

Troubleshooting System Plan Deployment

Use the following information to help resolve problems that you might encounter when deploying a system plan with the Hardware Management Console (HMC) or when using the IBM System Planning Tool to work with system plans.

HMC V7.4.0 provides the best level of function for creating and deploying system plans, especially for system plans that include operating environment installations. Upgrading to this version ensures that you will encounter fewer problems during system plan during creation and deployment.

Table of Contents

Troubleshooting System Plan Deployment	1
Table of Contents Contents.....	2
Before you begin.....	3
Deployment tool	
prerequisites.....	3
Hardware validation	
prerequisites.....	3
Operating environment installation prerequisites.....	4
Additional prerequisites to deploy an operating environment in a system plan....	5
Network Installation Management (NIM) Server prerequisites	7
System Plan Creation	
prerequisites.....	8
Troubleshooting hardware validation errors	9
Overview.....	10
My system plan deployment on HMC fails with validation errors that the disk drives specified in the system plan are not found in the managed system. (Retain 659263)	10
Troubleshooting operating environment installation errors	10
Overview.....	10
Troubleshooting deployment log messages	11
My system plan contains operating environment installation information for a partition and it fails to deploy on HMC	12
Virtual I/O server fails to deploy on HMC	13
My system plan deployment of an AIX or Linux operating environment either fails or appears to 'hang' on an HMC managed system. (Retain 660412).....	13
I am deploying a system plan with HMC that specifies the installation of an operating environment that uses an Ethernet adapter as the planned installation source. However, the Ethernet adapter does not appear in list of install settings for the Customize Operating Environment Install step of the Deploy System Plan Wizard. (Retain 655498)	14
My system plan deployment on HMC fails with errors that the hardware discovery process was unable to complete because the managed system is not in the Operating or Standby state. (Retain 651267)	14
Troubleshooting provisioning errors for system plan deployment	15
Overview.....	15
My system plan deployment on HMC fails with validation errors that the disk drives specified in the system plan are not found in the managed system. (Retain 659263)	15
System plan deployment on HMC fails with error messages that a storage pool or backing device failed deployment. (Retain 661513)	16
My system plan deployment fails with an error that the HMC failed to obtain the license information for a VIOS partition. (Retain 657737).....	17
Troubleshooting errors when creating a system plan	17

Overview.....	17
System plan creation fails with an error that the HMC failed to obtain the license information for a VIOS. (Retain 657737).....	17
Creating a system plan on a POWER 6 system with HMC fails with an inventory gathering error. (Retain 660620)	17
My system plan creation on HMC fails with errors that the hardware discovery process was unable to complete because the managed system is not in the Operating or Standby state. (Retain 651267)	18
System plan creation fails or “hangs” when performing the inventory gathering process on an IBM i Partition.	19
After my system plan creation completes, a partition I did not create named “IOR Collection LP” exists on my system. Where does this partition come from, and can I delete it?	19
The Manage Install Resources function is unable to create a local installation resource from an AIX DVD. I do not get an error message, but nothing happens.....	20
When creating a local installation resource on the HMC from an AIX or VIOS CD, the creation of the resource fails and I receive an error about Linux RPMs, even though I am not installing Linux.	20

Before you begin....

To deploy or to a system plan successfully, you need to ensure that your system meets the following prerequisite conditions.

Deployment tool prerequisites

HMC V7 R4.0.0

Ensure that you are using the latest version of the Hardware Management Console (HMC). For an optimal deployment experience, IBM recommends that you use HMC V7 R4.4.0, which is the same version with which the SPT was tested.

Hardware validation prerequisites

Physical disk I/O adapter requirements

Locate the physical disk I/O adapters that belong to each logical partition and verify that the disk drives that are attached to these physical I/O adapters support your desired configuration for each logical partition. The Deploy System Plan Wizard validates only that the physical disk I/O adapters match the system plan. It does not validate that the disk drives are configured for the physical disk I/O adapters. If you are deploying a system plan that you created in the System Planning Tool (SPT), verify that all hardware is in the proper location, and that internal drive bays and external SCSI cables are cabled according to SPT instructions. If you are deploying a system plan that you created by using the HMC, verify that the hardware and cabling on the target system is identical to that on the source system.

Operating environment installation prerequisites

Note : Auto-installations of operating environments are supported on HMC for POWER5 and POWER6 systems only.

Verify your operating environment installation and network settings

The System Plan Deployment Wizard provides the ability to install an operating environment as part of deploying a system plan. To install the operating environment, you must specify certain network settings. These allow the necessary traffic to perform the installation of the operating environment during system plan deployment. If the information that you supply is not accurate, then the installation will fail due to network boot or other network issues. Verify that the following network information is correctly specified to ensure that you do not have installation problems:

Verification step	Description
<p>Verify that the IP configuration for the partition that is the target of the operating environment installation is correct and working properly.</p> <p>Verify that a firewall is not blocking the network connections required to perform the installation.</p> <p>Verify that a network router is not creating a problem with the necessary network communications.</p>	<p>If there are problems with the IP configuration for the target partition, the System Plan Deployment Wizard cannot boot the partition over the planned installation port to the HMC and the operating environment installation will fail. This type of failure often results in network boot errors. You must verify that the following items are correctly specified and working: the IP address, subnet mask, and gateway. Additionally you need to verify that the port configured in system plan to do the</p> <p>operating environment installation is configured and cabled properly, if necessary. If you are installing the operating environment over a virtual port and connection, ensure that this port and its connection properties are configured correctly.</p> <p>You can use the SMS functions provided by the HMC to ping the IP address to verify that it is working correctly, for example. The SMS ping test can check the IP addresses for the partition, gateway, the HMC, and subnet mask that the system plan specifies for the port that the target partition that owns.</p> <p>If the ping fails, you might need to make corrections to the IP configuration information for the target partition. Or you might need to check with your network administrator to resolve possible firewall or router configuration issues in your network that might be causing the problem.</p> <p>If the ping is successful and you are still unable to install the operating environment during system plan deployment, verify that you meet all other prerequisite conditions.</p>
<p>Verify that Resource Monitoring and Control (RMC) is working correctly.</p>	<p>An RMC connection is required to install an operating environment such as the Virtual I/O Server because the Deploy System Plan Wizard must be able to determine whether an operating environment is already installed on the target partition.</p> <p>To verify that the HMC can use RMC, complete the following steps:</p> <ol style="list-style-type: none"> 1. In the HMC navigation pane, select HMC Management --> HMC Configuration to display the Customize Network Settings window. 2. Click LAN Adapters, select the appropriate adapter from the list, and click Details. 3. On the LAN Adapter page of the LAN Adapters Details window, ensure that Partition communication is selected. 4. On the Firewall page, in the Firewall Settings list, select all instances of RMC and click Allow Incoming, if necessary. Click OK to close the LAN Adapter Details window. 5. Click OK to close the Customize Network Settings window. 6. Restart the HMC if you made any changes to these configuration settings. 7.

	<p>For some operating systems, you might need to perform additional steps to ensure that RMC is configured and running properly. To learn more about configuring and using RMC, see the Reliable Scalable Cluster Technology (RSCT) documentation.</p> <p>Note: it is possible for a logical partition to have more than one HMC to manage it. In this situation, only one of them can have an RMC connection and you must use this HMC to deploy the system plan.</p>
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Additional prerequisites to deploy an operating environment in a system plan

Verify that the system plan and managed system meet the following additional prerequisite conditions to ensure that you can install an operating environment during system plan deployment:

Verification step	Description
Verify the partition status on the HMC.	If the status of a client logical partition on which you are installing AIX or Linux is 'Open Firmware', shut down the partition before you deploy the system plan. The Deploy System Plan Wizard must be able to shut down and activate the target partition to install the operating environment and the wizard cannot do this if the partition status is 'Open Firmware'. This is not an issue when you are installing the Virtual I/O Server on a partition.
Verify that you do not have a Terminal Connection open to the partition.	Click on Console Window -> Close Terminal Connection from the HMC to make sure it is closed. Even if you do not have the window up, if the Connection is not Closed, you might have problems deploying the operating environment in a system plan.
Verify that the Power off the system after all the logical partitions are powered off attribute for the managed system is not selected.	<p>If this attribute is selected, system plan deployment will fail because the deployment process starts partitions and then powers off partitions as part of installing operating environments. Consequently, the managed system will power off during deployment when the deployment process powers off the partitions. To verify this system attribute, complete these steps:</p> <ol style="list-style-type: none"> 1. In the HMC navigation area, select Systems Management → Servers. 2. In the Tasks area, click Properties. The Properties window for the selected managed system opens. 3. On the General tab, verify that the Power off the system after all the logical partitions are powered off attribute is not selected, and click OK.
Verify that your system plan with Virtual I/O Server partitions is suitable for deployment on the managed system.	<p>On HMCs prior to V7R3.3.0, the managed system must not have any Virtual I/O Server entities configured on it for any Virtual I/O Server partitions that exist on it. Specifically, the managed system cannot have any Virtual I/O Server entities configured on it, including shared Ethernet adapters, EtherChannel adapters, or link aggregation devices, storage pools, and backing devices. If you try to deploy a system plan on a system that does not meet all of these requirements, the Deploy System Plan Wizard fails the validation step.</p> <p>On HMC V7R3.3.0, partition validation is more flexible. Consequently, you can deploy a system plan with Virtual I/O Server partitions even if the managed system has Virtual I/O Server partitions with Virtual I/O Server entities configured for them</p>

<p>Verify that any previously deployed Virtual I/O Server logical partitions are active.</p>	<p>An RMC connection is necessary to ensure that the HMC can verify the operating environment status for a logical partition. To install an operating environment as part of deploying a system plan, the Deploy System Plan Wizard must be able to determine if the affected logical partition already has an operating environment installed. The wizard can obtain this information from the partition properties on the HMC when a logical partition has been started at least once with an active RMC connection. This ensures that the operating environment status for the logical partition is known to the HMC and ensures that the wizard can determine whether it is appropriate to install the operating environment on the logical partition as specified in the system plan.</p>
<p>Verify that any automatic installation files that are being used for the operating environment installation are correct and accurate.</p>	<p>Automatic installation files allow you to provide specialized installation settings. These include Kickstart files for Red Hat Enterprise Linux, AutoYaST files for SUSE Linux Enterprise Server, and BOSinit.data files for AIX.</p> <p>For more information see the following resources:</p> <p>kickstart files: http://www.redhat.com/docs/manuals/enterprise/RHEL-4-Manual/sysadmin-guide/ch-kickstart2.html</p> <p>autoYaST files: http://www.suse.com/~ug/autoyast_doc/index.html</p> <p>BOSinst.data files: http://publib.boulder.ibm.com/infocenter/systems/index.jsp?topic=/com.ibm.aix.install/doc/insgdrf/bosi</p>
<p>If you are installing Linux, verify that you have the right distribution for your intended hardware and configuration.</p>	<p>Ensure that the correct version is supported for the following operation environments:</p> <p>AIX: Version 5.3 or 6.1</p> <p>Red Hat® Enterprise Linux: Support is provided for any of the following versions:</p> <ul style="list-style-type: none"> - Red Hat Enterprise Linux EL-AS: Version 4, 4 QUI, 4 QU2, 4 QU3, 4QU4, 4.5, or 4.6 - Red Hat Enterprise Linux EL-Server: Version 5 or version 5.1 <p>SUSE Linux Enterprise Server: Version 10, 10 SP1, 9, 9 SP1, 9 SP2, 9 SP3, or 9 SP4</p> <p>Virtual I/O Server: Version 1.5 and 1.5.2</p> <p>Note: You can only do a Linux installation as part of system plan deployment onto a System i if the partition is hosted by VIOS.</p> <p>For more information see the IBM Prerequisite Web site: http://www-912.ibm.com/e_dir/eserverprereq.nsf</p>
<p>Ensure that you have DVD media if you are creating a local installation resource on the HMC for AIX or VIOS to install the operating environment during system plan deployment.</p>	<p>If you are creating a local installation resource on the HMC for installing an operating environment during system plan deployment and your installation media is a CD, the media might be incompatible for creating local installation image.</p> <p>If this is the case, you might see the following type of error message:</p> <pre>b9rshmc2:/home/hscpe # OS_install -o define_resource -a type=AIX -a version=53L -a location=/extra/csminstall/erictest001 -a source=/dev/cdrom erictest001 mkdir /extra/csminstall/erictest001 [03/11/2008] [01:30:03] [9519]: Executing: /bin/mount /dev/cdrom /opt/osinstall/src_mnt [03/11/2008] [01:30:04] [9519]: STDERR (/bin/mount): mount: block device /dev/cdrom is write-protected, mounting read-only</pre>

```
[03/11/2008][01:30:05][9519]: rc for /bin/mount = 0
[03/11/2008][01:30:05][9519]: ERROR: The file
/opt/osinstall/src_mnt/RPMS/linux/aix-res-*.rpm cannot be found
[03/11/2008][01:30:05][9519]: Executing: /bin/umount
/opt/osinstall/src_mnt
[03/11/2008][01:30:05][9519]: rc for /bin/umount = 0P
[03/11/2008][01:30:05][9519]: ERROR: Failed to copy operating system
images from /dev/cdrom to /extra/csminstall/erictest001
[03/11/2008][01:30:05][9519]: ERROR: Unable to create OS_Resource object
```

Obtain the appropriate, compatible installation media (DVD) to resolve the problem. Or, use a Network Installation Management (NIM) Server to create a repository copy of your installation media. You can then create a remote installation resource on the HMC for the operating environment which you can use to install the operating environment successfully during system plan deployment.

Network Installation Management (NIM) Server prerequisites

If you are using a Network Installation Management (NIM) Server as the installation resource for installing an operating environment, ensure you meet the following prerequisites:

- The complete set of necessary operating environment installation files must exist on the NIM server within a uniquely named NIM resource group. **Note:** You can define a remote resource for the environment only.
- You can define multiple remote installation resources for a specific operating environment version and modification level, as long as each installation resource is within a different NIM named resource group.
- You must know the fully qualified host name of the NIM server.
- You must know the resource group name that contains the necessary set of operating environment installation files.
- You must set up the HMC to be able to access the NIM server and use the operating environment installation files during system plan deployment. The HMC must be able to run secure shell commands by means of an ssh connection to access the NIM server successfully. Consequently, you must ensure that the HMC can provide an appropriate cryptographic key to the NIM server by completing the following steps:

1. Open an HMC command prompt and run the following command to generate the RSA keys that the HMC needs for ssh connections and to place the keys in an accessible file in the HMC HOME directory: `ssh-keygen -t rsa -f /home/hscroot/ssh_keys`. This command creates two files: one called `ssh_keys` and one called `ssh_keys.pub` that contain the needed RSA keys. The `ssh_keys` file contains the private key that the HMC needs for establishing an ssh connection and this file needs to remain in the `/home/hscroot` subdir; the `ssh_keys.pub` file contains the public key that the NIM server must have in order to provide non-prompted ssh access with the HMC.
2. On the remote NIM server, append or copy the content of the `/home/hscroot/ssh_keys.pub` file into the `/.ssh/authorized_keys` file on the NIM server. For example, you can use the following command: `cat ssh_keys.pub >>/.ssh/authorized_keys`. **Note:** you might need to set the permissions for the `authorized_keys` file before you run this command. To set the permissions for the file, you can use the following command: `chmod 0600 / .ssh/authorized keys`.
3. Test your configuration changes by running the following command on the HMC:
`ssh root@nimserver.host.name ls`
When the command finishes processing, you will not have a password prompt, if your configuration is set up properly.

Note: Remote clients defined on the NIM server remain in place after installation of the operating environment on a partition for post installation management. The short hostname of the system will identify this remote client.

If you meet all these prerequisite conditions and system plan deployment is failing with a specific type of issue, see the following troubleshooting topics to determine what steps to take next to correct the problem.

System Plan Creation prerequisites

The new system plan also can contain hardware information that the HMC is able to obtain from the selected managed system. However, the amount of hardware information that the HMC can capture for the new system plan varies based on the method that the HMC uses to gather the hardware information.

There are two methods that the HMC potentially can use: inventory gathering and hardware discovery. For example, when using inventory gathering, the HMC can detect virtual device configuration information for the Virtual I/O Server. Additionally, the HMC can use one or both of these methods to detect disk and tape information for IBM i logical partitions.

Hardware discovery prerequisites

Some systems are capable of providing greater details about their hardware inventory through the process of hardware discovery, which enables you to create a system plan with more extensive hardware information. By using the hardware discovery process, the HMC Version 7 Release 3.2, or later, can capture information about hardware that does not have a logical partition assignment, as well as hardware with assignments to inactive logical partitions. **Note:** If you create a system plan with the intention of converting the system plan for use in the SPT, you need to use the latest version of the HMC to create the system plan. For example, to obtain disk-drive configuration information that the SPT can convert successfully in a system plan, you must use HMC Version 7.3.3 or higher version to have the hardware discovery process capture detailed disk-drive configuration information.

If the managed system is capable of hardware discovery, the Create System Plan page provides the Retrieve inactive and unallocated hardware resources option. By using this option, you can capture a broader range of hardware information in the new system plan. Additionally, on a system that has the hardware discovery capability, you can select the option to run hardware discovery when you power on the managed system. When you enable this option the system powers on in a special mode that performs the hardware discovery process and records hardware inventory information to a cache on the system. This collected information is then available for use when you display data for I/O devices or when creating a system plan.

To use the hardware discovery capability when you create a system plan, ensure that you complete the following tasks:

- Ensure that there is a minimum of .5 processor available.
- Ensure that there is a minimum of 256 MB of free memory available.

Note: If you do not have the minimum processor or memory available, you can meet these requirements either by shutting down one or more logical partitions or by adjusting dynamic processor and memory settings for one or more logical partitions.

- Ensure that all logical partitions on the managed system for which you want to use the hardware discovery process are inactive.

Important: If you run the hardware discovery process while logical partitions are active, any data about hardware that those inactive partitions own is removed from the inventory cache, because hardware discovery operates only on inactive and unallocated hardware resources. For this reason, use this option only when no partitions are active to ensure that you collect the most information about all hardware on the system. See "Optimizing data when creating a system plan on HMC Version 7" in the *Logical Partitioning Guide* to learn more about using hardware discovery.

Note: Hardware discovery does not require the use of Resource Monitoring and Control (RMC).

- Ensure that the Power off the system after all the logical partitions are powered off attribute for the managed system is not selected. The hardware discovery process starts partitions and then powers off partitions to gather information. If the hardware discovery process powers off the only running partition on the system, then the managed system will power off and system plan creation will fail. To verify this system attribute, complete these steps:
 - 1) In the HMC navigation area, select **Systems Management** → **Servers**.
 - 2) In the Tasks area, click **Properties**. The Properties window for the selected managed system opens.
 - 3) On the General tab, verify that the **Power off the system after all the logical partitions are powered off** attribute is not selected, and click **OK**.

Inventory gathering prerequisites

The HMC always performs inventory gathering to capture detailed information for hardware that has an assignment to an active logical partition. To maximize the amount of data that the inventory gathering process of the HMC is able to collect from the managed system, ensure that you complete the following tasks:

- Ensure that the managed system is in the standby state or that the managed system is powered on.

Note: You cannot create a system plan if the managed system is in either the power off state or the recovery state.
- Ensure that data in the inventory cache on the managed system is maximized and current. See Optimizing data when creating a system plan on HMC Version 7 in the Logical Partitioning Guide Logical Partitioning Guide.
- Ensure that all the logical partitions are activated on the managed system from which you plan to base the new system plan.
- To ensure that Linux systems and logical partitions can perform inventory gathering, you might need to load the IBM Installation Toolkit for Linux on POWER, which is available at the [IBM Service and productivity tools Web site](http://www14.software.ibm.com/webapp/set2/sas/f/lopdiags/installtools/home.html) (<http://www14.software.ibm.com/webapp/set2/sas/f/lopdiags/installtools/home.html>).

Note: If you installed Linux on the logical partition as part of deploying a system plan on a system with HMC the Deploy System Plan Wizard installed the necessary Toolkit packages as part of the Linux installation.

Troubleshooting hardware validation errors

Overview

The following section contains information about resolving various hardware validation errors that you might encounter when you deploy a system plan.

My system plan deployment on HMC fails with validation errors that the disk drives specified in the system plan are not found in the managed system. (Retain 659263)

Problem: When deploying a system plan that specifies the installation of the Virtual I/O Server operating environment, the installation can sometimes take more than one hour. This is often a result of too few processing units (0.1) being assigned to the VIOS partition that is being installed. The operating environment installs successfully, but the deployment process cannot provision the disk drives in the plan successfully because the installation time exceeded the length of time that the HMC is able to retain the temporary location codes and names needed for provisioning the hardware. Consequently, the hardware validation that is part of the provisioning step fails and system plan deployment stops with hardware validation errors for disk drives, storage pools, and so forth.

Here is an example:

- *Deployment failed on step: Storage Pool vios1*
- The following Disk(s) 9117_MMA-0-P1-C5-T1-L4-L0 , 9117_MMA-0-P1-C5-T1-L5-L0 , 9117_MMA-0-P1-C5-T1-L0-L0 , 9117_MMA-0-P1-C5-T1-L1-L0 , 9117_MMA-0-P1-C5-T1-L3-L0 , 9117_MMA-0-P1-C5-T1-L2-L0 , 9117_MMA-0-P3-D1 , 9117_MMA-0-P1-C4-T1-L3-L0 , 9117_MMA-0-P1-C4-T1-L0-L0 , 9117_MMA-0-P1-C4-T1-L1-L0 , 9117_MMA-0-P1-C4-T1-L4-L0 , 9117_MMA-0-P1-C4-T1-L2-L0 , specified in the system plan are not found in the managed system vios1
- Operating Environment VIOS has been successfully installed on partition vios2
-

The "9117_MMA-0" references are location codes that are not valid as they reference planned units and not the actual unit names. This happens due to a previous deployment step in that same system plan taking more than an hour.

Solution: You can simply redeploy the system plan to the managed system. When you redeploy the plan, the deployment process detects what system plan steps are completed and will ignore the VIOS operating environment installation step. The validation process will be able to create new location codes and names for the hardware to be provisioned and can successfully provision the hardware as specified by the system plan.

Note: If there are multiple VIOS installations specified by the system plan, you might encounter this same problem when the deployment process installs each VIOS operating environment, if that installation takes longer than an hour to complete. Again, redeployment of the system plan will allow you to finish the provisioning as described above.

Troubleshooting operating environment installation errors

Overview

The following section contains information about resolving various operating environment installation errors that you might encounter when you deploy a system plan that contains such information.

Troubleshooting deployment log messages

If you have a system plan with operating environment information that fails to deploy, check the log for messages that might indicate what caused the failure. You can then use the following table to find additional information about things you might be able to do to correct the problem.

Log message	Description	Recovery steps
<p>Error: Lpar_netboot: timeout Example:</p> <pre>Thu Mar 13 22:00:18 2008 STDOUT (/opt/hsc/bin/lpar_netboot): lpar_netboot: timeout Thu Mar 13 22:00:18 2008 rc for /opt/hsc/bin/lpar_netboot = 0 Thu Mar 13 22:00:18 2008 Monitoring vios install</pre>	<p>This message occurs when there is a mismatch between the screen that is currently displayed and the screen that network boot expects to display within a certain time period.</p> <p>For example, when you boot a machine into SMS, if the screen "Welcome to AIX" does not display within the expected time period, you will see this error.</p>	<p>The following steps might help you recover from this error condition:</p> <ol style="list-style-type: none"> 1. Obtain and analyze the following log file: /tmp/lpar_network boot.exec*.log 2. Check your network settings and ensure that your configuration meets the following prerequisite conditions: Operating Environment Installation Prerequisites 3. If you determine that all the connection information is correct, you can partially deploy the system plan and manually install the Virtual I/O Server so that you can complete the deployment of the system plan.
<p>Error: Object exists in repository! Error: Could not instantiate sysplan object Error: System plan is invalid</p>	<p>These messages occur when you are deploying a system plan on a managed system where the original deployment of the Virtual I/O Server environment in that system plan failed and appropriate cleanup of the failed installation did not occur.</p>	<p>Upgrade to HMC V7.3.3. This problem has been fixed for HMC V7.3.3.</p> <p>Ensure that you have met all prerequisite conditions for deployment of a system plan with operating environment installation information.</p> <p>For HMC V7.3.2 or HMC V7.3.1, complete the following steps to determine if there are operating environment objects on the managed system from a previous Virtual I/O Server (VIOS) installation attempt:</p> <ol style="list-style-type: none"> 1. Open an HMC command prompt 2. Run the following command: <code>OS_install -l</code> 3. Review the information that the command returns. For example, you see the following information: <pre>viosclient viosl_res os_resource osinstallcontrolhost ctrl_host</pre> This information indicates that you have objects (the items highlighted in red only) that you need to

		<p>remove before you can successfully deploy a system plan with VIOS installation information.</p> <p>4. To remove the objects that are causing the problem, run the following commands:</p> <pre>OS_install -o remove vios OS_install -o remove osinstallcontrolhost</pre> <p>Note: these are the only objects that you need to remove of those listed in the example.</p>
<p>Error: There are no disks available on this system</p>	<p>This error is not a common one and generally only occurs if the target drive for an operating environment installation is formatted as an IBM i disk.</p> <p>However, this error also might occur if you are deploying the operating environments on client partitions in a system plan when the Virtual I/O Server provisioning items did not deploy successfully.</p>	<p>Verify that the disk drive that is the install target of a VIOS/AIX/Linux partition is not formatted for IBM i.</p> <p>Open your system plan in the SPT and reassign the disk controllers for the target partition, double-check the cabling of your disks to make sure the cabling matches the SPT recommended cabling.</p> <p>If the error is due to missing provisioning items, ensure that the appropriate Virtual I/O Server storage pool and disk assignments are complete. You can do this by redeploying the system plan without selecting to install the Virtual I/O Server or other client operating environments. The Deploy System Plan Wizard will install the provisioning items that remain in the plan. See Manually installing Virtual I/O Server for more details.</p>
<p>Example error:</p> <p>* [01/29/2008][14:35:44][26701]: Basic operating system support could not be installed. * information. Probable cause of failure is insufficient free disk space.</p>	<p>This error indicates that there was insufficient space for the operating environment that you are installing. This type of error only applies to an AIX or Linux installations hosted by virtual resources.</p>	<p>Verify that you have allocated enough room in the partition to hold your target operating environment.</p>

My system plan contains operating environment installation information for a partition and it fails to deploy on HMC

Problem: No matter what I do, I get an error message that my system plan is "invalid".

Solution: When you use the Hardware Management Console (HMC) to deploy a system plan that was created with the SPT, deployment can fail if you do not meet all [prerequisite conditions](#) for deployment. The first step you need to take to troubleshoot this type of error message is to ensure that you meet these conditions.

Virtual I/O server fails to deploy on HMC

Problem: My system plan contains Virtual I/O Server information, but the operating environment installation fails deployment.

Solution: When you use the Hardware Management Console (HMC) to deploy a system plan with operating environment information, deployment can fail if you do not meet all prerequisite conditions for deployment. The first step you need to take to troubleshoot this problem is to ensure that you meet all prerequisites for [installing an operating environment](#) as part of system plan deployment.

If you verify that you meet the prerequisites and are still having problems using the system plan to install the Virtual I/O Server, you can work around the problem by completing these steps to manually install the Virtual I/O Server:

1. Use the System Plan Deployment Wizard to selectively deploy pieces of the system plan that do not involve installation or provisioning the Virtual I/O Server. To accomplish this, complete the following actions:
 - a) In this situation, start the wizard and complete all steps through the Partition Deployment page.
 - b) On the Operating Environment Install page, uncheck the deployment action that installs the Virtual I/O Server operating environment and continue to complete the wizard. When you click **Finish**, the wizard will deploy the partitions in the system plan and any virtual connections, such as Ethernet or SCSI connections, between the Virtual I/O Server and the client partitions, without installing the Virtual I/O Server.
2. Manually install the Virtual I/O Server to the target partition. Note that you must manually install the operating environment to the same drive that the system plan specifies as the target drive for the operating environment installation. See the [PowerVM Editions Operations Guide](#) for more information.
3. Ensure that the partition on which you manually installed the operating environment is active, and that there is a Resource Monitoring and Control (RMC) connection between the HMC and that logical partition. This ensures that the operating environment status for the logical partition is known to the HMC and ensures that the wizard can determine that the operating environment on the logical partition is already installed. It also ensures that the wizard can deploy provisioning items from the system plan.
4. Restart the System Plan Deployment Wizard to deploy the remaining items in the system plan. The wizard will detect that the specific operating environment is already installed and will skip the step for installing it. The wizard will deploy the remaining items in the plan, such as other operating environments and the provisioning actions that virtualize resources for the client partitions.

My system plan deployment of an AIX or Linux operating environment either fails or appears to 'hang' on an HMC managed system. (Retain 660412)

Problem: You are unable to successfully deploy a system plan that installs and provisions a Virtual I/O Server and that also creates client logical partitions and installs AIX or Linux operating environments into the client partitions. Either the deployment fails with operating environment installation errors, or the deployment process appears to 'hang' and is unable to complete deployment. In this type of situation, the system plan specifies the installation of a client operating environment that uses

virtualized resources on the Virtual I/O Server that are also provisioned by deployment of the system plan.

This problem occurs when required virtualized resources on VIOS and client operating environments are not deployed in the correct order, which causes the installation to fail or to hang. In such a case, the HMC cannot install the operating environment, nor can it provision the virtualized resources successfully and the HMC either generates errors about the installation failure or simply 'hangs' waiting on the appearance of the necessary virtualized resources it needs to continue installation.

Solution: You must use the **Deploy System Plan Wizard** to deploy the system plan successfully, rather than using the `deploysysplan` command. The wizard allows you to control which steps to deploy in what order for a system plan. In this situation, you need to force the deployment of all provisioning prior to the installation of any client operating environments. To do this, on the **Operating Environment Install Deployment** page of the wizard, make sure that you clear all selections for operating environment installation steps in the **Deploy** column. By clearing the operating environment installation steps, the wizard will complete only the installation of the Virtual I/O Server and any planned provisioning steps for the VIOS as it deploys the system plan.

After the wizard successfully deploys the system plan, you can redeploy the system plan to install the specified client operating environments in the system plan. The deployment process will now be able to determine that all the planned VIOS installation and provisioning has been completed and can successfully install any AIX or Linux operating environments that depend on these provisioned resources.

I am deploying a system plan with HMC that specifies the installation of an operating environment that uses an Ethernet adapter as the planned installation source. However, the Ethernet adapter does not appear in list of install settings for the Customize Operating Environment Install step of the Deploy System Plan Wizard. (Retain 655498)

Problem: This is a display problem only and occurs when using the **Deploy System Plan Wizard** to deploy a system plan that has partitions with planned operating environment installations that use a Logical HEA port or a Virtual Ethernet Adapter as the installation resource. Information for the Ethernet adapter is supposed to display as part of the **Operating Environment Install Settings** on the **Customize Operating Environment Install** step of the wizard; however, the value for the Ethernet adapter appears blank when a Logical HEA port or a Virtual Ethernet Adapter are planned to be used to deploy an operating environment from a system plan.

Solution: To ensure that this is a display problem only, use the **View System Plan** task from the HMC user interface to use the System Plan Viewer to review the contents of the system plan. Verify that the planned installation resource is actually specified correctly in the system plan. You can then deploy the system plan.

My system plan deployment on HMC fails with errors that the hardware discovery process was unable to complete because the managed system is not in the Operating or Standby state. (Retain 651267)

Problem: This problem occurs on a POWER 6 system because the attribute of **Power off the system after all the logical partitions are powered off** is selected on the General tab of the Managed Systems Properties page. When this attribute is selected, the HMC powers off the entire managed system whenever the last active logical partition powers off. You cannot deploy a system plan when the managed system is

not in either the operating or standby state.

This is an example of the type of error messages that occur for this type of deployment failure:

- Starting inactive partition thickv1 in Hardware Discovery mode. This part usually takes 3 minutes to complete ...
- Could not complete Hardware Discovery for inactive partition thickv1 because of HSCL0625
- Cannot activate partition when the managed system state is not in the Operating or Standby state. ...

This type of failure occurs during system plan deployment if there are any VIOS partitions on the managed system or if any operating environment are being installed as specified in the system plan (VIOS, AIX, or Linux). During deployment of such a system plan, the managed system will start the first inactive VIOS partition or the first inactive client logical partition (AIX/Linux type) where the system plan is attempting to install an operating environment. As soon as that partition is ended as part of the installation process, the managed system will immediately start to power off as required by the power off system attribute setting. Consequently, deploying that system plan fails as a system plan cannot be deployed on powered off system.

Solution: To successfully deploy a system plan that includes the installation of an operating environment for a logical partition, ensure that the **Power off the system after all the logical partitions are powered off** attribute for the managed system is not selected. If this attribute is selected, system plan deployment will fail because the deployment process starts partitions and then powers off partitions as part of installing operating environments. Consequently, the managed system will power off during deployment when the deployment process powers off the last active partition.

To verify this system attribute, complete these steps:

- a. In the HMC navigation area, select **Systems Management** → **Servers**.
- b. In the Tasks area, click **Properties**. The Properties window for the selected managed system opens.
- c. On the **General** tab, verify that the **Power off the system after all the logical partitions are powered off** attribute is not selected, and click **OK**.

After you have successfully deployed the system plan, you can reselect the attribute.

Troubleshooting provisioning errors for system plan deployment

Overview

The following section contains information about resolving various virtual resource provisioning errors that you might encounter when you deploy a system plan that contains such information.

My system plan deployment on HMC fails with validation errors that the disk drives specified in the system plan are not found in the managed system. (Retain 659263)

Problem: When deploying a system plan that specifies the installation of the Virtual I/O Server operating environment, the installation can sometimes take more than one hour. The operating environment installs successfully, but the deployment process cannot provision the disk drives in the plan successfully because the installation time exceeded the length of time that the HCM is able to retain the temporary location codes and names needed for provisioning the hardware. Consequently, the hardware validation that is part of the provisioning step fails and system plan deployment stops with hardware validation errors for disk

drives, storage pools, and so forth.

Here is an example:

- *Deployment failed on step: Storage Pool vios1*
- The following Disk(s) 9117_MMA-0-P1-C5-T1-L4-L0 , 9117_MMA-0-P1-C5-T1-L5-L0 , 9117_MMA-0-P1-C5-T1-L0-L0 , 9117_MMA-0-P1-C5-T1-L1-L0 , 9117_MMA-0-P1-C5-T1-L3-L0 , 9117_MMA-0-P1-C5-T1-L2-L0 , 9117_MMA-0-P3-D1 , 9117_MMA-0-P1-C4-T1-L3-L0 , 9117_MMA-0-P1-C4-T1-L0-L0 , 9117_MMA-0-P1-C4-T1-L1-L0 , 9117_MMA-0-P1-C4-T1-L4-L0 , 9117_MMA-0-P1-C4-T1-L2-L0 , specified in the system plan are not found in the managed system vios1
- Operating Environment VIOS has been successfully installed on partition vios2
-

The "9117_MMA-0" references are location codes that are not valid as they reference planned units and not the actual unit names. This happens due to a previous deployment step in that same system plan taking more than an hour.

Solution: You can simply redeploy the system plan to the managed system. When you redeploy the plan, the deployment process detects what system plan steps are completed and will ignore the VIOS operating environment installation step. The validation process will be able to create new location codes and names for the hardware to be provisioned and can successfully provision the hardware as specified by the system plan.

Note: If there are multiple VIOS installations specified by the system plan, you might encounter this same problem when the deployment process installs each VIOS operating environment, if that installation takes longer than an hour to complete. Again, redeployment of the system plan will allow you to finish the provisioning as described above.

System plan deployment on HMC fails with error messages that a storage pool or backing device failed deployment. (Retain 661513)

Problem: Your system plan specifies the deployment of Virtual I/O Server storage provisioning and also specifies the installation of an operating environment on a client partition that has a SCSI disk assigned to the client partition. VIOS storage provisioning fails during system plan deployment on HMC.

when SCSI disks are owned by non-VIOS partitions. This problem occurs on a system that has a running Virtual I/O Server partition, a client logical partition (AIX or Linux) with physical SCSI disk assigned to it, and the deployment process identifies a storage pool or a backing device to be deployed on the VIOS.

This is an example of the type of error messages that occur for this type of deployment failure:

- Deployment failed on step: Backing Device vios1
- The following Disk(s) U7311.D20.109280B-P1-C03-T1-L5-L0 , U7311.D20.109280B-P1-C04-T1-L5-L0 , specified in the system plan are not found in the managed system vios1

Note: The disks listed in the example messages belong to a client logical partition that also has operating environment installation information rather than belonging to partition vios1 in the system plan.

Solution: You must manually provision the storage entities and virtual target devices for the VIOS that are causing the deployment failure so that further deployment of the system plan can succeed.

Refer to the **Configuring the Virtual I/O Server** section of the [Power Systems PowerVM Operations Guide](#), specifically the following sub-sections:

1. Creating a virtual target device on the Virtual I/O Server

2. Creating logical volume storage pools on the Virtual I/O

My system plan deployment fails with an error that the HMC failed to obtain the license information for a VIOS partition. (Retain 657737)

Problem: This error can occur when the HMC has completed the installation of the Virtual I/O Server (VIOS) during deployment, but is unable to establish a Resource Monitoring and Control (RMC) connection with the VIOS in a timely fashion. This RMC connection is necessary so that the HMC can complete system plan deployment of client logical partitions and provisioning items.

Solution: Use the following command to determine if there is a working RMC connection:

```
/opt/hsc/bin/lspartition -dlpar -c MTM_MS
```

where `MTM_MS` is machine type, model, and serial number (for example: 9117-MMA_107B730)

If the command results show a value of "1" in the **Active** field for the specific VIOS partition, the RMC connection is working and you can redeploy the system plan and the HMC will be able to finish the deployment successfully. If the command results do not indicate that you have a working RMC connection for the VIOS, [verify that the system meets the prerequisites for using RMC](#), to further

troubleshoot this issue.

Troubleshooting errors when creating a system plan

Overview

The following section contains information about resolving various errors that you might encounter when you create a system plan.

System plan creation fails with an error that the HMC failed to obtain the license information for a VIOS. (Retain 657737)

Problem: This error can occur when you are creating a system plan for a system that has a recently installed Virtual I/O Server (VIOS) and the HMC has not yet established a Resource Monitoring and Control (RMC) connection with the VIOS. This RMC connection is necessary so that the HMC can capture information for the VIOS and its client logical partitions in the system plan.

Solution: Use the following command to determine if there is a working RMC connection:

```
/opt/hsc/bin/lspartition -dlpar -c MTM_MS
```

where `MTM_MS` is machine type, model, and serial number (for example: 9117-MMA_107B730)

If the command results show a value of "1" in the **Active** field for the specific VIOS partition, the RMC connection is working and you can create the system plan and the HMC will be able to complete the process successfully. If the command results do not indicate that you have a working RMC connection for the VIOS, [verify that the system meets the prerequisites for using RMC](#), to further troubleshoot this

issue.

Creating a system plan on a POWER 6 system with HMC fails with an inventory gathering error. (Retain 660620)

Problem: You are creating a system plan on a POWER 6 system that has a dual controller card or other

unrecognized device on the managed system and are using the hardware discovery process to gather information for the new system plan. The hardware discovery process uses firmware code to gather POWER6 hardware information for unassigned system hardware and hardware that is assigned to an inactive partition to be collected and be included in a system plan. Because there are one or more devices that the hardware discovery process cannot recognize, the HMC fails to create the system plan and the error log indicates there is an inventory gathering error. The error log might also list location codes that are not valid as they reference planned units and not the actual unit names on the managed system. This problem can occur with dual adapter configurations or if the hardware discovery process finds that a device type other than DASD, Tape, Optical (CD/DVD), or SES is attached to a SCSI, SAS, or SATA controller.

PCI Cards that are configured to support dual adapter configurations will be listed as:

- 572B PCI-X266 Ext Dual-x4 3Gb SAS RAID Adapter
- 571A PCI-XDDR Dual Channel Ultra320 SCSI Adapter

Solution: You must create the system plan without using the hardware discovery option. The system plan will still obtain a great deal of information by using the inventory gathering process. If you are using the Create a system plan task from the HMC user interface, make sure that the **Retrieve inactive and unallocated hardware resources** option is not selected. If you are using the `mksysplan` command, use one of the following parameters to turn off various data gathering functions for system plan creation, depending on your situation. Note that the `--noprobe` parameter turns off the hardware discovery process and the inventory gathering process:

	<code>--noprobe</code>	<code>--nohwdisc</code>	<code>--noinvscout</code>
Turn off Hardware Discovery	Y	Y	N
Turn off Inventory Scout	Y	N	Y

My system plan creation on HMC fails with errors that the hardware discovery process was unable to complete because the managed system is not in the Operating or Standby state. (Retain 651267)

Problem: This problem occurs on a POWER 6 system because the attribute of **Power off the system after all the logical partitions are powered off** is selected on the General tab of the Managed Systems Properties page. When this attribute is selected, the HMC powers off the entire managed system whenever the last active logical partition powers off. You cannot create a system plan when the managed system is not in either the operating or standby state.

This is an example of the type of error messages that occur for this type of system plan creation failure:

- Starting inactive partition thickv1 in Hardware Discovery mode. This part usually takes 3 minutes to complete ...
- Could not complete Hardware Discovery for inactive partition thickv1 because of HSCL0625
- Cannot activate partition when the managed system state is not in the Operating or Standby state. ...

This type of failure occurs during system plan creation on a POWER 6 system when the hardware discovery process is used to gather information from inactive partitions for the new system plan. The hardware discovery process starts an inactive partition to gather information and powers off the partition when the process completes. As soon as that partition is ended as part of the hardware

discovery process, the managed system will immediately start to power off as required by the power off system attribute setting. Consequently, creating the system plan fails as a system plan cannot be created on a powered off system.

Solution: To successfully use the hardware discovery process to create a system plan, ensure that the **Power off the system after all the logical partitions are powered off** attribute for the managed system is not selected. The hardware discovery process starts partitions and then powers off partitions to gather information. If the hardware discovery process powers off the only running partition on the system, then the managed system will power off and system plan creation will fail.

To verify this system attribute, complete these steps:

- a. In the HMC navigation area, select **Systems Management** → **Servers**.
- b. In the Tasks area, click **Properties**. The Properties window for the selected managed system opens.
- c. On the **General** tab, verify that the **Power off the system after all the logical partitions are powered off** attribute is not selected, and click **OK**.

After you have successfully created the system plan, you can reselect the attribute.

System plan creation fails or “hangs” when performing the inventory gathering process on an IBM i Partition.

Problem: On medium to large configurations, a known problem is that the `invscout` CLI, which `mksysplan` uses, can take up to several hours to complete.

Solution: You must create the system plan without using the inventory gathering process. The system plan will still obtain a great deal of information by using the hardware discovery process. When using the `mksysplan` command, use the `--noprobe` or the `--noinvscout` parameters to turn off the inventory gathering process. However, running the command in this fashion might result in an incomplete inventory of the system, which will affect the quality of the data in the resulting system plan. This problem will be fixed in HMC V7 R3.4.0.

After my system plan creation completes, a partition I did not create named “IOR Collection LP” exists on my system. Where does this partition come from, and can I delete it?

Problem: During Hardware Discovery, a new virtual partition named **IOR Collection LP** is created temporarily. This partition will be deleted by HMC Hardware Discovery, and is done automatically right before `mksysplan` returns. If this is not done automatically, then this partition will continue to exist on the system, and the process is not working as designed. If `mksysplan` CLI or create system plan from GUI returned, and the **IOR Collection LP** continues to exist after several minutes of creating system plan, then this needs to be reported to the HMC technical support.

Solution: Contact IBM support, and additionally perform the following steps:

Use the following instruction to delete the **IOR Collection LP** partition:

1. Note down partition ID from the partition view of the system on the HMC.
2. Open a terminal connection to the HMC, either on the HMC console or remotely.
3. Use this command:
`rmsyscfg -r lpar -m <managed system name> --id <partition ID from above>`
4. For more information use `rmsyscfg --help` for help on this command.

The Manage Install Resources function is unable to create a local installation resource from an AIX DVD. I do not get an error message, but nothing happens.

Problem: When attempting to create a local installation resource from an AIX DVD, the image fails to copy to the HMC and the **ADD** button is disabled. This generally occurs because there is not enough space available in the target directory on the HMC for the installation image that you are creating. When you use the Manage Install Resources function to create a local installation resource, the contents of the operating environment DVD is copied to the `/extra/csminstall` directory, and this directory has a size limitation of 2.6 GB.

Solution: Ensure that there is enough space in this directory before trying to create a local installation resource from an AIX DVD. Run the following command to determine the available space in the directory:

```
du -s /extra/csminstall
```

When creating a local installation resource on the HMC from an AIX or VIOS CD, the creation of the resource fails and I receive an error about Linux RPMs, even though I am not installing Linux.

Problem: If you are creating a local installation resource on the HMC for installing an operating environment during system plan deployment and your installation media is a CD, the media might be incompatible for creating the local installation image.

If this is the case, you might see the following type of error message:

```
b9rshmc2:/home/hscpe # OS_install -o define_resource -a type=AIX -a version=53L -a
location=/extra/csminstall/erictest001 -a source=/dev/cdrom erictest001
mkdir /extra/csminstall/erictest001
[03/11/2008][01:30:03][9519]: Executing: /bin/mount /dev/cdrom /opt/osinstall/src_mnt
[03/11/2008][01:30:04][9519]: STDERR (/bin/mount): mount: block device /dev/cdrom is write-protected,
mounting read-only
[03/11/2008][01:30:05][9519]: rc for /bin/mount = 0
[03/11/2008][01:30:05][9519]: ERROR: The file /opt/osinstall/src_mnt/RPMS/linux/aix-res-*.rpm cannot be
found
[03/11/2008][01:30:05][9519]: Executing: /bin/umount /opt/osinstall/src_mnt
[03/11/2008][01:30:05][9519]: rc for /bin/umount = 0P
[03/11/2008][01:30:05][9519]: ERROR: Failed to copy operating system images from /dev/cdrom to
/extra/csminstall/erictest001
[03/11/2008][01:30:05][9519]: ERROR: Unable to create OS_Resource object
```

Solution: Your CD media is incompatible for creating a local installation resource. Obtain the appropriate, compatible installation media (DVD) to resolve the problem. Or, use a Network Installation Management (NIM) Server to create a repository copy of your installation media. You can then create a remote installation resource on the HMC for the operating environment which you can use to install the operating environment successfully during system plan deployment.