



System i and System p
Managing the Integrated Virtualization Manager





System i and System p

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Note

Before using this information and the product it supports, read the information in “Notices” on page 21 and the *IBM Systems Safety Information* manual, G229-9054.

Sixth Edition (September 2007)

This edition applies to IBM Virtual I/O Server Version 1.4 and to all subsequent releases until otherwise indicated in new editions.

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About this topic

This document describes how users can install and manage the Integrated Virtualization Manager. If you install the Virtual I/O Server (without the Hardware Management Console), you can use the Integrated Virtualization Manager to configure a managed system through the Virtual I/O Server.

For information about the accessibility features of this product, for users who have a physical disability, see “Accessibility features,” on page 19.

Managing the Integrated Virtualization Manager

The Integrated Virtualization Manager provides a Web-based system management interface and a command-line interface that you can use to manage and configure IBM® System p5® and IBM eServer™ pSeries® servers that use the IBM Virtual I/O Server. On the managed system, you can create logical partitions, manage the virtual storage and virtual Ethernet, and view service information related to the server. The Integrated Virtualization Manager is packaged with the Virtual I/O Server, but it is enabled only on certain platforms and where no Hardware Management Console (HMC) is present.

The following information applies to Integrated Virtualization Manager version 1.4 and earlier. For information pertaining to Integrated Virtualization Manager version 1.5 and later, see the PowerVM™

Editions Operations Guide  .

You must have the Advanced POWER® Virtualization feature enabled before you can install the Integrated Virtualization Manager on IBM System p5 and eServer pSeries servers. If your system did not come with the Advanced POWER Virtualization feature enabled, you must use the Advanced System Management Interface (ASMI) to enter the activation key that you received when you ordered the feature. This activation key also enables Micro-Partitioning™ on the system.

What's new for Managing the Integrated Virtualization Manager

Learn about the new or changed documentation for the Integrated Virtualization Manager.

With Integrated Virtualization Manager version 1.4, you can deploy system plans to the managed system using the Deploy System Plan wizard. When you deploy a system plan, the Deploy System Plan wizard configures the management partition, and creates the client partitions, based on the configuration specification in the system plan. For more information, see “Deploying a system plan by using the Integrated Virtualization Manager” on page 8.

PDF file for Managing the Integrated Virtualization Manager

You can view and print a PDF file of this information.

To view or download the PDF version of this document, select Managing the Integrated Virtualization Manager  (about 171 KB).

You can view or download these related topics:

- Partitioning with the Integrated Virtualization Manager  (about 360 KB) contains the following topics:
 - Viewing and modifying system properties
 - Modifying virtual Ethernet settings
 - Managing partitions
 - Managing storage devices
 - Creating and modifying user accounts
 - Changing the TCP/IP settings on the Virtual I/O Server
 - Troubleshooting the Integrated Virtualization Manager
- Using the Virtual I/O Server  (about 1,120 KB) contains the following topics:

- Concepts for the Virtual I/O Server
- Planning for the Virtual I/O Server
- Installing the Virtual I/O Server
- Configuration scenarios for the Virtual I/O Server
- Securing the Virtual I/O Server
- Managing the Virtual I/O Server
- Troubleshooting the Virtual I/O Server
- Virtual I/O Server command descriptions

Saving PDF files

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1. Right-click the PDF link in your browser.
2. Click the option that saves the PDF locally.
3. Navigate to the directory in which you want to save the PDF.
4. Click **Save**.

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Installing the Integrated Virtualization Manager

Install the Virtual I/O Server management partition on an IBM System p[®] server or an IBM BladeCenter blade server. Then, connect to the Integrated Virtualization Manager Web-based interface.

Installing the Virtual I/O Server and enabling the Integrated Virtualization Manager on an IBM System p server

When you install the Virtual I/O Server in an environment where no Hardware Management Console (HMC) is present, the Virtual I/O Server automatically creates a management partition whose interface is the Integrated Virtualization Manager.

Before you start, ensure that you have completed the following tasks:

1. Verify that you have cabled the server. Specifically, ensure that you have connected a serial cable from a PC or ASCII terminal to a system port on the server.
2. Verify that you have access to the Advanced System Management Interface (ASMI) using the Web interface.
3. Verify that you have the Administrator or Authorized server provider authority level in ASMI.
4. If your system did not come with the Advanced POWER Virtualization feature enabled, you must use the ASMI to enter the activation code that you received when you ordered the feature. For instructions, see “Entering the activation code for Advanced POWER Virtualization with the ASMI” on page 3.
5. If your system came with the Advanced POWER Virtualization feature enabled, complete the following tasks:
 - a. Using the Web-based ASMI, change the partition boot mode:
 - 1) In the navigation area, expand **Power/Restart Control**.
 - 2) Click **Power On/Off System**.
 - 3) Select **Boot to SMS menu** in the AIX/Linux partition mode boot field.

- 4) Click **Save settings and power on**.
- b. Open a terminal session on the PC, using an application such as HyperTerminal, and wait for the SMS menu to appear. Be sure the line speed is set to 19,200 bits per second to communicate with the system unit.
- c. Using the Web-based ASMI, change the partition boot mode back so that the server loads the operating environment during startup:
 - 1) Expand **Power/Restart Control**.
 - 2) Click **Power On/Off System**.
 - 3) Select **Continue to operating system** in the AIX/Linux partition mode boot field.
 - 4) Click **Save settings**.

To install the Virtual I/O Server and enable the Integrated Virtualization Manager, complete the following steps:

1. Insert the Virtual I/O Server CD or DVD into the optical drive.
2. In SMS, select the CD or DVD as the boot device:
 - a. Select **Select Boot Options**, and then press Enter.
 - b. Select **Select Install/Boot Device**, and then press Enter.
 - c. Select **CD/DVD**, and then press Enter.
 - d. Select the media type that corresponds to the optical device, and then press Enter.
 - e. Select the device number that corresponds to the optical device, and then press Enter.
 - f. Exit the SMS menu by pressing the x key, and confirm that you want to exit SMS.
3. Install the Virtual I/O Server:
 - a. Select the console, and then press Enter.
 - b. Select a language for the BOS menus, and then press Enter.
 - c. Select **Start Install Now with Default Settings**.
 - d. Select **Continue with Install**. The managed system restarts after the installation is complete, and the login prompt is displayed on the ASCII terminal.

After you install the Integrated Virtualization Manager, finish the installation by accepting the license agreement, checking for updates, configuring the TCP/IP connection. For instructions, see “Finishing the Integrated Virtualization Manager installation” on page 6.

Related tasks

Accessing the ASMI using a Web browser

Cabling your server

“Entering the activation code for Advanced POWER Virtualization with the ASMI”

Learn how to enter the activation code for Advanced POWER Virtualization using the Advanced System Management Interface (ASMI).

Managing the Advanced System Management Interface (ASMI)

Managing your server using the Advanced System Management Interface (ASMI)

“Finishing the Integrated Virtualization Manager installation” on page 6

After you install the Integrated Virtualization Manager, you need to accept the license agreement, check for updates, configure the TCP/IP connection.

Related reference

ASMI authority levels

Using the system management services

Entering the activation code for Advanced POWER Virtualization with the ASMI

Learn how to enter the activation code for Advanced POWER Virtualization using the Advanced System Management Interface (ASMI).

You must have the Advanced POWER Virtualization feature enabled before you can install the Integrated Virtualization Manager. If your system did not come with the Advanced POWER Virtualization feature enabled, you must use the ASMI to enter the activation key that you received when you ordered the feature. If your system came with the Advanced POWER Virtualization feature enabled, then you can install the Integrated Virtualization Manager. For instructions, see “Installing the Virtual I/O Server and enabling the Integrated Virtualization Manager on an IBM System p server” on page 2.

Before you start, ensure that you have completed the following tasks:

- Verify that you have cabled the server. Specifically, ensure that you have connected a serial cable from a PC or ASCII terminal to a system port on the server.
- Verify that you have access to the ASMI using the Web interface.
- Verify that you have the Administrator or Authorized server provider authority level in ASMI.

To enter the activation code in ASMI, do the following:

1. Change the state of the system server firmware:
 - a. In the navigation area, expand **Power/Restart Control**.
 - b. Click **Power On/Off System**.
 - c. Select **Standby** in the Boot to system server firmware field.
 - d. Click **Save settings and power on**.
2. After the system has reached the firmware standby state, enter the activation code for Advanced POWER Virtualization:
 - a. In the navigation area, expand **On Demand Utilities**.
 - b. Select **CoD Activation**.
 - c. Enter the activation key into the field.
 - d. Click **Continue**. The Advanced POWER Virtualization feature is enabled.
3. Change the partition boot mode:
 - a. In the navigation area, expand **Power/Restart Control**.
 - b. Click **Power On/Off System**.
 - c. Select **Boot to SMS menu** in the AIX/Linux partition mode boot field.
 - d. Select **Running** in the Boot to system server firmware field.
 - e. Click **Save settings and continue system server firmware boot**.
4. Open a terminal session on the PC, using an application such as HyperTerminal, and wait for the SMS menu to appear. Be sure the line speed is set to 19,200 bits per second to communicate with the system unit.
5. Change the partition boot mode back so that the server loads the operating environment during startup:
 - a. In the ASMI navigation area, expand **Power/Restart Control**.
 - b. Click **Power On/Off System**.
 - c. Select **Continue to operating system** in the AIX/Linux partition mode boot field.
 - d. Click **Save settings**.

Related tasks

Accessing the ASMI using a Web browser

Cabling your server

“Installing the Virtual I/O Server and enabling the Integrated Virtualization Manager on an IBM System p server” on page 2

When you install the Virtual I/O Server in an environment where no Hardware Management Console (HMC) is present, the Virtual I/O Server automatically creates a management partition whose interface is the Integrated Virtualization Manager.

Managing the Advanced System Management Interface (ASMI)

Managing your server using the Advanced System Management Interface (ASMI)

Related reference

ASMI authority levels

Using the system management services

Installing the Virtual I/O Server and enabling the Integrated Virtualization Manager on an IBM BladeCenter blade server with POWER Architecture technology

When you install the Virtual I/O Server on an IBM BladeCenter® blade server with POWER Architecture technology, the Virtual I/O Server automatically creates a management partition whose interface is the Integrated Virtualization Manager.

Before you start, ensure that you have completed the following tasks:

1. Start a Telnet or SSH session to the IBM BladeCenter management module. For instructions, see Telnet connection or Serial connection in the IBM Systems Information Center.
2. Start a Serial over LAN (SOL) session. For instructions, see Starting an SOL session in the IBM Systems Information Center.
3. Start the System Management Services (SMS) utility. For instructions, see Starting the SMS utility in the IBM Systems Information Center.

To install the Virtual I/O Server and enable the Integrated Virtualization Manager, complete the following steps:

1. Insert the Virtual I/O Server CD or DVD into the optical drive.
2. Assign the media tray to the blade server on which you plan to install the Virtual I/O Server:
 - a. From the management module Web interface, select **Blade Tasks** → **Remote Control**.
 - b. Select **Start Remote Control**.
 - c. In the Change media tray owner field, select the blade server on which you plan to install the Virtual I/O Server.

Alternatively, you can assign the media try to the blade server by using the control panel.

3. In SMS, select the CD or DVD as the boot device:
 - a. Select **Select Boot Options**, and then press Enter.
 - b. Select **Select Install/Boot Device**, and then press Enter.
 - c. Select **List all Devices**, and then press Enter.
 - d. Select the device number that corresponds to the optical device, and then press Enter.
 - e. Select **Normal Boot Mode**, and then press Enter.
 - f. Exit the SMS menu by pressing the x key, and confirm that you want to exit SMS.
4. Install the Virtual I/O Server:
 - a. Select the console, and then press Enter.
 - b. Select a language for the BOS menus, and then press Enter.

- c. Select **Change/Show Installation Settings and Install**, and then press Enter.
- d. Select **1** to verify that Disk Where You Want to Install field is set appropriately. Verify the actual location code (for example, 01-08-00-1,0) of the target hard disk. The logical name for the hard disks (for example, hdisk0) that is displayed in this menu can be different from the logical name for the same hard disk that is listed within the Virtual I/O Server (for example, from the `lspv` command) that runs on the same machine. This can happen when you add disks after you install the Virtual I/O Server.
- e. Return to the Installation and Maintenance menu and select **Start Install Now with Default Settings**.
- f. Select **Continue with Install**. The managed system restarts after the installation is complete, and the login prompt is displayed on the ASCII terminal.

After you install the Integrated Virtualization Manager, finish the installation by accepting the license agreement, checking for updates, and configuring the TCP/IP connection. For instructions, see “Finishing the Integrated Virtualization Manager installation.”

Finishing the Integrated Virtualization Manager installation

After you install the Integrated Virtualization Manager, you need to accept the license agreement, check for updates, configure the TCP/IP connection.

This procedure assumes that the Integrated Virtualization Manager is installed. For instructions, see one of the following tasks:

- “Installing the Virtual I/O Server and enabling the Integrated Virtualization Manager on an IBM System p server” on page 2
- “Installing the Virtual I/O Server and enabling the Integrated Virtualization Manager on an IBM BladeCenter blade server with POWER Architecture technology” on page 5

To finish the installation, complete the following steps:

1. Log in to the management partition with the user ID **padmin**.
2. When prompted, change the login password to a secure password that adheres to your local password-security guidelines.
3. Accept the Virtual I/O Server license agreement. For instructions, see Viewing and accepting the Virtual I/O Server license.
4. Check for updates to the Integrated Virtualization Manager. For instructions, see Viewing and updating the code level of the Integrated Virtualization Manager management partition.
5. Ensure that there is a network connection configured between the management partition and at least one of the physical Ethernet adapters on the managed system. This allows you to access the Integrated Virtualization Manager interface from a computer that is connected to the physical Ethernet adapter. You cannot use the HMC1 and HMC2 ports to connect to the management partition.
6. Configure the TCP/IP connection for the Integrated Virtualization Manager using the `mktcpip` command. You must configure TCP/IP before you can perform any dynamic logical partitioning operations.
7. Connect to the Web interface or the command-line interface. For instructions, see one of the following tasks:
 - “Connecting to the Integrated Virtualization Manager Web-based interface” on page 15
 - “Connecting to the Virtual I/O Server command-line interface” on page 15

When you are finished, configure the management partition and client logical partitions. For instructions, see “Configuring the management partition and client logical partitions” on page 7.

Viewing and accepting the Virtual I/O Server license

You must view and accept the license before using the Virtual I/O Server.

Before you start, ensure that the Virtual I/O Server partition profile is created and the Virtual I/O Server is installed. For instructions, see *Installing the Virtual I/O Server*.

Note: If you installed the Virtual I/O Server by deploying a system plan, then you have already accepted the license and do not need to complete this procedure.

To view and accept the Virtual I/O Server license, complete the following steps:

1. Log in to the Virtual I/O Server using the **padmin** user ID.
2. Choose a new password.
3. In the installation program, English is the default language. If you need to change the language setting for the system, follow these steps. Otherwise, proceed to step 4.
 - a. View the available languages by typing the following command:

```
chlang -ls
```
 - b. Change the language by typing the following command, replacing *Name* with the name of the language you are switching to:

```
chlang -lang Name
```

Note: If the language fileset is not installed, use the **-dev Media** flag to install it. For example, to install and change the language to Japanese, type the following command:

```
chlang -lang ja_JP -dev /dev/cd0
```

4. View the license by typing `license -ls` on the command line. By default, the license is displayed in English. To change the language in which the license is displayed, follow these steps:
 - a. View the list of available locales to display the license by typing the following command:

```
license -ls
```
 - b. View the license in another language by typing the following command:

```
license -view -lang Name
```

For example, to view the license in Japanese, type the following command:

```
license -view -lang ja_JP
```

5. Accept the license agreement for the Virtual I/O Server by typing the following command:

```
license -accept -lang Name
```

Configuring the management partition and client logical partitions

Find instructions for configuring the system by deploying a system plan or manually configuring the management partition and client logical partitions.

These instructions apply to configuring a system that is managed by the Integrated Virtualization Manager. If you plan to install the Virtual I/O Server on a system that is managed by a Hardware Management Console (HMC), then you need the instructions for installing and configuring the Virtual I/O Server on a system managed by an HMC. See *Installing the Virtual I/O Server*.

The configuration procedures vary depending on whether you plan to deploy a system plan to configure the management partition and client logical partitions. When you deploy a system plan, the Integrated Virtualization Manager automatically configures virtual resources and creates the logical partitions and partition profiles for the client logical partitions based on the configuration specifications in the system plan.

To configure the management partition and client logical partitions by deploying a system plan, the Integrated Virtualization Manager must be at version 1.4.

Deploying a system plan by using the Integrated Virtualization Manager

When you deploy a system plan, the Integrated Virtualization Manager creates logical partitions on the managed system according to the specifications in the system plan.

Before you deploy a system plan, ensure that the system is in the manufacturing default configuration. More specifically, the system must meet the following requirements:

- Client logical partitions are not configured on the managed system.
- Virtual Ethernet adapters are not configured on the managed system.
- Storage pools are not configured on the managed system.
- Backing devices are not configured on the managed system.
- All of the I/O resources are assigned to the Integrated Virtualization Manager management partition. In the manufacturing default configuration, all the I/O resources are assigned to the Integrated Virtualization Manager. When you add I/O resources to the system, they are assigned to the Integrated Virtualization Manager by default.

In addition to ensuring that the system meets the requirements for the manufacturing default configuration, you must meet the following prerequisites:

- The system-plan file exists on the Integrated Virtualization Manager. If the system-plan file does not exist on the Integrated Virtualization Manager, you must import the system-plan file into the Integrated Virtualization Manager. For more information about importing a system-plan file, see [Importing a system-plan file](#).
- The physical hardware is connected and reporting to the server.
- The Integrated Virtualization Manager is not performing any other operations on the managed system.
- You are the prime administrator (padmin). For more information about user roles, refer to [User roles](#).

To deploy a system plan on a managed system by using the Integrated Virtualization Manager, complete the following steps:

1. In the navigation area of the Integrated Virtualization Manager, select **Manage System Plans**. The Manage System Plans page opens.
2. In the System Plans table, select the system plan that you want to deploy.
3. Select **More Tasks** → **Deploy** from the toolbar at the top of the System Plans table to start the Deploy System Plan Wizard. The System Deployment: Deployment Overview page of the wizard opens.
4. If prompted, choose the managed system to which you want to deploy the system plan and click **Next**. The prompt only occurs if the system plan file contains more than one system. If the system plan does not match the hardware on the managed system to which you want to deploy the plan, the wizard displays a window that informs you of this. Click **OK** to continue or **Cancel** to select a different system plan.
5. Wait for the wizard to validate the managed system and its hardware against the system plan. The validation process can take several minutes.
6. If the validation process completes successfully, click **Next**. If the validation process does not complete successfully, correct the issues indicated by the error messages, click **Cancel** to exit the wizard, and restart this procedure from the beginning. To help you to correct validation issues, you might want to create a system plan that is based on the current configuration of the managed system. Such a system plan would allow you to compare the system plan that you want to deploy with the current configuration of the managed system. You can do this by using the Create System Plan task in the Integrated Virtualization Manager, or you can run the following command on the system: `mksysplan -m name_of_managed_system -f name_of_new_system_plan.sysplan`.
7. Review the Deployable Plan Items page and click **Next**. This page indicates the deployable status of the partitions that the system plan contains.

8. Review the Deployment page, and click **Finish** to begin deploying the system plan. The Integrated Virtualization Manager creates the specified logical partitions. This process can take several minutes.

After you finish the deployment of the system plan, complete the following tasks:

- 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 will support your desired configuration for each logical partition.
- Install operating systems and software on the logical partitions. For installation procedures, refer to *Installing operating systems*.

Related information

Importing a system-plan file by using the Integrated Virtualization Manager

User roles

Manually configuring the management partition and client logical partitions

You can configure virtual resources on the management partition and create the client logical partitions and partition profiles.

Before you begin, complete the following tasks:

- Determine the system resource requirements for the Virtual I/O Server management partition. The system resource requirements for the management partition can depend on many factors. These factors can include the server model, the number of logical partitions you create on the managed system, and the number of virtual devices used by those logical partitions.

When you install the Virtual I/O Server, it automatically creates a logical partition for itself on the server. (This logical partition is called the *management partition*.) The Virtual I/O Server automatically assigns a fraction of the memory and processors on the server to the management partition. You can change the default amount of memory and processor resources that are assigned to the management partition.

For instructions, see *Planning for the Virtual I/O Server*.

- Develop a plan for the storage needs of each logical partition that you are to create on your managed system. Calculate how much storage space each logical partition requires for its operating system, applications, and data. For more information about the storage requirements for each operating system, consult the operating system documentation.

Changing memory and processor resources on the management partition

Use the Integrated Virtualization Manager to change the memory and processor resources on the management partition.

Before you start, complete the following tasks:

1. Install the Integrated Virtualization Manager. For instructions, see “Installing the Integrated Virtualization Manager” on page 2.
2. Ensure that your user role is not View Only.

If you want to change the memory and processor resources on the management partition, do the following:

1. From the **Partition Management** menu, click **View/Modify Partitions**. The View/Modify Partitions panel is displayed.
2. Select the management partition (**partition ID 1**).
3. From the **Tasks** menu, click **Properties**. The Partition Properties panel is displayed.
4. Click the **Memory** tab to display the memory settings.

5. Change the minimum, assigned, and maximum pending amounts of memory to the amount of memory that you want the management partition to use. If you are using a workload-management application, then you can set the minimum and maximum amounts for the management partition. The assigned amount is the amount of memory that the management partition has initially assigned to it. If you do not anticipate dynamically increasing the memory beyond a certain point, setting the appropriate maximum value will save on reserved firmware memory.
6. Click the **Processing** tab to display the processing settings. Keep the default settings unless you are using a workload-management application.
7. Click **OK** to apply the changes. It might take a few minutes for the managed system to apply the changes. If you changed a minimum or maximum value, restart the system for the changes to take effect.

Related tasks

“Configuring the management partition and client logical partitions” on page 7

Find instructions for configuring the system by deploying a system plan or manually configuring the management partition and client logical partitions.

“Setting the maximum number of logical partitions”

Set the maximum number of logical partitions that you want to allow on the managed system using the Integrated Virtualization Manager.

Related reference

User roles

Setting the maximum number of logical partitions

Set the maximum number of logical partitions that you want to allow on the managed system using the Integrated Virtualization Manager.

Before you start, ensure that your user role is not View Only.

You can set the maximum number of logical partitions that you want to allow on this managed system. The managed system reserves a small amount of system memory to accommodate the maximum number of logical partitions that you specify.

To set the maximum number of logical partitions, do the following:

1. From the **Partition Management** menu, click **View/Modify System Properties**. The View/Modify System Properties panel is displayed.
2. In the **Configured maximum** field, verify whether this is the maximum number of logical partitions that you want to allow on this managed system. If it is not, then do the following:
 - a. Specify the maximum number of logical partitions in the **Maximum after restart** field, and click **OK**.
 - b. Open a virtual terminal session to the management partition. Opening a virtual terminal session for a logical partition.
 - c. Restart the system. Shutting down logical partitions. It might take a few minutes for the managed system to restart. Be sure to complete all of the setup steps before restarting the system. Otherwise, you might need to restart the system more than once.

Related tasks

“Changing memory and processor resources on the management partition” on page 9
Use the Integrated Virtualization Manager to change the memory and processor resources on the management partition.

Related reference

User roles

Related information

Modifying storage pools

Creating virtual disks

Mirroring the Integrated Virtualization Manager management partition

To prevent potential downtime and data loss, add a second disk to the rootvg storage pool and mirror the two disks.

When you install the Virtual I/O Server, Virtual I/O Server automatically creates a storage pool called rootvg and assigns one physical volume to rootvg. The Virtual I/O Server software (including the Integrated Virtualization Manager) and any data that the Virtual I/O Server software uses initially is stored on the management partition (partition ID 1) on that physical volume. If that disk would fail, you would be unable to manage your client partitions and would suffer downtime and the loss of data. To prevent this kind of interruption to your business, you need to add a second disk to the rootvg storage pool and mirror the two disks.

Before you start, ensure you meet the following requirements:

1. The Integrated Virtualization Manager is at version 1.5 or later. To update the Integrated Virtualization Manager, see Viewing and updating the code level of the Integrated Virtualization Manager management partition.
2. You are the prime administrator (padmin).

To mirror the management partition, complete the following steps:

1. Add a new physical volume to the rootvg storage pool. For instructions, see Modifying storage pools.
2. To mirror the new volume to ensure that it has all of the software and data that the original volume has, complete the following steps:
 - a. Open a virtual terminal window to the management partition. For instructions, see Opening a virtual terminal session for a logical partition.
 - b. Sign on to Virtual I/O Server using the padmin user ID and password.
 - c. At the command prompt, run the mirrorios command as follows:

```
mirrorios Physicalvolume
```

where *Physicalvolume* is the name of the volume that you just added to rootvg.

Restriction: The mirrorios command mirrors only the rootvg storage pool. It does not mirror other volume groups or any virtual disks that are created on rootvg after it is initially mirrored.

Configuring storage on the managed system using the Integrated Virtualization Manager

You can create a storage pool in addition to the default storage pool, add additional physical volumes to the default storage pool, and create virtual disks using the Integrated Virtualization Manager.

You can assign storage to logical partitions in the following ways:

- You can assign physical volumes directly to the logical partition. (A *physical volume* is an individual logical unit that is identified by a logical unit number (LUN). A physical volume can be a hard disk or a logical device on a storage area network (SAN).)

- You can add physical volumes or files to a storage pool, create virtual disks from the storage capacity of the storage pool, and assign the virtual disks to logical partitions. Virtual disks allow you to specify more precisely the amount of storage that you assign to logical partitions. You can assign storage to logical partitions without regard to the actual capacities of the physical volumes or files that make up the storage pool.

Physical volumes and virtual disks that you assign to a logical partition display as physical disk devices in the operating system interface of the logical partition.

Consider creating a storage pool in addition to the default rootvg storage pool for regular data storage, and then assign the new storage pool as the default. You can then add more physical volumes to a storage pool, create virtual disks from a storage pool, and assign these virtual disks to other logical partitions.

If you plan to assign physical volumes directly to logical partitions, you do not need to do anything with the physical volumes. You can assign the physical volumes to the logical partitions when you create the logical partitions.

To configure storage on the managed system, complete the following steps:

1. Create a second storage pool for regular data storage. For instructions see, *Creating storage pools*.
2. Add additional physical volumes to the default storage pool. For instructions, see *Modifying storage pools*.
3. Create virtual disks from the default storage pool. *Creating virtual disks*.

Configuring Ethernet on the managed system using the Integrated Virtualization Manager

You can create virtual Ethernet bridges, configure a Host Ethernet Adapter (or Integrated Virtual Ethernet), and assign physical Ethernet adapters to client logical partitions using the Integrated Virtualization Manager.

You can configure the following types of Ethernet on your managed system:

- You can create virtual Ethernet bridges on your managed system. Virtual Ethernet bridges, also known as Shared Ethernet Adapters, connect the virtual Ethernet networks on your managed system to physical Local Area Networks (LANs). For greater security, do not set up the physical Ethernet adapter that you use to connect to the management partition as a virtual Ethernet bridge. This allows you to isolate the management partition from all external networks. (The management partition manages the virtual Ethernet networks on your managed system but does not participate in any virtual Ethernet networks.)

If you configure a single physical Ethernet adapter or link aggregation to connect to the management partition and to act as a virtual Ethernet bridge, consider using OpenSSL and Portable OpenSSH on the management partition. You can use OpenSSL and Portable OpenSSH to connect securely to the Virtual I/O Server from a remote location.

You do not need to select a physical Ethernet adapter or link aggregation for a virtual Ethernet network. If no physical adapter or link aggregation is set for a virtual Ethernet network, then the logical partitions on the virtual Ethernet network can communicate with one another, but they cannot communicate directly with a physical network.

- You can configure a Host Ethernet Adapter. A Host Ethernet Adapter is a unique Ethernet adapter that is built into system. It provides the ability to partition a physical Ethernet port. A Host Ethernet Adapter can contain one or more physical ports and each physical port can be assigned to zero or more logical partitions.
- You can assign a physical Ethernet adapter to a client logical partition.

To configure virtual Ethernet on the managed system, complete the following steps:

1. Configure virtual Ethernet bridges. For instructions, see “Configuring virtual Ethernet bridges on the managed system using the Integrated Virtualization Manager.”
2. Configure a Host Ethernet Adapter. Assigning a logical partition to a Host Ethernet Adapter port.
3. Assign a physical Ethernet adapter to a client logical partition. For instructions, see “Dynamically managing physical adapters” on page 14.

Configuring virtual Ethernet bridges on the managed system using the Integrated Virtualization Manager:

Use the Integrated Virtualization Manager to configure virtual Ethernet bridges on the managed system.

A physical Ethernet adapter or link aggregation that connects a virtual Ethernet network with a physical local area network (LAN) is called a *virtual Ethernet bridge*. Another name for a virtual Ethernet bridge is a *shared Ethernet adapter* because the logical partitions on the virtual Ethernet network share the physical Ethernet connection. Virtual Ethernet bridges connect the virtual Ethernet networks on your managed system to physical LANs. You can configure up to four virtual Ethernet bridges, one for each virtual Ethernet network on your managed system.

For greater security, do not set up the physical Ethernet adapter or link aggregation that you use to connect to the management partition as a virtual Ethernet bridge. This situation allows you to isolate the management partition from all external networks. (The management partition manages the virtual Ethernet networks on your managed system, but it does not participate in any virtual Ethernet networks.)

If you configure a single physical Ethernet adapter or link aggregation to connect to the management partition and to act as a virtual Ethernet bridge, consider installing OpenSSL and Portable OpenSSH on the management partition. You can use OpenSSL and Portable OpenSSH to connect securely to the Virtual I/O Server from a remote location.

You do not need to select a physical Ethernet adapter or link aggregation for a virtual Ethernet network. If no physical adapter or link aggregation is set for a virtual Ethernet network, then the logical partitions on the virtual Ethernet network can communicate with one another, but they cannot communicate directly with a physical network.

Your role must not be View Only or Service Representative (SR) to perform this procedure.

To configure virtual Ethernet bridges, do the following:

1. From the **Virtual Ethernet Management** menu, click **View/Modify Virtual Ethernet**. The View/Modify Virtual Ethernet panel is displayed.
2. Click the **Virtual Ethernet Bridge** tab.
3. Set each **Physical Adapter** field to the physical adapter that you want to use as the virtual Ethernet bridge for each virtual Ethernet network. (The HMC1 and HMC2 ports do not display in the **Physical Adapter** field and cannot be used as virtual Ethernet bridges.)
4. Click **Apply** to apply the changes.

Related concepts

Shared Ethernet adapters

Related tasks

“Creating client logical partitions using the Integrated Virtualization Manager”

You can create client logical partitions on the managed system by deploying a system plan, using the Create Partitions wizard, or creating partitions based on existing partitions.

Related information

Modifying storage pools

Creating virtual disks

Dynamically managing physical adapters

You can add and remove physical adapters to and from a running logical partition.

You can change the physical adapter settings for any logical partition at any time, as long as the partition is capable of dynamic I/O adapter changes. However, keep the following in mind:

- You might lose data if you remove a physical adapter from a running logical partition.
- You cannot assign a physical adapter to another partition if it is being used by the operating system of the partition to which it is currently assigned. If you attempt to reassign the adapter, an error message is displayed. You must unconfigure the device using the tools of the appropriate operating system before you can change the adapter’s partition assignment.

Before you start, ensure that the Integrated Virtualization Manager is at version 1.5 or later.

To dynamically add or remove physical adapters to or from a running logical partition, follow these steps:

1. If no client logical partitions exist, go to step 4.
2. Select the logical partition to which you want to assign a physical adapter and click **Properties**.
3. Verify that **Yes** is displayed for **I/O adapter DLPAR Capable**. You might need to click **Retrieve Capabilities** to verify this value. If **No** is displayed for **Processing DLPAR Capable**, then you cannot dynamically add or remove physical adapters to or from the logical partition.
4. From the **I/O Adapter Management** menu, click **View/Modify Physical Adapters**.
5. Select the adapter whose partition assignment you want to change and click **Modify Partition Assignment**.
6. Select the logical partition to which you want to assign the physical adapter and click **OK**. If you want to make this adapter available to any client logical partition, including those not yet created, select **None** as the **New partition**.

Related information

Viewing and updating the code level of the Integrated Virtualization Manager management partition

Creating client logical partitions using the Integrated Virtualization Manager

You can create client logical partitions on the managed system by deploying a system plan, using the Create Partitions wizard, or creating partitions based on existing partitions.

To create client logical partitions on your managed system, complete one of the following steps:

- Create client logical partitions by deploying a system plan. For instructions, see “Deploying a system plan by using the Integrated Virtualization Manager” on page 8.
- Create client logical partitions using the Create Partitions wizard. For instructions, see Creating client logical partitions using the Create Partitions wizard.
- Create client logical partitions based on existing client logical partitions. For instructions, see Creating a partition based on an existing partition.

When you are finished, you can activate the client logical partitions and install their operating systems. For instructions, see the following information:

- Activating logical partitions
- AIX® Installation and Migration
- Installing Linux®

Related tasks

Planning for operating systems

“Configuring virtual Ethernet bridges on the managed system using the Integrated Virtualization Manager” on page 13

Use the Integrated Virtualization Manager to configure virtual Ethernet bridges on the managed system.

Partitioning with the Integrated Virtualization Manager

Related reference

User roles

mkvt Command

Connecting to the Integrated Virtualization Manager Web-based interface

Learn how to connect to the Web-based system management interface for the Integrated Virtualization Manager.

You must know the IP address that is assigned to the Integrated Virtualization Manager.

To connect to the Web-based interface for the Integrated Virtualization Manager, do the following:

1. Open a Web browser window, and connect using the HTTP or HTTPS protocol to the IP address that was assigned to the Integrated Virtualization Manager during the installation process. For example, enter `https://123.456.7.890` in your Web browser, where `123.456.7.890` is the IP address assigned to the Integrated Virtualization Manager. The Welcome window is displayed.
2. Enter the default user ID of **padmin**, and enter the password that you defined during the installation process. The Integrated Virtualization Manager interface is displayed.

For information about the Web-based interface navigation, see the online help for the Integrated Virtualization Manager.

Connecting to the Virtual I/O Server command-line interface

Learn how to connect to the Virtual I/O Server command-line interface, which allows you to use commands for the Integrated Virtualization Manager.

Connect to the Virtual I/O Server command-line interface using one of the following methods:

Open a virtual terminal session to the management partition

For instructions, see *Opening a virtual terminal session to a logical partition*.

Telnet You can use Telnet to connect to the command-line interface. Telnet does not provide a secure connection to the Virtual I/O Server. Therefore, use Telnet only if the Ethernet adapter that you have configured to access the management partition is physically isolated from networks that are not secure.

OpenSSL or Portable OpenSSH

You can use OpenSSL or Portable SSH to securely connect to the Virtual I/O Server from a remote location. For instructions, see *Connecting to the Virtual I/O Server using OpenSSH*.

Related concepts

Virtual I/O Server command-line interface

Related tasks

Connecting to the Virtual I/O Server using OpenSSH

Related reference

Integrated Virtualization Manager commands

Connecting an HMC to a system managed by the Integrated Virtualization Manager

Learn how to connect a system that is managed by the Integrated Virtualization Manager to become a system managed by a Hardware Management Console (HMC).

Connecting an HMC to a system that is managed by the Integrated Virtualization Manager automatically disables the Integrated Virtualization Manager. The HMC assumes management control of the system. Because the management of the system is changed, you must re-create your logical partition configuration either manually or from backups.

To change the management of a system from the Integrated Virtualization Manager to an HMC, do the following:

1. Create a backup of your partition configuration using the Integrated Virtualization Manager, and download it to your local system. For instructions, see [Backing up and restoring partition data](#). You can use the backup text file as a reference for re-creating your partitions in step 4.
2. Connect the HMC to the system. For instructions, see [Setting up the HMC](#). The managed system is in Recovery state on the HMC.
3. Initialize the profile data using the HMC interface. For instructions, see [Initializing profile data](#). This action clears the partition configuration.
4. Using the backup text file that you created in step 1, re-create your partitions using the HMC. For instructions, see [Restoring profile data](#).

Related tasks

[Backing up and restoring partition data](#)

[Backing up the Virtual I/O Server](#)

[“Changing an HMC-managed system to be managed by the Integrated Virtualization Manager”](#)

Learn how to change a system that is managed by a Hardware Management Console (HMC) to be managed by the Integrated Virtualization Manager.

[Initializing profile data](#)

[Restoring profile data](#)

[Restoring the Virtual I/O Server](#)

[Setting up the HMC](#)

Changing an HMC-managed system to be managed by the Integrated Virtualization Manager

Learn how to change a system that is managed by a Hardware Management Console (HMC) to be managed by the Integrated Virtualization Manager.

If you want to have your system managed by the Integrated Virtualization Manager but it is currently managed by an HMC, you must restore firmware settings, network configuration, and passwords to the factory default settings. Even after you disconnect the HMC, the system is still managed by the HMC. You can restore the partition configuration from a backup or re-create it manually.

To change the management of a system from an HMC to the Integrated Virtualization Manager, do the following:

1. Back up the partition configuration using the HMC. For instructions, see *Backing up partition profile data*.
2. Power off the system.
3. Disconnect the HMC.
4. Reset the system to factory configuration using the Advanced System Management Interface (ASMI). For instructions, see *Restoring your server to factory settings*.
5. Power on the system.
6. Connect to the graphical user interface or the command-line interface for the Integrated Virtualization Manager. For instructions, see “Connecting to the Virtual I/O Server command-line interface” on page 15
7. Restore the backup partition configuration using the Integrated Virtualization Manager. For instructions, see *Backing up and restoring partition data*. If you do not have a backup of the partition configuration, you must re-create it manually.

The system is ready for use. All logical partition configuration and virtual I/O configuration data is restored. When you activate a partition, you might need to reset the boot list for the partition in System Management Services (SMS). For instructions, see *Using the system management services*.

Related tasks

Backing up and restoring partition data

Backing up partition profile data

Backing up the Virtual I/O Server

“Connecting an HMC to a system managed by the Integrated Virtualization Manager” on page 16

Learn how to connect a system that is managed by the Integrated Virtualization Manager to become a system managed by a Hardware Management Console (HMC).

“Connecting to the Virtual I/O Server command-line interface” on page 15

Learn how to connect to the Virtual I/O Server command-line interface, which allows you to use commands for the Integrated Virtualization Manager.

Restoring the Virtual I/O Server

Restoring your server to factory settings

Using the system management services

Related information for Managing the Integrated Virtualization Manager

IBM Redbooks® (in PDF format), Web sites, and information center topics contain information related to the Managing the Integrated Virtualization Manager topic. You can view or print any of the PDF files.

Web sites

- Advanced POWER Virtualization  (<http://www-03.ibm.com/systems/p/apv/index.html>). The Advanced POWER Virtualization Web site provides information and resources for the Virtual I/O Server, Integrated Virtualization Manager, Partition Load Manager, and Micro-Partitioning.
- IBM System p and AIX Information Center  (<http://publib16.boulder.ibm.com/pseries/index.htm>) The IBM System p and AIX Information Center is a source for technical information about IBM System p servers and AIX. The Information Center is your starting point for all IBM System p technical information.
- IBM System Planning Tool  (<http://www.ibm.com/systems/support/tools/systemplanningtool/>) You can download the System Planning Tool from the IBM System Planning Tool Web site.
- Linux servers  (<http://www.ibm.com/eserver/linux>)

The Linux Server Web site is a source for technical information about Linux on IBM eServer servers.

- Virtual I/O Server  (<http://techsupport.services.ibm.com/server/vios>)

The Virtual I/O Server Web site provides product updates and additional information.

IBM Redbooks

- Advanced POWER Virtualization on IBM System p5 
- Integrated Virtualization Manager on IBM System p5 
- Partitioning Implementations for IBM eServer p5 Servers 

Other information

- Creating a virtual computing environment
- Partitioning the server
- Partitioning with the Integrated Virtualization Manager
- Using the Virtual I/O Server

Appendix. Accessibility features

Accessibility features help users who have a physical disability, such as restricted mobility or limited vision, to use information technology products successfully.

The following list includes the major accessibility features:

- Keyboard-only operation
- Interfaces that are commonly used by screen readers
- Keys that are tactilely discernible and do not activate just by touching them
- Industry-standard devices for ports and connectors
- The attachment of alternative input and output devices

IBM and accessibility

See the IBM Accessibility Center at <http://www.ibm.com/able/> for more information about the commitment that IBM has to accessibility.

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