POWER Firmware Directions and Considerations
v10

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Agenda

- Introduction to firmware
  - Terms & Concepts
- Maintenance Strategies
  - Recommended firmware levels
- Features/Functionality
- Tools & Resources

Introduction to Firmware Terms & Concepts

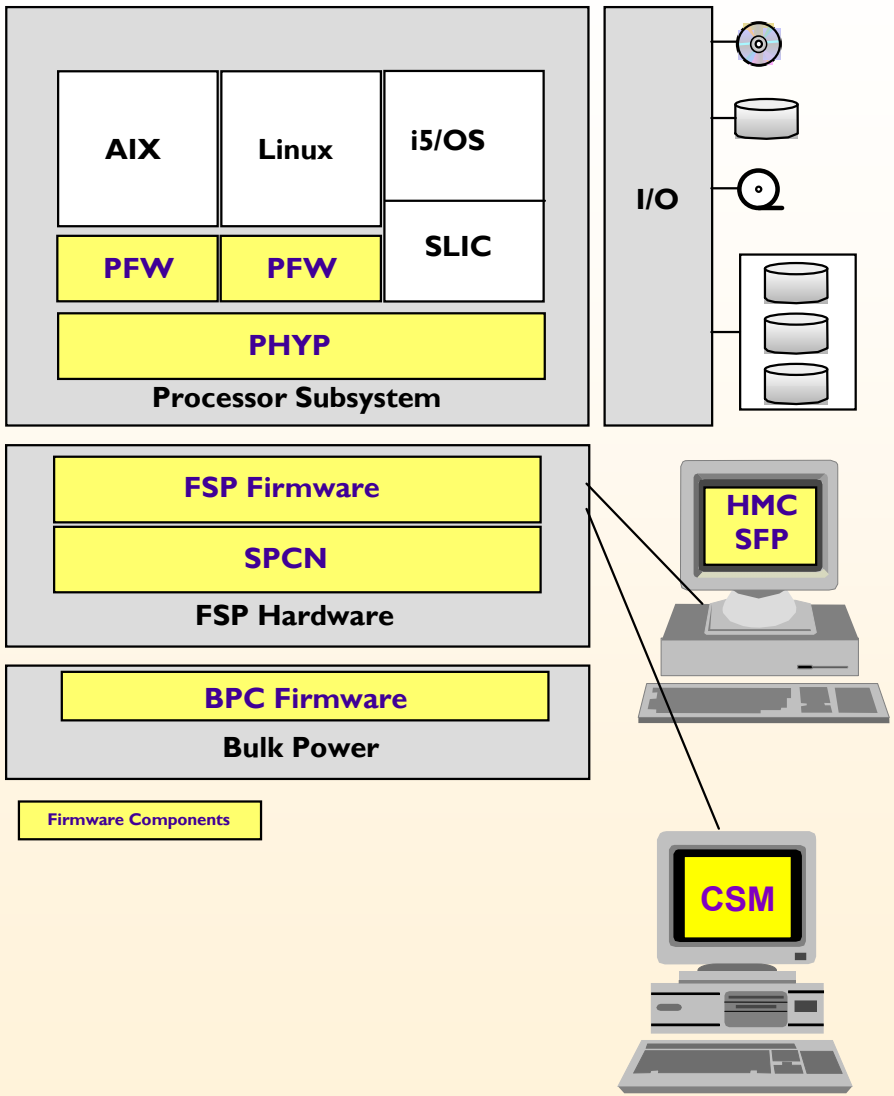
Microcode (System Firmware) Enablement

The *HMC and System Firmware* are vital elements in the System p Environment, and for exploiting the capabilities of POWER5 systems

- Advanced Processor Virtualization
- LPARs including Micropartitions
- Virtual Ethernet
- Virtual I/O Server/Virtual SCSI
- Dynamic LPAR operations
- Partition Load Manager
- Capacity on Demand
- RAS capabilities (e.g. “Call-Home”)

“Systems Technologies” includes POWER5 hardware, Firmware, Hypervisor and HMC

P5 Firmware Components



- **Flexible Service Processor - FSP**
  - Linux-based, future i/p/z convergence
  - Provides diagnostics, initialization, configuration, run-time error detection & correction
- **Power Hypervisor - PHYP**
  - Virtualization - Partitioning (including sub-processor partitions), VLAN, Virtual I/O
- **Partition Firmware - PFW** (OF/RTAS)
  - Supports pSeries PAPR interface
- **Hardware Management Console - HMC / Serviceability**
  - Provides converged platform configuration, mgmt, and service
- **System Power Control Network - SPCN**
  - Interfaces with bulk power for power monitoring and control (part of FSP code base)
- **BPC Firmware**
  - Controls each bulk power unit in CEC and towers--unique on H (590/595) and IH (575) systems
- **Cluster System Manager (CSM)**
  - Cluster single control point

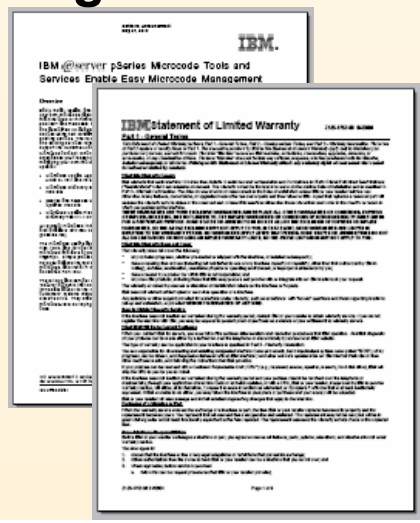
Microcode (System Firmware) Defined

- System microcode, sometimes called system firmware, initializes, or sets up, the hardware configuration so that your system will boot up and operate correctly; it provides the interface to the operating system software to talk to the hardware.
- Microcode is programming that is inserted into programmable read-only memory, thus becoming a permanent part of a computing device.
- Firmware is created and tested like software, it can be distributed like other software and, using a special user interface, installed in the programmable read-only memory by the user.
- Firmware is also distributed for printers, modems, and other computer devices.

IBM uses the term “Licensed Internal Code” to refer to System Firmware and HMC code

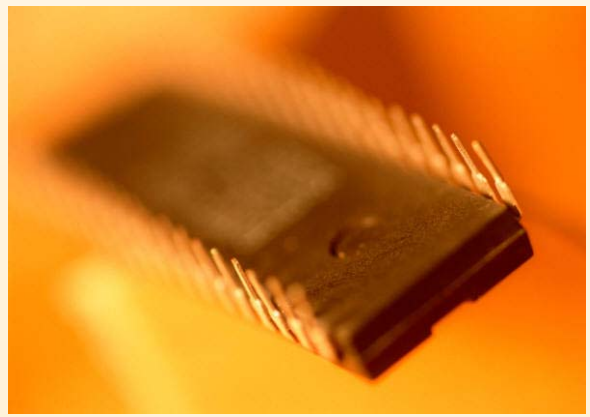
Firmware Maintenance

- In May 2003, firmware and microcode update control was returned to customers to eliminate the requirement to schedule an IBM engineer for any and all updates.
- Although IBM services may still be requested to plan and implement microcode updates, each individual customer is now provided the choice of maintenance strategies.
- Firmware currency remains a vital foundation to availability in any environment. Although some IBM System p customers may choose a conservative approach to firmware and software updates, choosing to remain at levels that differ from the most recent release or service pack, falling too far behind in currency creates a substantial hazard. It is important to stay on supported levels of firmware and to maintain good microcode hygiene.
- Details on the tools and services are outlined in the Announcement Letter and Warranty Information
  - http://w3-3.ibm.com/sales/ssi/rep_ia/5/897/ENUS203-145/ENUS203-145.PDF
  - http://www-03.ibm.com/servers/eserver/support/machine_warranties/

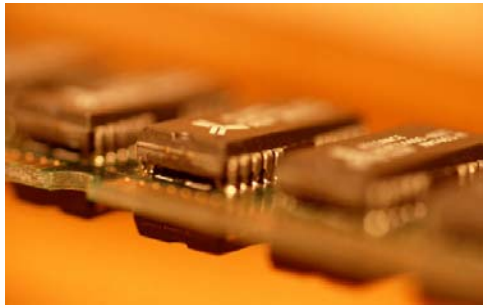


Release Level versus Service Pack

- **Release Level:** A Release Level is the term for firmware that is released to support major new function (introduction of new hardware models and significant function/features enabled via firmware).
- **Service Pack:** A Service Pack contains a group of fixes within a specific release level. Service packs primarily contain only fixes however, minor function changes may be released within a service pack.



Concurrent Firmware Maintenance



- Concurrent Firmware Maintenance (CFM) is:
  - **The ability to deploy firmware fixes on a running system without rebooting partitions or perturbing applications.**
  - CFM is first offered in SF230 level firmware.

- Firmware updates can be managed from either the OS or the Hardware Management Console (HMC).
  - CFM requires an HMC
  - OS (Inband) firmware updates unchanged

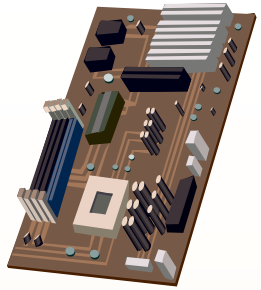
- Firmware Components
  - HMC – Always Concurrent with respect to managed server
  - Power subsystem firmware (models 575, 590, 595) – Concurrent after SF230
  - Server Firmware – Fixes concurrent after SF230.

PLEASE NOTE: In early releases of CFM at SF230 all deferred fixes had to be cleared with an IPL prior to subsequent downloads. This is no longer the case.

Current Firmware Maintenance (CFM) Trends

- Since its introduction with 01SF230 (GA5SP3), we have added additional availability in each firmware release
- We are able to deliver an increasing percentage of fixes without disrupting our clients business.
  - 95% of the fixes in SF230(GA5) were concurrent
  - 97% of the fixes in SF235 (GA6) were concurrent
  - 99% of the fixes in SF240 (GA7) have been concurrent

Upgrade versus Update



Upgrade – Move to new release

- A release is a new code stream containing new function.
- Each release will be supported in service for at least one year.
- **Transition to new release is always a disruptive activation**

Update – Service to current release

- Contains only significant fixes for that release.
- Only service packs (within a release) can be concurrent
- New fixes will be made available for each release for approximately one year
- Not all updates are concurrent – details on following pages
- Updating firmware involves two steps:
  1. Apply the firmware (update what is in flash)
  2. Activate the firmware (cause the new firmware to be running on the system)

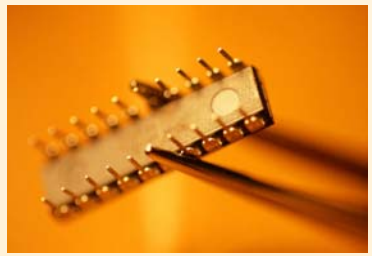
Upgrading Microcode

UPGRADE means to go to a newer release stream

- *For example moving from* 01SF230 (GA5) to 01SF235 (GA6)
- An UPGRADE is always disruptive (platform IPL required)

Why UPGRADE?

- New hardware is introduced that might have a different or incompatible level of Microcode
- There is a scheduled outage for the environment and there is limited opportunity to upgrade, and a new release is available
- To move to a new release level that will be in fix service longer, or the current release level is at eos and a fix is needed
- A specific fix is needed available in a newer release stream



Updating Microcode

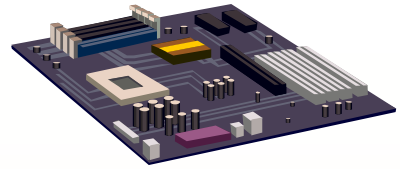
UPDATE means to go to a newer fix level on the same release

- For example moving from 01SF235_160 to 01SF235_185
- An UPDATE is usually concurrent if platform is HMC managed

Why UPDATE?

- A critical or hyper fix is announced
- A new level of firmware is available at a regularly scheduled service interval
- Other scheduled service is being performed and newer fix level is available

Types of Updates



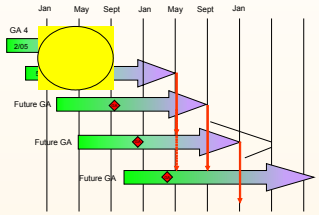
- Concurrent – A fix or set of fixes which can be applied and activated concurrently (i.e., no system IPL is required). It can be applied and activated on a running system.

- Deferred – A fix or set of fixes which can be applied concurrently but contain some fixes which affect the IPL path and therefore are not activated until the next IPL.
  - In most cases most of the fixes can be activated concurrently and only a subset of the fixes require an IPL to activate. The portions of the service pack which can be activated concurrently are activated concurrently
  - Only the deferred fixes require IPL to activate
  - SF235 HMC (5.1.x) support for deferred fixes:
    - Alerts when applying deferred fixes
    - Lets you determine if deferred fixes have been activated

- Disruptive – When a release or a disruptive fixpack is installed, a system IPL will be required.
  - Note: all RELEASES are disruptive
  - None of the service pack contents are activated until next IPL

Applying Service Packs

Service packs are sequential and cumulative, but not mandatory sequential.
This implies that ability to apply and activate concurrently depends both upon the current firmware level on the platform and the service pack



(C) = Concurrent service pack
(D) = Disruptive service pack

Concurrent

Disruptive

Level 80 (GA)	Level 81 (C)	Level 82 (C)	Level 83 (D)	Level 84 (C)

Concurrent

Disruptive

Concurrent

Disruptive

Disruptive

System p5 System Firmware File Naming Convention

PPNNSSS_FFF_DDD

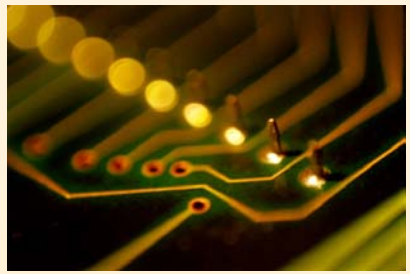
- PP = package identifier;
  - If this value is **01**, it is identifying server (system) firmware
  - If this value is **02**, it identifies power subsystem firmware (Bulk Power Code).
- NN = machine type/model group
  - If this value is **SF**, it is identifying server (system) firmware
  - If this value is **BP**, it is identifying power subsystem firmware (Bulk Power Code).
- SSS = Release Level Indicator (e.g., 230)
- FFF = Service pack level within that release. This number is incremental and increases with each SP.
- DDD = Release or Service Pack level of the last disruptive level

Stream (Release)	GA Name	Base HMC Level
225	GA4	V4R4
230	GA5	V4R5
235	GA6	V5R1
240	GA7	V5R2

- Please note: Releases and service packs consist of a cover letter, an XML file and the firmware RPM file (for example, 01SF230_001_001.xml and 01SF230_001_001.rpm

Obtaining Firmware

- Go to Firmware and Microcode for Power-based systems: (http://www14.software.ibm.com/webapp/set2/firmware/gjsn)
  - Under the "Firmware and microcode resources" section, select the machine type and model of your system.
  - Read the **Desc** file for a given microcode update to learn details about the update. In some cases, this information file contains installation instructions for the microcode.
  - Select the “RPM” file (tick-box) for the required level, scroll down and click “Continue”
  - Follow the directions in the **Desc** file to unpack and install the microcode, and refer to **Info Center** for instructions (http://publib.boulder.ibm.com/infocenter/eserver/v1r3s/topic/ipha5/fix_serv_firm_kick.htm)



Maintenance Strategies

Maintaining Your Environment

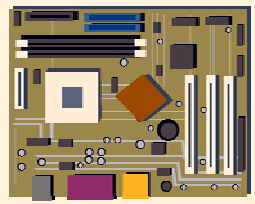
A good fix maintenance strategy is an important part of maintaining and managing your server. Regular maintenance of your server, and application of the latest fixes help to maximize server performance, and may reduce the impact of problems if they arise.

For good change management IBM recommends that all servers be kept on a supported release and current with the latest available fix packages for HMC and server firmware fixes.

The most important scenario to avoid is remaining on a release so long that all subsequent releases that support a single-step upgrade are withdrawn from marketing.

IBM recommends that clients apply a release level and a minimum of one service pack per year.

- Release Levels
  - Twice a year
  - Generally in February and August, but can change
- Service Packs
  - Generally released approximately every three months
  - Can be released any time as needed if important fixes are available
  - It is also recommended that you review the readme files for each service pack to review any impact to your environment



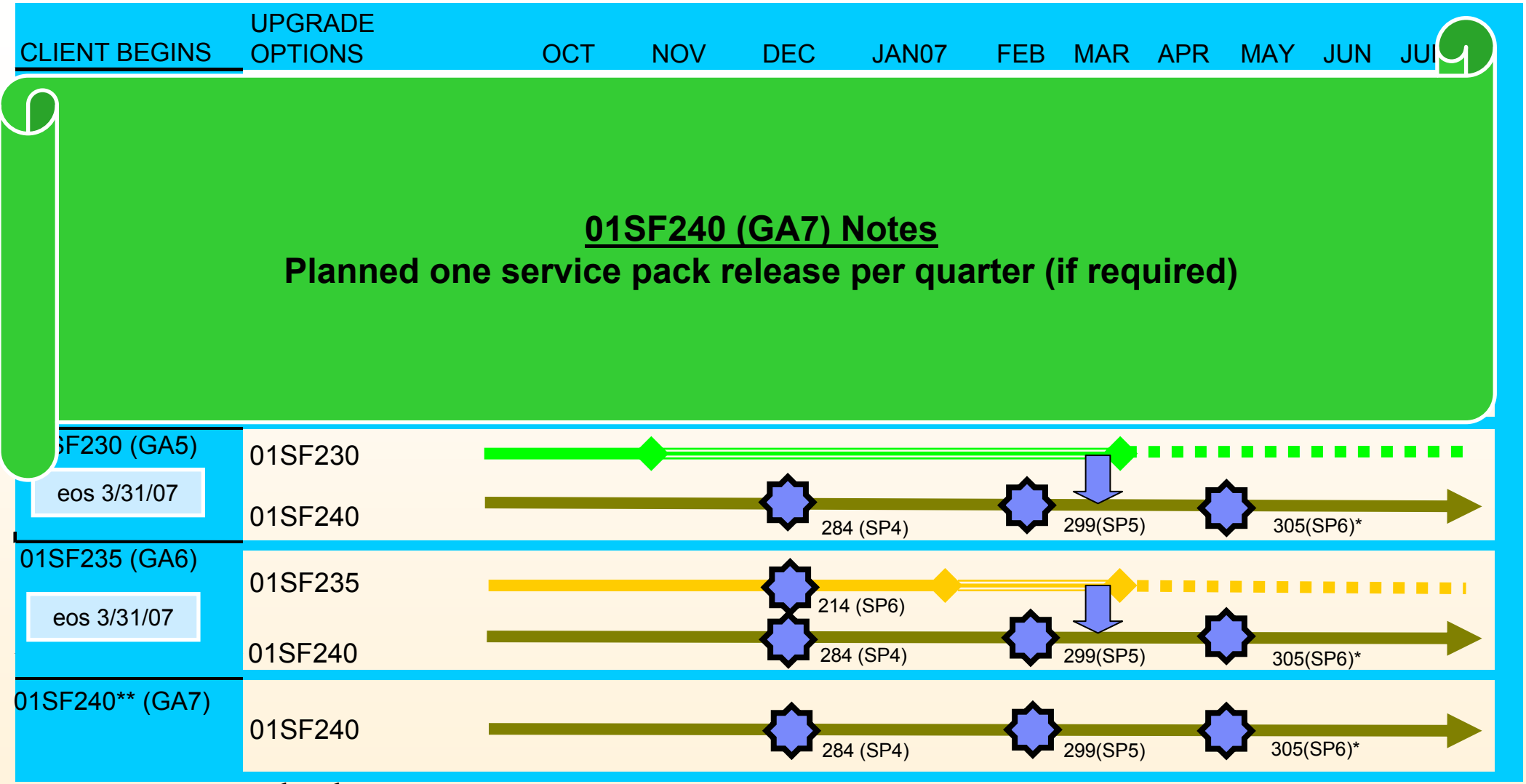
Uptime's Combined AIX & Firmware Maintenance Strategy

- *One maintenance window required per year for AIX and Firmware through the new AIX Release Strategy and Concurrent Firmware Maintenance (CFM)*

- *In 2006, we enhanced the AIX release and service delivery strategy.*
- *The principal changes were:*
  - A stable AIX release delivery schedule providing updates to AIX twice a year
  - Limit the introduction of new AIX functionality to once per year
  - Maintenance Levels (ML) renamed to Technology Levels (TL)

- *In 2007, we are providing additional enhancements to the AIX release and service delivery strategy.*
- *The principal changes currently under review are:*
  - Twenty four months of support for each Technology Level
  - Service for entire period is provided by PTF, Interim Fix, and/or Service Pack
  - Some new hardware will be supported on previous Technology Levels

Optional Firmware Upgrade Paths for POWER5 Systems



=unsupported code stream

=service extended "proposed"

=update only, no reboot on the same code stream

=end of service for code stream

=option choice for code level upgrade, reboot required

*Service Pack filenames & dates subject to change

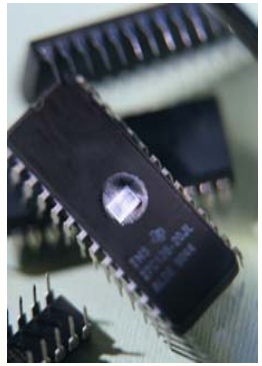
**01SF240 is the last firmware code stream for Power5/5+

General Guide with Optional Upgrade Paths for POWER 5 System Firmware

	Current Level	Codename cross reference	Option 1 minimum change	Option 2 preferred
	01SF240_299_201	GA7 SP5 (ECA815/834)	none	none
	01SF240_284_201	GA7 SP4	01SF240_299_201	01SF240_299_201
	01SF240_261_201	GA7 SP3.2	01SF240_299_201	01SF240_299_201
	01SF240_259_201	GA7 SP3.1	01SF240_299_201	01SF240_299_201
	01SF240_258_201	GA7 SP3	01SF240_299_201	01SF240_299_201
	01SF240_259_201	GA7 SP2	01SF240_299_201	01SF240_299_201
	01SF240_219_201	GA7 SP1	01SF240_299_201	01SF240_299_201
	01SF240_202_201	GA7+	01SF240_299_201	01SF240_299_201
	01SF240	GA7	01SF240_299_201	01SF240_299_201
	01SF235_214_160	GA6 SP5	none	01SF240_299_201
	01SF235_209_160	GA6 SP4	01SF235_214_160	01SF240_299_201
	01SF235_206_160	GA6 SP3 (ECA 828)	01SF235_214_160	01SF240_299_201
	01SF235_185_160	GA6 SP2 (ECA 821)	01SF235_214_160	01SF240_299_201
	01SF235_180_160	GA6 SP1	01SF235_214_160	01SF240_299_201
	01SF235	GA6	01SF235_214_160	01SF240_299_201
	01SF230_158_120	GA5 SP6	none	01SF240_299_201
	01SF230_156_120	GA5 SP5 (ECA 827)	01SF230_158_120	01SF240_299_201
	01SF230_153_120	GA5 SP 4+ (ECA 823)	01SF230_158_120	01SF240_299_201
	01SF230_150_120	GA5 SP 4	01SF230_158_120	01SF240_299_201
	01SF230_145_120	GA5 SP 3	01SF230_158_120	01SF240_299_201
	01SF230_143_120	GA5 SP 2	01SF230_158_120	01SF240_299_201
	01SF230_126_120	GA5 SP 1	01SF230_158_120	01SF240_299_201
	01SF230_120_120	GA5	01SF230_158_120	01SF240_299_201

1. Review all release documentation for dependencies, requirements and procedures prior to installation
2. IBM recommends testing firmware on a test system prior to installation on a production system.
3. ECAs apply to p59x systems only.
4. Contact support for specific questions and concerns for your environment

General Firmware Strategies



IBM releases new firmware for the following reasons:

- The addition of new system function.
- To correct or avoid a problem.

There are some natural points at which firmware should be evaluated for potential updates:

- When a subscription notice advises of a critical or HIPER (highly pervasive) fix, the environment should be reviewed to determine if the fix should be applied.
- When one of the twice-yearly updates is released.
- Whenever new hardware is introduced into the environment the firmware pre-reqs and co-reqs should be evaluated.
- Anytime HMC firmware levels are adjusted.
- Whenever an outage is scheduled for a system which otherwise has limited opportunity to update or upgrade.
- When the firmware level your system is on is approaching end-of-service.
- If other similar hardware systems are being upgraded and firmware consistency can be maximized by a more homogenous firmware level.
- On a yearly cycle if firmware has not been updated or upgraded within the last year.

Features/Functionality of 01SF240

Benefits of 01SF240 (GA7) Firmware

While SF240 contains over 200 enhancements, some of the key benefits include:

Benefits from upgrading from 01SF235 (GA6) to 01SF240 (GA7)

- **CoD (Capacity on Demand) enhancements & Flexibility**
  - 4, 8, and 16 GB memory cards with 0% initial activation
  - 1 GB activation increments
  - Mixing CoD-capable and **non** CoD-capable DDR2 memory
- **Serviceability and Availability improvements**
  - ***Cold Repair*** - Reduces repair time for FSP card replacement
  - Many enhancements/additions to Advanced system Management Interface (ASMI)
  - Service Network Recovery Improvements
  - Enhanced memory resilience
- **New Hardware Support**
  - Power 5+/5++ models and memory
  - Large page size support
  - "Quiet office" insulation
- **HMC Enhancements**
  - Backlevel support enablement for POWER5 & 6 systems
  - Support for the collection & viewing of logical partitions' utilization of processor and memory resources
  - New commands
- **Electronic Services Security Enhancements**
  - Proxy-HTTP support for call-home

Additional benefits from upgrading from 01SF230 (GA5) to 01SF240 (GA7)

- FSP Redundancy Enablement
- VIO Server V1.2 with Integrated Virtualization Manager (IVM)
- IBM Director for System p, Version 5.10
- Managed On/Off Capacity on Demand
- HMC Backup and Restore via Network Interface

CoD (Capacity on Demand) enhancements & Flexibility

Support for mixing CoD-capable DDR2 memory with DDR2 memory that is not CoD-capable in a system.

Enhancements to the "Restore to factory default" option, CoD options, time-of-day menu, and firmware update policy menu on the ASMI menus.

Capacity Upgrade on Demand

- Upgrade system with processors and/or memory
- No special contracts, no required monitoring (no ability to turn off the capacity)
- Purchase agreement

On/Off Capacity on Demand

- Temporary use of requested number of processors or amount of memory
- Client selects the capacity and activates the resource (registered system)
- Capacity can be turned on and off by the client
- Information captured by IBM (or reported to IBM)
- Rental agreement

Reserve Capacity on Demand

- Processor resources only (processor days)
- Capacity can be turned on and off by the client
- Prepaid debit agreement
- Requires AIX 5L V5.3 and APV

Trial Capacity on Demand

- Allow clients to test the effects of additional processors and/or memory
- Partial or total activation of processors and memory
- Resources available for fixed time
- No formal commitment required

Dynamic Processor Sparing

- Automated replacement of de-allocated processors
- Unassigned or inactive processors

return

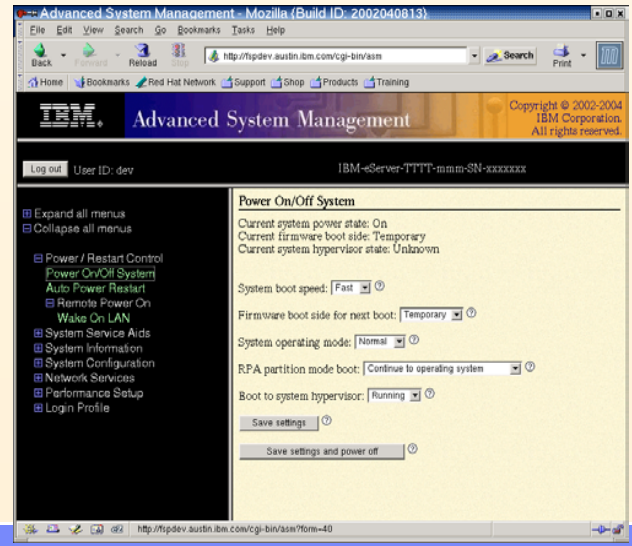
Serviceability and Availability improvements

Location codes of the memory DIMMs were added to the memory deconfiguration menu interface in the ASMI menus.

The option to set the number of virtual LAN (VLAN) switches was added to the ASMI menus.

The System Management Services (SMS) password recognition code was changed so that passwords that are allowed in the Advanced System Management Interface (ASMI) can now be typed to enter the SMS.

Advanced System Management Interface (ASMI) menu enhancements to support for huge pages (16 GB).



return

New Hardware Support

1 TB segments, and 64 KB and 16 GB large pages, are supported on model 590 and 595 systems.

New processor feature code / CCIN code combination are supported. Various fixes and enhancements were made in firmware that supports InfiniBand switches attached to partitions running AIX or Linux.

Support for 4GB, 8GB, and 16GB DDR II memory cards on the p5 models 9119-590 and 9119-595.

Support for the following models of systems:

- Support for the model 9116-561 (System p5 560Q).
- Support for model 9110-51A (OpenPower p5-511 and p5-511Q).
- Support for Power5+ processors on the pSeries models 510, 510Q, 520, 520Q, and 570.
- Support for Power5+ processors on the iSeries models 520, 550, and 570.
- Support for IOP-less configurations on iSeries models 520, 550, and 570.

Support for a new high-performance SCSI adapter with RAID 6 disk controller.

Various enhancements and fixes to DS6000 and DS8000 storage systems firmware.

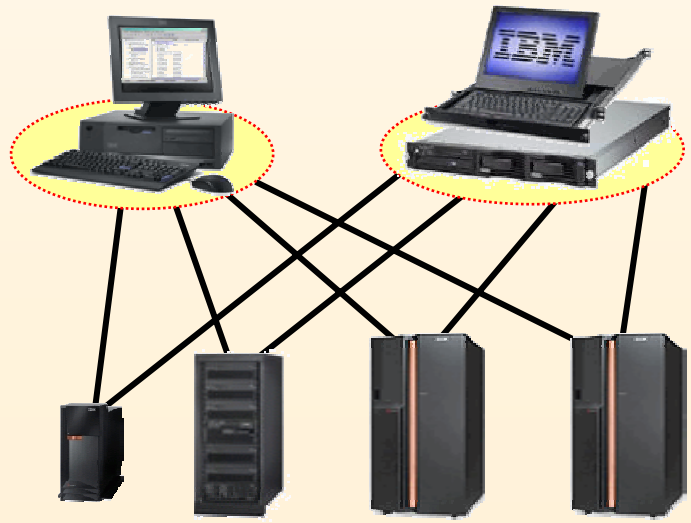
On model 590 and 595 systems, additional enhancements were made to the memory timing parameters (DDR2 memory cards).

return

New Commands Available on the HMC

monhmc: This command provides a dynamic real-time view of HMC related subsystems and systems resources. Because this command uses underlying top, watch and df commands, you need to ensure that a pseudo-tty is allocated if you are using SSH to login to the HMC.

chkmedia: This command allows a user to test for media readiness on the HMC. Media devices that can be tested are DVD drive (DVD-RAM media only), internal diskette drive, USB diskette drive and USB flash memory device.

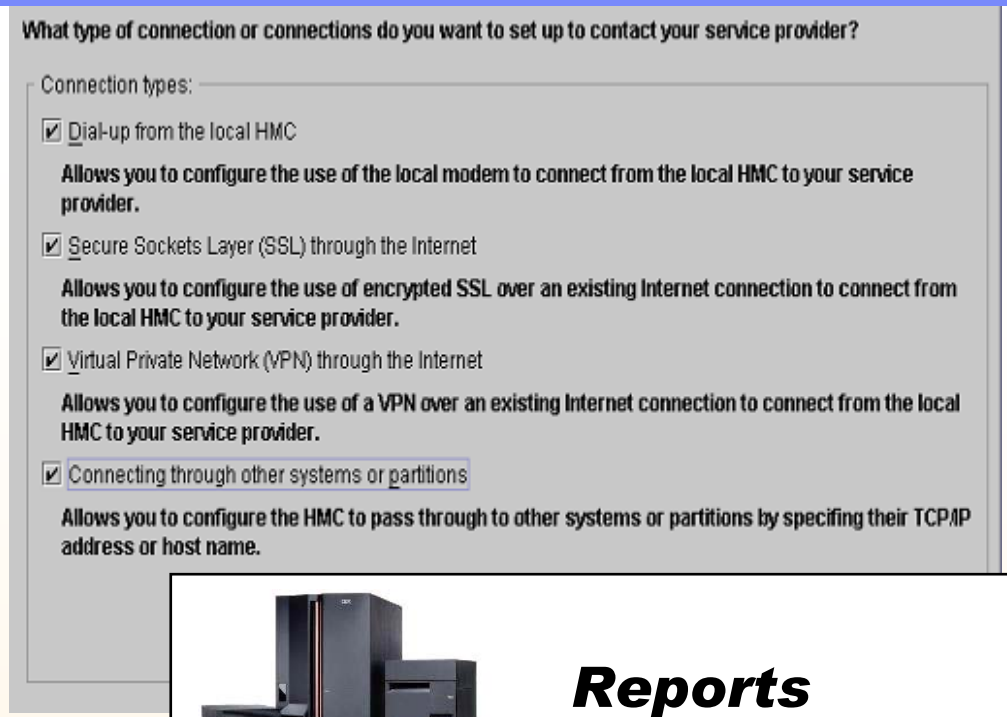


return

Phone Home

Electronic Service Agent™ is a free service tool that provides phone home functionality:

- eSA can automatically report hardware problems to IBM and customer administrators.
- This proactive tool enables support to arrive on-site with the knowledge and parts required to resolve issues quickly.
- We recommend our clients utilize this "Phone home" capability
- Information can be transmitted to IBM over the Internet using SSL.
- Proxy-HTTP support for call-home is provided in 01SF240-258 (GA7SP3) and HMC V6.1.
- More information is available at: http://www.ibm.com/support/electronic



Reports errors and system inventory

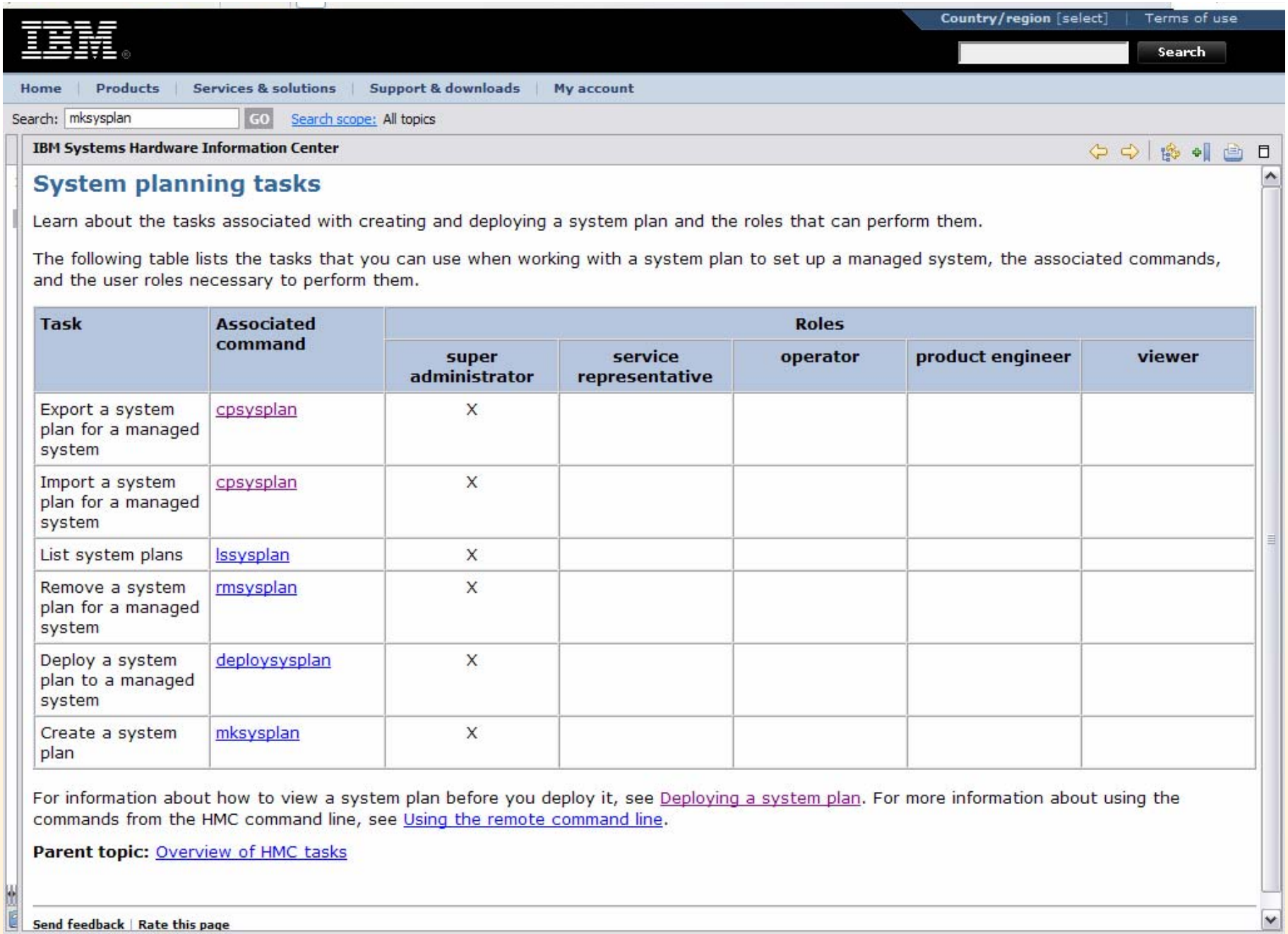
Superior support and service

Customer can view systems data online

Tools & Resources

HMC Planning Tools

Requires HMC 5.2



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Search: mksysplan GO Search scope: All topics

IBM Systems Hardware Information Center

System planning tasks

Learn about the tasks associated with creating and deploying a system plan and the roles that can perform them.

The following table lists the tasks that you can use when working with a system plan to set up a managed system, the associated commands, and the user roles necessary to perform them.

Task	Associated command	Roles				
		super administrator	service representative	operator	product engineer	viewer
Export a system plan for a managed system	cpsysplan	X				
Import a system plan for a managed system	cpsysplan	X				
List system plans	lssysplan	X				
Remove a system plan for a managed system	rmsysplan	X				
Deploy a system plan to a managed system	deploysysplan	X				
Create a system plan	mksysplan	X				

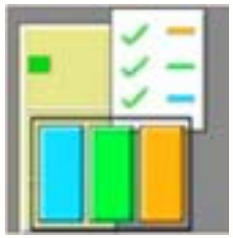
For information about how to view a system plan before you deploy it, see Deploying a system plan. For more information about using the commands from the HMC command line, see Using the remote command line.

Parent topic: Overview of HMC tasks

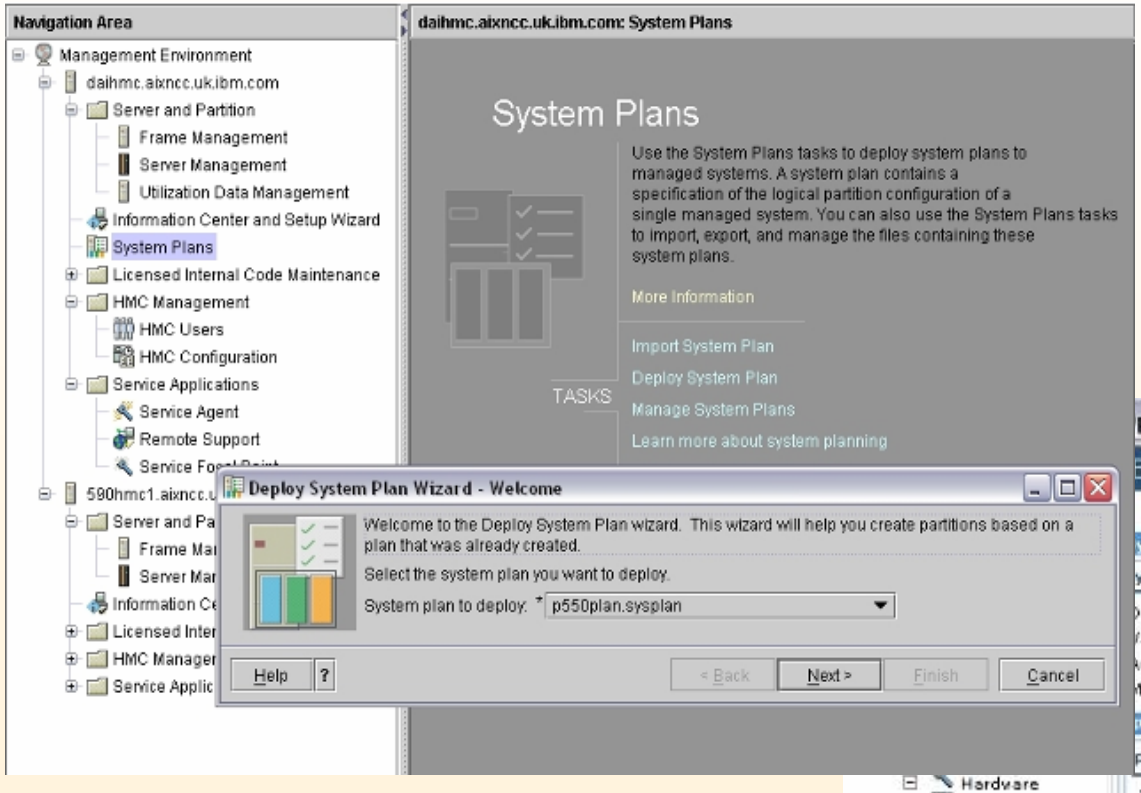
Send feedback | Rate this page

HMC Planning Tools - System Plans

Requires HMC 5.2.1



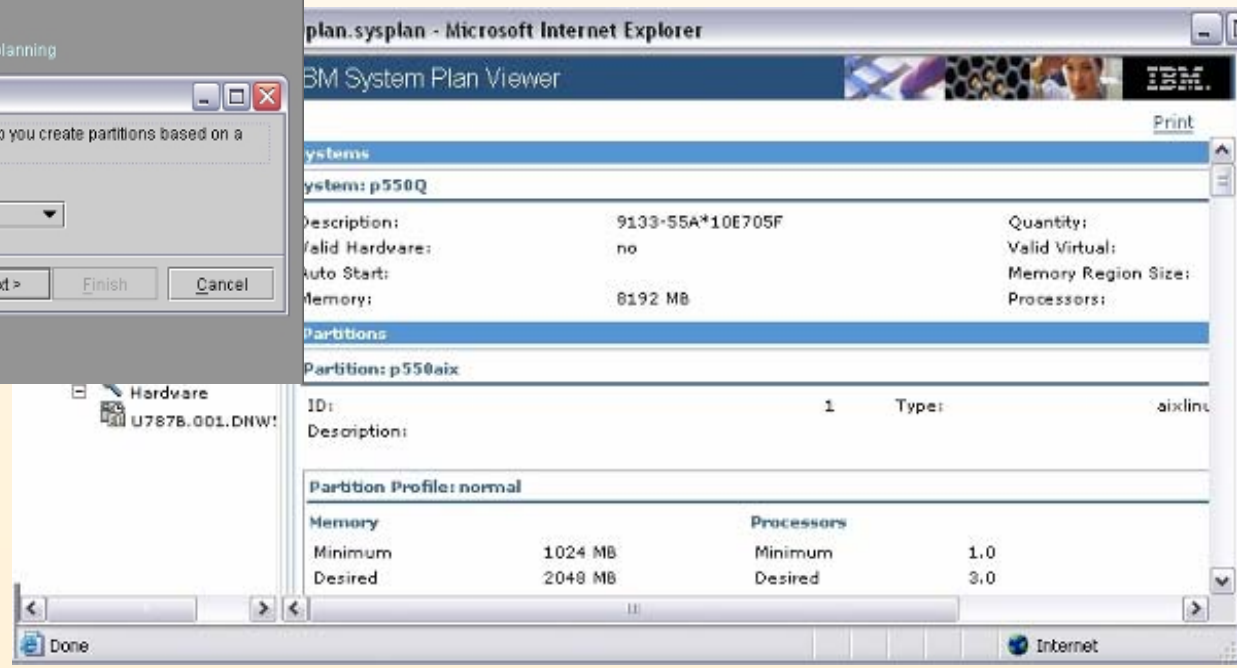
mksysplan creates a system plan file that represents the information known about a managed system's hardware, partitions, profiles, and partition provisioning information.



- Create "System Plan" from a running system

  mksysplan –f file.sysplan –m server

- Deploy the same LPARs on a different machine



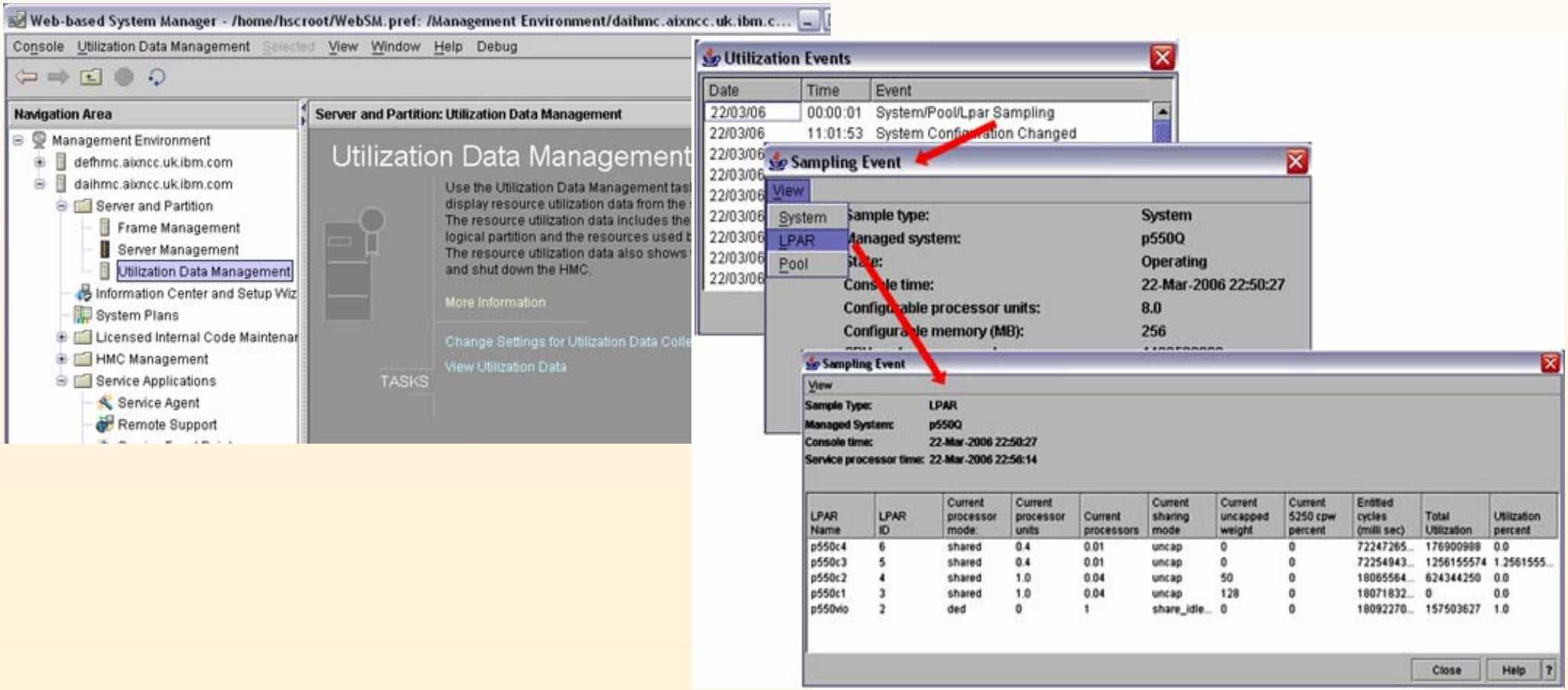
- View System Plan
- Hardware Configuration and LPAR details

HMC - Collecting and Viewing Resource Utilization Data

The HMC collects system activities that affect partition performance and capacity.
The following are the types of events that the HMC records and you can view:

- Shared processor utilization data
- Any managed system change that affects data collection
- Any partition change that affects data collection
- You can use this data to analyze trends and make resource adjustments.

Requires HMC 5.2



"Phone Home" Increases Serviceability

Free service applications, such as ***Electronic Service Agent***™, Service Focal Point and Remote Support, are key to the IBM System p service strategy

- ESA can automatically report hardware problems to IBM and customer administrators.
- This proactive tool enables support to arrive on-site with the knowledge and parts required to resolve issues quickly.
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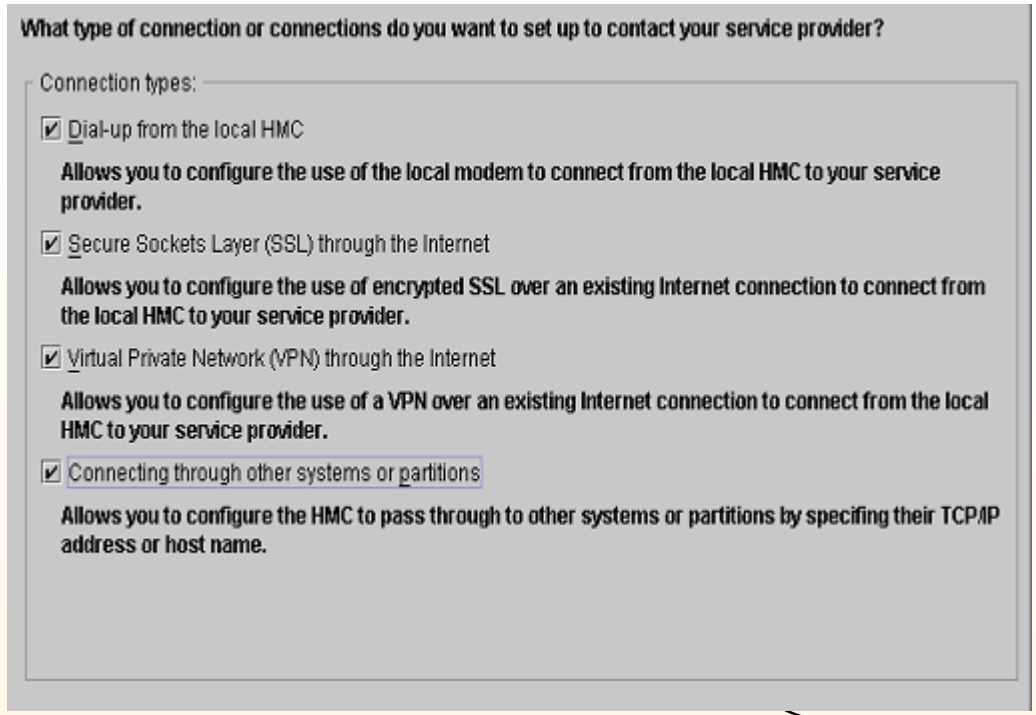
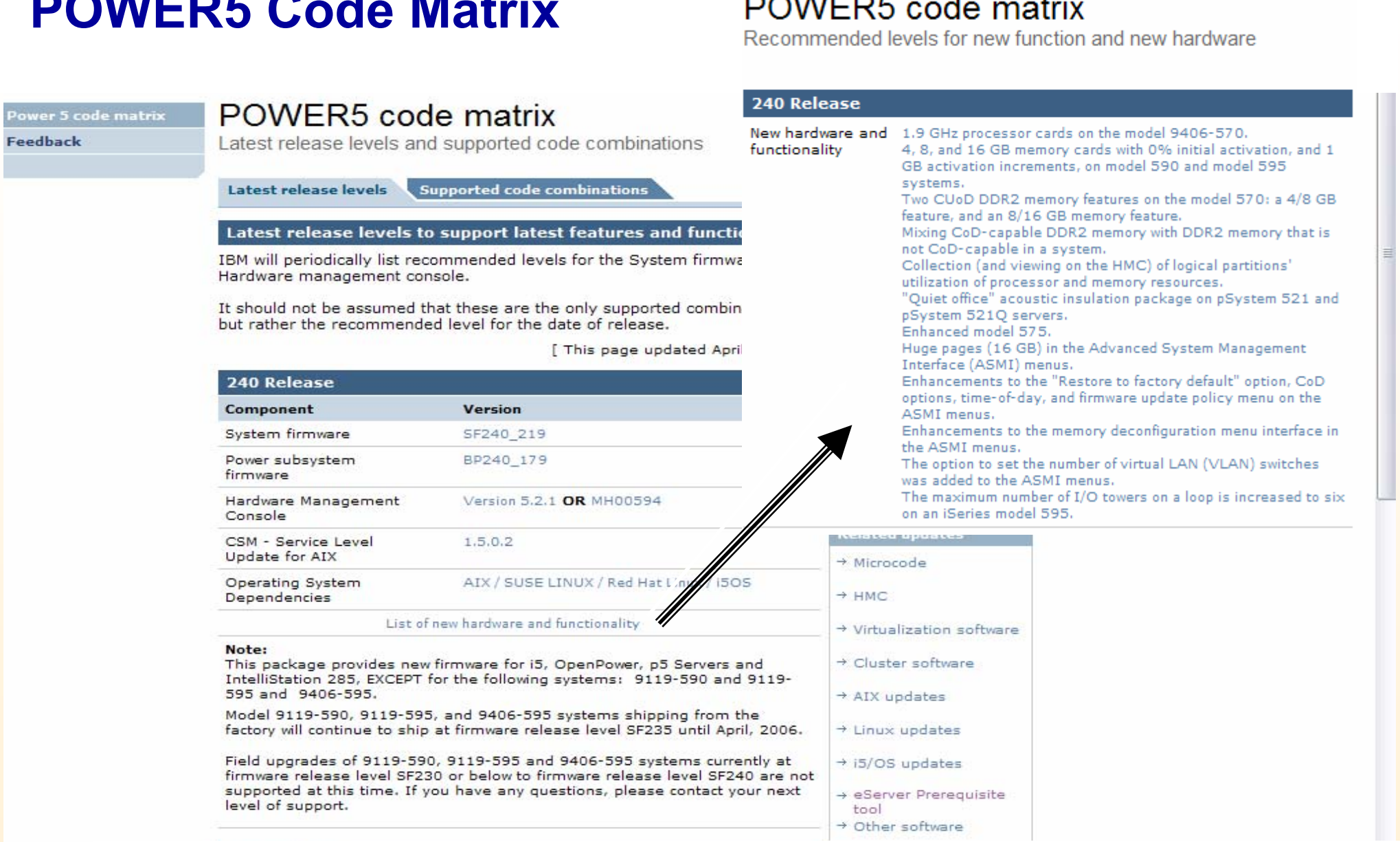


Data is stored in a common DB2 datatbase, viewable online by customer

Provide superior support and service

POWER5 Code Matrix



POWER5 code matrix

Recommended levels for new function and new hardware

Power 5 code matrix

Feedback

POWER5 code matrix

Latest release levels and supported code combinations

Latest release levels | Supported code combinations

Latest release levels to support latest features and functi

IBM will periodically list recommended levels for the System firmwa
Hardware management console.

It should not be assumed that these are the only supported combin
but rather the recommended level for the date of release.

[This page updated Apri

240 Release

Component	Version
System firmware	SF240_219
Power subsystem firmware	BP240_179
Hardware Management Console	Version 5.2.1 **OR** MH00594
CSM - Service Level Update for AIX	1.5.0.2
Operating System Dependencies	AIX / SUSE LINUX / Red Hat L / i5OS

List of new hardware and functionality

Note:
This package provides new firmware for i5, OpenPower, p5 Servers and IntelliStation 285, EXCEPT for the following systems: 9119-590 and 9119-595 and 9406-595.

Model 9119-590, 9119-595, and 9406-595 systems shipping from the factory will continue to ship at firmware release level SF235 until April, 2006.

Field upgrades of 9119-590, 9119-595 and 9406-595 systems currently at firmware release level SF230 or below to firmware release level SF240 are not supported at this time. If you have any questions, please contact your next level of support.

240 Release

New hardware and functionality	1.9 GHz processor cards on the model 9406-570. 4, 8, and 16 GB memory cards with 0% initial activation, and 1 GB activation increments, on model 590 and model 595 systems. Two CUoD DDR2 memory features on the model 570: a 4/8 GB feature, and an 8/16 GB memory feature. Mixing CoD-capable DDR2 memory with DDR2 memory that is not CoD-capable in a system. Collection (and viewing on the HMC) of logical partitions' utilization of processor and memory resources. "Quiet office" acoustic insulation package on pSystem 521 and pSystem 521Q servers. Enhanced model 575. Huge pages (16 GB) in the Advanced System Management Interface (ASMI) menus. Enhancements to the "Restore to factory default" option, CoD options, time-of-day, and firmware update policy menu on the ASMI menus. Enhancements to the memory deconfiguration menu interface in the ASMI menus. The option to set the number of virtual LAN (VLAN) switches was added to the ASMI menus. The maximum number of I/O towers on a loop is increased to six on an iSeries model 595.

→ Microcode
→ HMC
→ Virtualization software
→ Cluster software
→ AIX updates
→ Linux updates
→ i5/OS updates
→ eServer Prerequisite tool
→ Other software

http://www14.software.ibm.com/webapp/set2/sas/f/power5cm/home.html

POWER5 Code Matrix con't

Supported HMC and Server Release combination

	P5 Release Level 240	P5 Release Level 235	P5 Release Level 230	P5 Release Level 225	P5 Release Level 222	P5 Release Level 220	P5 Release Level 210
P5 HMC V5 R2	Recommended Combination Thru 02/2007	Recommended Combination Thru 10/2006	Recommended Combination Thru 05/2006	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended
P5 HMC V5 R1	Not a Supported Combination	Recommended Combination Thru 10/2006	Recommended Combination Thru 05/2006	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended
P5 HMC V4 R5	Not a Supported Combination	Not a Supported Combination	Recommended Combination Thru 05/2006	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended
P5 HMC V4 R4	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended
P5 HMC V4 R3	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended
P5 HMC V4 R2	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Allowed, Upgrade Recommended	Allowed, Upgrade Recommended
P5 HMC V4 R1	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Not a Supported Combination	Allowed, Upgrade Recommended

Supported code combinations for HMC and server firmware:
1. Supported HMC and POWER5 Server Code combinations (excluding 595 and 590)
2. Supported HMC and POWER5 Server Code combinations for 595 and 590

Recommended Combination Thru mm/yyyy - Recommended HMC and System Firmware combination - FW Release covered under general FW support thru mm/yyyy

Allowed, Upgrade Recommended - No longer supported with Service Packs. IBM recommends that you update your firmware to a recommended Release Level

http://www14.software.ibm.com/webapp/set2/sas/f/power5cm/supportedcode.html

Code Update Readiness Checker

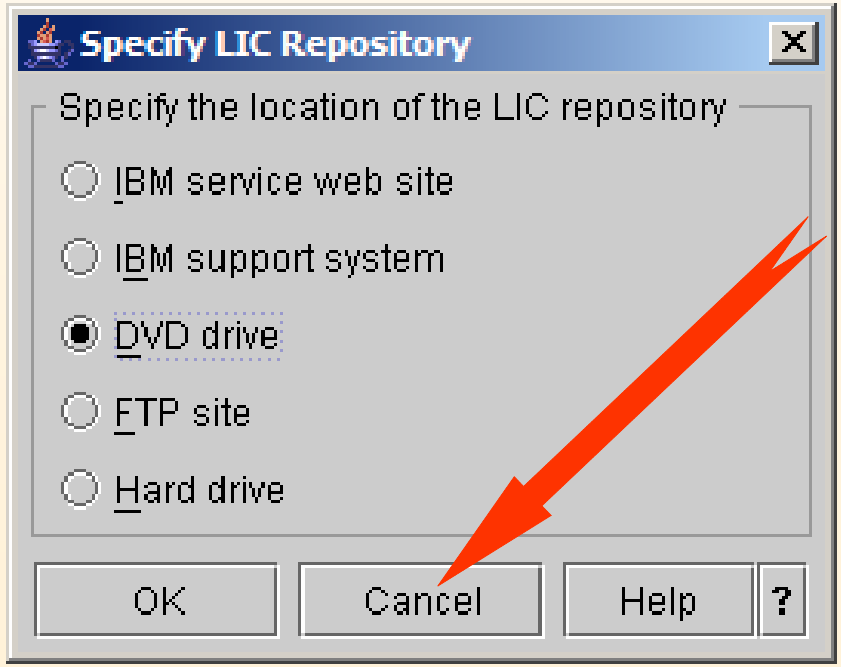
Requires HMC 5.1

State of the platform before attempting code update can cause code update to fail
- Network connections
- Pending serviceable events

Code Update Readiness Check function in HMC
- Analyze system for problems that will prevent success
- Inform operator of problems to be corrected
- Many of these conditions will not inhibit normal system operation, but will prevent a successful code update

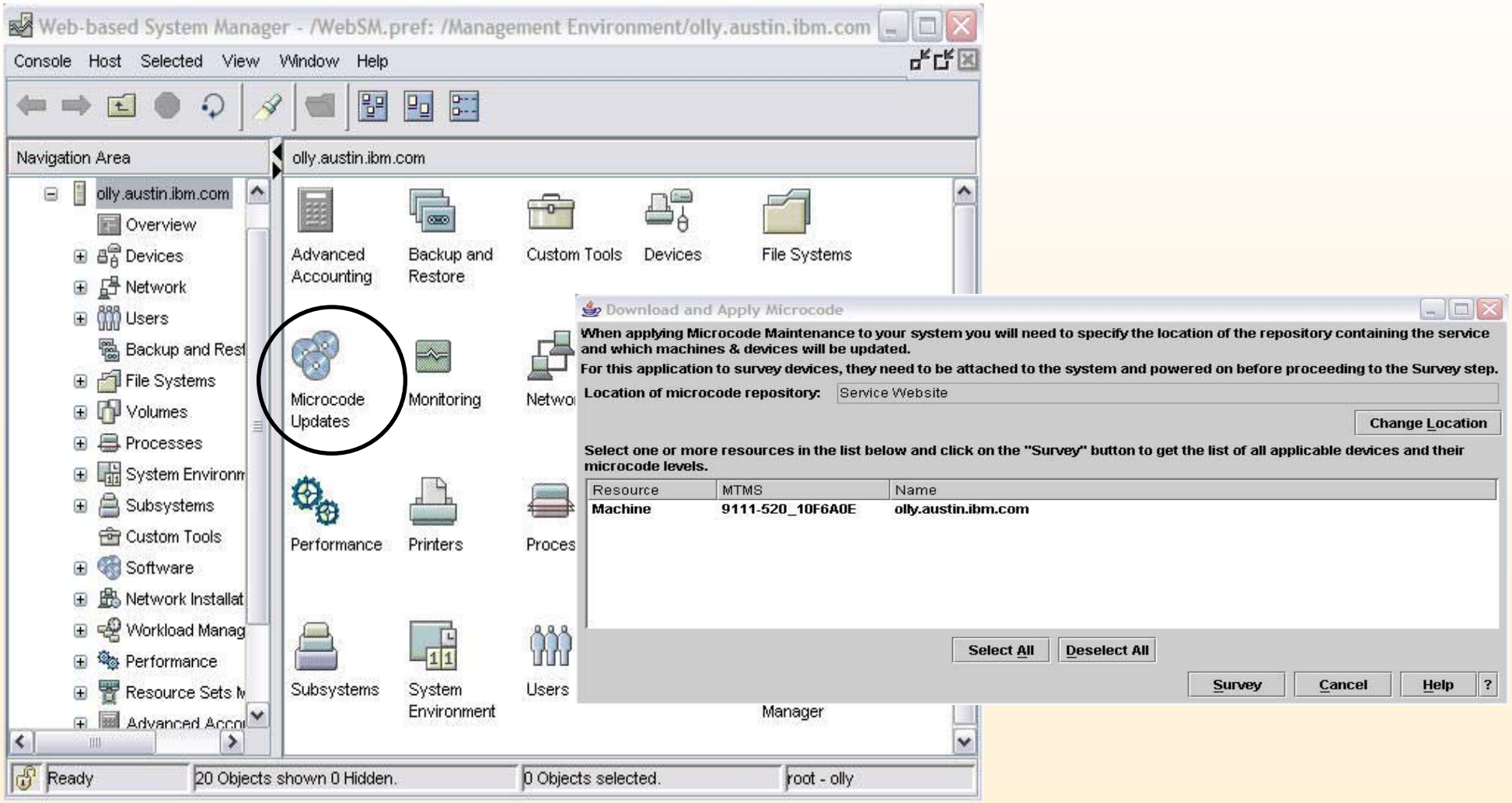
Run Code Update Readiness Check in Advance
- We recommend to run readiness checker one week in advance of code update to allow time to resolve errors if any are found
- These must be resolved before code update

How to Run Readiness Check in Advance
- Change Licensed Internal Code for Current Release
- Select target
- Start Change Licensed Internal Code Wizard
- If you reach “Specify LIC Repository” panel, the readiness checker has passed – select Cancel



AIX Web-based system manager Microcode management

The web-based system manager GUI provides assistance for maintaining your system's firmware. Installing the optional invscout.web-based system manager fileset onto your system, and then starting WebSM presents the user with a new icon "**Microcode Updates**".



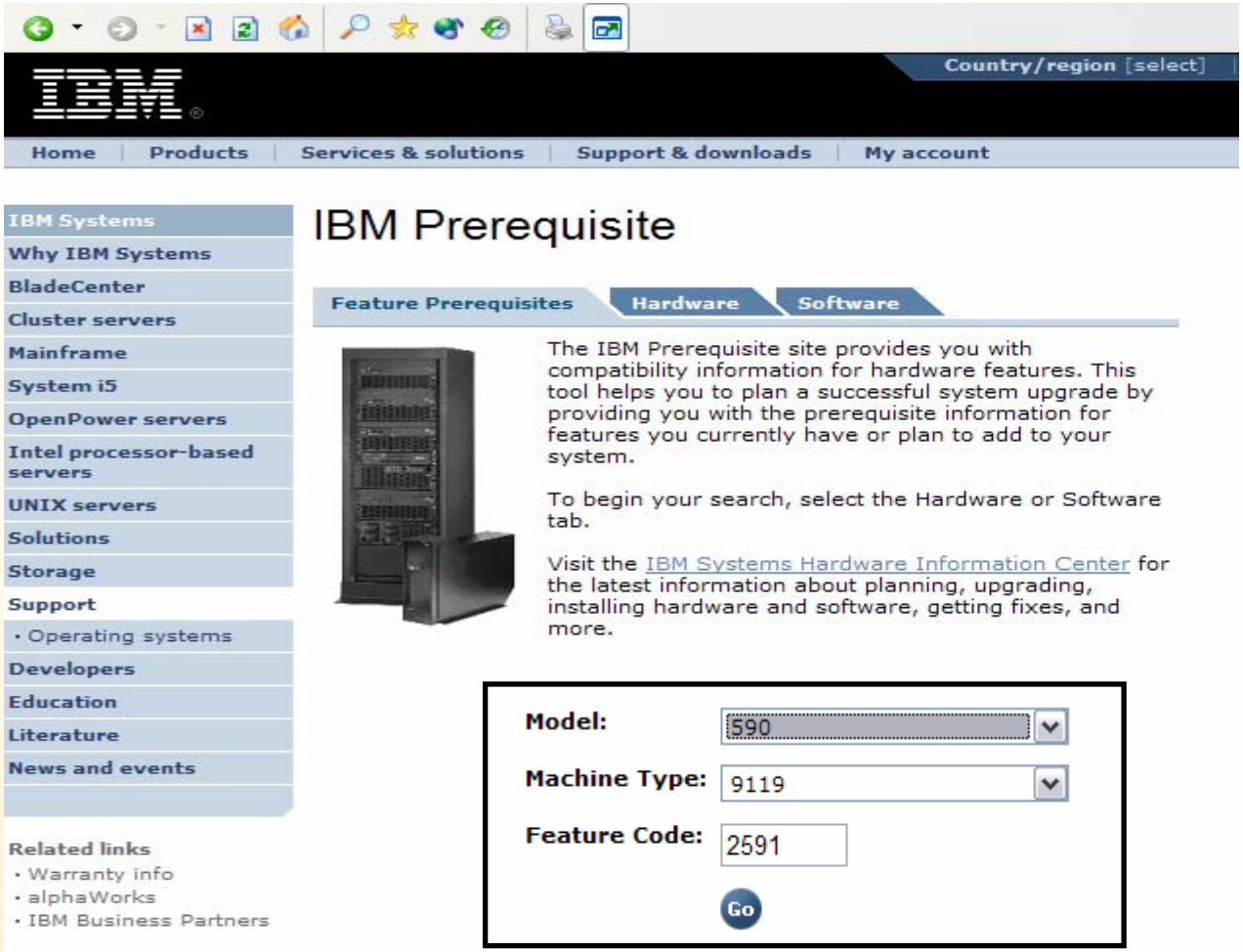
AIX 5L V5.3 Service Update Management Assistant

Service Update Management Assistant (SUMA)

- Policy-based automate download of fixes from IBM to the customer's fix distribution center
- Policy can include different type of fixes to retrieve
  - Specific APAR
  - All Critical fixes
  - Fixes associated with a particular fileset
  - I/O Server fixes (for Micro Partition environment)
  - All fixes
  - Entire Technology Level or older RML
  - Specific PTF
  - Security Fixes
- Notification of requestor via email
- SMIT or command line interface

```
          Create a New SUMA Task

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

                                                      [Entry Fields]
  DISPLAY name for this task                         []
  ACTION                                              Download                +
* Directory for item STORAGE                          [/usr/sys/inst.images]
  TYPE of item to request                             APAR                    +
  NAME of item to request                            []
  LEVEL of item to request                           []                       +
  Get PREREQUISITES/COREQUISITES?                     yes                     +
  Get IFREQUISITES?                                   yes                     +
  Get SUPERSEDING items?                              yes                     +
  Get items which fix REGRESSIONS/PEs?                IfAvailable             +
  REPOSITORY to filter against                       [/usr/sys/inst.images]   +
* BASE ML to filter against                          [5300-01]                +
* SYSTEM or lslpp path to filter against             [localhost]              +
* MAXIMUM total download size (MB)                   [256]                    #
  EXTEND file systems if space needed?                yes                     +
* MAXIMUM file system size (MB)                      [2048]                   #

Scheduling Options:
*  NOTIFY email address                             []            +
*  Repeat FREQUENCY                                 []            #
*  Repeat Frequency UNITS                            hours +
*  Starting TIME                                    [1139]        +
*  Starting DAY                                     [15]          +
*  Starting MONTH                                    February     +
*  Starting YEAR                                    [2004]        +

F1=Help             F2=Refresh          F3=Cancel           F4=List
F5=Reset            F6=Command          F7=Edit             F8=Image
F9=Shell            F10=Exit            Enter=Do
```

Prerequisite Tool



Machine type(s) supported	9110, 9111, 9113, 9115, 9116, 9117, 9118, 9119, 9131, 9133
Feature code	2591
Description	External USB 1.44 MB Diskette Drive
Model(s) supported	510, 520, 550, 505, 561, 570, 575, 590, 595, 52A, 55A
Withdrawn model info	
Feature announce date	01 Jul 2004
End of marketing	
End of service	
Replacements (if no longer supported)	
Information last updated	04 May 2006 11:33 AM
Other information	

OS information

Code type/OS	Version/Release	Fix level	Other information
server firmware	FW2.2.0	SF220_045	
RHEL	3 U3		
SLES	9		
AIX 5L Version 5.2	5200-04		
AIX 5L Version 5.3	5300	IY58143	

Inventory Pre-Req/Co-Req information: http://www-912.ibm.com/e_dir/eserverprereq.nsf

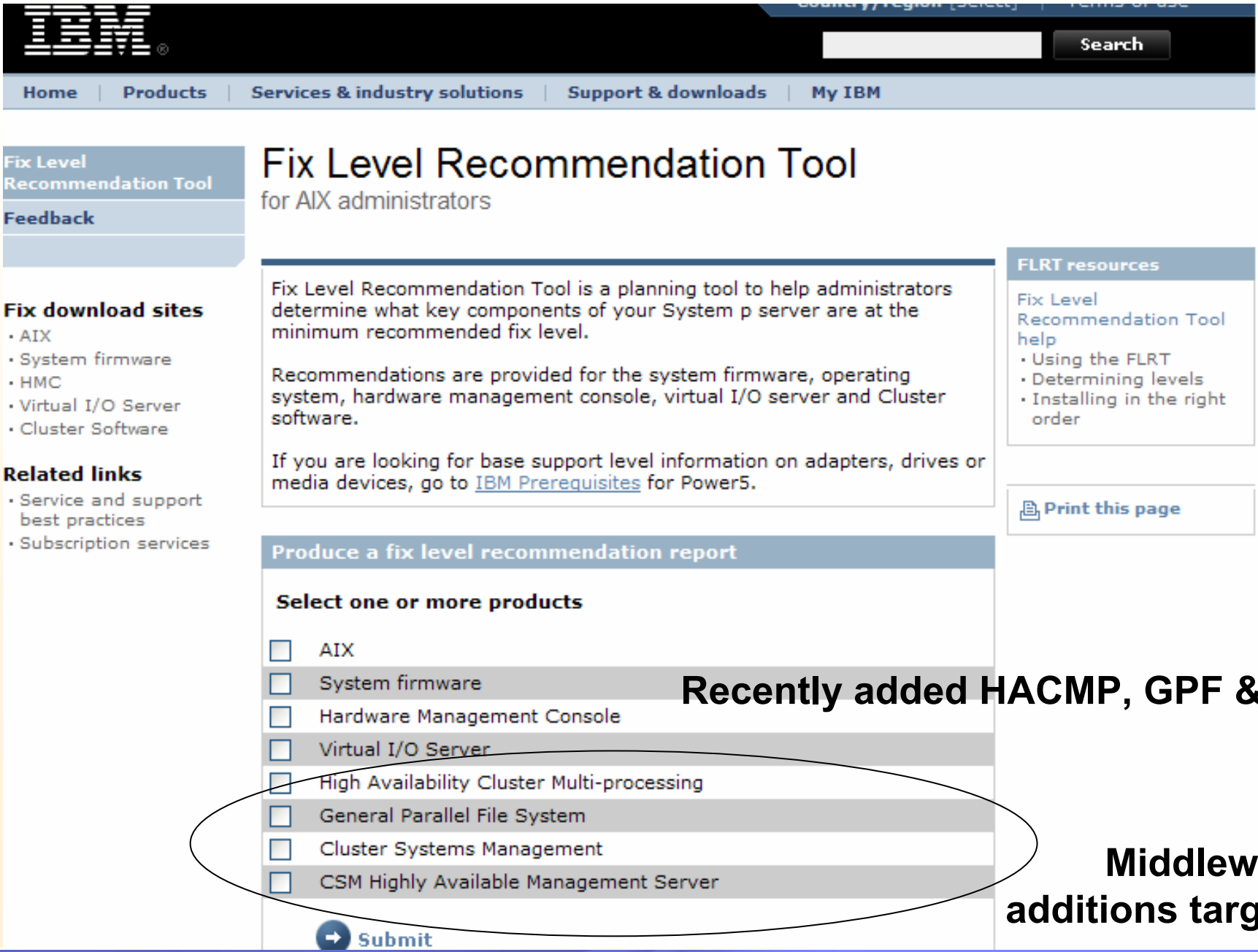
Fix Level Recommendation Tool (FLRT)

A simple to understand report providing customers with a quick reference to the minimum IBM recommendations: https://www14.software.ibm.com/webapp/set2/flrt

- Initial release enables customers to obtain recommended minimum fix levels for key components of IBM System p5 servers.
  - System Firmware
    - Hardware Management Console
    - Virtual I/O Server virtualization partition
    - AIX 5L operating system
- IBM is looking at expanding this tool to support more IBM products.
  - High Availability Cluster Multi Processor (HACMP)
    - Customer Systems Management (CSM)
    - Parallel Environment
    - General Parallel File System
    - Others
- Highlights of FLRT
  - Easy to create and understand reports
  - Useful for “what if” planning needs
  - Links to fix distribution sites
  - Print friendly view provides printable report for maintenance planning
  - Option to manually determine fix levels for all support products for clients who do not wish to use automated determination
  - Easily obtainable tool from all fix distribution sites

More FLRT

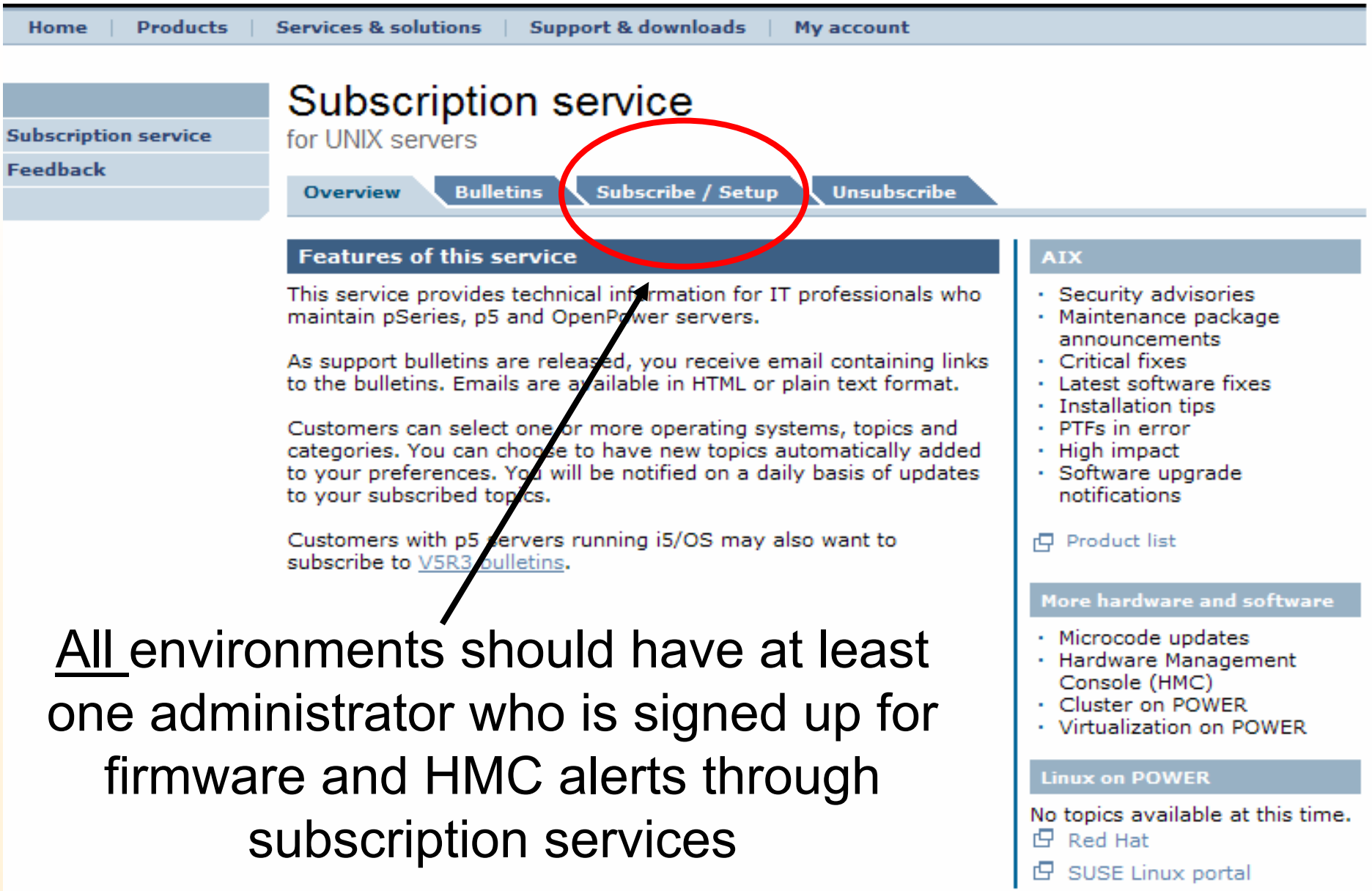
http://www14.software.ibm.com/webapp/set2/flrt/home



Recently added HACMP, GPF & CSM.

Middleware & Storage additions targeted for 3Q07.

Subscription Service – email notifications



All environments should have at least one administrator who is signed up for firmware and HMC alerts through subscription services

https://techsupport.services.ibm.com/server/pseries.subscriptionSvcs

New White Papers

IBM System p Firmware and Microcode Service Strategies and Best Practices

- provides a simply stated explanation of firmware maintenance options and recommended strategies.

IBM Hardware Management Console (HMC) Best Practices

- Provides recommendations and best practices for using the HMC to manage IBM System p and IBM System i servers.

Architectural Considerations for Production Environments Incorporating System p Servers

- covers architectural considerations related to deployments in a large, production IT environment.

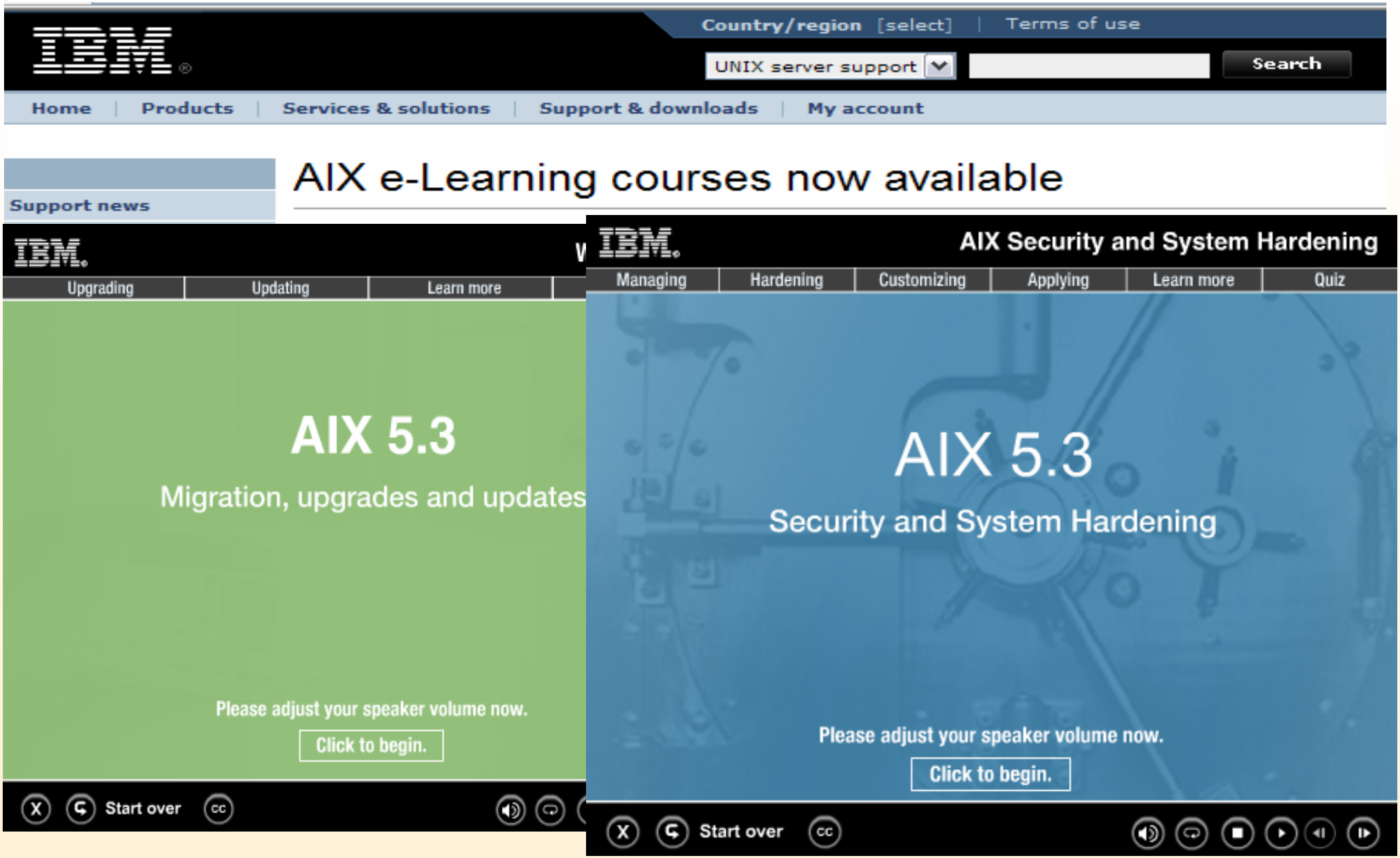
Considerations and Sample Architectures for High Availability on IBM eServer pSeries and System p Servers

- provides architectural guidance regarding availability and resiliency, important factors when developing an IT infrastructure.

http://www14.software.ibm.com/webapp/set2/sas/f/best/home.html

New Education Offerings on the Information Center

http://publib.boulder.ibm.com/infocenter/pseries/v5r3/index.jsp?topic=/com.ibm.aix.elearning/doc/aix.elearning/migration/migration.html



HA Center of Competency (HACoC)

IBM High Availability Center of Competency (HACoC) is dedicated to helping you design and deploy a highly available, end-to-end IT infrastructure.

The HACoC can help to:

- **Provide high-availability analysis and design engagements**
- **Serve as the single point of contact for high-availability resources within IBM**
- **Serve as a single point of reference for cross-platform high-availability best practices**
- **Influence IBM's high-availability related offerings and processes**

Contact information:

- **Web Site: http://www.ibm.com/systems/services/highavailabilitycenter**
- **Email: hacoc@us.ibm.com**

Continued Growth in the AIX & POWER Community

Developer Works:
http://www-128.ibm.com/developerworks/aix/

AIX5L Wiki:
http://www-941.ibm.com/collaboration/wiki/display/WikiPtype/Home

Systems Management Area of Alpha Works:
http://www.alphaworks.ibm.com/sysmgmt

Global User Group Community:
http://www.poweraix.org

Additional Education & Reference Documentation

EDUCATION/CONFERENCES/TRAINING

- System p Training Paths from Learning Services: http://www-304.ibm.com/jct03001c/services/learning/ites.wss/us/en?pageType=page&c=a0000261
- Conferences: http://www-304.ibm.com/jct03001c/services/learning/ites.wss?pageType=page&c=a0000058&eventType=Conferences
- System p Workshops from ITSO: http://www.redbooks.ibm.com/projects.nsf/WorkshopTypes/pSeriesWorkshops?OpenDocument

WHITE PAPERS/LIBRARIES/LITERATURE

- Best Practices White Papers: http://www14.software.ibm.com/webapp/set2/sas/f/best/home.html
- System p literature: http://www-03.ibm.com/systems/p/library/index_lit.html
- System p Redbook Domain: http://www.redbooks.ibm.com/portals/UNIX
- Technical help database for AIX: http://www14.software.ibm.com/webapp/set2/srchBroker/views/srchBroker.jsp

Summary of Tools & Resources

Subscription Service to receive e-mails on the latest firmware:
- http://www14.software.ibm.com/webapp/set2/subscriptions/pqvcmjd

Microcode survey and update tools
- http://www14.software.ibm.com/webapp/set2/firmware/gjsn?mode=10&page=compare.html

POWER5 Code Matrix - Recommended levels for new function and new hardware:
- https://www14.software.ibm.com/webapp/set2/sas/f/power5cm/home.html

HMC Best Practices
- http://www14.software.ibm.com/webapp/set2/sas/f/best/home.html

HMC Update 5.2 Cumulative PTF History and Readme
- http://www14.software.ibm.com/webapp/set2/sas/f/hmc/power5/tips/home.html

Redbooks – (e.g. Advanced POWER Virtualization on IBM System p5)
- http://www.redbooks.ibm.com/portals/UNIX

Info Center
- http://publib.boulder.ibm.com/eserver/

Inventory Pre-Req/Co-Req information:
- http://www-912.ibm.com/e_dir/eServerPrereq.nsf

Summary

With the advent of concurrent firmware and the AIX 5L Service Strategy,IBM System p clients are even better equipped to create firmware maintenance strategies more closely tailored to their availability needs. Firmware planning remains a customer responsibility and IBM is committed to reviewing the fix acquisition and dissemination process adding strategic tools and maintenance planning enhancements designed to improve the client experience.

Questions??????