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Migrate SP Nodes AIX 3.2.5/PSSP 1.2 to AIX 4.1/PSSP 2.1

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About This Document

This document describes how to accomplish migration installs of SP nodes using a combination of the PSSP installation routines, Network Installation Manager (NIM) commands, and manual steps.

Although AIX 4.1 supports migration installs from AIX 3.2.5 to AIX 4.1 on RISC System/6000 processors, Parallel System Support Program 2.1 (PSSP) does not support AIX migration installs of SP nodes. PSSP 2.1 code uses the AIX 4.1 Network Installation Manager (NIM) to do mksysb overwrite

To ensure you have the latest version of this document point your url to:

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http://www.austin.ibm.com:80/parallel/lib/hints
```

Note: Read this document only if you are planning an AIX 4.1 migration install on SP nodes. If not, consult the IBM RISC System/6000 Scalable POWERparallel Systems manuals.

What Does Migrating an SP System Mean?

The term migrate is used to describe several different operations when dealing with an SP. This leads to confusion. In general, migrating an SP can mean getting some or all of the processors in the system from one level of software and or hardware to a new level, with all the applications that were running on the system before the change still running, and perhaps with new ones being added. The term migrate implies that the move from one level to the next takes place without the need to re-implement the local system customizations that have taken place since the initial system installation.

This paper discusses a very specific piece of the total SP system migration, the movement of the AIX operating system level on SP nodes from AIX 3.2.5 to

AIX 4.1 and the movement of the Parallel System Support Program from PSSP 1.2 to PSSP 2.1.

From a very high level, the steps to move an SP system from AIX 3.2.5 to AIX 4.1 are:

1. Move to the new AIX level on the control workstation.
2. Move to the new PSSP level on the control workstation.
   a. Move to the new System Data Repository (SDR) format on the control workstation.
   b. Move the kerberos configuration on the control workstation.
3. Move to the new non-operating system software level on the control workstation.
4. Move to the new AIX level on the SP nodes.
5. Move to the PSSP level on the SP nodes.
6. Move to the new non-operating system software level on the SP nodes.

How to accomplish these steps is described in detail in the IBM RISC System/6000 Scalable POWERparallel Systems manuals. Most of them can be accomplished using supported migration techniques in the sense that many of the local customizations are preserved through the step. PSSP as implemented, however, does not offer a migration path for steps 4 and 5 above.

AIX 4.1 Installation Methods for RISC System/6000s

There are three ways that AIX 4.1 can be installed on a RISC System/6000:

- NEW AND COMPLETE OVERWRITE: This installation type overwrites everything on the disk(s) selected for installation.
- PRESERVATION INSTALLATION: This installation type saves some of the data on the disk selected for installation but overwrites the /USR, ROOT, /VAR, and /TMP file systems.
- MIGRATION INSTALLATION: This installation type upgrades the Base Operating System. Other software product files, file systems and configuration data are saved.

PSSP Method of Installing AIX 4.1 on SP Nodes

PSSP 2.1 has only implemented the AIX 4.1 complete overwrite installation method to install SP nodes. This is the best method for installing nodes when most nodes in the system have identical software configurations. An AIX 4.1 image, can be installed on a stand alone RISC/6000 or on an SP node. Additional Licensed Program Products (LPPs) and applications, can be install and local customization can be done. Then a mksysb backup can be taken and used install the other nodes.

In many SP implementations, however, the nodes are not identical. Each node has its own function and configuration with unique LPPs and applications. For these systems administrators would prefer to install the nodes using the AIX 4.1 migration installation method in order to retain the unique configurations through the installation.

Although PSSP only uses the complete overwrite install method for installing nodes, the ability to do migration installs is not disabled. PSSP 2.1 boot/installation routines automatically configure the AIX 4.1 Network Installation Manager (NIM) to accomplish mksysb overwrite installs. A system administrator can use underlying NIM commands to modify the NIM configuration and convert the install method from overwrite to migration. After the AIX level has been migrated the administrator then must upgrade the level of PSSP code on the node from PSSP 1.2 to PSSP 2.1.

Prerequisites

This section discusses the necessary skills that an administrator should have in order to understand the migration concepts and perform the necessary tasks. Also listed are the prerequisite tasks that must be accomplished prior to migrating nodes and any reading material that would benefit the administrator.

Prerequisite Skills

This document is written for experienced SP system administrators and system installers. You should not attempt to migrate install SP nodes unless you have installed SP systems and are comfortable with the PSSP commands used to accomplish system installations. Familiarity with NIM and experience in using NIM to install AIX on RISC System/6000s is very helpful.

Prerequisite Reading

The International Technical Support Organization (ITSO) is publishing a set of Redbooks on migration installations. They are:

- A Holistic Approach to Migrating to AIX 4.1: Planning Guide, SG24-4651 -- published November, 1995
- A Holistic Approach to Migrating to AIX 4.1: Volume 1, SG24-4652 -- to be published February, 1996
- A Holistic Approach to Migrating to AIX 4.1: Volume 2, SG24-4653 -- to be published March, 1996

These books discuss the AIX migration in detail. All administrators that want to migrate nodes should read at least "A Holistic Approach to Migrating to AIX 4.1: Planning Guide, SG24-4651 and A Holistic Approach to Migrating to AIX 4.1: Volume 1, SG24-4652".

To obtain a catalog of ITSO redbooks, VNET users may type:

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International Technical Support Organization
Bibliography of Redbooks, GG24-3070
```

A listing of all redbooks, sorted by category, may also be found on MKTTOOLS at ITSOCAT TXT. This package is updated monthly.

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This document does not cover the material that is already covered in the redbooks. It presumes that you have already read them.

In addition, you should read and understand the content of the following manuals;

- IBM RISC System/6000 Scalable POWERparallel Systems: Installation Guide, GC23-3898
- IBM RISC System/6000 Scalable POWERparallel Systems: Administration Guide, GC23-3897
- IBM RISC System/6000 Scalable POWERparallel Systems: Planning Guide, GC23-3902
- AIX 4.1 Installation Guide, SC23-2550
- AIX 4.1 Network Installation Manager Guide and Reference, SC23-2627

Prerequisite Tasks and Planning for the Migration Install

As with any software or hardware installation or upgrade, it is very important that you plan the migration of nodes from one level of AIX and PSSP to another before performing it. Careful planning involves the following:

- Plan the order in which you will migrate your nodes.

  Particular attention should be given to this task because, depending on order of migration and the time span over which all the nodes will be migrated you may have to change the partition layout of your system one or more times. Before nodes are migrated, they must be in a PSSP 2.1 partition. There are limitations on which nodes can be in partitions together. Refer to Step 2 of this document, Chapter 5, Planning SP System Partitions,

of the System Planning Guide and Chapter 6, Managing System Partitions, of the Administration Guide for details.

- Plan for a system maintenance window in which to do the migration.

  No performance measurements have been taken during SP node migration installs. Installs can take anywhere from 15 minutes to more than an hour depending on how many filesets need to be installed and how heavily loaded the boot/server and the network are. You should probably plan to migrate install no more than four nodes at one time. You should include time in your migration plan for recovery in the event of failed migrations. A worst case scenario would be that you didn't make any node 3.2.5 boot/install servers before you migrated your control workstation and one or more node migrations had unrecoverable failures. You would have to reinstall a control workstation at the previous level and reinstall the nodes back to the previous level. This could take a long time.

- Develop steps to restore the system to the former level in the event of an unsuccessful migration.

- Plan for saving all configuration information and data. For example plan to:

  – Archive the System Data Repository (SDR)

  – Save unique networking related files like /etc/hosts, DNS files (/etc/resolv.conf), and NIS configurations.

  – Use the NETSTAT -R and/or IFCONFIG commands to record all routes that have been configured on each node

  – Save configurations for devices that are not saved in a central location like escon adapters, atm adapters and external I/O devices like SSA disks.

  – Save all locally modified system configuration files like the /ETC/INITTAB and the crontabs entries.

  – Backup the rootvg using MKSYSB or other appropriate tools like SYSBACK.

  – Backup databases and data files on non-rootvg disks

- Verify that you have the latest available AIX and PSSP fixes for application to your SP control workstation and to your nodes.

  Note: Get This AIX Fix

  AIX APAR IX54524 delivered in AIX 4.1.4 PTF U440494 fixes a problem with the integrated ethernet device driver. This PTF is required on systems acting as boot/install servers that server over the integrated ethernet. SP boot/install servers are NFS servers. Make sure you have applied this fix.

- Verify that you have all the appropriate LPPs and non-IBM application software levels available for installation on the system after the AIX and PSSP levels have been upgraded. Refer to "Migrating Site-Specific Applications" on page 19.

- Verify that you have a plan to port locally written applications to the new software levels.
- Develop system validation tests to insure that local applications run the same before and after the migration.
- Develop a plan to quiesce nodes before performing the install.

  This means making your system quiet. A quiet system is one on which:

  – NIS has been shutdown and disable from starting on reboot.

  – No end users are logged onto the nodes.

  – No jobs are running.

  – Batch submission queues, such as LoadLeveler queues, are not routing batch jobs to the node.

  – LoadLeveler Interactive Session Support is not be routing interactive traffic to the node.

  – The Resource Manager pools do not include the node.

  – NFS filesystems are unmounted from the node. If they are automounted during boot, via entries in the /etc/filesystems, the "mount=true" entry in their stanza should be changed to "mount=false".

  – If a node is an NFS server, you should unexport the exported filesystems and temporarily remove the filesystems from the /etc/exports file and the /etc/xtab file.

  – Crontabs files should be inspected and processes that could start during the migration should be disabled from starting.

  – Jobs started via the AT command or any other job initiator command should be disabled from starting during the installation.

  – If local applications have been enabled by adding entries into the /etc/inittab file, consider stopping these applications from automatically starting up during the migration.

  Note: /ETC/INITTAB ENTRIES

  During an AIX 4.1 migration install, the /etc/inittab file from the 3.2.5 system is copied to /tmp/bos and a new 4.1 version of the inittab is created. If you have entries in the old inittab to start local applications, add them to the new inittab. DO NOT COPY THE OLD INITTAB BACK TO REPLACE THE NEW INITTAB. Entries in may have different syntax from release to release.

- Create yourself a check list of all items that will be disabled during migration for each node that you want to migrate. Then use the list ensure that all items are properly quiesced before the migration and enabled after it.

Steps to Migrate Nodes

This section walks you through the migration process step-by-step and includes the following steps.

1. Ensure that all AIX 4.1 filesets are available in the /SPDATA/SYS1/INSTALL/LPPSOURCE directory.
2. Reconfigure the system with the target nodes in an AIX 4.1 PSSP 2.1 partition.
3. Prepare the target nodes for migration.
4. Use the /USR/LPP/SSP/BIN/SPBOOTINS command to configure the target nodes as NIM clients of their boot/install servers, the NIM master.
5. Modify the NIM configuration for the target nodes to change the install from an overwrite to a migration install.
6. Start the AIX migration install.
7. Upgrade the level of PSSP from 1.2 to 2.1.
8. Migrate the remaining applications and subsystems.

Before beginning please note: How Did I Get Here?

The SP System state before going on. Prior to migrating nodes you must have installed AIX 4.1 and PSSP 2.1 onto the SP system control workstation. Chapter 3, Step 1 through Step 18 of the IBM RISC System/6000 Scalable POWERparallel Systems: Installa- tion Guide, GC23-3898-01 gives instructions on how to get to this point.

Once you have migrated the control workstation, the nodes are running AIX 3.2.5 with PSSP 1.2 in a partition on the control workstation. This document assumes that you have reached this state before you start Step 1 below.

Note: Make sure that you have made at least one of your 3.2.5 nodes a boot/install server for the other nodes before converting the control workstation to AIX 4.1 and PSSP 2.1. Refer to Step 2 of the IBM RISC System/6000 Scalable POWERparallel Systems: Installation Guide, GC23-3898-01 for instructions.

Step 1: Copy All AIX 4.1 Fileset Installation Images

Copy all AIX 4.1 fileset installation images (approximately 1.3 gigabytes) into the /SPDATA/SYS1/INSTALL/LPPSOURCE directory on the control workstation. To do an overwrite mksysb install on the nodes only the minimal set of 4.1 filesets need to be present in the lppsource on the control workstation. However during a migration install the equivalent 4.1 fileset must be present of any 3.2.5 fileset that is found to be installed on the migrating node. To be sure

that you have not left out a 4.1 fileset that needs to be there copy all the 4.1 source into the lppsource directory.

Refer to the IBM RISC System/6000 Scalable POWERparallel Systems: Installation Guide which describes how to copy the lppsource into the appropriate directory. (Chapter 2 "Step 8 Copy the AIX 4.1 LPP images").

Step 2: Define The Nodes to be Migrated in a PSSP 2.1 Partition

Perform this step on the control workstation.

This step is required because PSSP code will not allow a PSSP 2.1 boot/install server to be created for nodes in a PSSP 1.2 partition. Follow the partitioning instructions as outlined in the SP Administration Guide to accomplish this step.

The PSSP 2.1 code is delivered with a fixed set of system partition layouts. See the IBM RISC System/6000 Scalable POWERparallel Systems: Planning Guide GC23-3902, Chapter 5, for a discussion of system partitioning including a listing of the layouts that are shipped with PSSP 2.1. If none of the predefined layouts meets your partitioning needs, you may submit a Request for Price Quote (RPQ) to IBM to for additional custom layouts. See your IBM representative for more information.

When a PSSP 2.1 partition has been applied but the nodes in that partition have not yet been installed at AIX 4.1 and PSSP 2.1, they will not be fully functional. The SP control workstation handles various PSSP subsystems differently depending on the level of code it expects to find running in a given system partition. For instance the heartbeat daemon running in a PSSP 2.1 node is different than the heartbeat daemon running in a PSSP 1.2 node. If the control workstation expects to find a 2.1 heartbeat daemon, then it will not detect the 1.2 heartbeat daemon running on a 1.2 node. Therefore, the node's host responds value will not be correctly set.

Likewise, within a system partition, all nodes must be at the same level of Communication Subsystem Software (ssp.css). If some of the nodes defined in a PSSP 2.1 partition have been moved to the new levels of software and others in that partition are still at the old levels of software, then the High Performance Switch is in a state that will provide indeterminate results. Don't attempt to start or use the switch in a partition until all nodes defined in that partition are running the software levels appropriate for the defined partition.

Step 3: Prepare the Target Node(s) for Migration

1. Quiesce the node(s) by implementing the steps in the check list that you created in your planning phase to disable all things potentially disruptive to the migration.

Step 4: Configure the Target Nodes as NIM Clients of Their

Server

Use the /USR/LPP/SSP/BIN/SPBOOTINS command to configure the target nodes as NIM clients of their server, the NIM master.

You should perform this step on the control workstation. For example, to migrate node 8, use the following command:

```
spbootins -r install -l 8 -i bos.obj.<image_name>
```

The <image_name> must be the name of a legitimate 4.1 system mksysb image. This image will not be installed on the nodes but the system checks to ensure that there is an installable image to allocate to the NIM mksysb resource.

If this is the first time SPBOOTINS has been run and/or the designated AIX 4.1 and PSSP 2.1 boot/install server has never had setup_server run on it, this command will cause the BOS.SYSMGT.NIM.MASTER fileset and its prerequisites to be installed on the server node. At the conclusion of this step, the boot/install server for the target nodes will have been configured as a NIM master and NIM machine objects for each of the target nodes will have been created. The target nodes have been configured to be installed via a MKSYSB overwrite. In the next step, you will change this to a migration install. You can view the NIM client names by issuing the LSNIM command on the boot/install server. This command lists all defined NIM objects. NIM clients are listed as machine objects. The client names should match the short initial_host_names in the System Data Repository (SDR).

NOte: In the NIM commands referenced later in this document, references are made to <client_name> as a generic name. The generic reference to <client_name> must be replaced with a specific client name.

Each target node NIM machine object will be in a state of BOS installation has been enabled and will have seven NIM resources allocated to it. Issue the following command to display the state of the machine object:

```
lsnim -l <client_name>
```

Issue the following command to display the resources allocated to the client:

```
lsnim -c resources  <client_name>
```

The allocated resources are:

- mksysb
- pssp_script
- nim_script
- lpp_source
- boot
- spot
- bosinst_data

Step 5: Modify the NIM Configuration for the Target Nodes

Modify the NIM configuration for the target nodes to change the install from an overwrite to a migration install.

Perform the following steps on the boot/install server for the target nodes:

1. Modify the BOSINST_DATA resource file to change the the INSTALL_METHOD keyword from overwrite to migrate.

   This file was created when SETUP_SERVER was called from SPBOOTINS. When you edit this file, it will not be automatically changed back by the PSSP code. You need to change it back if you want to do overwrite installs.

   The file is located in the /SPDATA/SYS1/INSTALL/PSSP directory. It will either be named BOSINST_DATA or <CLIENT_NAME>_NOPROMPT. The BOSINST_DATA file is used when the SPBOOTINS command indicated Destination Hard Disk(s) by device name (such as hdisk0). The <CLIENT_NAME>_NOPROMPT file is used when the Destination Hard Disk(s) are indicated by hardware location (such as, 00-00-00-0,0). Use the LSNIM -L <CLIENT_NAME> command to determine the exact name of the BOSINST_DATA file that is allocated to the client in question and modify that file as described below.

   To modify the BOSINST_DATA file, change the string:

   ```
   INSTALL_METHOD = overwrite
   ```

   to

   ```
   INSTALL_METHOD = migrate
   ```

   Note: While editing the bosinst_data file also check that the RM_INST_ROOTS entry is set to no. This avoids problems in installing ssp filesets in Step 7. The entry should read:

   ```
   RM_INST_ROOTS = no
   ```

2. Reset the NIM machine object for the target node.

   This step is required to enable the next step, which is the de-allocation of resources. De-allocation cannot take place on a NIM machine object that is

enabled for installation. You can resent the NIM machine object using either SMIT or a command:

Using SMIT:

```
TYPE: smit nim
SELECT: Manage Machine Objects
SELECT: Perform Operations on Machine Objects
SELECT: The appropriate machine object from the list
SELECT: Reset = reset an object's NIM state
PRESS:  Enter
```

Using the command:

```
nim -F -o reset <client_name>
```

Where <client_name> is the client node name.

3. Deallocate the mksysb and psspscript resources from the NIM machine object for the target node.

   Using SMIT:

   ```
   TYPE: smit nim
   SELECT: "Manage Machine Objects"
   SELECT: "Manage Network Install Resource Allocation"
   SELECT: "Deallocate Network Install Resources"
   SELECT: the_client_node_name
   SELECT: the mksysb and psspscript resources
   PRESS:  Enter to deallocate
   ```

   Using the command line:

   ```
   nim -o deallocate -a script=psspscript
   -a mksysb=mksysb_1  <client_name>
   ```

   Note: In this example the name of the mksysb resource was mksysb_1. If more than one mksysb image was used on this server when running the SPBOOTINS command, then this resource may be named mksysb_2 or mksysb_3, etc. You will have seen the name when running the lsnim -c resources command. Deallocate the appropriate name.

   After the step, only three resources remain. They are:

   - lpp_source
   - spot
   - bosinst_data

4. For target nodes with multiple Ethernet cards, modify the NIM client definitions. For nodes with more than one Ethernet installed, the NIM machine object must be modified to indicate the ent0 interface specifically.

```
Using SMIT:
TYPE smit nim
SELECT "Manage machine objects"
SELECT "Change/Show machine Objects"
SELECT the appropriate client
EDIT   the network interface field from ent to ent0
```

Step 6: Enable BOS Install and Start the Network Boot

In this step, you enable the bos installation and start the network boot which starts the installation.

1. Optional step. Turn on aixterm logging to save console output of target nodes during the installation. The install that is about to take place is not a PSSP controlled installation. Therefore, PSSP does not log any of the installation's progress. AIX installation saves logs in the /VAR/ADM/RAS directory on the nodes (Refer to the A Holistic Approach to Migrating to AIX 4.1 Guide Volume 1 for more information) which you can view after the installation is complete. To follow progress during the installation and record the node's console messages, you can open an aixterm session that has logging turned on for each installing node. When the installation begins, open a tty, using the SLTERM command, in the aixterm window and the node's console output will be saved.

   a. Open an aixterm window using the -l option to turn on aixterm logging and the -lf option to name a log file. For example, the following command logs output to the file "aterm.log1".

      ```
      aixterm -l -lf /tmp/aterm.log1
      ```

   b. In the aixterm window use the S1TERM command to open a node console.

      Note: You will be initiating the network boot via the netboot option of the System Monitor graphical user interface (GUI) or via the NODECOND command. Both of these methods use the SLTERM command in write mode. This fails if any SLTERMS are open for the node already. Do not open an SLTERM for the node before you have started the netboot.

      If the installation diverts to a prompted installation (PSSP attempts to set up a non-prompted installation but conditions can occur to change this.), then you will need to open a read/write console using the command S1TERM -W so that you can respond to the prompts. In this case, you need to close any read only S1TERMS for the node before opening the read/write SLTERM.

      Use the "All Node Summary serialLinkOpen" display of the System Monitor GUI to monitor whether an S1TERM is open.

2. Shutdown the target node(s) and power them off.

3. Enable the migrate install.

```
Using SMIT:
SELECT "Manage Machine Objects"
SELECT "Perform Operations on Machine Objects"
SELECT the_client_node_name
SELECT "bos_inst" from the list
CHANGE "Initiate Boot Operation on Client?" from yes to no.
CONFIRM "installp Flags"  is No
CONFIRM "Remain NIM client after install?"  is Yes
CHANGE  "Initiate Boot Operation on Client?" from Yes to No
CONFIRM "Set Boot List if Boot not Initiated on Client?"  is No
CONFIRM "Force Unattended Installation Enablement?"  is No
PRESS   Enter (twice)
```

Using the command line;

```
nim -o bos_inst -a source=rte -a installp_flags=-agX
     -a no_client_boot=yes <client_name>
```

4. Initiate a netboot from the control workstation using the spmon -g inter face or the nodecond command.

   During the install, the console displays messages indicating that 4.1 filesets are being installed. When the install completes with a reboot, you will see a login prompt at the console and should be able to telnet into the node through its en0 interface ip address. The nodes have been upgraded to AIX 4.1. They are no longer functioning as working SP nodes. The level of the PSSP code on the node is still at V1R2. The node_number value of the SP

   object in the node's Object Data Manager (ODM) has been lost, and the previous /ETC/INITTAB has been replaced by a new version that does not start SP daemons. The old version has been saved in /TMP/BOS.

   Note: /ETC/INITTAB ENTRIES:

   During an AIX 4.1 migration install, the /etc/inittab file from the 3.2.5 system is copied to /tmp/bos and a new 4.1 version of the inittab is created. If you have entries in the old inittab to start local applications, add them to the new inittab. DO NOT COPY THE OLD INITTAB BACK TO REPLACE THE NEW INITTAB. Entries in may have different syntax from release to release.

   Although the AIX installation has completed the PSSP installation has not. At this time the SDR on the control workstation still has the bootp_response set to install for the migrated node. This should be changed automatically by the pssp_script in the next step. The NIM installation has completed however, so the Cstate of the NIM client should have been changed to "ready for a NIM operation".

Step 7: Upgrade the Level of PSSP form 1.3 to 2.1

This section describes how to migrate from V1R2 to V2R1 by logging onto the node and issuing commands manually.

1. On the boot/install server, copy the pssp_script from /SPDATA/SYS1/INSTALL/PSSP into /SPDATA/SYS1/INSTALL/PSSPLPP.

This is to prepare for a step later in this section by placing all the files needed into one directory that will be NFS mounted on the nodes.

Ensure that all PTF installed files are in the /SPDATA/SYS1/INSTALL/PSSPLPP directory with the base install package. Create a .toc file in the /SPDATA/SYS1/INSTALL/PSSPLPP directory by issuing the following command while in that directory.

```
inutoc .
```

2. Mount the /SPDATA/SYS1/INSTALL/PSSPLPP directory from the boot/install server over /mnt on the client. For example, if node8 is a client of node7 then issue the following command on node8:

   ```
   mount node7:/spdata/sys1/install/pssplpp /mnt
   ```

3. List and note which ssp 1.2 filesets are installed on the node using the following command:

   ```
   lslpp -l "ssp*"
   ```

   Remove the ssp 1.2 filesets using the following command.

   Caution: Run this command only on the target node.
   Do not run it on the server node or PSSP 2.1 will be removed.

   ```
   installp -u ssp.*
   ```

   Rerun the LSLPP -L command to insure that the file sets were successfully removed. If they were, skip the next step.

4. Install the ssp 2.1 filesets

   Note: Only run this step if the ssp 1.2 filesets did not uninstall in the previous step. If they did uninstall, go on to the next step.

   Use the list of PSSP 1.2 filesets that you removed in the previous step to install the equivalent PSSP 2.1 filesets along with the appropriate PTFs.

```
Using SMIT:
TYPE      smit install
SELECT    Install and Update Software
SELECT    Install/Update Selectable Software (Custom Install)
SELECT    Install/Update From All Available Software
SELECT    INPUT device / directory for software         /mnt
MOVE      to * SOFTWARE to install  and press F4
SELECT    install filesets and latest PTF files using F7
PRESS     Enter to return to the previous menu
RESPOND   to the prompts as indicated in the following example:

 INPUT device / directory for software   /mnt
 * SOFTWARE to install                    []
 PREVIEW only? (install operation will NOT occur)    no
 COMMIT software updates?                            yes
 SAVE replaced files?                                no
 ALTERNATE save directory                 []
 AUTOMATICALLY install requisite software?           no
 EXTEND file systems if space needed?                yes
 OVERWRITE same or newer versions?                   no
 VERIFY install and check file sizes?                no
 DETAILED output?                                    no
```

Ensure that all the ssp 2.1 filesets have been installed on the node using the following command:

```
lslpp -l "ssp*"
```

5. Complete the ssp customization by running the pssp_script by issuing the following command:

   ```
   /mnt/pssp_script
   ```

   This step will set the node_number in the ODM, configure the network adapters (other than en0), install the ssp 2.1 filesets, and configure the appropriate PSSP deamons and subsystems on the node. It should complete in a few minutes.

6. Install the ssp ptfs

   pssp_script only installed the base ssp filesets. It did not install any maintenance ptfs. If you did not install the ssp filesets by hand, as described in the step preceding the pssp_script step, then you will need to apply service to the ssp filesets now. The nodes and the SP control workstation should all be operating at the same service levels for ssp filesets.

```
Using SMIT:
TYPE      smit install
SELECT    Install and Update Software
SELECT    Install/Update Selectable Software (Custom Install)
SELECT    Install/Update From All Available Software
SELECT    INPUT device / directory for software         /mnt
MOVE      to * SOFTWARE to install  and press F4
SELECT    latest PTF files for the installed ssp filesets using F7
PRESS     Enter to return to the previous menu
RESPOND   to the prompts as indicated in the following example:
 INPUT device / directory for software               /mnt
 SOFTWARE to install                                  []
 PREVIEW only? (install operation will NOT occur)    no
 COMMIT software updates?                            no
 SAVE replaced files?                                yes
 ALTERNATE save directory                           []
 AUTOMATICALLY install requisite software?           no
 EXTEND file systems if space needed?                yes
 OVERWRITE same or newer versions?                   no
 VERIFY install and check file sizes?                no
 DETAILED output?                                    no
```

7. Reboot the node to ensure that all ssp daemons start correctly.
8. This would be a good time to take a mksysb image of the newly migrated node.
9. The bosinst_data file still indicates migrate rather than overwrite. You will need to change this back to overwrite if you ever need to install a 4.1 mksysb image onto this node using PSSP.
10. Running the pssp_script should have changed the the bootp_response in the SDR from install to disk and should have removed the nodes boot/install server name from the /.rhosts file. Verify that the bootp_response was correctly set by using SPLSTDATA -B command on the control workstation to inspect the setting. If not set correctly, use the SPBOOTINS to set the bootp_response to disk.

Step 8: Reinitialize System Startup Routines

You can now use the check list you created in the planning phase to enable those things you disabled to quiesce the system for migration. Then you can begin to migrate the end user applications to the new system level. See the next section for information about LPP's that you may find helpful in planning for application migration.

Migrating Site Specific Applications

You have completed the migration installation of AIX and PSSP. You may still need to migrate your site-specific applications. This section discusses the importance of coexistence between levels and lists the IBM program products that you may want to migrate. A table is also included for you to use as a handy reference if you need to order any of IBM's products.

There are several different lists of products to which IBM employees can subscribe:

LIST	HOW TO OBTAIN	
A package listing LPPs available for AIX Version 4, program number 5765-398	TYPE	TOOLCAT MKTTOOLS
	TYPE:	/aixver4
	PRESS	SHOW PACKAGE function key to display the package contents.
	SELECT	AIXLPP file from the package.
	PRESS	SUBSCRIBE function key to obtain the listing.
A package of specific SP applications	TYPE	TOOLCAT MKTTOOLS
	TYPE:	/spapps
	PRESS	SHOW PACKAGE function key to display the package contents.
	SELECT	SPAPPLIST file from the package.
	PRESS	SUBSCRIBE function key to obtain the listing.

Coexistence of Levels

All SP software must be at the same release level within a system partition of the SP.

SP software for workstation clusters LoadLeveler 1.2 can coexist with LoadLeveler 1.2.1 when running on a cluster of workstations.

Parallel Environment 2.1 cannot coexist with its previous levels. It must be upgraded on all workstations in a cluster environment.

Related IBM Program Products You Can Migrate

You need to decide which products and/or programs that you want to migrate. These can include those programs that are part of your SP environment and those programs that are for the AIX operating system that runs on each node.

The following table lists the suite of SP software that you can migrate along with the required software levels for your specific AIX and PSSP version:

PPD Laboratory Software Product Support Matrix

Table 1 (Page 1 of 2). Product Support Matrix

PRODUCT	PROG. NO.	AIX 3.2.	AIX 4.1	PSSP V1R1	PSSP V1R2	PSSP V2R1	HPS 1*	HPS 2
PSSP V1 R1*	5765-296	xxx					xxx	xxx
PSSP V1 R2	5765-296	xxx					Note	xxx
PSSP V2 R1	5765-549		xxx					xxx
PE V1 R2*	5765-144	xxx		xxx			xxx	xxx
PE V1 R2 M1	5765-144	xxx			xxx		Note	xxx
PE V2 R1	5765-543		xxx			xxx		xxx
PVME V1 R3*	5765-246	xxx		xxx			xxx	xxx
PVMe V1 R3 M1	5765-246	xxx			xxx		Note	xxx
PVMe V2 R1	5765-544		xxx			xxx		xxx
PESSL(PRPQ)	5799-FQC	xxx			xxx		Note	xxx
PESSL V1 R1	5765-422		xxx			xxx		xxx
LL V1 R2*	5765-145	xxx		xxx	xxx			
LL V1 R2 M1	5765-145	xxx	xxx		xxx	xxx		
PIOFS V1 R1	5765-297	Note	Note		Note	xxx		

Note: * These releases are no longer available from IBM.

PPD Laboratory Software Product Support Matrix

Table 1 (Page 2 of 2). Product Support Matrix

RVSD V1 R1*	5765-444	xxx			xxx	
RVSD V1 R1 M1	5765-444	xxx	xxx		xxx	xxx
OSL V1 R2 M1	5621-013		xxx			
OSLp V1 R1 M1	5765-392		xxx			
ESSL V2 R2 M1	5765-042	xxx	xxx			
CLIO/S V2 R1	5648-129	xxx	Note			
X3270 V1 R2 M2	5765-011	xxx	Note			
NQS/MVS V1 R1	5765-168	xxx	Note			
InterMix V1 N2	5765-223	xxx	xxx			

Note: * These releases are no longer available from IBM.

Notes

1. **This support provides base HPS Adapter 1 support as well as a subset of the enhanced HPS Adapter 2 function.**
2. **The AIX 3.2.5 version of PIOFS requires code modification for existing FORTRAN applications which require support for greater than 2 GB files. These modifications involve the use of direct I/O and PIOFS sub-files. PIOFS is announced on AIX 4.1, but is not yet generally available.**
3. **CLIO/S support for AIX 4.1 will be made available via a PTF when the ESCON and BMCA device driver support for AIX 4.1 is available.**
4. **This support will be made available as an update via FTP.**
5. **This support will be made available as a PTF.**

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Reader's Comments

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END OF DOCUMENT (node41.migration.sp)