    libqb Library
bos.rte.libs               4.3.0.0    C    libs Library
bos.rte.loc                4.3.0.0    C    Base Locale Support
bos.rte.lvm                4.3.0.1    C    Logical Volume Manager
bos.rte.man                4.3.0.0    C    Man Commands
bos.rte.methods            4.3.0.0    C    Device Config Methods
bos.rte.misc_cmds          4.3.0.0    C    Miscellaneous Commands
bos.rte.net                4.3.0.0    C    Network
bos.rte.odm                4.3.0.1    C    Object Data Manager
bos.rte.printers           4.3.0.1    C    Front End Printer Support
bos.rte.security           4.3.0.0    C    Base Security Function
bos.rte.serv_aid           4.3.0.0    C    Error Log Service Aids
bos.rte.shell              4.3.0.1    C    Shells (bsh, ksh, csh)
bos.rte.streams            4.3.0.0    C    Streams Libraries
bos.rte.tty                4.3.0.2    C    Base TTY Support and Commands
bos.sysmgt.loginlic        4.3.0.0    C    License Management
bos.sysmgt.nim.client      4.3.0.1    C    Network Install Manager - Client
                                           Tools
bos.sysmgt.serv_aid        4.3.0.0    C    Software Error Logging and Dump
                                           Service Aids
bos.sysmgt.smit            4.3.0.0    C    System Management Interface Tool
                                           (SMIT)
bos.sysmgt.sysbr           4.3.0.0    C    System Backup and BOS Install
                                           Utilities
bos.sysmgt.trace           4.3.0.0    C    Software Trace Service Aids
bos.terminfo.com.data      4.3.0.0    C    Common Terminal Definitions
bos.terminfo.dec.data      4.3.0.0    C    Digital Equipment Corp. Terminal
                                           Definitions
bos.terminfo.ibm.data      4.3.0.0    C    IBM Terminal Definitions
bos.terminfo.pc.data       4.3.0.0    C    Personal Computer Terminal
                                           Definitions
bos.terminfo.rte           4.3.0.0    C    Run-time Environment for AIX
                                           Terminals
bos.txt.spell              4.3.0.0    C    Writer's Tools Commands
bos.txt.spell.data         4.3.0.0    C    Writer's Tools Data
bos.txt.tfs                4.3.0.0    C    Text Formatting Services
                                           Commands
bos.txt.tfs.data           4.3.0.0    C    Text Formatting Services Data
bos.up                     4.3.0.3    C    Base Operating System
                                           Uniprocessor Runtime
devices.base.diag          4.3.0.0    C    Base System Diagnostics
devices.base.rte           4.3.0.0    C    RISC System 6000 Base Device
                                           Software
devices.common.IBM.ARTIC.diag
                           4.3.0.0    C    Common ARTIC Diagnostics
```

```
devices.common.IBM.async.diag
                          4.3.0.0    C    Common Serial Adapter
                                          Diagnostics
devices.common.IBM.cx.rte  4.3.0.0    C    CX Common Adapter Software
devices.common.IBM.disk.rte
                          4.3.0.0    C    Common IBM Disk Software
devices.common.IBM.ethernet.rte
                          4.3.0.0    C    Common Ethernet Software
devices.common.IBM.fda.diag
                          4.3.0.0    C    Common Diskette Adapter and
                                          Device Diagnostics
devices.common.IBM.fda.rte
                          4.3.0.0    C    Common Diskette Device Software
devices.common.IBM.ktm_std.diag
                          4.3.0.0    C    Common Keyboard, Mouse, and
                                          Tablet Device Diagnostics
devices.common.IBM.ktm_std.rte
                          4.3.0.0    C    Common Keyboard, Tablet, and
                                          Mouse Software
devices.common.IBM.ppa.diag
                          4.3.0.0    C    Common Parallel Printer Adapter
                                          Diagnostics
devices.common.IBM.ppa.rte
                          4.3.0.0    C    Common Parallel Printer Adapter
                                          Software
devices.common.IBM.scsi.rte
                          4.3.0.0    C    Common SCSI I/O Controller
                                          Software
devices.common.IBM.ssa.rte
                          4.3.0.0    C    Common SSA Adapter Software
devices.common.IBM.tokenring.rte
                          4.3.0.0    C    Common Token Ring Software
devices.common.base.diag   4.3.0.0    C    Common Base System Diagnostics
devices.graphics.com       4.3.0.0    C    Graphics Adapter Common Software
devices.mca.8d77.diag      4.3.0.0    C    8-bit SCSI I/O Controller
                                          Diagnostics
devices.mca.8d77.rte       4.3.0.0    C    8-bit SCSI I/O Controller
                                          Software
devices.mca.8d77.ucode     4.3.0.0    C    8-bit SCSI I/O Controller
                                          Microcode
devices.mca.8ee4.X11       4.3.0.0    C    AIXwindows Color Graphics
                                          Display Adapter Software
devices.mca.8ee4.diag      4.3.0.0    C    Color Graphics Display Adapter
                                          Diagnostics
devices.mca.8ee4.rte       4.3.0.0    C    Color Graphics Display Adapter
                                          Software
devices.mca.8ef2.com       4.3.0.0    C    Common Integrated Ethernet
                                          Software
```

```
devices.mca.8ef2.diag      4.3.0.0    C    Integrated Ethernet Adapter
                                             (8ef2) Diagnostics
devices.mca.8ef2.diag.com  4.3.0.0    C    Common Integrated Ethernet
                                             Diagnostics
devices.mca.8ef2.rte       4.3.0.0    C    Integrated Ethernet Adapter
                                             (8ef2) Software
devices.mca.8ef3.diag      4.3.0.0    C    Integrated Ethernet Adapter
                                             (8ef3) Diagnostics
devices.mca.8ef5.diag      4.3.0.0    C    Ethernet High-Performance LAN
                                             Adapter (8ef5) Diagnostics
devices.mca.8ef5.rte       4.3.0.0    C    Ethernet High-Performance LAN
                                             Adapter (8ef5) Software
devices.mca.8efc.com       4.3.0.0    C    Common 16-bit SCSI I/O
                                             Controller Software
devices.mca.8efc.diag      4.3.0.0    C    16-bit SCSI I/O Controller
                                             Diagnostics
devices.mca.8efc.rte       4.3.0.0    C    16-bit SCSI I/O Controller
                                             Software
devices.mca.8f62.rte       4.3.0.0    C    IBM MCA 10/100 Mb Ethernet
                                             Adapter Software (8f62)
devices.mca.8f70.diag      4.3.0.0    C    Portmaster Adapter/A Diagnostics
devices.mca.8f95.diag      4.3.0.0    C    Ethernet High-Performance LAN
                                             Adapter (8f95) Diagnostics
devices.mca.8f95.rte       4.3.0.0    C    Ethernet High-Performance LAN
                                             Adapter (8f95) Software
devices.mca.8f97.com       4.3.0.0    C    Common SSA Adapter (8f97)
                                             Software
devices.mca.8f97.rte       4.3.0.0    C    SSA Adapter (8f97) Software
devices.mca.8f98.diag      4.3.0.0    C    Integrated Ethernet Adapter
                                             (8f98) Diagnostics
devices.mca.8f98.rte       4.3.0.0    C    Integrated Ethernet Adapter
                                             (8f98) Software
devices.mca.8fba.com       4.3.0.0    C    Common NCR53C7XX SCSI Software
devices.mca.8fba.diag      4.3.0.0    C    Standard NCR53C720 SCSI
                                             Diagnostics
devices.mca.8fba.rte       4.3.0.0    C    Standard NCR53C720 SCSI Software
devices.mca.8fc8.diag      4.3.0.0    C    Token Ring High-Performance
                                             Adapter (8fc8) Diagnostics
devices.mca.8fc8.rte       4.3.0.0    C    Token Ring High-Performance
                                             Adapter (8fc8) Software
devices.mca.8fc8.ucode     4.3.0.0    C    Token Ring High-Performance
                                             Adapter (8fc8) Microcode
devices.mca.df5f.com       4.3.0.0    C    Standard I/O Adapter Common
                                             Software
devices.mca.df5f.rte       4.3.0.0    C    Standard I/O (df5f) Adapter
                                             Software
devices.mca.df9f.diag      4.3.0.0    C    Direct Attached Disk Diagnostics
devices.mca.df9f.rte       4.3.0.0    C    Direct Attached Disk Software
```

```
devices.mca.edd0.com       4.3.0.0    C    Common Async Adapter Support
devices.mca.edd0.diag      4.3.0.0    C    8-Port Asynchronous Adapter
                                           EIA-232 Diagnostics
devices.mca.edd0.rte       4.3.0.0    C    8-Port Asynchronous Adapter
                                           EIA-232 Software
devices.mca.eff0.diag      4.3.0.0    C    X.25 CoProcessor/2 or
                                           Multiport/2 Adapter Diagnostics
devices.mca.eff0.rte       4.3.0.0    C    X.25 CoProcessor/2 or
                                           Multiport/2 Adapter Software
devices.mca.ffe1.diag      4.3.0.0    C    128-Port Asynchronous Adapter
                                           Diagnostics
devices.mca.ffe1.rte       4.3.0.0    C    128-Port Asynchronous Adapter
                                           Software
devices.mca.ffe1.ucode     4.3.0.0    C    128-Port Asynchronous Adapter
                                           Microcode
devices.msg.en_US.base.com
                           4.3.0.0    C    Base System Device Software Msgs
                                           - U.S. English
devices.msg.en_US.diag.rte
                           4.3.0.0    C    Device Diagnostics Messages -
                                           U.S. English
devices.msg.en_US.rspc.base.com
                           4.3.0.0    C    RISC PC Software Messages - U.S.
                                           English
devices.msg.en_US.sys.mca.rte
                           4.3.0.0    C    Micro Channel Bus Software
                                           Messages - U.S. English
devices.pci.14104500.rte   4.3.0.0    C    SSA Adapter (14104500) Software
devices.rs6ksmp.base.rte   4.3.0.0    C    Multiprocessor Base System
                                           Device Software
devices.scsi.disk.diag.com
                           4.3.0.0    C    Common Disk Diagnostic Service
                                           Aid
devices.scsi.disk.diag.rte
                           4.3.0.0    C    SCSI CD_ROM, Disk Device
                                           Diagnostics
devices.scsi.disk.rspc     4.3.0.0    C    RISC PC SCSI CD-ROM, Disk,
                                           Read/Write Optical Software
devices.scsi.disk.rte      4.3.0.0    C    SCSI CD-ROM, Disk, Read/Write
                                           Optical Device Software
devices.scsi.tape.diag     4.3.0.0    C    SCSI Tape Device Diagnostics
devices.scsi.tape.rspc     4.3.0.0    C    RISC PC SCSI Tape Device
                                           Software
devices.scsi.tape.rte      4.3.0.0    C    SCSI Tape Device Software
devices.sio.fda.diag       4.3.0.0    C    Diskette Adapter and Device
                                           Diagnostics
devices.sio.fda.rte        4.3.0.0    C    Diskette Adapter Software
```

```
  devices.sio.ktma.diag      4.3.0.0    C    Keyboard Tablet & Mouse Device
                                             and Adapter Diagnostics
  devices.sio.ktma.rte       4.3.0.0    C    Keyboard Tablet & Mouse Device
                                             and Adapter Software
  devices.sio.ppa.diag       4.3.0.0    C    Parallel Printer Adapter
                                             Diagnostics
  devices.sio.ppa.rte        4.3.0.0    C    Parallel Printer Adapter
                                             Software
  devices.sio.sa.diag        4.3.0.0    C    Built-in Serial Adapter
                                             Diagnostics
  devices.sio.sa.rte         4.3.0.0    C    Built-in Serial Adapter Software
  devices.ssa.IBM_raid.rte   4.3.0.0    C    SSA Raid Manager Software
  devices.ssa.disk.rte       4.3.0.0    C    SSA DASD Software
  devices.ssa.network_agent.rte
                             4.3.0.0    C    SSA Network Agent Support
  devices.ssa.tm.rte         4.3.0.0    C    Target Mode SSA Support
  devices.sys.mca.rte        4.3.0.0    C    Micro Channel Bus Software
  devices.sys.slc.diag       4.3.0.0    C    Serial Optical Link Diagnostics
  devices.sys.slc.rte        4.3.0.0    C    Serial Optical Link Software
  devices.tty.rte            4.3.0.0    C    TTY Device Driver Support
                                             Software
  ifor_ls.base.cli           4.3.0.0    C    License Use Management Runtime
                                             Code
  ifor_ls.msg.en_US.base.cli
                             4.3.0.0    C    LUM Runtime Code Messages - U.S.
                                             English
  printers.msg.En_US.rte     4.3.0.0    C    Printer Backend Messages - U.S.
                                             English IBM-850
  printers.msg.en_US.rte     4.3.0.0    C    Printer Backend Messages - U.S.
                                             English
  printers.rte               4.3.0.0    C    Printer Backend
  xlC.cpp                    3.1.4.4    C    C for AIX Preprocessor
  xlC.msg.en_US.cpp          3.1.4.2    C    C for AIX Preprocessor Messages
                                             en_US
  xlC.msg.en_US.rte          3.1.4.0    C    C Set ++ for AIX Application
                                             Runtime Messages en_US
  xlC.rte                    3.1.4.7    C    C Set ++ for AIX Application

State Codes:
 A -- Applied.
 B -- Broken.
 C -- Committed.
 O -- Obsolete.  (partially migrated to newer version)
 ? -- Inconsistent State...Run lppchk -v.
```

Customizations: /etc/rc.net was modified to reflect the following:

```
added:   /usr/sbin/no -o sb_max=163840
         /usr/sbin/no -o udp_sendspace=32768
         /usr/sbin/no -o udp_recvspace=65536
changed: /usr/sbin/no -o tcp_sendspace=65536
         /usr/sbin/no -o tcp_recvspace=65536
```

The /(root) filesystem has been increased to 8MB.

The /var filesystem should be increased to 50MB.

Default number of licensed users was set to >64

Default maximum number of processes allowed per user was set to 256

Restrictions/Considerations: You should clean out /tmp after the image is installed, so there is maximum working space.

Note: AIX X-Windows has been removed (to reduce the image size) from the spimg in this release.

After you have installed your nodes, you should increase the dump space on each node to at least 32 MB. This is the minimum dump space required for the minimal image pre-installed on each SP node and supplied in the "spimg" installp image. If you are using a larger image, more dump space may be required. You may cause the dump space on a node to be increased during installation by specifying the extendlv command in the script.cust script. If script.cust is run multiple times (i.e. customization of nodes) then all statements will also be run multiple times. Refer to the sample script.cust in /usr/lpp/ssp/samples.

List of Program Materials

The Program Material consists of the following materials.

- Basic machine readable material, either 8mm or 4mm tape media.

Environment	Feature Number	Distribution Medium
PSSP for AIX	6237	8MM tape cartridge
SP AIX Min Image	6237	8MM tape cartridge
Cumulative service for PSSP	6237	8MM tape cartridge
HACWS (Optional)	5915	8MM tape cartridge
PTPE (Optional)	5908	8MM tape cartridge
PSSP for AIX	6238	4MM tape cartridge
SP AIX Min Image	6238	4MM tape cartridge
Cumulative service for PSSP	6238	4MM tape cartridge
HACWS (Optional)	5380	4MM tape cartridge
PTPE (Optional)	5371	4MM tape cartridge

- Documentation

Title	Order Number
IBM RS/6000 SP: Planning, Volume 2, Control Workstation and Software Environment	GA22-7281
IBM Parallel System Support Programs for AIX: Administration Guide	GC23-3897
IBM Parallel System Support Programs for AIX: Installation and Migration Guide	GC23-3898
IBM Parallel System Support Programs for AIX: Diagnosis and Messages Guide	GC23-3899
IBM Parallel System Support Programs for AIX: Command and Technical Reference	GC23-3900
IBM Parallel System Support Programs for AIX: Event Management Programming Guide and Reference	SC23-3996
IBM Parallel System Support Programs for AIX: Group Services Programming Guide and Reference	SC28-1675
IBM Parallel System Support Programs for AIX: Licensed Program Specification	GC23-3901
IBM RS/6000 SP: Managing Shared Disks:	SA22-7279
IBM Performance Toolbox Parallel Extensions for AIX: Guide and Reference	SC23-3997

To order all the above manuals use the following number:

IBM Parallel System Support Programs for AIX Library	SBOF-8587

GI10-0587-04

DSMLBR529E 'KP' WOULD EXCEED MAXIMUM SIZE.
DSMMOM395I '.EDFEXMP' LINE 160: .br
DSMMOM397I '.EDFEXMP' WAS IMBEDDED AT LINE 2001 OF '76552930'
DSMBEG323I STARTING PASS 2 OF 2.
DSMLBR529E 'KP' WOULD EXCEED MAXIMUM SIZE.
DSMMOM395I '.EDFEXMP' LINE 160: .br
DSMMOM397I '.EDFEXMP' WAS IMBEDDED AT LINE 2001 OF '76552930'