This document remains available for reference purposes only. All external links in the Detailed LPP Level Check have been removed. Please refer to the latest service pack document for interactive capabilities and available software.

HPS Service Pack 10 FLASH/Readme First

Updates made after the first release of this document are in bold orange.

If you are upgrading to SP10 from a service pack that is earlier than SP9, then installing CSM1.4 is required.
The recommended AIX service level AIX 5L version 5.2 is ML 5200-04 plus IY61464.
The Maintenance package contains CSM 1.4 which requires RPM update openCIMOM 0.8(5.2).

If you are upgrading from Service Pack 9, then IBM pSeries High Performance Switch (HPS) Service Pack 10 only requires updates to
Switch Network Manager (SNM) and the various supporting AIX LPPs, such as HPS/SNI.
These components are unchanged from Service Pack 9: Global Firmware (GFW), Power Subsystem Microcode (ptcode), AIX 5L Version 5.2 .

If you are upgrading from anything earlier than Service Pack 9, then IBM pSeries High Performance Switch (HPS) Service Pack 10 requires updates to the Hardware Management Console (HMC), Switch Network Manager (SNM), Global Firmware (GFW), Power Subsystem Microcode (ptcode), AIX 5L Version 5.2 and various supporting AIX LPPs.

This document contains general guidelines for upgrading the components listed in Section 3: Component Update/Download Information.
These guidelines are intended to be a supplement to the other IBM documents referred to in this document. We strongly advise that you have the referenced documents available before you begin the upgrade process. Section 1 contains a list of referenced documents.

Only the levels listed in "Section 3" are supported with HPS Service Pack 10. Therefore, if you are migrating/installing Service Pack 10, all components should be at the indicated service levels when you are finished. No mixing of Service Pack maintenance levels is supported at this time.
Users must follow the procedure in the order outlined in Section 4: "Recommended Installation Sequence (Overview)". Failure to do so may cause problems with configuring the HPS SNI devices.

Because '/var' is a system data repository, system administrators should check periodically to maintain /var such that there is at least 30 Mb free [use 'df -k']. If it is more than 75% full, look for the directories that contain the most data. [use 'du /var | sort -n']

Table of Contents:

Section 1: Supporting Documentation

1. pSeries High Performance Switch (HPS) Planning, Installation and Service Guide (GA22-7951-01) (HPS Guide)
2. Switch Network Interface for eServer pSeries High Performance Switch Guide and Reference (SC23-4869-01)
3. AIX5L Version 5.2 Performance Management Guide (SC23-4876-00, May 2004)
4. AIX 5L Version 5.2 Installation Guide and Reference (SC23-4389-03)
5. IBM Reliable Scalable Cluster Technology Administration Guide (SA22-7889-04)
6. Hardware Management Console for pSeries Installation and Operations Guide (SA38-0590-07)
7. IBM Cluster Systems Management for AIX 5L Planning and Installation Guide Version 1.4 (SA22-7919-07)
8. IBM Parallel Environment for AIX 5LInstallation Version 4 Release 1.1 (1.1 GA22-7943-01)

Section 2: Software Updates/Performance Enhancements

1. New SNM/FNM Features
2. MPI and LAPI Performance Enhancements
3. Support for Node Switch Board (NSB) and Intermediate Switch Board (ISB) failure
4. Application striping and fail-over of packets across multiple interfaces for fault resilience
5. Application Checkpoint/Restart and preemption
6. The Web-based System Manager Remote Client a.k.a WebSM PC CLIENT may need to be reinstalled

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1. New SNM Features:
New features and functions (on The Switch Network Management Panel):
Introduced in HMC 1.3.1.0 - Service Pack 9

For details of operation please see pSeries High Performance Switch (HPS) Planning, Installation and Service Guide (GA22-7951-02) (HPS Guide) Chapter 4. System management components and Appendix E. Switch Network Manager (SNM)

Features:
HMC Fail-over: FNM/SNM daemon ("Enable SNM Software in Normal Mode") runs on up to four HMCs in the cluster.
Verification mode: "Enable SNM Software for Switch Network Verification" used to check out the system.

Functions :

There are three(3) new tasks and one(1) renamed task on the Switch Network Management Panel :

NEW: "Select Logical Topology", "Display Cluster Components", "Enable SNM Software for Switch Network Verification" RENAMED: "Enable SNM Software for Normal Mode" used to be "Enable SNM Software"

- *** Select Logical Topology this introduces a requirement to set the logical topology of your system before enabling SNM software. If the logical topology has not been set, neither of the tasks to Enable SNM Software will be selectable. This is required. See note 1.
  - Note: If you are using the SNM Fail-over support introduced in the Software Update release, the logical topology must be set on each HMC where you enable SNM software.

- Display Cluster Components shows the frames and cages of the cluster components with which SNM can communicate. This task can only be used if SNM software is **NOT** enabled.
  - The new lsswcomp command provides the same function as the "Display Cluster Components" task.

- Enable SNM Software for Switch Network Verification task is used to check out the system by NOT removing bad links or routes. The main purpose is to discover cable mis-wires and defective hardware. No Routing is modified or loaded. It is NOT intended to be used in a working environment.

- *** Enable SNM Software for Normal Mode. select this to run SNM in a normal, working environment. This is required. See note 1.

Notes:

1) * If you are upgrading from Service Pack 8 or less, then these are REQUIRED for initial installation of FNM/SNM:**

First Select Logical Topology then Enable SNM Software for Normal Mode.

See "Enable SNM Software" in the HPS Guide.

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2. MPI and LAPI PerformanceEnhancements:

LAPI and MPI host communication stacks have been tuned based on experiences of GA1 for lower latency. These changes complement the communication performance improvements released in part 1. They are being released as one package with the LAPI and MPI striping function.

Note: Beginning with the Service Pack 9:

- a single MPI user-space job which wants to use HPS adapters in both of two switch planes **must set MP_EUIDEVICE=sn_all**(or csss). In previous releases, a single MPI/us job with multiple tasks per node could use adapters from two planes by setting MP_EUIDEVICE=sn_single (or css0).
- A job which sets MP_EUIDEVICE=sn_single will only be able to use half of the HPS adapters on the nodes where it runs.
- A job must set MP_EUIDEVICE=sn_all in order to use all the HPS adapters in the nodes it is using.

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3. Support for Node Switch Board (NSB) and Intermediate Switch Board (NSB) failure:

The SNM daemon has been enhanced to ensure that the failure of an NSB and an ISB will be handled appropriately. The main enhancement is that the Switch Network Manager daemon gathers and downloads multiple path table updates into a single transaction instead of one update per transaction. An entire switch board failure or recovery will generate multiple of path entries changes. Therefore handling these updates in groups involves many fewer transactions. These can be processed in a more timely fashion and place a smaller load on SNM and the service network.

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4. Application striping and fail-over of packets across multiple interfaces for fault resilience:

Striping provides a method for a single task of a parallel application to utilize multiple SNI links. This allows a single link to fail without the application using the link being terminated because there is an alternate path to all other tasks of the application. The striping method implemented is designed to provide resilience to switch or interface/link failure and is not designed to provide an increase in the aggregate network bandwidth as seen by tasks.

This link failure resilience function requires support in LoadLeveler, Parallel Environment and the host communication stack for MPI and LAPI. When an interface/link recovers, the striping function will ensure that the link is used again. Another goal of this striping design is to evenly distribute traffic over multiple switch networks to maintain a balance in the communications load.

KNOWN ISSUES/CONCERNS

- In non-striping mode you only get half the links on a p655 system using a 2 plane configuration when setting MP_EUIDEVICE=sn_single. You must use MP_EUDEVICE= csss or sn_all to get all links.
- Performance degradation for single task per link of 3% for unidirectional and 5% for exchange bandwidth at large messages. However, multiple tasks per link get full link bandwidth.
- Striping currently limited to two links per task. Multiple tasks can use all links as long as there are more tasks than half the links available.

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5. Checkpoint/Restart and Preemption:
Checkpoint/restart provides a way to stop and resume applications at some later time. It is a very useful tool in managing the clusters workload since applications can be check-pointed to allow other applications to run or the system made inactive for a maintenance window.

Preemption is also provided so a running application can be suspended to allow another higher priority application to execute right away.

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6. **The Web-based System Manager Remote Client** a.k.a **WebSM PC CLIENT** may need to be reinstalled on your remote server or PC in order for WebSM to work with this HMC Build.
The install shield version must be uninstalled before one installs the new version.
use http://<hmc-hostname>/remote_client.html to install the PC Client software on your remote server or PC. The two versions you see are the legacy websm client "install shield" and the future of websm clients :webstart. Both versions can exist simultaneously on your client workstation

The webstart installation is a two part installation
first - install the 1.4.2 JVM that is has the webstart code.
second - invokes the launch code and gets the initial classes downloaded from the HMC.

A feature of the webstart client is that when the client is launched, it will check for new jar files on the HMC and download them, so subsequent update of the HMC server code do not require the webstart client code to be constantly updated .

There may be an issue of having multiple jvms on the client workstation and the default jvm path not pointing to the IBM 1.4.2 jvm. Webstart does not work well with the sun 1.4.2 jvm, so some cleanup of multiple jvms on your workstation may be needed.

The Java Web Start version requires multiple logins on launching. You have to login to the original HMC whenever you try to connect even if you're just downloading the webstart .jsp files.
If you are getting the .jsp files from a regular AIX box, you will have one less login.
You dont experience this in the non-webstart websm because you are not connecting to the webserver to download the .jsp files. Trying to 'cancel out' will result in multiple (up to 16) re-presentations of the login verification box.

1) Install Java Web Start:
Java Web Start for Linux Install Java Web Start on a Linux platform. Once installed, return to this page to download the Remote Client. Java Web Start for Windows Install Java Web Start on a Windows platform. Once installed, return to this page to download the Remote Client.

2) Download Web-based System Manager Remote Client for Java Web Start:
Remote Client Download Web-based System Manager Remote Client for Java Web Start on Linux and Windows systems.

The images are quite large, so it may take some time for the download to complete.

Section 3: Component update/download information

Component	Service pack updates	Download sites
HMC	This service pack requires that the HMC is updated to HMC V3R3.2. Choose HMC_Update_V3R3.2 If you are upgrading from Service Pack 9 you do not need to upgrade this component. If you are upgrading from anything earlier than Service Pack 9, then Service Pack 10 requires updates to this component. Note: The CD images **cannot** be downloaded directly from this site. Contact your IBM Sales Representative or Business Partner, and order Hardware Feature Code (MES) 0960 for the initial upgrade CDs.	HMC corrective service or http://techsupport.services.ibm.com/server/hmc/power4/fixes/mcode/v3r30.html
SNM/FNM	APAR IY62953 PTF U800656 Choose "SNM_Serv_Pack10.zip" Service Pack 10 requires updates to this component.	HMC corrective service
GFW	3H040901.img (p690) or 3J040901.img (p655) Go to the "System" section. For 7040-681 Version 3 p690 models, choose "version 3H040901". For 7039-651 p655 models, choose "version 3J040901". If you are upgrading from Service Pack 9 you do not need to upgrade this component. If you are upgrading from anything earlier than Service Pack 9, then Service Pack 10 requires updates to this component. Note that GFW is available in IBM CORE 3-4 days earlier than the above mentioned website. Please contact your IBM CE for the GFW in IBM CORE if not available on website. Refer to this website for detailed download and unpacking procedures: http://techsupport.services.ibm.com/server/mdownload/downproc.html	Microcode download (System)

Power Subsystem Microcode	ptcode-1.70.2678-1.i386.rpm (Power code is the same for both p690 and p655) Choose "Power Subsystem Microcode for 7039-651 (p655) and servers containing the 7045-SW4 (High Performance Switch)". Note that Power Subsystem Microcode is available in IBM CORE upto 1 week earlier than the above mentioned website. Please contact your IBM CE for the Power Subsystem Microcode in IBM CORE if not available on website. If you are upgrading from Service Pack 9 you do not need to upgrade this component. If you are upgrading from anything earlier than Service Pack 9, then Service Pack 10 requires updates to this component.	Download microcode (Other)
AIX	The recommended AIX service level for AIX 5L version 5.2 is the 5200-04 Recommended Maintenance package, plus IY61464 If you are upgrading from Service Pack 9 you do not need to upgrade this component. If you are upgrading from anything earlier than Service Pack 9, then Service Pack 10 requires updates to this component.	pSeries support fixes
openCIMOM	CSM 1.4 requires RPM update openCIMOM 0.8(5.2) If you are upgrading from Service Pack 9 you do not need to upgrade this component. If you are upgrading from anything earlier than Service Pack 9, then Service Pack 10 requires updates to this component.	openCIMOM update

AIX LPPs:

If you have any of the following AIX LPPs installed, Service Pack 10 requires updates to these LPP components.
If you have any of the following AIX LPPs installed, apply the listed APARs which are needed for HPS Service Pack 10. They are available from the website: pSeries support fixes

To verify that the service levels for your LPP's are current for Service Pack 10, on each logical partition issue:

```
lslpp -Lc | egrep "vsd|LAPI|HPS|sni|ppe|LoadL|mmfs|rsct|csm|essl|pessl" | cut -d : -f 2,3 |sed 's/:/ /'
```

Depending on the LPP's you have, your output should match these LPP fileset levels:

Detailed LPP Level Check

LPP	Release	Component ID	APAR	Level check	
VSD	410	5765G2602	IY63029	rsct.vsd.cmds	4.1.0.10
				rsct.vsd.rvsd	4.1.0.8
				rsct.vsd.vsdd	4.1.0.9
				rsct.vsd.vsdrm	4.1.0.3
LAPI	232	5765G2601	IY63030	rsct.lapi.rte	2.3.2.2
				rsct.lapi.nam	2.3.2.2
				rsct.lapi.samp	2.3.2.0
HPS/SNI	111	5765G2400	IY63031	devices.chrp.IBM.HPS.rte	1.1.1.3
				devices.chrp.IBM.HPS.hpsfu	1.1.1.0
				devices.common.IBM.sni.ml	1.1.1.1
				devices.common.IBM.sni.ntbl	1.1.1.1
				devices.common.IBM.sni.rte	1.1.1.3
				devices.msg.En_US.chrp.IBM.HPS.hpsfu	1.1.1.0
				devices.chrp.IBM.HPS.rte	1.1.1.2
				devices.common.IBM.sni.ml	1.1.1.0
				devices.common.IBM.sni.ntbl	1.1.1.1
				devices.common.IBM.sni.rte	1.1.1.2
				devices.msg.En_US.chrp.IBM.HPS.hpsfu	1.1.1.0
				devices.msg.En_US.chrp.IBM.HPS.rte	1.1.1.0
				devices.msg.En_US.common.IBM.sni.ml	1.1.1.0
				devices.msg.En_US.common.IBM.sni.ntbl	1.1.1.0
				devices.msg.En_US.common.IBM.sni.rte	1.1.1.0
				devices.msg.en_US.chrp.IBM.HPS.hpsfu	1.1.1.0
				devices.msg.en_US.chrp.IBM.HPS.rte	1.1.1.0
				devices.msg.en_US.common.IBM.sni.ml	1.1.1.0
				devices.msg.en_US.common.IBM.sni.ntbl	1.1.1.0
				devices.msg.en_US.common.IBM.sni.rte	1.1.1.2
PPE	411	5765F8300	IY63032	ppe.poe	4.1.1.3
				ppe.man	4.1.1.1
				ppe.perf	4.1.1.2
				ppe.pvt	4.1.1.1
				ppe.dpcl	3.3.4.0
				ppe.loc.license	4.1.0.0
LoadL	320	5765E6900	IY63033	LoadL.full	3.2.0.11
				LoadL.loc.license	3.2.0.0
				LoadL.msg.En_US	3.2.0.5
				LoadL.msg.en_US	3.2.0.5
				LoadL.so	3.2.0.11
				LoadL.tguides	3.2.0.1

GPFS	210	5765F6400	IY63034	mmfs.base.cmds	3.5.0.10
				mmfs.base.rte	3.5.0.16
				mmfs.gpfs.rte	2.1.0.18
				mmfs.gpfsdocs.data	3.5.0.5
				mmfs.msg.en_US	3.5.0.7
GPFS	221	5765F6400	IY63035	mmfs.gpfs.rte	2.2.1.2
				mmfs.base.rte	3.6.1.1
				mmfs.base.cmds	3.6.1.1
				mmfs.gpfsdocs.data	3.6.1.1
				mmfs.msg.en_US	3.6.1.0
CSM	140	5765E88AP	IY63036	csm.client	1.4.0.2
				csm.server	1.4.0.3
				csm.core	1.4.0.2
				csm.diagnostics	1.4.0.2
				csm.dsh	1.4.0.2
				csm.gui.dcem	1.4.0.1
				csm.gui.websm	1.4.0.1
				~~pssp.pssp_to_csm~~	~~1.1.1.0~~
				csm.msg.EN_US.core	1.4.0.0
				csm.msg.en_US.core	1.4.0.0
RSCT	234	5765F07AP	IY63037	rsct.basic.hacmp	2.3.4.0
				rsct.basic.rte	2.3.4.2
				rsct.basic.sp	2.3.4.0
				rsct.compat.basic.hacmp	2.3.4.0
				rsct.compat.basic.rte	2.3.4.0
				rsct.compat.basic.sp	2.3.4.0
				rsct.compat.clients.hacmp	2.3.4.0
				rsct.compat.clients.rte	2.3.4.0
				rsct.compat.clients.sp	2.3.4.0
				rsct.core.auditrm	2.3.4.0
				rsct.core.errm	2.3.4.1
				rsct.core.fsrm	2.3.4.0
				rsct.core.gui	2.3.4.1
				rsct.core.hostrm	2.3.4.1
				rsct.core.rmc	2.3.4.2
				rsct.core.sec	2.3.4.1
				rsct.core.sensorrm	2.3.4.1
				rsct.core.sr	2.3.4.1
				rsct.core.utils	2.3.4.2

Parallel ESSL	310	5765F8400	PQ86328 PQ86327	pessl.rte.common pessl.rte.mp pessl.rte.rs1 pessl.rte.rs2 pessl.rte.smp pessl.rte.up pessl.loc.license pessl.man.en_US pessl.msg.En_US pessl.msg.en_US	3.1.0.1 3.1.0.0 3.1.0.1 3.1.0.0 3.1.0.1 3.1.0.0 3.1.0.0 3.1.0.0 3.1.0.0 3.1.0.0
ESSL	410	5765F8200	PQ90826 PQ90823	essl.rte.common essl.rte.rs1 essl.rte.rs2 essl.rte.smp essl.rte.mp essl.rte.up essl.man.en_US essl.msg.En_US essl.msg.en_US essl.loc.license	4.1.0.1 4.1.0.1 4.1.0.0 4.1.0.1 4.1.0.0 4.1.0.0 4.1.0.0 4.1.0.0 4.1.0.0 4.1.0.0

Section 4: Recommended installation sequence (overview):

1	Install HMC Software If you are upgrading from Service Pack 9 go to procedure #2 - Install SNM Software**.** Important Preliminary steps: - Check if HMC is at HMC V3R3.0 or higher before you can install this update (required). - Check if BIOS update is required on HMC. - Check if BIOS hyperthreading is to be disabled on HMC - Disable the SNM/FNM software from the Switch Network Management Panel. Perform one of the following installation tasks: - New Install HMV V3.3.0 from Recovery CD OR - Install Upgrade from Recovebry CD OR - Update from .zip file (web) Level Check: Release 3, Version 3.2 HMC Build Level 20040827.1
2	Install SNM Software. Level Check: IBMhsc.SNM.1.3.1.0

3	Install HPS/SNI LPP Software. IMPORTANT: If you are upgrading from Service Pack 9 go to procedure #7 - Install AIX LPP updates**.** If you are upgrading from Service Pack 6 or below - do not reboot logical partitions (LPARs) until after Step 4 Install GFW is complete! See Problem #1 in the "Known Problems" section of this document for more information. Level Check: devices.chrp.IBM.HPS.rte 1.1.1.2
4	Install GFW. (using the recommended AIX command line (update_flash) method with a locally available image) Level Check: ROM Level (alterable).....3H040901 (P690) ROM Level (alterable).....3J040901 (P655)
5	Install Power Subsystem Microcode on each frame. Level Check: 2678
6	Install AIX base updates on each node. Level Check: bos.mp64 5.2.0.42
7	Install AIX LPP updates on each node. Level Check: see "Detailed LPP Level Check" Note: CSM LPP's need to download and install openCIMOM-0.8-1 RPM update.

Section 5: Installation Guidelines:

HMC Installation Guidelines:

1	Install HMC Software Important Preliminary steps: 1a - Check if HMC is at HMC V3R3.0 or higher before you can install this update (required). 1b - Check if BIOS update is required on HMC. 1c - Check if BIOS hyperthreading is to be disabled on HMC 1d - Disable the SNM/FNM software from the Switch Network Management Panel. Perform one of the following installation tasks: 1e - New Install HMV V3.3.0 from Recovery CD OR 1f - Install Upgrade from Recovebry CD OR 1g - Update from .zip file (web) 1i - Uninstall - reinstall HMC WebSM PC CLIENT (Install Shield version) HMC WebSM PC CLIENT needs to be reinstalled Level Check: 1h - Verify: Release 3, Version 3.2 HMC Build Level 20040827.1

	Important Preliminary steps:
1a	If you are currently running HMC 3.2.6 or less, the HMC must first be installed with HMC V3R3.0 before you can install this update. Please read Version 3.3 machine code Updates for important information about aquiring HMC V3.3.0 Recovery CD's: http://techsupport.services.ibm.com/server/hmc/power4/fixes/mcode/ptf_v3r30mc.html Contact your IBM Sales Representative or Business Partner, and order the initial upgrade CDs
1b	**Check if BIOS update is required on HMC.** There is a mandatory Bios upgrade required for all Bradley logan HMC PC's. 7315-C03, 7310-C03, 8187-KUH. If your HMC model is not a 7315-C03, skip this step. If you are updating the HMC on HMC model 7315-C03 hardware, then you must first update the BIOS of that HMC model. The BIOS and install instructions can be obtained from BIOS updates on this website. This BIOS will also ship as part of Feature Code 0960 DownLoad: http://techsupport.services.ibm.com/server/hmc/power4/fixes/mcode/v3r30.html
1c	**Check if BIOS hyperthreading is to be disabled on HMC.** Many of the rack mounted HMC's (8187-KUH, 7315-C03) have a BIOS option to enable hyperthreads. The imbedded kernel will not run well when this option is enabled. You must disable this setting before upgrading to HMC3.3.0.
1d	**Disable the SNM/FNM software** from the Switch Network Management Panel. on all HMC's attached to the cluster.
	Installation steps:
1e	**If you are upgrading from Service Pack 6 or earlier, you must first install HMC V3R3.0 from disk**. Order the Hardware Feature Code (MES) 0960 for the initial upgrade CDs from your IBM Sales Representative or Business Partner. For more information see: https://techsupport.services.ibm.com/server/hmc/power4/fixes/mcode/ptf_v3r30mc.html

1f	**Customer Decision regarding install, upgrade or update.** Beginning with HMC Version 3 Release 3.2, Ext3 (JFS) filesystem will be enabled if customers perform an install or upgrade to this new level of code by using the HMC Recovery CDs. Updating to HMC Version 3 Release 3.2 with the Install Corrective Service will not enable this feature. Ext3 filesystem is a journaled filesystem and is more reliable and less prone to corruption in case of unexpected loss of power on the HMC. **NOTE:** If an Upgrade is performed, the following steps must be taken, prior to rebooting the HMC for the Upgrade process. - Ensure that the user's home directories are not filled up with debug data. The Upgrade partition only has 2GB in free space to preserve the upgrade data. - Ensure that HMC debug is turned off. This can be achieved by running the command pedbg -d off. With debug enabled, certain log files will be locked for writing and will prevent the Save Upgrade Data task to complete successfully. Note: For Upgrade Installation, you should perform a Save Upgrade Data task from the Software Maintenance folder on the HMC console. The save upgrade data task should be run immediately before reboot of the HMC with volume 1 of the recovery CD. If the HMC reboot does not go to the install menu of volume 1 of the recovery CD, you should repeat the save upgrade task. - The procedure for both Installation and Upgrade is identical except: For New Installation: When asked to perform an Install/Recovery or Upgrade, select Install/ RecoveryF8. For Upgrade Installation: When asked to perform an Install/Recovery or Upgrade, select Upgrade F1.
1g	**Perform an Install New / Upgrade :** **Install HMC Recovery CD 1 of 2, RG_BASE_040824.3.iso on all HMCs in the system - Required** **Install HMC Recovery CD 2 of 2, HMC_V3R3.2_CD2_0827.iso on all HMCs in the system - Required** - Reboot the HMC with volume 1 of the recovery CD inserted in the DVD Ram drive. NOTE: If the HMC fails to boot volume 1 of the recovery CD, the boot sequence in the HMC BIOS may need to be changed so that the DVD/CDROM is before the hard disk in the startup sequence. If you have run the save upgrade data task before the startup sequence was set correctly, then you should rerun the save upgrade data task before installing the HMC with volume 1 of the recovery

	CD. - Select F8 for New Installation OR - Select F1 for an Upgrade installation. **(NOTE: This is NOT the same as an UPDATE)** - On the next screen to confirm your selection. Select F1. - The Install/Upgrade process will proceed until - - At some point you will be prompted to insert the second CD. - Remove the CD from the DVD Ram drive and hit enter when the install is completed.
1h	**If you are UPDATING from Service Pack 7 or higher and choose to do the UPDATE: Install HMC PTF HMC_V3R3.2_Update_0827.1.zip** Install the HMC PTF HMC_Update.V3R3.2.zip from the HMC support link ONLY if the HMC is at a Release 3 Version 3.X level (3.3.X): http://techsupport.services.ibm.com/server/hmc/power4/fixes/mcode/v3r30.html - Select HMC PTF Update for Service Pack 10 - Use the HMC --> Install Corrective Service option to install. - Reboot HMC after successful installation. **You may install this UPDATE directly from the web: see install steps in HMC Readme - http://techsupport.services.ibm.com/server/hmc/power4/fixes/mcode/ptf_v3r32mc.html** **See New Function/Features in step 1e.**
1i	The Install Shield version of the Web-based System Manager Remote Client a.k.a WebSM PC CLIENT needs to be reinstalled on your remote server or PC in order for WebSM to work with this HMC Build. After you have installed the HMC, and uninstalled any existing Websm client, use http://<hmc-hostname>/remote_client.html to install the PC Client software on your remote server or PC. For complete details see: Hardware Management Console for pSeries Installation and Operations Guide (SA38-0590-07) Chapter 9. Installing and Using the Remote Client

1j	HMC Level Check: Command Line : lshmc -V shows: Version: 3 Release: 3.2 HMC Build level 20040827.1 GUI: Menu "Help" > "About Hardware Management Console" shows: Release 3, Version 3.2 HMC Build Level 20040827.1 Remote Client: Menu "Help" > "About Web-based System Manager" shows: ... Build:Thu Jul 29 13:21 2004 Level: development
	HMC Important Notes: - Install the HMC code by following the instructions in the HPS Guide. - Have your IBM CE download the most recent copy of the HPS guide from IBM CORE to get updated HPS install information. - Also you should review the HMC information on the web page where you downloaded the images. - Service Pack 10 REQUIRES HMC V3.3.0 (required since Service Pack 6 release) and HMC V3.3.2 PTF Update. - HMC V3.3.0 is a NEW BASE release of the HMC introduced in Service Pack 6 that uses a new imbedded kernel. - This version MAY OVERWRITE root directories (for /, /home/root and /home/hscroot) deleting any scripts that may be there. - This version MAY delete the Power Subsystem Microcode RPM images on your HMC and you will have to reaquire it for future installs. - The HMC is now installed using 2 CD's - RG_BASE_040824.3.iso and HMC_V3R3.2_CD2_0827.iso. - The login available at virtual console 0 (via the CTRL-ALT-F1 key sequence) is no longer available. - New Installation and PTF update installation are supported for this release. - Upgrade installation is only supported when upgrading from HMC 3.2.X or greater. As part of any system change - it is recommended to have a hard copy of network connections, 8 port/ran box configurations and Switch Group IP's. - Network connections are on the GUI: HMC Maintenance Panel => System Configuration => Customize Network Settings:

IP Address and Netmask for Ethernet0 and Ethernet1, Default Gateway, Nameserver, Domain

- 8 port RAN box configurations are on the GUI: HMC Maintenance Panel => System Configuration => Configure
Serial Adapter:
Option 2 shows the current configuration

- Switch Group IP's are on the GUI: Switch Management => Switch Utilities => Switch Group Configuration

Known problems and issues with the HMC V3 R3.0 Environment:

- wu-ftp will be removed from the HMC distribution. One will be able to ftp out of the HMC but not into the HMC. The 'scp' command is available if you enable secure shell (ssh).
- The websm PC client has a performance decline when downloading the plugin classes from the server. The first time an operation is performed using the client, the task may be slow to launch. Subsequent use of the task, will respond as normal.

Retain Tip on how to use pesh:

To give IBM support personnel the ability to retrieve certain trace/debug information on the HMC, the customer should create a user "hscpe" and assign a password. IBM support can contact the customer to get the password, and then remotely connect to the HMC (with customer consent).

This allows IBM support to perform additional functions, such as viewing logs or starting trace to diagnose problems on the HMC. This user has access similar to the "hscroot" user on HMC. When accessing the HMC remotely via ssh, the "hscpe" user is put into the restricted shell environment. To bypass the restricted shell, pesh command is provided. pesh command can only be run by the "hscpe" user, allowing this user to pass in the serial number of the HMC. If the serial number is correct, the user is required to enter a password obtained from IBM Support. If the password is correct, then the user is then put into the un-restricted shell as user "hscpe".
Example:
pesh 23A345K (enter the serial number in upper case letters)
You will be prompted for a password. Enter password that was provided by IBM Support in lower case
letters.

The HMC serial number can be queried using the command, "lshmc -v | grep SE" or read from the label that is on the front of the HMC.
Use the command "date" to verify that the date of the HMC is for the day you intend to use the pesh command.

Starting with HMC Version 3 Release 3.0 and Version 4 Release 1.0, user can also access the

	restricted shell terminal on the local HMC, by right mouse click on the desktop and selecting the Terminal--rshterm task. If one login at the HMC as user hscpe, the pesh command can also be run from the restricted shell terminal. For HMC Version 3 Release 3.0 and below, the "hscpe" user id can be created with any role, however, in order to use some of the High Performance Switch (HPS) debug commands, the Service Rep role needs to be selected. ---------- For new HMC installation(s) follow the instructions as described in IBM Hardware Management Console for pSeries Installation and Operations Guide. To understand how to connect the rs422/rs232 cables see the HPS Guide: Chapter 6; Step 6, "Install the Hardware Management Console (HMC)" thru Step 16. "Verify Installation is Complete"" For "Code load requirements for existing server frames" see Chapter 6 For p655 "Code load requirements for existing p655 server frames" For p690 "Code load requirements for existing p690 server frames"
	FNM/SNM Installation Guidelines
2	Install SNM Software (APAR IY62953 , PTF U800656) Level Check: Version:.1.3.1.0
2a	The SNM/FNM software should already be disabled from procedure 1. If not, disable it now.
2b	The version of SNM distributed with HMC R3 V3.2 is no longer current. Installation of SNM_Serv_Pack10.zip is required on all of the HMCs in the cluster. Follow the install instructions by choosing PTF U800656 on the website: http://techsupport.services.ibm.com/server/hmc/power4/fixes/mcode/v3r30.html You can Install the corrective service file directly from the Internet. For detailed instructions see the Readme "view" link.
2c	**Reboot all HMCs to complete SNM software update.** Note: Do not reboot HMCs until the SNM_Serv_Pack10.zip has been successfully installed on all HMCs.

2d	After the HMC is rebooted, follow these steps to verify that the corrective service update was successful: Select Switch Network Management from the Switch Management folder in the Navigation area. The Status line, the last line on the Switch Network Management panel, should show: STATUS RPM Version: 1.3.1.0 NOTES: Refer to the HPS Guide for more details on the Switch Network Manager: Review - Chapter 4. System management components; Step 1: Enable SNM Review - Appendix E. Switch Network Manager (SNM) - The SNM Graphical User Interface The GUI Does NOT update its view automatically. You MUST refresh the display via the GUI menu "Reload" button - the 5th icon from the left. OR from the "Menu">"View">"Reload" function OR simply press the 'F5' key
	HPS/SNI LPP Installation Guidlines
3	Install HPS/SNI LPP Software. Level Check: devices.chrp.IBM.HPS.rte 1.1.1.2
3a	Apply HPS/SNI LPP fileset "update" images to LPARs that have the HPS 1.1.1.0 base images installed (see "AIX LPPs" in Section 3: Update/Download Information) If you are upgrading from Service Pack 6, see note 1. If you are upgrading from Service Pack 9, Enable SNM Software, Go to procedure # 7 **AIX LPP Installation.** See Note 2. Notes: 1) If you are upgrading from Service Pack 6 or below, do not reboot logical partitions (LPARs) until after procedure 4 "Install GFW" is complete. Rebooting prematurely will generate "phantom" SNI devices! See Problem #1 in the "Known Problems" section of this document for more information. 2) If you are upgrading from Service Pack 9 you should already have the TLP option enabled as described in step 3b. Verify the TLP settings and then Recycle SNM daemon using the HMC GUI: Select Switch Network Management > Disable SNM Software Refresh display: Menu > File > Refresh Select Switch Network Management > Enable SNM Software. There are no Updates to GFW, Power Subsystem Microcode or AIX . Go to procedure # 7 **AIX LPP Installation.**

3b

IBM pSeries HPS now requires that you set up LPARs with 64 bit kernel and enable Technical Large Page (TLP) option.

After successful installation of HPS Filesets from levels at Service Pack 6 or lower, 64 bit kernel and technical large page support option must be enabled.

To set up your LPARs with 64 bit kernel:

1) Check which kernel is currently in use: bootinfo -K
   a response of "32" is a 32bit Kernel
2) ln -fs /usr/lib/boot/unix_64 /unix
3) ln -fs /usr/lib/boot/unix_64 /usr/lib/boot/unix
4) Determine which rootvg hdisk contains the boot logical volume (usually hd5).
   This hdisk will be your "ipldevice".
   a) lspv |grep rootvg
      hdisk0 009b982332a1f9b8 rootvg active
      hdisk1 009b982332a2321a rootvg active
   b) lspv -l hdisk0 |grep hd5
      hd5 1 1 01..00..00..00..00 N/A
      (hdisk0 is your ipldevice)
5) Issue: bosboot -ad /dev/<ipldevice> (eg. bosboot -ad /dev/hdisk0)
6) Reboot: shutdown -Fr
7) Verify 64 bit after reboot:
   bootinfo -K
   64

@@@@@@@@@@@@@@@@@@@@@@@@@

To setup Large Page Option: (For configuration details, see Large Page Support in AIX5L Version 5.2 Performance Management Guide.)

Setup Large Page Option using the vmo command for each node or node group:

vmo -r -o v_pinshm=1 -o lgpg_size=16777216 -o lgpg_regions= <number of TLP required - 256 max>

OR

dsh -v[Nn] <nodelist> "echo y|vmo -r -o v_pinshm=1 -o lgpg_size=16777216 -o lgpg_regions = <number of TLP required - 256 max>"

(Use the echo command, because vmo will ask for verification to run bosboot)

The number of TLP depends on customer configuration and relates to the number of windows required for each adapter(sni).

Ex: This is a max config:

dsh -vn <nodelist> "echo y|vmo -r -o v_pinshm=1 -o lgpg_size=16777216 -o lgpg_regions=256"
Setting v_pinshm to 1 in nextboot file
Setting lgpg_size to 16777216 in nextboot file
Setting lgpg_regions to 256 in nextboot file

Warning: some changes will take effect only after a bosboot and a reboot
Run bosboot now?
bosboot: Boot image is 19624 512 byte blocks.
Warning: changes will take effect only at next reboot

NOTE: The vmtune sample program is being phased out and is not supported in future releases. It is replaced with the vmo command (for all the pure VMM parameters) and the ioo command (for all the I/O related parameters) which can be used to set most of the parameters that were previously set by vmtune. The -v flag has been added to vmstat to replace the -A flag which display counter values instead of tuning parameters. For AIX 5.2, a compatibility script calling vmo and ioo is provided to help the transition.

Check that Large Page Option is set:

```
        vmo -a|grep lg
          lgpg_size = 16777216
       lgpg_regions = 256
soft_min_lgpgs_vmpool = 0
```

1) Notes on using TLP (Large Page) Settings in an HPC environment:
It is strongly recommended that users familiarize themselves with TLP basics and configuration options available to them, at this location. Federation switch adapter requires TLP usage and these TLP requirements are documented (see "Here is a formula to calculate the required TLP" in the HPS/SNI LPPs section below) in a latter section of this document. The AIX 5L Version 5.2 Performance Management Guide (SC23-4876-00, May 2004) should also be consulted.

NOTE: Users need to be aware of the usage of the LoadLeveler pre-emption features with TLP (Large Pages) - specifically the fact that jobs that are using TLP that are pre-empted will essentially "lock up" the real memory the TLP's use, which is pinned by AIX. Unwise use of TLPs with LoadLeveler pre-emption can result in exhausting real memory available for jobs. If one wants LoadLeveler to schedule jobs based on the availability of large page, (especially if the job is going to run in mandatory Large Page mode) he/she may consider making use of the LoadLeveler consumable resource feature. The consumable resource function, which has already been around for several years, is documented in the LoadLeveler manual.

2) Notes on tuning Virtual Memory Settings in an HPC environment:
Customers should be advised that the AIX VMM parameters (set by the vmo command) minfree and maxfree will most likely have to be adjusted (increased) in an HPC environment based on your cluster size, the amount of system memory, and number of processors per CEC. These settings when tuned properly will ensure enough memory remains available for core cluster infrastructure applications (RSCT, GPFS, LL). The recommended initial value for these tunables are minfree = 10000 and maxfree = 12000. Users are strongly urged to consult the following AIX documentation on virtual memory and vmstat tools and tune their system accordingly.

http://publib16.boulder.ibm.com/doc_link/en_US/a_doc_lib/aixbman/prftungd/memperf.htm

	http://publib16.boulder.ibm.com/doc_link/en_US/a_doc_lib/aixbman/prftungd/memperf1.htm#i50853 The AIX 5L Version 5.2 Performance Management Guide (SC23-4876-00, May 2004) should also be consulted. NOTE: Tuning these settings have been shown to help users avoid conditions where core cluster applications shut down and restart due to extensive blockage caused by "out of memory" issues. Keep in mind that all cluster applications should be designed and cluster tuned accordingly as to avoid oversubscribing to the real memory available.
	GFW Installation Guidelines
4	Install GFW. (using the recommended AIX command line (update_flash) method with a locally available image) Level Check: ROM Level (alterable).....3H040901 (P690) ROM Level (alterable).....3J040901 (P655) **Important Preliminary Notes:** Notes on updating GFW code (system firmware) from the AIX command line Document Reference: pSeries High Performance Switch Planning, Installation, and Service. For “Code load requirements for existing p690 and p655 server frames” please see the section in Chapter 6 titled "Step 3: p690 GFW code load" or "Step 3: p655 GFW code load" respectively in the HPS guide. To understand how to connect the rs422/rs232 cables see the HPS Guide: Chapter 6; Step 6, "Install the Hardware Management Console (HMC)” thru Step 16. "Verify Installation is Complete"” For “Code load requirements for existing server frames” see Chapter 6 For p655 "Code load requirements for existing p655 server frames" For p690 "Code load requirements for existing p690 server frames" For each CEC on which you want to install the GFW code - One partition running AIX must have "Service Authority" set. Linux does not support microcode download at this time. The "Service Authority" is set on one LPAR per CEC in the LPAR's profile "other" tab. This designates the LPAR as authorized to provide update images to the CSP. All partitions except the one with service authority must be shut down. The partition with service authority must own the device from which the microcode update image will be read. It is also recommended that the partition with service authority have a hard disk. If the required devices are not in the partition with service authority, the customer or system administrator must reassign the appropriate resources to it. This requires rebooting the partition with service authority. If the firmware on a full system partition is being updated, no special steps are required to perform

	the firmware update using the service aid. Ensure the GFW image file is not corrupted/truncated before you begin the update_flash process. Check that /var and /tmp directories are not above 50% full on the partition with the service authority. The update process can range from 20 minutes to 2 hours, depending on system configuration. The system reboots itself during the update process. Since SNM is disabled during this process, the SNI adapter interfaces will NOT be configured when the LPAR(s) reactivate. It is recommended that you use the `update_flash -f` command as opposed to the shutdown -Fu method. AIX APAR IY49146 is required for update_flash to work correctly. Level Check by running this command on the partitions: instfix -ik IY49146 The `update_flash` command will reboot the CEC(s) and will activate the LPAR(s). You may find some more detailed instructions provided on the website with the latest image: Http://techsupport.services.ibm.com/server/mdownload2/download.html To install GFW update using Diskette method: For p690 systems follow the instructions in the HPS guide on "Step 3: p690 GFW (system firmware code load)" in chapter 6. To install GFW update using NIM method: For a p655 CEC via NIM, follow the HPS guide Chapter 6, "Code load requirements for existing p655 server frames", Step 3. GFW (system firmware) code load.
	Installation steps: (using the recommended AIX command line (update_flash) method)
4a	SNM Software should be still disabled. Verify from the SNM GUI Panel.
4b	For each CEC on which you want to install GFW code, shutdown all partitions except the one with service authority.
4c	Install the appropriate GFW driver on each CEC to be upgraded: GFW 3H040901.img (p690) or 3J040901.img (p655): On the AIX partition with Service Authority: Copy the GFW firmware update code (3x040901.img file) to /tmp Where x = H for p690 or J for p655. Enter the following command: /usr/lpp/diagnostics/bin/update_flash -qf /tmp/3x040901.img The system will apply the new firmware, reboot, and return to the AIX prompt. If you use dsh to invoke update_flash then use the -q flag so it does not put out a prompt. Eg. dsh /usr/lpp/diagnostics/bin/update_flash -qf /tmp/3x040901.img more conveniently: dsh -N <nodegrp> "echo \"/usr/lpp/diagnostics/bin/update_flash -qf /tmp/3H040901.img\"|at now" Job root.1094776664.a will be run at Thu Sep 9 20:37:44 EDT 2004. Job root.1094776662.a will be run at Thu Sep 9 20:37:42 EDT 2004.

	Job root.1094776661.a will be run at Thu Sep 9 20:37:41 EDT 2004.
4d	After the LPAR(s) are 'Running', Power OFF the CEC(s) from the GUI or using CSM rpower - not from EPO red switch.
4e	Once the CEC(s) are powered off - follow these steps to enable the SNM/FNM Software from the GUI: 1. Select Switch Network Management from the Switch Management folder in the Navigation area. 2a Select Logical Topology on a 'per plane' basis. Select the number of Planes and select the Logical Topology on a per plane basis (Number of Endpoints on a plane) . Ex: 2 Frames and 2 Switches with NO Switch-to-Switch Links is 2 planes; 1NSB_0ISB_16EP (16 Endpoints) Ex: 2 Frames and 2 Switches with ANY Switch-to-Switch Links is 1 plane; 2NSB_0ISB_32EP (32 Endpoints) 2b Enable SNM Software for Normal Operation OR 2b Enable SNM Software for Switch Network Verification. 3. After selecting one of the Enable SNM Software tasks, select the Management Properties task. On the Management tab, the column labeled "SNM Version" should show: "IBMhsc.SNM.1.3.0.0-1". NOTES: The "Enable SNM Software for Switch Network Verification" task is used during new system setup/installation or after reconfiguration to initialize and check out the system by NOT removing bad links or routes. The main purpose is to discover cable mis-wires and defective hardware. No Routing is modified or loaded. It is NOT intended to be used in a working environment. Refer to the HPS Guide for more details on defining the Switch Network Topology: Review - Chapter 4. System management components; Step 1: Enable SNM Review - Appendix E. Switch Network Manager (SNM) - The SNM Graphical User Interface The GUI Does NOT update its view automatically. You MUST refresh the display via the GUI menu "Reload" button \/ (the 5th icon from the left) OR from the "Menu">"View">"Reload" function OR simply press the 'F5' key

4f	Power up CEC(s) from the HMC GUI and activate logical partition(s).
4g	Enable technical large page support - Required for levels greater than Service Pack 6. Note: Refer to "HPS/SNI" sub-section in the "Installation Guidelines" section for details on technical large page setup.
4h	**Determining the level of firmware on the processor subsystem** Firmware level is indicated as: 3xyymmdd.img; where x = a firmware designation such as J or H. J = p655 (Regatta IH series), H=p690 (Regatta H series) yy = year, mm = month, and dd = day of the release. Check the GFW microcode level from a VTERM to the main SP Menu. This should show the correct level 3x040901 on the top line. You can also check the GFW level from the AIX command line on the active LPAR(s): #lscfg -vp | grep alter | grep "\.3" You should see: ROM Level (alterable).....3H040901 - or - ROM Level (alterable).....3J040901
4i	**Determining the level of HPS adapter microcode** The HPS adapter microcode (ucode) is shipped as part of the GFW update image. To Level Check the ucode: From AIX partition, issue: /usr/sni/aix52/debugtools/sni_get_ucode_version -l sniz where z = sni interface number on your system anywhere from 0 thru 7 (Eg. sni0) which can be seen in "netstat -in" output. The timestamp should show build date: 09/1/04 NOTE: You will need to reinstall the GFW update if you: - neglected to disable SNM during the GFW update - or if you added/replaced an HPS adapter. Otherwise, the HPS ucode may not have been applied correctly. Level Check the ucode as stated in the previous bullet to make sure you do not have to reinstall GFW.
	Power Subsystem Microcode Installation Guidelines
5	Install Power Subsystem Microcode on each frame by following these steps. Level Check: 2678
5a	Power Subsystem Microcode: ptcode-1.70.2678-1.i386.rpm: https://techsupport.services.ibm.com/server/mdownload/other.html Install via the HMC GUI through the Software Maintenance -> Frame panels. Receive Corrective Service Install Corrective Service

5b	Power cycle switch(s): From the HMC GUI select “Switch Network Management > Switch Topology View” For each switch plane - select "Selected > Power <Off" - refresh GUI to verify power status - select "Selected <Power <On" - refresh GUI to verify power status Repeat procedure on all switch planes.
5c	Recycle SNM daemon using the HMC GUI: select Switch Network Management > Disable SNM Software refresh display: Menu > File > Refresh >Enable SNM Software.
5d	Level Check - After completing the ptcode installation, go to the HMC GUI and verify successful installation: - Select: Software Maintenance --> Frame --> Install Corrective Service - Verify that the "Installed Version" matches the version you just installed - 2678 (Important: This window may not automatically refresh when installation completes. Manually refresh the window as necessary.)
	AIX Installation Guidelines
6	Install AIX base updates on each node by following these steps. The recommended AIX service level for AIX 5L version 5.2 is: the 5200-04 Recommended Maintenance package, plus APAR IY61464 Document Reference: AIX 5L Version 5.2 Installation Guide and Reference (SC23-4389-03) Level Check: bos.mp64 5.2.0.42
6a	Download and install the recommended AIX 5L version 5.2 Maintenance Package 5200-04 To download: Go to http://www-1.ibm.com/servers/eserver/support/pseries/aixfixes.html Select Maintainence Packages and choose AIX52 Specify your "Current level" Specify "Desired level": 5200-04 and click "GO" Follow instructions on this page for downloading the gzip file.

6b	Download and install the recommended APAR: IY61464 To download: Go to http://www-1.ibm.com/servers/eserver/support/pseries/aixfixes.html Select Specific Fix choose AIX52 Search by "APAR number or abstract" and specify search string: IY61464 and click "GO" Click on IY61464 in the match list and click "Continue" Following instructions to either customize your download list based on individual LPAR levels, or download the entire package.
6c	Level check AIX by running this command on the logical partition(s): " lslpp -ha bos.mp64 " and verify that the /usr part of the fileset is at or above 5.2.0.42
	AIX LPP Installation Guidelines
7	Install AIX LPP updates on each node by following these steps. Level Check: see "Detailed LPP Level Check" Notes: CSM LPP's need to download and install openCIMOM-0.8-1 RPM update. Document Reference: AIX 5L Version 5.2 Installation Guide and Reference (SC23-4389-03) IBM RSCT: Administration Guide As noted in the Installation Guide, in order to use CSM LPP's, you need to download and install openCIMOM-0.8-1 RPM update. You can download openCIMOM from the following web site: http://www-1.ibm.com/servers/aix/products/aixos/linux/download.html Select "Package" OpenCIMOM "Version" 0.8 (5.2) (For AIX 5.2) For complete details see: Chapter 4. Installing the management server; Step 6. Download Open Source Software of CSM Guide. Document Reference: IBM Cluster Systems Management for AIX 5L Planning and Installation Guide Version 1.4 (SA22-7919-07) AIX 5L Version 5.2 Installation Guide and Reference (SC23-4389-03) IBM Reliable Scalable Cluster Technology Administration Guide (SA22-7889-04) DPCL is no longer a part of the IBM PE for AIX licensed program. Instead, DPCL is now available as an open source offering that supports PE. For more information and to download the DPCL open source project go to: http://oss.software.ibm.com/developerworks/opensource/dpcl Document Reference: IBM Parallel Environment for AIX 5LInstallation Version 4 Release 1.1 (1.1 GA22-7943-01) Chapter 1. Introducing PE 4.1.1

7a	Download and install the applicable IBM Virtual Shared Disk , LAPI, HPS, PPE, LoadLeveler, GPFS, Parallel ESSL, ESSL, CSM and RSCT PTF updates. Apply the listed APARs which are needed for HPS Service Pack 10. They are available from the website: http://www-1.ibm.com/servers/eserver/support/pseries/aixfixes.html **If you are upgrading to SP10 from a service pack that is earlier than SP9, then installing CSM1.4 is required.** **The recommended AIX service level AIX 5L version 5.2 is ML 5200-04 plus IY61464.** **The Maintenance package contains CSM 1.4 which requires RPM update openCIMOM 0.8 (5.2).**
7b	To verify that the service levels for your LPP's are current for Service Pack 10, on each logical partition issue: lslpp -Lc | egrep "vsd|LAPI|HPS|sni|ppe|LoadL|mmfs|rsct|csm|essl|pessl" | cut -d : -f 2,3 |sed 's/:/ /'
7c	**RSCT Migration Issues:** See Problem #2 For more information, refer to RSCT Administration Guide; Chapter 3. Creating and Administering an RSCT Peer Domain; Migration

Section 6: Known problems/workarounds/Restrictions

Problem 1: "Phantom" SNI devices may appear after upgrade from pre-Service Pack 7

Users Affected: Users upgrading systems from pre-SP7 to SP8 with existing SNI devices

Problem Description:

Changes in the HPS switch microcode and driver demand that it is absolutely necessary to install the HPS fileset updates and the GFW firmware updates without rebooting logical partitions before the system firmware is successfully installed. Rebooting the LPAR(s) prematurely will cause "phantom" SNI devices to be created on the partition(s).

The failure signature is:
1) There are twice the number of snX and sniX devices as expected in the "lsdev -C|grep sn" output. (where X = sni or sn interface number on your
system anywhere from 0 thru 7 -- e.g. sni0 or sn0)
2) All the sn interfaces are in the Defined state.
3) Upper half of the sniX devices are in "Available" state (higher numbered devices) and lower half of the sniX devices are in "Defined" state (lower
numbered devices).
4)All the sniX devices could also be in the "Defined" state.

Common causes of "phantom" sniX devices:

If you re-boot LPARs after upgrading HPS filesets, but prior to a successful GFW upgrade.
Failure during GFW upgrade after updating HPS filesets. These events/scenarios will cause all LPARs on a CEC to reboot without upgrading the GFW via AIX command line method (i.e. update_flash command)

- If you have a corrupted/truncated GFW image file (3H040602.img or 3J040602.img)
- If either /var or /tmp is too full.
- If an LPAR other than the Set Service Authority LPAR is in "Running" state during update_flash
- If an LPAR other than the Set Service Authority LPAR is used to run the update_flash command

Note: There may be other factors that cause LPARs to reboot after the HPS fileset is upgraded and before the GFW is successfully updated.

Recovery Procedure:

1) Complete the GFW update.

- Verify that the firmware updates on all CEC(s) was successful.

2) Recover the sniX and snX devices.

(Note: To recover requires at least 1 reboot. Two reboots are required if the sniX devices are busy)

2a) Make note of any customization to the SNI devices (e.g. num_windows, driver_debug, etc ...) using the command "lsattr -El sniX" so that they can be re-applied after the recovery procedure. The procedure will reset all values back to the defaults.

Remove all the SNI devices:

```
for each logical sniX; # e.g. for X in 0 1 2 3;
    do
        rmdev -d -l sni$X
    done
```

If the rmdev fails for any devices (e.g. device is busy), then unconfigure the device driver as follows. Otherwise, go to step 2b.

- rename the configuration method for the device: mv /usr/sni/aix52/cfgsni /usr/sni/aix52/cfgsni.orig
- reboot each LPAR that failed
- run the rmdev loop again
- restore the original configuration methods name: mv /usr/sni/aix52/cfgsni.orig /usr/sni/aix52/cfgsni

2b) Remove ONLY the top half of the snX devices:

The lower half (original half) have the ipaddr and netmask attributes in the odm. You don't want to delete these, nor do you have to.

```
for UPPER HALF of logical snX # e.g. for X in 2 3;
    do
      rmdev -d -l sn$X
    done
```

3) Reboot the LPAR(s) --> shutdown -Fr

4) Restore any customization to the SNI devices (e.g. num_windows, driver_debug, etc ...)

Problem 2: "hagsglsm is not reporting the local switch membership group
Component: rsct
Systems Affected: All rsct Users at Service Pack 9
Description:

In order to complete the migration of a peer domain and update the active RSCT version to a new level, you must enter the runact command:
runact -c IBM.PeerDomain CompleteMigration Options=0"
This command should be run after every RSCT release upgrade.

For a more complete discussion see: "Avoiding Domain Partitioning When Migrating From RSCT 2.2.1.x or 2.3.0.x" in
IBM Reliable Scalable Cluster Technology Administration Guide SA22-7889-04; Chapter 3. Creating and Administering an RSCT Peer Domain; Migration

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Restrictions:

1) No switch should be powered off while the SNM software is running.

Component: SNM - Switch Network Management

Systems Affected: High Performance Switch (HPS) users applying from pre-Service Pack 7

Implications:

- A CEC frame with a switch in it CANNOT be EPOWed.
- If a CEC has to be power cycled, power down the CEC and not the frame.
- If a CEC frame with a switch needs to be EPOWed, power down the frame, kill the SNM daemon after 5 minutes, power up the frame and restart the SNM daemon.
- If one or more switches need to be recycled, power down the switches, power them back up and then recycle the SNM daemon after 5 minutes.

2) Rules for swapping cables for fault isolation

Component: SNM - Switch Network Management

Systems Affected: All HPS Users applying from pre-Service Pack 7

Description:

Only swap SNI attached cables at the switch ports to which they are attached.
Do not swap switch to switch cables with other switch to switch cables nor with SNI attached cables.
Do not swap cables on the SNI ports.
Do not swap cables between switches.
If adapters are accidentally "miswired" during the process of swapping cables, recable the adapters to their original positions.

3) Improved performance is more sensitive to bad links

Component: HPS/LAPI

Problem Description: The protocol (MPI or LAPI) will timeout if the job runs on bad links and the link routes are not fixed. If the link failure turns into adapter failure then the job gets terminated.

Solution: To resolve this issue monitor Service Focal Point for bad links and fix them.

4) HPS Cluster recommended LPAR reboot procedure

Component: HPS/SNI

Systems Affected: All HPS Users applying from pre-Service Pack 7

Description:

To ensure the HPS switch links are properly shutdown and re-enabled, it is recommended that you use the commands below, to recycle and reboot all LPAR/AIX images in your cluster:

"shutdown -F" <-- to shutdown LPAR

"shutdown -Fr" or "dsh -av shutdown -Fr" <-- to reboot LPAR or multiple LPARs simultaneously

Use of the "reboot" command or "rpower" commands will not shutdown the HPS switch links in an orderly fashion - when more than one frame at a time is cycled concurrently the SNM daemon may hang and Service Focal Point could end up with artificial errors. If/when these commands must be run concurrently on multiple LPARS, it is recommended that you use them one frame at a time in your cluster.

When the HMC gui is used to cycle an LPAR, it is recommended that you use the "shutdown" option to recycle the LPAR, not the "reset" option. The "shutdown" option will ensure that the HPS switch links are shutdown and re-enabled cleanly - whereas the "reset" option(s) will essentially use the rpower command (and not do an orderly shutdown).

NOTE: Use of the rpower or HMC GUI reset options should be reserved as a "last resort" for LPARS that are not responding to a shutdown command.

5) Striping mode Restrictions

Component: HPS/SNI

Description:

- Striping currently limited to two links per task. Multiple tasks can use all links as long as there are more tasks than half the links available.

- Performance degradation for single task per link of 3% for unidirectional and 5% for exchange bandwidth at large messages. However, multiple tasks per link get full link bandwidth.

- In non-striping mode you only get half the links on a p655 system using a 2 plane configuration when setting MP_EUIDEVICE=sn_single. You must use MP_EUDEVICE= csss or sn_all to get all links.

Section 7: HPS Service Pack 10 fix list (by component)

LAPI: Abstract (APAR IY63030)

Enable odm entry and chgsni support for rdma_xlat_limit.
Minor fixes to avoid ack processing delay
rephrase information msg get of rcxt failed
loopback driver and tools
Covert sync() calls to process HW sync.
PERFORMANCE PROBLEM SHARED MEMORY JOBS

Loadleveler: Abstract (APAR IY63033)

Two jobs are stuck in the RP state for a long time
NEG CORE WHEN ADDING ADAPTER IN FUTURE FOR TOP DOG
a system preempted job failed to preempt another job
bulkxfer not 0 in ntbl load
Dependencies are evaluating incorrectly with CC_REMOVE
Long runs and blocks top dog
MASTER COREDUMP DUE TO PUBLISH_OBITUARIES=FALSE
NEG CORE DUE TRYING TO ACCESS QUARK FUNCTION
NetworkS in ll_start_job_ext causes CM to coredump
INVALID NETWORK ID WHEN CSSS IS USED WITH PE

Parallel Environment: Abstract (APAR IY63032)

Wrong CPU output from llsummary -d allocated
MPI-I/O functions don't support JFS-2
assert in restart of RDMA job when bulkx
Intermittent core dumps with traceTOslog2 uti
LAPI Failover message reported
Large msg Allgatherv does not perform well
INVALID NETWORK ID -1 RETURNED FROM LOADLEVEL

IBM Virtual Shared Disk: Abstract (APAR IY63029)

VSD Multi-cluster Support
Accidental rpd removal destroys vsd config wi
IBM.vsdd and rvsdd must handle SIGDANGER on l
with domain down vsdatalst -n returns no erro
cfgvsd should fail if bad IP addresses
ctlvsd -t displays header out of order

GPFS 2.1: Abstract (APAR IY63034)

mmcrnsd progress message
mmgetstate -a only lists state of active
Documentation change request-Concepts, plan,
Better FG handling when descOnly disk dies
mmexportfs fixes
Correct error msgs
recoverPeerDomain all nodes
Replacing disk does not inherit FG
Changing maxMBpS has no effect
sg_mgr_init fails changing disk states down d
signal11:StripeGroupDesc::operator==(StripeGr
Handle daemon errors on mmadd/del/rpldisk

GPFS 2.2: Abstract (APAR IY63035)

GPFS 2.2.1 supported with HPS Service Pack 7 or higher

Description:
GPFS 2.2.1 supported with HPS Service Pack 7 or higher

Description:
With the release of HPS Service Pack 7, customers will now be able to use GPFS 2.2 in their HPS environment. The recommend level of service required for GPFS 2.2.1 on an HPS system is IY63035
failover from local devices to server needs message
GPFS Daemon assert during unmount - line 789 of file quallo
error messages vary greatly between aix and linux gpfs
mmgetstate takes 5.5 minutes to complete after node failure
c462f1rp01 hangs ... rsh/rlogin/telnet fails ping OK
double [common]'s in mmlsconfig output
assert:err != E_OK OR (whichFlags metadata.C 12164
SLOW RANDOM READS USING MMAP OF A LARGE FILE
mmpmon connection
mmpmon > rhist nr allows 0 to 0 size range and latency range
signal11:StripeGroupDesc::operator==(StripeGroupDesc const&)

TSBACKUP DOES NOT HANDLE FILE PATHNAMES LONGER THAN 256
cs2b: linux nfs filesystem: ls: root: Input/output error
signal11:LLCachedRecAddr::isMigrating during mmfsck -o
Assert: `(q == 0)
RECLOCK RETRY FAILS FOR NON-ROOT USERS
NFS on cs2b tar causes many Stale NFS file handle
assert:!"I/O completion: Unexpected disk availability after qui
IDE DRIVES (/DEV/HD*) MISSED DURING DISCOVERY
Handle daemon errors on mmadd/del/rpldisk
mmfsctl syncFSconfig silently does nothing if partial data at t
remote mount NSD recovery tests ends in failure
Remove NOSHIP defines except Opteron
mmpmon connections
Cant unmount fs because of mmgetobjd
mmcrfs failing on 2105 MPIO disks
mmdsm, mmimportfs
missing error message 376
Allow overriding the trace file and trace buffer sizes
mmfsck ends prematurely with 0:5:18 and RepStatusBad
mmfsctl syncFSConfig cannot reach contact nodes in remote clust
NSD redriver thread
Complete 471707 backport for nfsd_iget
long delays in GPFS cmds if primary server down (pmr 83091)
assert:I/O completion: Unexpected disk availability sched.C 220
IF MMCHONFIG RELEASE=LATEST IS NEVER PERFORMED, THE /VAR/MMFS/
Failure during migrate log
"mismatched pvids" error when vsd server is down
assert !"Attempt to delete an object whose header has been corr
GPFS_FGETTATTRS CAUSES KERNEL PANIC WHEN CALLED ON A SPECIAL F
RANDOM DIRECTORY ERRORS ON OPTERON
Invalid entries in /var/mmfs/etc/mmfs.cfg
The assert subroutine failed: in alloc.C, line 1934
mmpmon ports
printDentry needs non-blocking trace
Fix parsing long lines in mmfs.cfg file
assert:0, file fencing.C, line 871
smart pointer debugging, GPFS_HANDLE_NFS_FH
mmtrace perf, non-blocking traces
MmpmonApplevel prototype Java code
Node sendClusterSDRFiles is not available to run the command

SNM: Abstract (APAR IY62953)

LSSWTOPOL COMMAND FAILED WITH -F FLAG.
jt query dest should only show BPAs and switc
Decrease the debug level in testRoute
NEW TOOL TO DISPLAY HW REPORTED ERRORS FROM
Change needed to SNM_RPM so correct SNM RPM v
Remove timedate stamp included in Primary blo

HPS/SNI: Abstract (APAR IY63031)

Network ID support for mixed Regetta/Squadron
re-work getsmadata for squadrons - new prd si
Verification test tool improvements
Chicken Switch!
investigate tcb support.
updates for new window fatal condition (rCxt
Enable odm entry and chgsni support for
Enable odm entry and chgsni support for
Ship additional debug tools.
Implement the re-cable flows
TCEs should be traced at error level
update UT_window's window fatal tests
vmgetinfo failing in UT_rdma_ioctl32 and UT_r
trace the lmt for window fatals in close wind
fix exposure in system();
final UT_window checkin
loopback driver and tools
loopback driver and tools
Alias Support for Federation
return canp_fifo_rdma as css_dev type on squa
crashed in curtime+000168
dd needs to kill all bad window procs,
No adapters 'Available' after rebooting LPAR
HAL snap can be dumping user data

GFW: Abstract

Refer to the following links for complete list of abstracts for GFW fixes in HPS Service Pack 7 or higher:
http://techsupport.services.ibm.com/server/mdownload/7040681F.html - for Regatta H
http://techsupport.services.ibm.com/server/mdownload/7039651F.html - for Regatta IH

HMC: Abstract

Defects included for 3.3.2 update :

Level name: 20040827.1
- Tucson:mb7h:failure in arping handling in hmcpostnet script
- Regatta CCFW threads accumulating
- HMC FVT: Websm security not preserved by update from GA1 Gold
- FEDCIT:HMC GUI and telnet sessions hang with ServiceRM fix
- Checkin of rel30435a SNM RPMs (hmcpok_rel3)
- I/O devices are not comming up while creating 8-ALPAR
- Repairing a potential corrupted NVRAM save area.
- Save Upgrade from 3.2.6 to 3.3.2 does not preserve root passwor
- Readme for HMC V3R3.2
- FED: keepalive polling, Quorum, and async broadcast fixes
- Build break SelectServiceableEvent$2.class not found

Level name: 20040824.3
- applyUpdates removes /usr/local/hsc_install.images
- While creating LPAR or modifying profile, deleting I/O device i
- Update to BluePrint file r42hsc.bp

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Level name: 20040824.2
SRC subsystems don't start due to odm_lock() hangs in ECMWF/HMC
Update to BluePrint file r42hsc.bp

Level name: 20040824.1
overlap with German HMC remote win client.
SFP not responding, hanging
HPS cmd : chswnm does not work via ssh
characters overlap on vterm window.
VIO:UPT:Unable to install VIO CD
HOT:RH-FIELD:3.3.0 does save root password
MCP altering /etc/localtime symlink
Large Number of ServiceRMd Threads in Cluster Environments
Issues with LPAR and ALPAR
REGATTA CCFW: Don't create log entry when data file missing
increase the sleep time to 15 sec after indication conn failed
Add support for virtual ethernet for lpar_netboot
Build Break: Error in Makefile
Update to BluePrint file r42hsc.bp

Level name: 20040813.1
HOT: DLPAR:UPT: all concurrent dr ops failed at the same time
HMC remote windows client performance
ccfw memory usage growing
Redundant HMCs show different states
FED: fnm_test is truncating 64 bits ints to 32 bits.
Updating machine license code on HMC
Updating postinstall
Update build error filter file
Too many threads spawned if CLEAR_EVENT_NOTIFICATION fail
set_dlpar_capabilities script can cause LPAR state to be wrong
English Machine License code has garbage
re-enable duplicate IP addr checking
Build problem
Update to BluePrint file r42hsc.bp

Level name: 20040810.1
Service focal point was hung when the following command was
chsyscfg command not adding required io element
MaskableTextField does not accept prefix length in IPv6 address
Recovery using backup crit data with service pack 4/5 give erro
Some dependencies are not shown for websm pc client.
Save Upgrade from 3.3.0 to 3.3.2 not preserving locale

Update required for Machine License Code on HMC
restore script needs special processing for /bin/bash
efix task can possibly report false failure
Update to BluePrint file r42hsc.bp

Level name: 20040803.1
WSM HINDERS CPU DEALLOCATION
man pages for mksyscfg in error
HMC password must be Alpha/numeric
Adv. Operator can not display profiles using lssyscfg
Check in Certificate for Hitachi OEM
Checkin of rel30431a SNM RPMs (hmcpok_rel3)
Update to BluePrint file r42hsc.bp

Level name: 20040728.1
Find action does not open the found object.
Stop not working for Test Network Connection
HOT: UPT: backspace does not work on vterm
GUI deadlocked with RMC
add option for mac address to lpar_netboot
HMC returns false Successfull when update.zip fails from GUI
eash hangs due to nested su
/etc/sysconfig/clock updates for MCP
Correctly restore /etc/sysconfig/clock upgrade data
Unable to change locale and launch info center.
HMC V3R3.2 packaging work
fix RestoreUpgradeData file build break
Update to BluePrint file r42hsc.bp

Level name: 20040720.1
AIX Client fails to bring up several dialogs
VIO: lpar_netboot fails when partition name == profile name
HMC returns false Successfull when update.zip fails from GUI
HMC PATH variable not correct
Add two commands to FNM security checking
JavaWebstart link is broken.
FED: Additional Support for FNM Failover (Quorum tracking)
Opera customization file renamed after updates
FED: fnm_test fixes to workaround MCP istream changes
Update to BluePrint file r42hsc.bp