Power5 FSP Basics and HMC Connectivity Overview

Introduction

This intended purpose of this document is to help provide Field and Remote Support personnel with a better understanding of basic FSP functions and how the FSP interacts with the HMC. Also included are sections devoted to service strategy, common symptoms and solutions, known problems, and a question and answer section.

Trend and failure analysis of FSP cards (or planars equipped with integrated FSP's) indicates that many parts are being replaced needlessly due to an inadequate understanding of how this new technology functions and/or inadequate Problem Determination procedures. By providing additional theory of operation and debug information, the expectation is that unnecessary FRU usage as well as duration of install and repair activity will be reduced. This subject is discussed in more detail the Service Strategy section that appears later in this document.

Notes:

1) The information and concepts discussed in this document are based on Power5 i & pSeries entry and midrange systems. While many of the same concepts apply to high end Power5 systems which are equipped with redundant FSP's and bulk power subsystems. These system types or subsystems are not explicitly covered by or discussed in this document however content pertaining to these systems may be added in a future revision of this document.

2) This document is intended to be used as a supplement to existing service and education documentation.

Questions or comments regarding this document may be directed to Bob Vidrick, Austin Product Engineering (rvidrick@us.ibm.com).

Section 1 - FSP Ethernet Connectivity Overview

We will start by explaining how the FSP communicates with the HMC or other attached network device. When the FSP is in it's factory default configuration, it's Ethernet ports are configured as DHCP clients. When AC power applied to the system unit, the FSP will automatically begin it's boot process. Assuming that a network link on either of the FSP's Ethernet ports is in an *active* state, The FSP will issue a DHCP request on the active port(s).

Note that *active* means that the link light is illuminated which indicates that the FSP is communicating with another device on the network (but NOT necessarily an HMC) The DHCP request will be issued during the first 60 second period after AC power is applied however the completion of the boot process to FSP standby will take 3 to 5 min. The DHCP request process will be repeated **every** time one of the following actions is performed:

- AC power is cycled.
- The FSP is reset (rebooted) via the Operator Panel pinhole reset method
- The ASMI Reset Service Processor menu option is utilized

Notes:

1) A common misconception is that if a Managed System has had AC power applied to it before the HMC is configured that extensive recovery steps (flipping FSP Dip switches, removing time of day battery etc) must be performed to allow the FSP to communicate correctly. This is NOT the case!

2) In addition to the 3 actions listed above, numerous other ASMI options exist that will cause the FSP to reboot when certain configuration changes have been made.

3) There is one other condition under which the FSP will generate a DHCP request. If the FSP Ethernet link is *not active* (no cable connected) during the FSP boot process and then an active connection is made *after* the FSP is booted to standby, a DHCP request will now be generated. Keep in mind that this operation will occur as soon as the link goes active, regardless of what device is on the other end of the link.

Example: If an Ethernet switch is in the path between the FSP and the HMC, the connection between the switch and the HMC needs to be established before the connection between the FSP and the switch otherwise, the DHCP request will not be seen by the HMC.

4) Future Firmware releases beginning with the 01SF225 release will also allow a DHCP request to be generated anytime the network link is dropped for approximately 60 seconds and then re-established.

Now we've established how and when a DHCP request is generated. What happens next depends on whether the FSP receives a response to it's request:

Scenario #1: Response to DHCP request is NOT received

The FSP will assign the following default IP addresses to it's ports:

> HMC1 - 192.168.2.147
> HMC2 - 192.168.3.147

The assignment of these default addresses allows the user to configure and attach a network capable device such as a PC or Laptop, connect it directly to one of the FSP network ports and access the FSP's ASMI interface. Note that these addresses are NOT permanent, (static) but are just defaults which the FSP continues to use until the next DHCP request cycle is performed and a response is received.

Scenario #2: Response to DHCP request IS received

In this case, the FSP simply accepts the IP address it was administered by the DHCP server however this new IP address now *replaces* the default IP address the FSP would have assigned itself above in scenario #1. The new IP address now becomes the new default IP address for that port however just like in scenario #1, the DHCP request process will take place again on the next power or FSP reset cycle. If a DHCP response containing a different IP address is received, the FSP will accept it AND replace the previous default IP address with the new one. A few examples of how this can happen are listed below:

- System (FSP) is attached to a different HMC (using the same FSP port that was previously configured)
- If the HMC's disk drive is reloaded or replaced, the address may change, particularly if multiple systems are attached and are discovered in a different order.
- An additional DHCP server such as another HMC configured as a DHCP server appears on the network

As long as no configuration changes are made, the HMC should always assign the same IP address to a respective Ethernet port. It does this by keeping track of the network mac (hardware) addresses assigned to each Ethernet port. These mac addresses are unique for every Ethernet device.

Section 2 - Connecting a Managed System to an HMC

The information contained in this section assumes that DHCP as been chosen as the desired method of assigning IP addresses and that the HMC itself has been configured as the DHCP server. Prior to discussing troubleshooting options, we will describe the expected behavior.

The HMC should be configured as a DHCP server prior to connection of the system unit. For this example, we'll assume that the HMC is set up properly, the Managed System has been attached and AC power has been applied. As discussed in the last section, the DHCP address request and assignment process takes place within the first 60 seconds of the FSP's boot process. The HMC should now automatically detect the Managed System.

On the HMC, Click **Server and Partitions** > **Server management** to view the status of your managed system. An object representing the Managed System with an IP address listed next to it should be displayed within a few minutes. If the Managed System has never been configured on this OR another HMC, the state of the system will be `Pending Authentication`. This indicates the that the HMC's access password (to the FSP) has not yet been set. When this password is set, it is written to the FSP and also stored in a file on the HMC. This password establishes secure connection between the HMC and the FSP.

Server and Partition: Server Management		
Name	State	Operator Panel Value
⊞ ▌ 10.0.0.254	Pending Authent...	Connecting 0000-0000-00000000

At this point, the HMC access password must now be set as well as the ASMI admin and general user's passwords. This can be done by selecting the object with the left mouse buttons and then right clicking on the object and choosing the "Update Managed System Password" option from the menu.

Server and Partition: Server Management		
Na~~	~~	Operator Panel Value
⊞	Reset Or Remove Connection	Authent...Connecting 0000-0000-00000000
⊞	Update Managed System Password	off
	Add Managed System(s)	

Note the 3 tabs shown in the example below. Be sure to select all 3 tabs individually to set up the desired passwords before clicking OK. The actual passwords chosen are ultimately up to the customer's discretion, however if no guidance is available at time of installation, commonly known default values are as follows:

> HMC Access: abc123
> Admin user: admin
> General user: general

If the state of the system is `Failed Authentication,` it indicates that the FSP already has a stored HMC access password which is not known by the HMC. This condition can occur if the Managed System was previously connected to a different HMC or it was previously connected to the current HMC and it's connection was then logically removed using the **Reset or Remove connection** option. When the connection is removed the HMC deletes it's copy of the password.

If the password is known, it can be input now. If the password is NOT known, a couple of options are available. These options are covered in the Common Symptoms and Solutions section which appears later in this document.

Once the passwords have been entered, the system will go to a `Power Off` state and the IP address in the icon will be replaced with the machine type and serial number of the system (or a customized setting for systems that were previously installed)

What if no Managed System object appears?

The first step is to establish whether or not the FSP is requesting an address and if so, is the HMC responding?

The easiest way to do this is to open a rshterm on the HMC and run the command "lshmc -n". The output from the command will look something like the following:

> *Example 1:*
> hscroot@sqhmc:~> lshmc -n
> hostname=sqhmc,domain=austin.ibm.com,"ipaddr=10.0.0.1,9.3.253.230","networkmask
> =255.255.255.0,255.255.255.192",gateway=9.3.253.193,"nameserver=9.0.7.1,9.0.6.11
> ",domainsuffix=,ipaddrlpar=9.3.253.230,networkmasklpar=255.255.255.192,"clients=
> 10.0.0.254"

Note the last field in the above example: "clients=10.0.0.254" This field of information contains all IP addresses that have been assigned by the HMC's DHCP server. If multiple systems are attached, multiple addresses will appear in this field.

> *Example 2:*
> hscroot@sqhmc:~> lshmc -n
> hostname=sqhmc,domain=austin.ibm.com,"ipaddr=10.0.0.1,9.3.253.230","networkmask
> =255.255.255.0,255.255.255.192",gateway=9.3.253.193,"nameserver=9.0.7.1,9.0.6.11
> ",domainsuffix=,ipaddrlpar=9.3.253.230,networkmasklpar=255.255.255.192,"clients=
> 10.0.0.251,10.0.0.254,10.0.0.254"

In the example above you can see that there are 2 instances of the same IP address (10.0.0.254) Why? When the HMC DHCP server assigns an IP address, it creates a DHCP *lease*. Each instance of an IP address represents a DHCP lease. All unexpired leases will be displayed in by the lshmc -n command. If the DHCP server receives additional DHCP requests from the same MAC address, it will create a new lease for that MAC address despite the fact that an unexpired lease currently exists. This process will be repeated every time the FSP requests an address. Once the 2 hour lease period expires on any inactive leases, they will be automatically deleted and will not appear in the lshmc -n command output.   Also note that address 10.0.0.251 appears in the above example. In this case, our HMC is controlling 2 Managed Systems.

Armed with this information, we can now establish whether or not an FSP and the HMC have established basic communication.

For example: A Managed System (FSP) is cabled up to an HMC. An object for this managed system does not appear. Now what? Run the lshmc -n command and check to see if any IP addresses appear in the "clients" field.

Assuming that the answer to this question is yes, then how do we know if the IP address belongs to the system we are currently trying to configure or, in the event that multiple systems are attached as shown in example 2, which IP address belongs to which system?

Make a note of how many IP addresses appear and also how many instances of each IP exists, then force the FSP to request an address again using one of the methods described in Section 1 above. If the FSP and the HMC are communicating properly, then another IP address or an additional instance of one of the previously existing IP addresses should appear. Compare the example below to example 2 above and note that address 10.0.0.254 now appears a third time as a result of an FSP being reset. If you reset the FSP again, a 4th instance will appear and so on.

Example 3:
hscroot@sqhmc:~> lshmc -n
hostname=sqhmc,domain=austin.ibm.com,"ipaddr=10.0.0.1,9.3.253.230","networkmask
=255.255.255.0,255.255.255.192",gateway=9.3.253.193,"nameserver=9.0.7.1,9.0.6.11
",domainsuffix=,ipaddrlpar=9.3.253.230,networkmasklpar=255.255.255.192,"clients=
10.0.0.251,10.0.0.254,10.0.0.254,10.0.0.254"

On V4R3 and later HMC code levels, the command lssysconn –r all provides an additional method for viewing which systems are connected. This command will show all systems and frames managed by the HMC including those that are not DHCP clients.

Example 4:
hscroot@sqhmc:~> lssysconn -r all
resource_type=sys,type_model_serial_num=9117-570*109C4DD,sp=primary,ipaddr=10.0.0.251
,state=Connected
resource_type=sys,type_model_serial_num=9117-570*100079A,sp=primary,ipaddr=10.0.0.248
,state=Connected

The next example shows the same command run on an HMC with 9119 -595 attached. Note that 4 IP addresses appear, 1 for each of the FSP's and 1 for each of the Bulk Power Controllers.

Example 5:
hscroot@sqhmc2:~> lssysconn -r all
resource_type=sys,type_model_serial_num=9119-595*02ACC3C,sp=secondary,ipaddr=192
.168.254.255,state=Connected
resource_type=sys,type_model_serial_num=9119-595*026ACC3C,sp=primary,ipaddr=192.1
68.255.252,state=Connected
resource_type=frame,type_model_serial_num=9458-100*9112345,side=a,ipaddr=192.168
.255.253,state=Connected
resource_type=frame,type_model_serial_num=9458-100*9112345,side=b,ipaddr=192.168
.254.254,state=Connected

The above exercise established that the FSP has requested an IP and the HMC has issued one. The next step is to open a rshterm and perform a ping test to the IP address you obtained in the previous step. Assuming that the ping test was successful, we have now established that a good communication path exists between the FSP and the HMC so the problem is most likely NOT with the FSP. Continue with "Manually Adding a Managed System" below.

What if "clients= " (blank)? This indicates that effective 2 way communications between the FSP and the HMC have NOT occurred! There are numerous potential causes for this condition including but not limited to:

- The HMC is not correctly configured as a DHCP server.(The DHCP server is not running or another HMC problem exists)
- A networking problem exists in the path between the FSP and the HMC:
  - Is the Ethernet cable connected to the correct port on the HMC?
  - Is there a malfunctioning or misconfigured Switch or Hub in the network path?
  - Are all the link lights illuminated?
- The FSP's Ethernet port has been configured with a static IP address To verify, connect to ASMI and view the Network Configuration settings. (Unless the system has been previously installed in another environment, this is unlikely)

For more information, refer to the Known HMC Connectivity Issues section which appears later in this document.

Notes:

1) During normal operation, numerous instances of a given IP address may appear when the
2) lshmc -n command is run even if the FSP has not been reset. This is normal as the FSP will automatically request lease renewal before the existing active one expires.
3) Future Firmware releases beginning with the 01SF225 release will also allow the IP address assignments to be queried via Control panel function 30.

Manually Adding a Managed System

Now that we know the address of the Managed System which we are trying to configure and verified that we can ping it, we can use the Add Managed System option to manually add the system. For Systems configured as DHCP clients we normally we would not have to perform this step however there are few known HMC problems that will cause the object not to appear automatically. A list of known problems that produce this behavior are listed in the "Known HMC Connectivity Issues" section.

There is one common cause for this behavior that is by design:

Example: A Managed System which has had it's IP address dynamically assigned by the HMC. It's connection is then removed using the **Reset or Remove connection** option. When this occurs, the HMC stores the removed IP address in an "exclusion file". This prevents the HMC from polling the removed IP address despite the presence of a valid DHCP lease. To resolve this problem, the Managed system can simply be added manually. On V4R3 and later HMC levels, the command "mksysconn -o auto" will remove the contents of the exclusion file which will allow the Managed System object to appear automatically.

In the event that the customer does not wish to utilize DHCP to assign IP addresses, the desired addresses can be assigned manually via the ASMI menus. Once the IP addresses are known, the following procedure can be used to add the managed system.
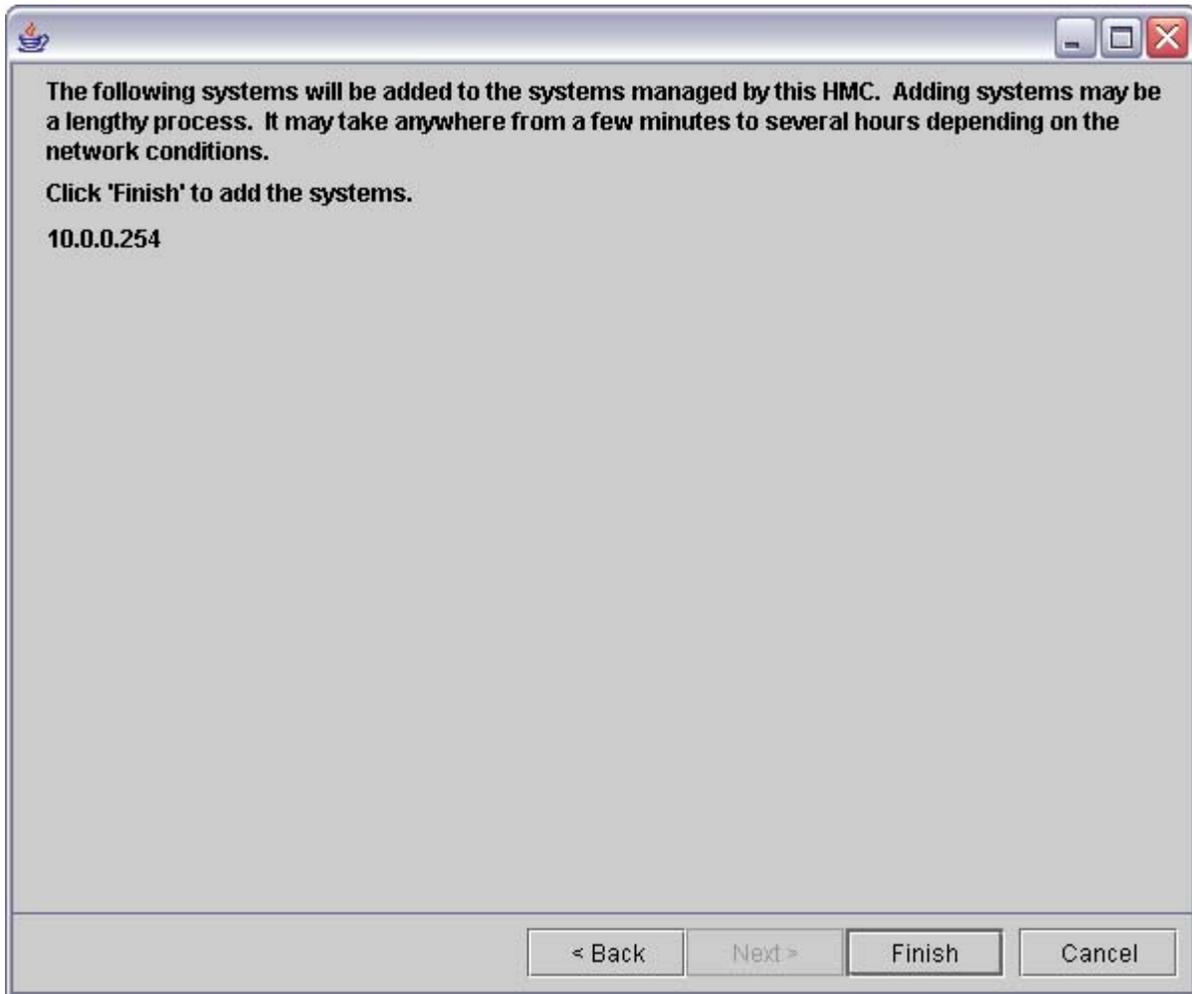
1) Select the "add managed system" option from the Server Management menu:

2) Input the address of the Managed System you are trying to add and click "next". The password is the HMC's access password for the FSP. It can be left blank as this time.
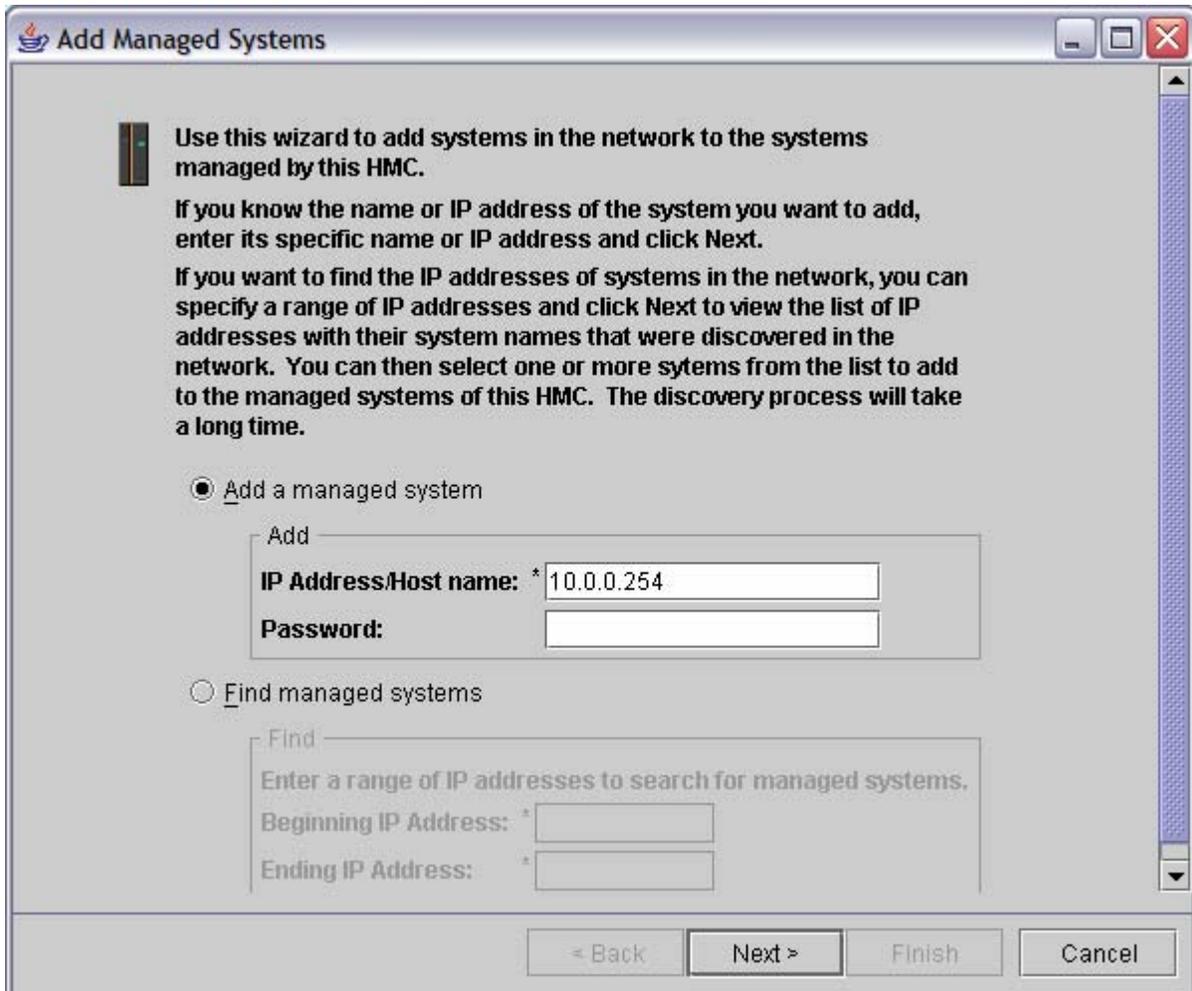
3) On the next panel, click "Finish"

4) The following panel will appear. On earlier levels of HMC code (prior to V4R3) this panel will be displayed indefinitely. After 30 seconds have elapsed, click "stop" then click "cancel" to close the remaining panel. On HMC code levels V4R3 and above, both panels will close automatically after a few seconds.
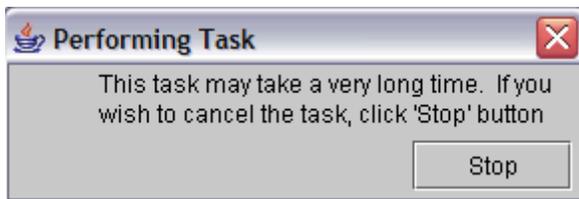
5) The Server Management panel should now contain an object for the managed system. Initially, the state will likely be "`No Connection`" but should eventually change to the current state of the Managed System (`Pending` or `Failed Authentication, Power Off, Operating` etc). Be patient as this process may take a few minutes to update. If `Pending` or `Failed Authentication` appears, enter the necessary passwords as described previously in this section.

Server and Partition: Server Management		
Name	State	Operator Panel Value
⊞ ▌ 9.3.253.235	No Connection	Connecting 0000-0000-00000000

Summary

In this section, we've demonstrated how to establish that the HMC and the FSP are communicating and that the hardware is functional. If the above actions fail to configure your Managed System, review the "Known HMC Connectivity Issues" section as a few common HMC connectivity problems are documented there. If the problem cannot be resolved, extensive HMC troubleshooting techniques may now be required which are beyond the scope of this document. Contact HMC support for further assistance.

Section 3 - Service Strategy

As mentioned in the introduction, it has been determined that many FSP cards are being replaced needlessly. Many of these replacements are attributed to a lack of understanding of how the FSP functions and what functions are affected when any of it's settings are changed or it's jumpers or dip switches are toggled or the TOD battery is removed.

Analysis of PMH data indicates that "switches are being flipped" as a potential fix for almost ANY type of problem. In reality, "Flipping the switches" will only effect a small, specific subset of FSP settings and functions. The action itself is not a very destructive activity however the actions necessary to access the switches often result in additional problems.

Examples:

On 9117 systems, the FSP card is mounted in a blindswap cassette. Early versions of this cassette do not operate very smoothly which causes the card to be very difficult to seat. Poor seating can cause numerous problems types of problems however the most prevalent is that the FSP will not come out of reset. This is indicated by the "row of dots" moving across the op panel display. This of course prevents the machine from booting. Many FSP cards are returned with damaged cassettes as the binds in the mechanism get progressively worse as additional plug cycles occur.

9111 systems utilize a different design that is not prone to damage or seating problems however accessing the card is difficult as the top cover must be removed.

9113 systems have an integrated FSP and utilize a single jumper instead of a pair of switches. To gain access to the jumper, the top cover and the power supply must be removed! While manipulating the jumper, it's very easy to knock the heatsink off of the CPU card, which requires that the CPU card be replaced!

The next 2 sections provide information on what the various ASMI options and settings do as well as what the FSP switches and battery control.

Many of the procedures discussed below will demonstrate that many functions such as resetting passwords or factory configuration can be performed *without* having to remove the FSP card or gain access to the FSP.

Do as much PD as possible and exhaust all of your options BEFORE performing an action that involves removing and replacing the FSP card or disassembling the system to access the FSP's switches jumpers or battery.

Section 4 - Question and Answer Section

Q1) What does the term FSP mean?

A1) FSP stands for Flexible Service Processor which means that the same physical part can be used in both iSeries and pSeries systems.

Q2) What are the differences between selecting "Reset Service Processor" and "Factory Configuration" in the ASMI System Service Aids?

A2) "Reset Service Processor" is simply a reboot of the FSP which can also be accomplished by an AC power cycle or a pinhole reset. It is not destructive in anyway except to any running partitions as the whole system will reboot when this option is taken.

"Factory Configuration" is the most destructive operation. Attached below is the actual output displayed on the console when this option is selected. It indicates exactly what will happen.

Continuing will result in the loss of all configured system settings (such as the
HMC access and ASMI passwords, time of day, network configuration, hardware
deconfiguration policies, etc.) that you may have set via user interfaces. Also,
you will lose the platform error logs and partition-related information. Additionally,
the service processor will be reset. Before continuing with this operation, make
sure you have manually recorded all settings that need to be preserved.

Make sure that the interface HMC1 or HMC2 not being used by ASMI or HMC is
disconnected from the network. Follow the instructions in the system service
publications to configure the network interfaces after the reset.
Enter 1 to confirm or 2 to cancel:

This option has some restrictions:

If the installed FW levels on the T and P sides are not equal, OR if there is an active HMC session,
the FSP will not allow this option to be utilized.

Example of actual output:

This option is not available when the system is not powered off, when the firmware levels
 in the permanent and temporary sides are different, or when there is an active HMC session.

This means that on an HMC attached system, you cannot use the HMC to access the ASMI menus to perform a Factory Configuration reset. You will have to use the serial connection or a network connection from another device such as a laptop. If there is an active HMC session, it will have to stopped before you can continue. There are 2 ways to accomplish this:

> 1) Logically remove the connection using the HMC's **Reset or Remove Connection** option

> OR

> 2)Physically detach the Ethernet cable.

Regardless of which of the above options are used, the FSP will have to be reset or power cycled before the FSP will recognize that the HMC session is inactive. You should then be able to perform a Factory Configuration reset.

Exceptions: Some very early levels of FW will allow this option to be taken if the FW levels are NOT equal if you try a second time.

Q3) What's the difference between "Factory Configuration" and "flipping the switches" on the FSP card?

A3) "Flipping the switches" will reset ONLY the network settings and the passwords back to their defaults. The switches must be toggled to the opposite position. If they are flipped to the opposite position and then back, the settings won't be affected as the reset operation actually occurs when power is restored and the logic recognizes that the position of the switch has changed.

Note: On some systems, a single jumper performs the same function as the 2 switches.

Q4) What's the difference flipping the switches and removing the TOD battery?

A4) The battery maintains the Time of Day chip. Pulling the battery and momentarily pressing the battery contacts together will cause the date and time to be lost. The battery also maintains the NVRAM data. Loss of NVRAM will affect many of the same settings that are lost when the Factory Configuration option is taken including network settings and partition data however there are a few distinct differences. Pulling the battery will NOT clear the passwords as they are actually stored in flash memory (EEprom) which is also where the Firmware images are stored. The NVRAM only holds pointers to the locations of both of the above. One might think that pulling the battery is a quick substitute for the Factory Configuration option. This is NOT the case! The following explains why.

If the FW levels are not equal, and the NVRAM is lost, the pointers to the 2 storage areas (T and P sides) will be lost and the labels may be reversed when the FSP boots the next time. This will result in the Pside now being at a higher level than the Tside. This in itself is will not cause any functional problems however the HMC does not honor this as a valid configuration. When the FSP is booted from the Tside it will show the Accepted (Pside) as the same level as the Installed/Activated level (Tside). This leads the user to believe that the updates that were previously on the Tside were lost. This is not the case as the labels are simply reversed. When the FSP is booted from the Pside, the 2 original levels will display correctly. When queried from AIX, both levels will display correctly regardless of which side the FSP is booted from. (This behavior will be addressed by a future FW fix)

Now lets discuss the passwords further. If the battery is removed AND the switches are flipped, the passwords will NOT be reset OR they may still require you to enter the old password and then immediately force you to change them.

The battery should never be removed when attempting to resolve HMC connectivity or access problems unless explicitly directed by Level 3 support. Additionally, removal of the battery AND "flipping the switches" should never be done at the same time.

Q5 - What do I do if the ASMI passwords are unknown?

A5 - See Common Symptoms and Solutions, Symptom1, Option 3 and utilize "celogin" to reset passwords.

Q6) Is a "crossover" Ethernet cable required between the FSP and HMC?

A6) A Crossover cable can be used in place of a standard cable but is not required. The FSP and HMC's Ethernet adapters will automatically reconfigure to accommodate either type of cable.

Section 5 - Common Symptoms and Solutions

Symptom 1 - My managed system is in a Failed Authentication state with Firmware Password Locked message. What happened?

This indicates that the HMC's access password (to the FSP) has been entered incorrectly 5 times causing the FSP to go into a locked state. See section 2 for reasons why this can occur. The method used to recover from this state will be dependant on the circumstances. The first 3 options will require logging into ASMI. This can be done via the HMC despite that fact that the HMC itself has been locked out.

Option 1) Correct password is known - Simply wait 5 min and try again. Note that the password locked message will NOT clear once the 5min interval expires however the FSP will then accept the correct password.

Option 2) Correct HMC access password is NOT known but ASMI admin user password IS known:

a) Login to ASMI
b) Select "Login Profile" option
c) Select "Change Password" option
d) On the main panel "HMC" as the User ID to change.
e) Enter the current user's password, NOTE: this is not the current HMC user password but the "admin" user password
f.) Enter a new password for the HMC user twice.
g) Go back to the Server Management screen and select the option to update the managed system password and input the new password that was set in step f.

Option 3) Correct HMC access and ASMI admin passwords are NOT known:

a) Contact hardware support and request a "celogin" password.
b) Follow procedure defined in Option 2 above to set a new password. Use the celogin password in place of the admin password in step e. The userid "celogin" should be input in lowercase. The password is not case sensitive.

Note: This password is dynamically generated and is date sensitve. Before requesting a celogin password, check the FSP's current date which is displayed on the ASMI welcome screen. The password can be generated to match the current setting.

Option 4) This option requires that the FSP "switches be flipped". This option should be used as a last resort as it is destructive.

Notes:

1) In addition to locking out the HMC, entering the wrong password 5 times on the ASMI menus (serial or GUI) will also cause the FSP to go into a locked state. The only difference is that it will not tell you that it's locked. It just returns the same "invalid userid or password" message that it posts the 1st 5 times! Recovery is the same, wait 5 min etc.

Symptom 2 - My HMC can't see my Managed System.

Refer to Section 2, Connecting a Managed System to an HMC

Symptom 3) I removed my Managed System with the Reset or Remove connection option and now the HMC won't find it no matter what I do. What should I do?

The most common mistakes made when this symptom occurs is to remove the FSP card and "flip the switches" OR remove the battery OR both. None of these actions will resolve this problem and will result in more problems! Consider what happens when the switches are reset;

a) The passwords are reset
b) The network settings are reset back to defaults.

When power is reapplied, the FSP will issue a DHCP request. The HMC should now respond with the same IP address that was previously assigned. Since the Managed System was intentionally removed, the IP address was placed in the exclusion file described in the "Adding a Managed System Manually" section. The end result is that the HMC will not poll the system. The solution for this problem is to simply add the Managed System manually. Instead, this problem often results in the FSP (or planar) being replaced. The new FSP will have new MAC addresses for both of the Ethernet ports. The HMC will respond by issuing a *different* IP address. A new object should then be created. The original FSP is then (incorrectly) assumed to be at fault.

Symptom 4) The state of my Managed System is "Recovery"

Recovery means that the HMC's copy of the Managed System's partition and configuration data does not match the copy stored in the FSP's NVRAM. This can occur if the NVRAM is cleared either by removing the battery or by utilizing the ASMI factory configuration option. This condition will also occur if the FSP is replaced.

To recover, the recover partition data option from the HMC. You will be presented with 2 options. 1) Restore profile data from HMC backup data and 2) Initialize the Managed System. For a customer's production system, always attempt option 1 to recover the partition data. If you choose option 2, any partition profile data will be lost and may have to be recreated manually.

Notes:

1) On levels of HMC code prior to V4R3, the option to restore the profile data may result in a successful completion message however the recovery state will not clear. If this occurs, attempt the restore option a 2nd time.

Section 6 - Known HMC Connectivity Issues

This section contains information on a few common HMC connectivity issues however this list is far from complete. If you suspect that an HMC configuration problem exists, contact HMC support for assistance with problem determination.

1) HMC hangs when "Retrieving Objects" when attempting to add the first managed system. – This problem affected only preloaded HMC's which were shipped between 10/11/2004 and 11/12/2004. While most of these HMC's have already been installed and the problem corrected, instances are still occurring at the time this document was written. See Retain H183072 for details

2) The Managed System is not connected to the correct HMC port. - The location of the HMC eth0 port varies depending not only on the model but the number and type of installed adapters. This is especially true if more that 2 Ethernet adapters are installed. The CUII System Installation Instructions now contain a section on how to identify the Ethernet ports. Refer to "Finding HMC eth0"

3) HMC level is V4R3.0 - If this is the case, the HMC will not automatically create an object for the Managed System. If your HMC came preloaded with this level or you restore your HMC using a V4 R3.0 Recovery CD, you should apply the latest corrective service fix.

4) DHCP server is not running - The potential causes for this condition are too numerous to list here however you can open a rshterm and run the following command to see if the DHCP daemon is "listening" for requests:

netstat –lnu |grep 67

hscroot@pehmc2:~> netstat -lnu|grep 67
udp   0   0 0.0.0.0:67   0.0.0.0:*

If the command does not return output similar to what is shown in the above example, the DHCP sever cannot receive DHCP requests so it cannot assign any IP addresses. Contact HMC support for assistance.

Section 7 - Known FSP issues

Many of the problems described below have already been resolved by Firmware updates however can still be encountered as FSP cards (or planars equipped with integrated FSP's sourced from FRU stock may have earlier levels of Firmware installed and are susceptible to these problems.

1) SRC B1817201 - Affects FSP's with FW levels prior to 01SF220_046. See Retain Tip H182626 for more information and workaround.

2) Serial ports are inoperative on 9117 multi drawer systems. (ML8, 12 and 16 systems only) This problem was resolved by installing level 01SF220_049. The workaround is to temporarily remove both flex cables to create a single drawer configuration. This will allow access to the FSP and SMS

3) SRC 11008400 - Common symptom when the FSP has been replaced due to the Processing Unit Identifier not being set. See Retain Tip H183008 for details.

4) Can't restore partition data after FSP has been replaced. HMC posts error HSCL251D, 11AC, and/or 119F. See Retain Tip H183463 for details.