Read This First

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

Subject: Program Number 5765-529 — Release 02
Features 5902, 5905, 5908, 5369, 5370, 5371

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 Parallel System Support Programs: Site Planning Guide*
- *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 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
- **PSSP Compatibility, Limitations, Restrictions & Pre-requirements**
- IBM Parallel System Support Programs for AIX packaging
- Viewing the softcopy README documents from tape

- AIX 4.1.5, and AIX 4.2.1 Minimal Images
- List of Program Materials

Summary of Enhancements

Parallel System Support Programs for AIX (PSSP) Version 2.2 provides the necessary support for the 604 High Node, a Symmetric Multi-Processor (SMP) within a RS/6000 SP (SP) system, and significant enhancements that focus on improving the reliability, availability, usability, and manageability of your SP system.

This version of PSSP provides a scalable, high availability infrastructure that includes comprehensive event management services, and a set of coordination services for distributed subsystems. These services can be accessed via a set of published APIs. These services may be used by system management applications to improve problem determination, and may also be exploited by software subsystems to improve fault tolerance.

Also provided with PSSP are a set of problem management services that leverage the event management capability of the high availability infrastructure to provide problem determination tools for administrators.

SP-specific information is now available to network management applications such as NetView for AIX using industry-standard SNMP protocols. The SP system can now be identified as a unique entity within an enterprise management system and is able to have SP-specific events detected and monitored.

New performance monitoring capabilities for SP-specific subsystems can now be obtained through the use of the Performance Toolbox Parallel Extensions for AIX (PTPE) feature of PSSP. PTPE is a separately priced feature which provides the utilities to monitor, store, and retrieve performance information collected on these subsystems, for example, the SP Switch, LoadLeveler, and IBM Virtual Shared Disk.

A new consolidated system interface called "SP Perspectives" is introduced in this release. It provides a common launch pad for PSSP system management applications, including hardware monitoring and control capabilities. This interface is tightly integrated with the problem management infrastructure. It allows users to easily create and monitor system events and provides a means for notification when events occur.

This graphical user interface enables you to perform system management tasks for your SP system through direct manipulation of system objects represented by icons. The interface is highly scalable for large systems and can be easily customized to accommodate varying environments.

This release provides installation and migration enhancements for AIX and PSSP on the SP which will reduce scheduled maintenance time. The installation process has been restructured to improve verification between installation steps. Support is provided to allow installation of AIX 4.1 on SP nodes using the AIX migration install capability. Administrators can now more effectively utilize the Network Installation Manager (NIM) functions in AIX.

PSSP Compatibility, Limitations, Restrictions & Pre-requirements

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

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 4.1.5 or later, install **perfagent** 2.1.5.x or later and any required service (5765-654 feature 7013). For AIX 4.2, install **perfagent** 2.2.1.x or later and any required service (5765-654 feature 7014).
- Chapter 2, Step 10 of the *Parallel System Support Programs: Installation and Migration Guide* describes tunable variables for Network Management on the Control Workstation. A second set of tunable variables which can be modified on the nodes are described in Chapter 27 of the *Parallel System Support Programs: Administration Guide*. Recommended initial values for Commercial and Scientific/Engineering installations are provided in Tables 15 and 16 of that chapter.
- A step is missing to create the **spdata_lv** volume group in the *Parallel System Support Programs: Installation and Migration Guide*. Following is an example for Step 13. To create a logical volume called **spdata_lv** with 2 GB use the **mklv** command as follows:

  ```
  /usr/sbin/mklv -y spdata_lv -x 512 spdatavg 500
  ```

  To create a file system /**spdata** within the newly created logical volume use the **crfs** command. The following example creates the /**spdata** file system, using logical volume /**spdata_lv** and mount point /**spdata**. It also adds the /**spdata** into the /**etc**/**filesystems** to be automatically mounted at system restart.

  ```
  /usr/sbin/crfs -v jfs -d spdata_lv -m /spdata -A yes -p rw -t no
  ```

- When launching Perspectives via the **install_cw** command or the command line you will get the following message which should be ignored:

  ```
  Warning: locale not supported by C library, locale unchanged
  ```

- When using the **spframe** command in step 24 of the *Parallel System Support Programs: Installation and Migration Guide* you will get the following message which should be ignored:

  ```
  /usr/lpp/ssp/bin/SDRDeleteObjects: 0025-004 Item specified for
      query, insertion or deletion was not found.
  ```

- The following **syspar_ctrl** commands must be executed to reset the High Availability Topology Services (**hats**) daemon after step 33 and prior to step 35 of the *Parallel System Support Programs: Installation and Migration Guide*.

  ```
  syspar_ctrl -G -k hats
  syspar_ctrl -G -s hats
  ```

- For the High Performance Switch, if the primary node is rebooted or **rc.switch** is run on the primary node the "current primary" field in the **Switch_partition** SDR object will change to "none" which causes a problem with all the "E" commands. In the event this happens you must re-issue **Eprimary** with the primary node specified and then run **Estart**.
- When executing step 26 (**syspar_ctrl -E**) of the *Parallel System Support Programs: Installation and Migration Guide* you could get the following message if you did not purchase PTPE. This message should be ignored.

```
Invalid Entry:  spdmd
  /usr/lpp/ptpe/bin/spdmdctrl
Examine failed.  The subsystem control script either does not exist
or cannot be read or executed.
```

- The PTPE User's Manual instructs the reader to use the following instructions to install all PTPE images from the installation media:

```
installp -aXd <device_name> all
```

  If PTPE is not the only item on the media, the command will install more than just PTPE. APAR IX62587 will ship a new softcopy of the PTPE manual that changes these instructions to the following:

```
installp -aXd <device_name> ptpe
```

- If you are using the PSSP: Installation and Migration Guide to migrate nodes to PSSP 2.2 (pages 139-144) please note the following changes:

  "Steps to Migrate Nodes from PSSP 1.2 to PSSP 2.2" (pages 139-140)

  – after Step 1 has completed, on the control workstation issue the following commands:

```
syspar_ctrl -G -k
syspar_ctrl -G -s
```

  – Do not execute Step 7

  "Steps to Migrate Nodes from PSSP 2.1 to PSSP 2.2" (pages 141-142)

  – In Step 9 after 1. has been completed, on the control workstation issue:

```
syspar_ctrl -G -k
```

  – In Step 9 after 2. has completed, on the control workstation issue:

```
syspar_ctrl -G -s
```

  – Do not execute Step 10

  "Steps to Do an Overwrite Install to Upgrade to PSSP 2.2" (pages 143-144)

  – After Step 1 has completed, on the control workstation issue:

```
syspar_ctrl -G -k
syspar_ctrl -G -s
```

  – Do not execute Step 7

AIX Considerations

- **NOTE: When using a *mksysb*, any AIX corrective service 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 of the appropriate SPOT.

  – For Boot Install Server (BIS) nodes, it is necessary to add the BIS hostname to the /.rhosts file on the control workstation.

  – 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.

Problems with NIS and RS/6000 SP Installation: When PSSP 2.2, without APAR IX62828, is installed on a RS/6000 SP system running NIS (Network Information System), attempts to define and start system partition-sensitive subsystems with the **syspar_ctrl** command may fail. Since system partition-sensitive subsystems are defined and started as part of installation, this may cause installation to fail as well.

When the above situation occurs you may see the following type of messages from the **syspar_ctrl** command:

```
$ syspar_ctrl -A

Cannot set port number into /etc/services
syspar_ctrl:  0022-233 SP_NAME=k21s  /usr/lpp/ssp/bin/hatsctrl -a
      returned with a bad return code, rc = 1.

hagsctrl: 2520-206 Cannot register service name hags.k21s, protocol udp,
                   port 10001.
syspar_ctrl:  0022-233 SP_NAME=k21s  /usr/lpp/ssp/bin/hagsctrl -a
      returned with a bad return code, rc = 1.

haemctrl: 2521-506 Cannot register service name haem.k21s, protocol udp,
                   port 10002.
syspar_ctrl:  0022-233 SP_NAME=k21s  /usr/lpp/ssp/bin/haemctrl -a
      returned with a bad return code, rc = 1.

0513-085 The hats Subsystem is not on file.
syspar_ctrl:  0022-233 SP_NAME=k21s  /usr/lpp/ssp/bin/hatsctrl -s
      returned with a bad return code, rc = 1.

0513-085 The hags Subsystem is not on file.
0513-085 The hagsglsm Subsystem is not on file.
syspar_ctrl:  0022-233 SP_NAME=k21s  /usr/lpp/ssp/bin/hagsctrl -s
      returned with a bad return code, rc = 1.

0513-085 The haem Subsystem is not on file.
syspar_ctrl:  0022-233 SP_NAME=k21s  /usr/lpp/ssp/bin/haemctrl -s
      returned with a bad return code, rc = 1.

syspar_ctrl:  0022-234 Add failed, calls to underlying control scripts
                       returned with bad return codes.
```

If you experience this problem, there are ways to work around it: by temporarily stopping the **ypbind** daemon.

On a NIS client that has experienced the problem stated above:

1. Stop the **ypbind** daemon, with the command:

   ```
   # stopsrc -s ypbind
   ```

2. Attempt to define and start the system partition-sensitive subsystems, with the commands:

   ```
   # syspar_ctrl -d
   # syspar_ctrl -A
   ```

3. Start the **ypbind** daemon, with the command:

   ```
   # startsrc -s ypbind
   ```

The machine is an NIS client again.

For more information about this problem, see APAR IX62828.

HACWS Restrictions

Update to HACWS Migration Installation Instructions

The steps to migrate an HACWS configuration from PSSP 2.1 to PSSP 2.2 are described in chapter 4 of the *Parallel System Support Programs: Installation and Migration Guide* (pages 138-141). The information in this section is an update to those instructions.

- While running PSSP 2.1 with HACMP 4.2, the setup_server command will fail during an HACWS failover because the ODMDIR environment variable is not set properly. This problem is fixed by PSSP 2.1 APAR IX62166. You can easily work around the problem by changing the /usr/sbin/hacws/spcw_apps script as follows: After the line:

  ```
  export PATH=/usr/bin:/usr/sbin:/usr/lpp/ssp/bin:/usr/sbin/hacws
  ```

  add the following line

  ```
  export ODMDIR=/etc/objrepos
  ```

- If you migrate from HACMP 4.1 or 4.1.1 to HACMP 4.2, you will need to repeat "Step 29: Customize Cluster Event Processing" on page 105 of the *Parallel System Support Programs: Installation and Migration Guide*, because there are more cluster events introduced in HACMP 4.2. If you do not do this, then the **hacws_verify** command will fail.
- During "Step 13: Install PSSP 2.2 on Both Control Workstations" on page 140 of the *Parallel System Support Programs: Installation and Migration Guide*, the /spdata filesystem is mounted on the primary control workstation. You can install PSSP 2.2 on the primary control workstation from either the locally mounted /spdata filesystem or the installation media. When you install PSSP 2.2 on the backup control workstation, we recommend that you install from the installation media. We did not test PSSP installation with the /spdata filesystem locally mounted on the backup control workstation.
- After you complete "Step 13: Install PSSP 2.2 on Both Control Workstations" on page 140, do not forget to install ssp.hacws 2.2.0.0 on both control workstations.
- During "Step 19: Unconfigure the NIM Master" on page 141, you should run the command "delnimmast -l 0" on the primary control workstation, but this command will not work on the backup control workstation. Instead you should issue the following commands on the backup control workstation:

  ```
  nim -o remove psspspot
  nim -o unconfig master
  installp -u bos.sysmgt.nim.master
  installp -u bos.sysmgt.nim.spot
  ```

- The Auto-Mounter daemon (AMD) that was shipped with PSSP 2.1 had a problem which could cause it to hang after a local IP address change. This could in turn cause a control workstation failover to hang as HACWS tried to run the /usr/lpp/ssp/install/bin/amd_config script. To avoid this problem, HACWS would not run the /usr/lpp/ssp/install/bin/amd_config script during a control workstation failover. This problem has been fixed in PSSP 2.2. However, when you migrate from PSSP 2.1 to

PSSP 2.2, the AMD commands do not get upgraded properly, and this can cause a control workstation failover to hang as described above. This is a bug in PSSP 2.2 which will be addressed in the service stream. If you currently use AMD on your PSSP 2.1 system, you can avoid this problem by removing the /etc/amd/amd and /etc/amd/amd_start commands before you start control workstation services. If the PSSP 2.1 /etc/amd/amd daemon is already running, then you need to reboot the control workstation after you remove these files and before you start control workstation services.

HACWS with HACMP Standby Adapters

HACMP standby adapters are supported by HACWS. However, the ifconfig commands which are typically used to configure Internet Protocol (IP) address aliases in the /etc/rc.backup_cw_alias and /spdata/sys1/hacws/rc.syspar_aliases scripts hard code the IP address alias to a specific network adapter. If that network adapter fails, and HACMP switches to a standby adapter, the IP address alias does not get moved to the standby adapter. If you want an IP address alias to move to a standby adapter, then you must provide scripts to make this happen during HACMP cluster event processing.

Coexistence Considerations

PSSP 2.2 allows coexistence with previous versions and releases within a partition, thereby easing the migration from PSSP 1.2 (AIX 3.2.5) or PSSP 2.1 (AIX 4.1) to PSSP 2.2 (AIX 4.1.5) in SP systems. Please review *RS/6000 SP Technical Bulletin: Implementing Coexistence with PSSP 2.2*. This document can be found on the IBM RS/6000 Web page under the following URL:

```
http://www.rs6000.ibm.com/tech/
```

Note: There are minimum service levels for PSSP V1.2 and PSSP V2.1 required for coexistence support.

Hardware Requirements

- RS/6000 SP system, including one control workstation for each SP system.
- The control workstation must be operational prior to the POWERparallel System installation. It also must be operational before the Customer Service representative is called for maintenance.
- **If you are planning to install 604 High Nodes (Either as an MES or as a new build) you must install the PSSP V2.2 code on the control workstation first. AIX fixes, as specified elsewhere in this document, are required.**

High Availability Control Workstation (HACWS) Requirements

- A backup control workstation and two external disks are required.
- The HACWS Connectivity hardware feature (#1245) is required.

The HACWS Connectivity hardware feature must be installed on each SP frame.

Software Requirements

Customers ordering hardware separately must ensure access to the latest update of AIX 4.1.5.

PSSP Version 2 Release 2 Requirements:

- AIX 4.1.5

  Corrective service APAR IX68753 and IX70222 have been applied to this minimal image.

- AIX 4.2

  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 Maintenance APAR IX58183 has been installed
  AIX 4.2.1 UPDATES REQUIRED FOR PSSP - APAR IX69993
  AIX APAR IX70175
  ```

- Performance Toolbox for AIX, Version 2.2 (5765-654), Agent Component.
- C for AIX V 3.1, or later (5765-423) (C++ for AIX - 5765-421 satisfies this requirement) (At least one concurrent use license). This 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.
- The license for PSSP V 2.2, with the exception of the HACWS and PTPE optional features, is included in the SP hardware price. However, PSSP must be separately ordered.
- **ssp.basic** prereqs

  The ssp.basic fileset has two prereqs which must be available for a successful installation. The filesets required are listed below. The required filesets must be installed on the Control Workstation prior to the installation of the PSSP LPP's. On the nodes, the required fileset must be part of the **mksysb** image which you use for installation and they must reside in the **lppsource** which will be used during the installation of the node.

  ```
  AIX 4.1.4:

  bos.rte.tty 4.1.4.12
  devices.sio.sa.diag 4.1.4.1

  bos.rte.tty 4.1.4.12 ifreqs the following filesets

  devices.mca.ffe1.rte 4.1.4.1
  devices.tty.rte 4.1.3.0
  ipx.rte 4.1.4.1
  ```

- For those customers who have ESCON device drivers, the ESCON device driver software (file **devices.mca.8fc3.rte**) must be at a minimum level of 1.1.0.4, or later.

PTPE is a separately priced feature of PSSP V2.2. PTPE Requirements are:

- Performance Toolbox for AIX V2.2 (5765-654).
  - The Performance Agent, which is provided with the SP, 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.
- AIX APAR IX58512 for AIX 4.1.5, or APAR IX61987 for AIX 4.2 fix to be installed before PTPE is installed on your SP.

HACWS, a separately priced feature of PSSP V2.2, requirements:

- HACMP V4.2, AIX 4.1.5, or later, and PSSP V2.2 on the control workstation.

  For HACWS, a new system order cannot contain any PSSP 1.2/AIX 3.2.5 nodes. The system must be ordered without HACWS hardware and software. An MES must be ordered to add HACWS after the SP is installed at AIX 3.2.5 and AIX PSSP V1.2, and then the control workstation must be upgraded to PSSP V2.2 and AIX 4.1.5 or later.
- AIX APAR IX61354 must be installed in order to execute HACMP V4.2 on AIX 4.1.5.

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 and PSSP use IBM POWER2, PowerPC, and POWER architecture, and AIX V4.1.5, programs written for the RS/6000 will run on properly configured SP processor nodes without recompilation. Additional performance can be achieved by recompiling with the latest versions of the IBM XL compilers to further exploit the POWER2 and PowerPC technology.

PSSP V2.2 is a functional enhancement of and complete replacement of Parallel System Support Programs for AIX V2.1. PSSP V2.1 was withdrawn from marketing at the time of the V2.2 announce.

PSSP V2.2 is the last release that will support the current Auto-Mounter daemon (AMD). Future releases will utilize an automounter in AIX V4.

PSSP V2.2 is the last release that will support the Print Management System option. This and future releases of PSSP recommend Printing Systems Manager (PSM) for AIX, which is a separately orderable IBM licensed program.

Please see the RS/6000 Internet World Wide Web page for a detailed matrix of supported combinations of SP licensed Programs for compatibility statements on nodes running on different levels of AIX and PSSP. The URL for the RS/6000 SP Software Home Page is:

```
http://www.rs6000.ibm.com/software/Apps/Parallel.html
```

Limitations

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.

Installation of PSSP V2.2 with an AIX 3.2.5 partition requires the installation of AIX PTFs on the PSSP V1.2 (AIX 3.2.5) nodes, which contain the fixes for the following APARs:

APAR # IX49179
APAR # IX51184
APAR # IX51186
APAR # IX51195
APAR # IX51196

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 **csd.vsd**, **csd.hsd**, and **csd.cmi** components prior to installing csd 2.2 and rcsd 1.2

Installation of PSSP V2.2 with an AIX 4.1.4 partition 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 - Absolutely essential for successful PSSP installation
APAR # IX60723
APAR # IX60742

The minimum service level for PSSP 2.1 support is PTF set 18 which consists of the following PTFs:

Component Sub_component	Pre-Req PTF	Curr PTF
PSSP		
ssp.authent		U443266
ssp.basic	U443258	U445802
ssp.clients	U443261	U445804
ssp.csd.cmi		U443265
ssp.csd.hsd	U443264	U443900
ssp.csd.vsd	U443260	U445803
ssp.css	U443256	U445801
ssp.docs	U443268	U445816
ssp.gui	U443263	U445805
ssp.hacws		U445156
ssp.jm	U443262	U445806
ssp.public		U443259
ssp.sysctl		U443267
ssp.sysman	U443257	U445799
ssp.top		U443255

Please make sure the most current PTFs have been installed on the SP system.

Communication to and from the 604 High node within an SP Frame is via TCP/IP and UDP/IP only - there is no user-space communication. In addition, nodes that are on different levels of PSSP are also restricted to TCP/IP communications. See the *IBM Parallel System Support Programs for AIX: System Planning* manual for more detailed information.

A boot/install server can support either an AIX 3.2.5 install or an AIX 4.1 install, not both. However, multiple boot install servers can exist in an SP system. Nodes using PSSP 1.2 and AIX 3.2.5 cannot be installed with PSSP V2.2. A separate boot/install server node running AIX 3.2.5 must be used.

Existing system partitions for PSSP V1.2 or for PSSP V2.1 can coexist with PSSP V2.2. However, the same partition cannot contain both PSSP V1.2 and PSSP V2.1 nodes. In addition, parallel jobs can only run in a system partition that has all of its nodes at the same PSSP level.

IBM PVMe for AIX (5765-544) and IBM Parallel Environment for AIX (5765-543) do not execute on 604 High nodes

IBM Parallel System Support Programs for AIX Packaging

The SP system software includes the *IBM Parallel System Support Programs for AIX* (PSSP), a collection of software which assists you in the installation, configuration, administration and operation of your SP system.

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

- **pssp**
- **spimg**
- **ssp.csd**
- **ssp.mte**
- **ssp.hacws** (Optional)
- **ssp.ptpe** (Optional)

pssp:

The **installp** image for **PSSP** contains the code to install, operate and manage your 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 GUI for the System Monitor.

ssp.sysman This option contains the following functions:

- Time services
- User management
- Print support
- 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 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.

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 GUI for the System Partitioning Aid.

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 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 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 Amd (Berkeley Automount daemon), perl (Practical Extraction and Reporting Language), NTP (Network Time Protocol), SUP (System Update Protocol), Tcl (Tool Command Language), Tk (Tcl-based Tool Kit for X-windows), and Expect (Programmed dialogue with interactive programs).

ssp.docs This option contains the files for man Pages and PostScript files and hypertext versions (accessible with the **InfoExplorer** tool) of the PSSP for AIX manuals.

spimg:

This **installp** contains a fileset for each supported AIX release (named **spimg.<aix release>**). Each fileset contains a **mksysb** image of an AIX system that you can use to install AIX on the nodes of your SP system after you have successfully installed and configured your control workstation. This minimal image is composed of the basic operating system, extensions, networking, and basic utilities. It is provided as a base for getting your SP system up and running quickly.

To install an **spimg** for a particular AIX operating system level (i.e. AIX 4.1.5, or AIX 4.2.1), choose the appropriate **spimg** fileset to install. For example, to install the AIX 4.1.5 level of the **spimg**, choose the fileset named **spimg.415**. Follow the instructions in the *Parallel System Support Programs for AIX: Installation and Migration Guide* to install the **spimg**, replacing the package name "**spimg**" in the instructions with the chosen fileset name "**spimg.415**".

The following images are provided at this time: **spimg.415** and **spimg.421**.

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

ssp.csd:

This image provides the IBM Virtual Shared Disk and 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 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.mte:

The Magnetic tape extension pseudo device driver provides enabling facilities that can be used to support a distributed, multinode tape management system. The **ssp.mte** pseudo device driver needs to be installed on every node that requires a remote access. It also needs to be installed on every node that

has a physical tape drive attached to it that will be used by a Distributed Tape Management System (DTMS).

ssp.hacws (**OPTIONAL**, separately priced feature):

This 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.

ssp.ptpe (**OPTIONAL**, separately priced feature) :

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

ptpe.docs Performance Toolbox Parallel Extension 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 Extension for AIX.

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

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.mte
  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/mte/README
  /usr/lpp/hacws/README (Optional)
  /usr/lpp/ptpe/README (Optional)
  /usr/lpp/spimg/README
  ```

AIX System Minimal mksysb Images and Required AIX PTFs

AIX 4.1.5 Minimal Image Contents

The following fixes have been applied to the Minimal **mksysb** Image for AIX 4.1.5. If you do not use this minimal **mksysb** image, the fixes must be applied to your AIX 4.1.5 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 the fixes according to the instructions listed in "AIX Considerations" under "Additional Restrictions" in this document.

```
AIX Maintenance APAR IX68753
AIX APAR IX70222

     Here is the lslpp -l output from the AIX 4.1.5 minimal image:

Fileset                      Level  State  Description
----------------------------------------------------------------------------
bos.acct                   4.1.5.2    C    Accounting Services
bos.adt.debug              4.1.5.6    C    Base Application Development
                                           Debuggers
bos.adt.lib                4.1.5.1    C    Base Application Development
                                           Libraries
bos.diag.rte               4.1.5.5    C    Hardware Diagnostics
bos.ifor_ls.client         4.1.3.0    C    iFOR/LS License System Client
                                           Utilities
bos.msg.en_US.diag.rte     4.1.1.1    C    Hardware Diagnostics Messages -
                                           U.S. English
bos.msg.en_US.net.tcp.client
                           4.1.1.1    C    TCP/IP Messages - U.S. English
bos.msg.en_US.rte          4.1.1.1    C    Base Operating System Runtime
                                           Messages - U.S. English
bos.net.nfs.client         4.1.5.5    C    Network File System Client
bos.net.nis.client         4.1.5.0    C    Network Information Service
                                           Client
bos.net.tcp.client         4.1.5.8    C    TCP/IP Client Support
bos.net.tcp.smit           4.1.5.1    C    TCP/IP SMIT Support
bos.perf.diag_tool         4.1.5.0    C    Performance Diagnostic Tool
bos.perf.pmr               4.1.5.0    C    Performance PMR Data Collection
                                           Tool
bos.rte                    4.1.5.0    C    Base Operating System Runtime
bos.rte.Dt                 4.1.1.0    C    Desktop Integrator
```

```
bos.rte.ILS               4.1.4.1    C    International Language Support
bos.rte.SRC               4.1.5.0    C    System Resource Controller
bos.rte.X11               4.1.1.0    C    AIXwindows Device Support
bos.rte.aio               4.1.5.3    C    Asynchronous I/O Extension
bos.rte.archive           4.1.5.5    C    Archive Commands
bos.rte.bind_cmds         4.1.5.2    C    Binder and Loader Commands
bos.rte.boot              4.1.5.1    C    Boot Commands
bos.rte.bosinst           4.1.5.1    C    Base OS Install Commands
bos.rte.commands          4.1.5.4    C    Commands
bos.rte.compare           4.1.5.1    C    File Compare Commands
bos.rte.console           4.1.1.0    C    Console
bos.rte.control           4.1.5.7    C    System Control Commands
bos.rte.cron              4.1.5.1    C    Batch Operations
bos.rte.date              4.1.5.0    C    Date Control Commands
bos.rte.devices           4.1.5.2    C    Base Device Drivers
bos.rte.devices_msg       4.1.5.1    C    Device Driver Messages
bos.rte.diag              4.1.5.0    C    Diagnostics
bos.rte.edit              4.1.5.2    C    Editors
bos.rte.filesystem        4.1.5.2    C    Filesystem Administration
bos.rte.iconv             4.1.5.0    C    Language Converters
bos.rte.ifor_ls           4.1.3.2    C    iFOR/LS Libraries
bos.rte.im                4.1.4.0    C    Input Methods
bos.rte.install           4.1.5.4    C    LPP Install Commands
bos.rte.jfscomp           4.1.5.0    C    JFS Compression
bos.rte.libc              4.1.5.9    C    libc Library
bos.rte.libcfg            4.1.5.1    C    libcfg Library
bos.rte.libcur            4.1.5.0    C    libcurses Library
bos.rte.libdbm            4.1.1.0    C    libdbm Library
bos.rte.libnetsvc         4.1.5.1    C    Network Services Libraries
bos.rte.libpthreads       4.1.5.5    C    libpthreads Library
bos.rte.libqb             4.1.4.0    C    libqb Library
bos.rte.libs              4.1.5.6    C    libs Library
bos.rte.loc               4.1.4.0    C    Base Locale Support
bos.rte.lvm               4.1.5.7    C    Logical Volume Manager
bos.rte.man               4.1.5.3    C    Man Commands
bos.rte.methods           4.1.5.0    C    Device Config Methods
bos.rte.misc_cmds         4.1.5.2    C    Miscellaneous Commands
bos.rte.mp               4.1.5.14    A    Base Operating System
                                             Multiprocessor Runtime
bos.rte.net               4.1.1.0    C    Network
bos.rte.odm               4.1.5.2    C    Object Data Manager
bos.rte.printers          4.1.5.2    C    Front End Printer Support
bos.rte.security          4.1.5.3    C    Base Security Function
bos.rte.serv_aid          4.1.5.2    A    Error Log Service Aids
bos.rte.shell             4.1.5.9    C    Shells (bsh, ksh, csh)
bos.rte.streams           4.1.5.4    C    Streams Libraries
bos.rte.tty              4.1.5.10    C    Base TTY Support and Commands
bos.rte.up               4.1.5.13    A    Base Operating System
                                             Uniprocessor Runtime
```

```
bos.sysmgt.loginlic        4.1.1.0    C    License Management
bos.sysmgt.serv_aid        4.1.5.5    C    Software Error Logging and Dump
                                           Service Aids
bos.sysmgt.smit            4.1.5.2    C    System Management Interface Tool
                                           (SMIT)
bos.sysmgt.sysbr           4.1.5.4    C    System Backup and BOS Install
                                           Utilities
bos.sysmgt.trace           4.1.5.4    C    Software Trace Service Aids
bos.terminfo.com.data      4.1.5.0    C    Common Terminal Definitions
bos.terminfo.dec.data      4.1.5.0    C    Digital Equipment Corp. Terminal
                                           Definitions
bos.terminfo.ibm.data      4.1.5.0    C    IBM Terminal Definitions
bos.terminfo.pc.data       4.1.0.0    C    Personal Computer Terminal
                                           Definitions
bos.terminfo.rte           4.1.5.0    C    Run-time Environment for AIX
                                           Terminals
devices.base.com           4.1.3.0    C    Common Base System Device
                                           Software
devices.base.rte           4.1.5.0    C    Uniprocessor Base System Device
                                           Software
devices.graphics.com       4.1.5.2    C    Graphics Adapter Common Software
devices.mca.8d77.com       4.1.5.1    C    Common SCSI I/O Controller
                                           Software
devices.mca.8d77.diag      4.1.5.0    C    8-bit SCSI I/O Controller
                                           Diagnostics
devices.mca.8d77.rte       4.1.5.0    C    8-bit SCSI I/O Controller
                                           Software
devices.mca.8d77.ucode     4.1.3.0    C    8-bit SCSI I/O Controller
                                           Microcode
devices.mca.8ee4.X11       4.1.5.0    C    AIXwindows Color Graphics
                                           Display Adapter Software
devices.mca.8ee4.diag      4.1.5.0    C    Color Graphics Display Adapter
                                           Diagnostics
devices.mca.8ee4.rte       4.1.1.0    C    Color Graphics Display Adapter
                                           Software
devices.mca.8ef2.com       4.1.5.1    C    Common Integrated Ethernet
                                           Software
devices.mca.8ef2.diag      4.1.2.0    C    Integrated Ethernet Adapter
                                           (8ef2) Diagnostics
devices.mca.8ef2.diag.com  4.1.5.1    C    Common Integrated Ethernet
                                           Diagnostics
devices.mca.8ef2.rte       4.1.0.0    C    Integrated Ethernet Adapter
                                           (8ef2) Software
devices.mca.8ef4.com       4.1.5.0    C    Common FDDI Software
devices.mca.8ef4.diag      4.1.5.1    C    FDDI Adapter (8ef4) Diagnostics
devices.mca.8ef4.rte       4.1.5.4    C    FDDI Adapter (8ef4) Software
devices.mca.8ef4.ucode     4.1.5.2    C    FDDI Adapter (8ef4) Microcode
devices.mca.8ef5.com       4.1.5.1    C    Common Ethernet Software
```

```
devices.mca.8ef5.diag      4.1.3.0    C    Ethernet High-Performance LAN
                                           Adapter (8ef5) Diagnostics
devices.mca.8ef5.rte       4.1.5.0    C    Ethernet High-Performance LAN
                                           Adapter (8ef5) Software
devices.mca.8efc.com       4.1.5.0    C    Common 16-bit SCSI I/O
                                           Controller Software
devices.mca.8efc.diag      4.1.5.0    C    16-bit SCSI I/O Controller
                                           Diagnostics
devices.mca.8efc.rte       4.1.5.1    C    16-bit SCSI I/O Controller
                                           Software
devices.mca.8f97.com       4.1.5.0    C    Common SSA Adapter (8f97)
                                           Software
devices.mca.8f97.diag      4.1.5.2    C    SSA Adapter (8f97) Diagnostics
devices.mca.8f97.rte       4.1.5.0    C    SSA Adapter (8f97) Software
devices.mca.8fba.com       4.1.5.0    C    Common NCR53C7XX SCSI Software
devices.mca.8fba.diag      4.1.0.0    C    Standard NCR53C720 SCSI
                                           Diagnostics
devices.mca.8fba.rte       4.1.5.0    C    Standard NCR53C720 SCSI Software
devices.mca.8fc8.com       4.1.5.0    C    Common Token Ring Software
devices.mca.8fc8.diag      4.1.3.0    C    Token Ring High-Performance
                                           Adapter (8fc8) Diagnostics
devices.mca.8fc8.rte       4.1.5.0    C    Token Ring High-Performance
                                           Adapter (8fc8) Software
devices.mca.8fc8.ucode     4.1.0.0    C    Token Ring High-Performance
                                           Adapter (8fc8) Microcode
devices.mca.df5f.com       4.1.1.0    C    Standard I/O Adapter Common
                                           Software
devices.mca.df5f.rte       4.1.0.0    C    Standard I/O (df5f) Adapter
                                           Software
devices.mca.df9f.com       4.1.5.0    C    Common Direct Attached Disk
                                           Software
devices.mca.df9f.diag      4.1.1.0    C    Direct Attached Disk Diagnostics
devices.mca.df9f.rte       4.1.2.0    C    Direct Attached Disk Software
devices.mca.edd0.com       4.1.5.6    C    Common Async Adapter Support
devices.mca.edd0.diag      4.1.0.0    C    8-Port Asynchronous Adapter
                                           EIA-232 Diagnostics
devices.mca.edd0.rte       4.1.5.0    C    8-Port Asynchronous Adapter
                                           EIA-232 Software
devices.mca.ffe1.diag      4.1.0.0    C    128-Port Asynchronous Adapter
                                           Diagnostics
devices.mca.ffe1.rte       4.1.5.6    C    128-Port Asynchronous Adapter
                                           Software
devices.mca.ffe1.ucode     4.1.0.0    C    128-Port Asynchronous Adapter
                                           Microcode
devices.msg.en_US.base.com
                           4.1.1.0    C    Base System Device Software
                                           Messages - U.S. English
```

```
devices.msg.en_US.diag.rte
                          4.1.1.0    C    Device Diagnostics Messages -
                                          U.S. English
devices.msg.en_US.sys.mca.rte
                          4.1.1.0    C    Micro Channel Bus Software
                                          Messages - U.S. English
devices.scsi.disk.diag.com
                          4.1.5.0    C    Common Disk Diagnostic Service
                                          Aid
devices.scsi.disk.diag.rte
                          4.1.5.0    C    SCSI CD_ROM, Disk Device
                                          Diagnostics
devices.scsi.disk.rte     4.1.5.1    C    SCSI CD-ROM, Disk, Read/Write
                                          Optical Device Software
devices.scsi.tape.diag    4.1.5.2    C    SCSI Tape Device Diagnostics
devices.scsi.tape.rte     4.1.5.2    C    SCSI Tape Device Software
devices.sio.fda.com       4.1.4.0    C    Common Diskette Device Software
devices.sio.fda.diag      4.1.2.0    C    Diskette Adapter and Device
                                          Diagnostics
devices.sio.fda.rte       4.1.5.0    C    Diskette Adapter Software
devices.sio.ktma.com      4.1.4.0    C    Common Keyboard Tablet & Mouse
                                          Device and Adapter Software
devices.sio.ktma.diag     4.1.5.1    C    Keyboard Tablet & Mouse Device
                                          and Adapter Diagnostics
devices.sio.ktma.rte      4.1.5.0    C    Keyboard Tablet & Mouse Device
                                          and Adapter Software
devices.sio.ppa.com       4.1.4.0    C    Common Parallel Printer Adapter
                                          Software
devices.sio.ppa.diag      4.1.5.1    C    Parallel Printer Adapter
                                          Diagnostics
devices.sio.ppa.rte       4.1.5.0    C    Parallel Printer Adapter
                                          Software
devices.sio.sa.diag       4.1.5.2    C    Built-in Serial Adapter
                                          Diagnostics
devices.sio.sa.rte        4.1.5.0    C    Built-in Serial Adapter Software
devices.ssa.disk.rte      4.1.5.2    C    SSA DASD Software
devices.sys.mca.rte       4.1.5.0    C    Micro Channel Bus Software
devices.sys.slc.diag      4.1.1.0    C    Serial Optical Link Diagnostics
devices.sys.slc.rte       4.1.3.0    C    Serial Optical Link Software
devices.tty.rte           4.1.5.3    C    TTY Device Driver Support
                                          Software
ipx.rte                   4.1.5.0    C    IPX and SPX Protocol Stacks
printers.rte              4.1.5.2    C    Printer Backend
xlC.rte                   3.1.1.0    C    C Set ++ for AIX Application
```

AIX System Minimal mksysb Image and Required AIX PTFs

AIX 4.2.1 Minimal Image Contents

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.

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

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                   4.2.1.0    C    Accounting Services
bos.adt.debug              4.2.1.4    C    Base Application Development
                                            Debuggers
bos.adt.lib                4.2.1.0    C    Base Application Development
                                            Libraries
bos.diag.com               4.2.1.0    C    Common Hardware Diagnostics
bos.diag.rte               4.2.1.0    C    Hardware Diagnostics
bos.diag.util              4.2.1.0    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                     4.2.1.5    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         4.2.1.4    C    Network File System Client
bos.net.nis.client         4.2.1.0    C    Network Information Service
                                              Client
bos.net.tcp.client         4.2.1.4    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                4.2.1.0    C    System Resource Controller
bos.rte.X11                4.2.0.0    C    AIXwindows Device Support
bos.rte.aio                4.2.1.1    C    Asynchronous I/O Extension
bos.rte.archive            4.2.1.0    C    Archive Commands
bos.rte.bind_cmds          4.2.1.0    C    Binder and Loader Commands
bos.rte.boot               4.2.1.1    C    Boot Commands
bos.rte.bosinst            4.2.1.0    C    Base OS Install Commands
bos.rte.commands           4.2.1.0    C    Commands
bos.rte.compare            4.2.1.0    C    File Compare Commands
bos.rte.console            4.2.1.0    C    Console
bos.rte.control            4.2.1.0    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        4.2.1.0    C    Device Driver Messages
bos.rte.diag               4.2.1.0    C    Diagnostics
bos.rte.edit               4.2.1.0    C    Editors
bos.rte.filesystem         4.2.1.0    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                 4.2.1.0    C    Input Methods
bos.rte.install            4.2.1.0    C    LPP Install Commands
bos.rte.jfscomp            4.2.0.0    C    JFS Compression
bos.rte.libc               4.2.1.0    C    libc Library
bos.rte.libcfg             4.2.1.0    C    libcfg Library
bos.rte.libcur             4.2.1.0    C    libcurses Library
bos.rte.libdbm             4.2.1.0    C    libdbm Library
bos.rte.libnetsvc          4.2.1.0    C    Network Services Libraries
bos.rte.libpthreads        4.2.1.0    C    pthreads Library
bos.rte.libqb              4.2.1.0    C    libqb Library
bos.rte.libs               4.2.1.0    C    libs Library
bos.rte.loc                4.2.1.0    C    Base Locale Support
bos.rte.lvm                4.2.1.4    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           4.2.1.0    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            4.2.1.0    C    Front End Printer Support
bos.rte.security            4.2.1.0    C    Base Security Function
bos.rte.serv_aid            4.2.1.0    C    Error Log Service Aids
bos.rte.shell               4.2.1.0    C    Shells (bsh, ksh, csh)
bos.rte.streams             4.2.1.0    C    Streams Libraries
bos.rte.tty                 4.2.1.1    C    Base TTY Support and Commands
bos.sysmgt.loginlic         4.2.1.0    C    License Management
bos.sysmgt.serv_aid         4.2.1.1    C    Software Error Logging and Dump
                                            Service Aids
bos.sysmgt.smit             4.2.1.0    C    System Management Interface Tool
                                            (SMIT)
bos.sysmgt.sysbr            4.2.1.1    C    System Backup and BOS Install
                                            Utilities
bos.sysmgt.trace            4.2.1.0    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                      4.2.1.5    C    Base Operating System
                                            Uniprocessor Runtime
devices.base.diag           4.2.1.0    C    Base System Diagnostics
devices.base.rte            4.2.1.0    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
```

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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.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
```

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devices.msg.en_US.sys.mca.rte
                           4.2.0.0    C    Micro Channel Bus Software
                                           Messages - U.S. English
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.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
xlC.msg.en_US.rte          3.1.4.0    C    C Set ++ for AIX Application
                                           Runtime Messages en_US
xlC.rte                    3.1.4.0    C    C Set ++ for AIX Application
                                           Runtime
```

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 has been increased to 20MB.

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 SP2 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	5902	8MM tape cartridge
SP AIX Min Image	5902	8MM tape cartridge
Cumulative service for PSSP	5902	8MM tape cartridge
HACWS (Optional)	5905	8MM tape cartridge
PTPE (Optional)	5908	8MM tape cartridge
PSSP for AIX	5369	4MM tape cartridge
SP AIX Min Image	5369	4MM tape cartridge
Cumulative service for PSSP	5369	4MM tape cartridge
HACWS (Optional)	5370	4MM tape cartridge
PTPE (Optional)	5371	4MM tape cartridge

- Documentation

Title	Order Number
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: System Planning	GC23-3902
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
RS/6000 Scalable POWERparallel Systems Managing Shared Disks: IBM Virtual Shared Disks, Data Striping Devices, and the IBM Recoverable Virtual Shared Disk Licensed Program	SC23-3849
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

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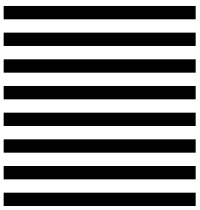

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