System p

p5 Upgrades

System p

p5 Upgrades

Note

Before using this information and the product it supports, read the information in "Notices" on page 31 and the *IBM Systems Safety Information* manual, G229-9054.

Eleventh Edition (September 2007)

This edition applies to IBM AIX 5L Version 5.3 and to all subsequent releases until otherwise indicated in new editions.

Contents

Safety and environmental notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, a safety information booklet is included in the publications package shipped with the product. The booklet contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

Laser safety information

IBM® System i® models and System p® servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:
This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**
- **Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**

(C026)

CAUTION:
Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:
This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:
Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the IBM System i models and IBM System p servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

Product recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on IBM product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

Esta unidad debe reciclarse o desecharse de acuerdo con lo establecido en la normativa nacional o local aplicable. IBM recomienda a los propietarios de equipos de tecnología de la información (TI) que reciclen responsablemente sus equipos cuando éstos ya no les sean útiles. IBM dispone de una serie de programas y servicios de devolución de productos en varios países, a fin de ayudar a los propietarios de equipos a reciclar sus productos de TI. Se puede encontrar información sobre las ofertas de reciclado de productos de IBM en el sitio web de IBM http://www.ibm.com/ibm/environment/products/prp.shtml.

EU Only

Note: This mark applies only to countries within the European Union (EU) and Norway.

Appliances are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local IBM representative.

Battery return program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

For Taiwan: Please recycle batteries.

For the European Union:

Note: This mark applies only to countries within the European Union (EU).

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local IBM representative.

For California: Perchlorate Material - special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate.

The foregoing notice is provided in accordance with California Code of Regulations Title 22, Division 4.5 Chapter 33. Best Management Practices for Perchlorate Materials. This product/part may include a lithium manganese dioxide battery which contains a perchlorate substance.

IBM Cryptographic Coprocessor Card Return Program

The following information applies only for systems originally sold prior to July 1, 2006:

This machine may contain an optional feature, the cryptographic coprocessor card, which includes a polyurethane material that contains mercury. Please follow local ordinances or regulations for disposal of this card. IBM has established a return program for certain IBM Cryptographic Coprocessor Cards. More information can be found at http://www.ibm.com/ibm/environment/products/prp.shtml.

About this publication

This document describes the primary functions that eClipz provides within the operating system.

For information about the accessibility features of this product, for users who have a physical disability, see “Accessibility features,” on page 29.

How to send your comments

Your feedback is important in helping to provide the most accurate and highest quality information. If you have any comments about this publication, send your comments using Resource Link™ at http://www.ibm.com/servers/resourcelink. Click **Feedback** on the navigation pane. Be sure to include the name of the book, the form number of the book, and the specific location of the text you are commenting on (for example, a page number or table number).

Upgrades

You can migrate or upgrade IBM AIX® to a new release, upgrade your IBM eServer™ p5 or System p model to a new IBM System p5® or eServer p5 model, or upgrade to a new hardware feature.

What's new for IBM System p Upgrades

Learn about new or updated information for migrating or upgrading your IBM eServer p5 or System p model to a new IBM System p5 or eServer p5 model.

The following articles contain new or updated information:

- "Upgrade timeline" on page 2 includes new information in the Postinstallation section of the upgrade stages table.
- "Troubleshooting the upgrade for IBM System p5 or eServer p5 servers" on page 25 includes new troubleshooting information.

PDF file for IBM System p Upgrades

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

To view or download the PDF version of this document, select Upgrades (about 1,033 KB).

You can view or download these related topics:

- Installing AIX (about 4,210 KB)
  Use this information if you are installing, updating, or migrating the IBM AIX operating system and related applications on your server.
- Partitioning for AIX with an HMC (about 522 KB)

Saving PDF files

To save a PDF on your workstation for viewing or printing:

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**.

Downloading Adobe Reader

You need Adobe Reader installed on your system to view or print these PDFs. You can download a free copy from the Adobe Web site (www.adobe.com/products/acrobat/readstep2.html) .

Upgrade concepts

Learn about supported upgrade paths, upgrade considerations, and upgrade terminology.

An *upgrade* is the process of changing from one IBM eServer p5 or System p model, hardware feature, or software version to a new IBM System p5 or eServer p5 model, hardware feature, or software version while retaining the serial number of the source server.

Upgrade terminology

Understand upgrade terminology for new IBM System p5 or eServer p5 models.

Review the following information to become familiar with the terminology used to describe upgrades:

APAR Authorized program analysis report, description and history of a possible defect and its resolution. Each APAR is given a unique number. If it is confirmed that a defect does exist, and it is fixed, the fix is called a *program temporary fix* (PTF).

apply A method of installing an update that provides a way to remove the fix and return to the previous level of the function

commit
A method of installing an update that does not allow you to remove the fix without also removing the base function.

fix A temporary or interim change to use until the official update can be obtained and applied, usually applied using the **fixmgr** command. Also known as *interim fix*.

maintenance package
A group of fixes that are tested and released together in one package. Also known as *recommended maintenance level*, *maintenance level*, *ML*, *fix pack*, and *recommended maintenance package*.

migrate

1. To install a new version or release of a program to replace an earlier version or release.
2. To move data from one storage location to another.

migration
The installation of a new version or release of a program to replace an earlier version or release.

update
To apply fixes to a system.

upgrade

1. To add or replace hardware or software with newer models or releases.
2. Any hardware or software change to a later release, or any hardware addition or software addition.

Upgrade path

Learn about supported upgrade paths.

You can upgrade the IBM System p 650 to an IBM System p5 or IBM eServer p5 570.

You can upgrade the capacity of select models without upgrading to a new model by activating one or more standby processors on that server. Before you can upgrade your server, all of the processors on that server must be activated. For more information, see Capacity on Demand.

Upgrade timeline

Determine how much time you need for an upgrade, and learn about the different stages of an upgrade.

The following timeline describes common stages that occur during an upgrade. The timeline incorporates the entire process from when you first start planning for an upgrade until the time when you have finished preparing your target server for production. Listed next to each stage are more detailed descriptions that describe what the stage entails and what must be accomplished when you have finished

the stage. In the right column of the table, you see an estimated amount of time that it takes to complete that stage. This time estimate applies to situations where there are resources dedicated to the tasks. For complex upgrades or situations where there are not dedicated resources, your upgrade might take longer.

Nearly all of the responsibilities for planning, ordering, preparing, and preinstalling are customer responsibilities. If you need assistance with these stages of the upgrade, services are available to assist you. When you have completed these stages, the authorized service provider performs the hardware upgrade at this time. Following the hardware upgrade, you are presented with the new server and its physical configuration for review.

Your unique upgrade might include some or all of the following upgrade stages.

Table 1. Upgrade stages

Stage	Stage description	Time required
Plan	Develop a detailed project plan. Focus your plan on items such as a solution, a task list, a timeline, and a project schedule. Determine the hardware, software, and the services that are required for your new server as a result of the solution that you want. You must also determine the prerequisites that are required to support your new hardware and software. Consider backup and recovery, time you can afford to be down for the upgrade, and whether or not side-by-side services will be needed.	2 weeks
Order	Analyze the detailed plan that you developed in the planning stage with your reseller or marketing representative. Consider whether your upgrade is feasible, the risk involved with your upgrade, and whether your requirements will be met. If everything appears acceptable after analyzing your detailed plan, place your order.	1 day
Preparation	Prepare your server for an upgrade. Tasks in this stage include the following: • Preparing your environment and your server. This includes adding, replacing, or removing a hardware feature, activating inactive resources, and converting an expansion unit. Depending on your hardware compatibility, you might need to upgrade your software prior to changing a hardware feature or converting an expansion unit. • Cleaning up your server by doing tasks such as removing failed or nonreporting resources, removing unsupported disk units and deleting device configurations. • Backing up your data. • Installing any hardware or software prerequisites. • Ensuring that checklists are complete, including the hardware installation readiness checklist.	2 weeks
Preinstallation	Tasks in this stage include the following: • Examine what you have done so far and determine whether you are now ready for the upgrade. • Gather all necessary server information for the authorized service provider. • Determine if you need to complete any remaining work items. • After you determine that you are ready, establish a meeting with your authorized service provider. In this meeting, you can then display all pertinent information to them such as your target server configuration.	1 day
Installation	Install the software on your source server several weeks before the hardware upgrade.	1 day

Table 1. Upgrade stages (continued)

Stage	Stage description	Time required
Postinstallation	Tasks in this stage include the following: • After you have reviewed your new server and the physical configuration, configure your target server. This includes the following: – Configuring your Hardware Management Console (HMC). – Migrating existing logical partition configurations. – Rearranging hardware as needed for logical partitions. – Setting up and changing your logical partitions. • Migrate any applications and data at this time. • Finish your upgrade by testing your server as detailed in your test methodology plan. Fixes and enhancements might have been released between the time that your new server was built and shipped, and when it was installed. Therefore, the first key step is to update the HMC, system firmware, and operating system code to the latest level. After you have completed the hardware resource-management tasks, label your cables and hardware resources, and then print out your configuration information for reference. You can use the configuration information for future server-management tasks, and server-maintenance tasks.	1–2 days

Common deviations

There are many reasons or situations that might change the previous timeline. The following list includes a few of the more common deviations that might affect your timeline:

- Unassigned resource

  If the resources are incorrectly assigned to the upgrade tasks, your upgrade can take longer. Ensure that you have the appropriate people and skills assigned to the correct upgrade tasks.
- Logical partitions

  The preparation and installation time increases with each logical partition on the server. With proper planning and preparation, this should not be a problem; however, servers with multiple logical partitions will require a longer timeline than servers with fewer partitions or servers with only one partition.
- Unsupported I/O devices

  If you do not plan for the removal or replacement of unsupported I/O devices but realize during your upgrade that you have unsupported I/O devices, you must remove those devices, and perhaps replace those devices with supported I/O devices, which increases your timeline.
- Unsupported software

  If your software is not properly planned, it might add several unexpected hours by forcing you to reschedule your upgrade to another time, or require that your upgrade be removed and rescheduled, which might result in additional costs. It is imperative that you understand what software is compatible with your server and hardware features. For example, if you are changing a hardware feature before upgrading your server, you might need to upgrade your software prior to making the hardware feature change depending on the requirements and compatibility of that hardware feature. If you do not need to upgrade your software during the preparation stage, you might need to during the installation stage as a requirement prior to upgrading your server.

Upgrade considerations

Learn about what to consider before starting an upgrade from IBM System p5 or eServer p5 models.

All upgrade situations are different. The following examples show possible upgrade scenarios:

- Replace an older server that will no longer be used with a new IBM System p5 or IBM eServer p5 570.
- Replace several older servers with one new, partitioned IBM System p5 or IBM eServer p5 570 in a server consolidation.
- Convert an older server, such as a System p 650, into an IBM System p5 or IBM eServer p5 570.

Analyzing your environment to determine what you will upgrade, both hardware and software, is critical for any type of upgrade. Consider the following issues when you are deciding to upgrade your server:

- What media will you use for backups and installations? One option for backups and installations is using CDs. You can also use the network and file systems.
- What operating system are you currently running? That version might not run on your new hardware, or you might need to upgrade to the latest recommended maintenance level.
- What operating system is required on the new server?
  - IBM AIX 5L™ Version 5.2 with the 5200-04 Technology Level or later is required to run a POWER5™ server. If you are already running IBM AIX 5.2, you must update to the latest recommended maintenance level.
  - AIX 5.3 is required to use shared processors or virtual I/O. If you are currently running IBM AIX 5.1 or earlier, you must perform a migration installation to AIX 5.3.
- What applications do you want to run on the new server? Ensure that the applications are certified on the level of operating system that you are running on the new server.
- Is all of your current hardware supported on the new server? Some or all of the hardware might not be supported. To find out what hardware is supported, see the IBM prerequisite Web site (http://www-912.ibm.com/e_dir/eServerPreReq.nsf).

Upgrade checklist

Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

If you prefer not to use this checklist, you can read through all the tasks under "Upgrading the server" on page 6. The tasks under that section are in the same order as they appear in this checklist.

The term *reseller* will often refer to your IBM Business Partner. IBM refers to your authorized service provider.

If the responsibility states *customer and reseller*, *or customer and IBM*, ensure that you work in cooperation with your reseller or IBM to complete that task.

Several of the tasks below are embedded in other tasks. A higher-level task might state customer and reseller, or customer and IBM; however, the majority of the tasks within that section might be your responsibility, meaning that for a few of the tasks within that section, ensure that you work in cooperation with your reseller or IBM.

Before you begin

__ The following checklist is broken into stages. Ensure that you understand the stages involved when upgrading your server before completing this checklist. To understand the basics of each stage and where certain tasks will fall, see "Upgrade timeline" on page 2.

Server upgrade tasks	Responsibility
__ "Upgrade planning tasks" on page 7	Customer
__ "Order tasks" on page 7	
__ "Configuring your order" on page 7	Customer and reseller
__ "Validating your order" on page 8	Customer and reseller
__ "Validating your upgrade project plan" on page 8	Customer, IBM, and reseller
__ "Placing your order" on page 8	Customer and reseller
__ "Preparation tasks" on page 9	Customer and reseller
__ "Confirming your upgrade schedule" on page 9	Customer
__ "Cleaning up disk storage" on page 9	Customer and IBM
__ "Adjusting memory and processing resources" on page 10	Customer and IBM
__ "Developing your test plan" on page 10	Customer and IBM
__ "Scheduling your acceptance review" on page 11	Customer and IBM
__ "Preinstallation tasks" on page 11	
__ "Software considerations" on page 11	Customer
__ "System backup requirements" on page 12	Customer
__ "Preparing your location for the upgrade" on page 12	Customer
__ "Reviewing your project and contingency plans" on page 13	Customer
__ "Running the AIX pre_migration command" on page 13	Customer
__ "Performing the upgrade" on page 14	
__ "Saving your existing partition profiles from a Hardware Management Console" on page 14	Customer
__ "Updating AIX with a new maintenance level" on page 15	Customer
__ "Migrating AIX to a new version or release" on page 17	Customer
__ "Backing up AIX to a CD" on page 20	Customer
__ "Restoring an AIX system backup from a CD" on page 21	Customer
__ Configuring the HMC	Customer
__ "Testing your server" on page 23	Customer

After you complete the tasks in the preceding checklist, and after the upgrade is complete, do the following:

After you finish

__ Consider examining your server's performance. For more information, see Performance Management (http://publib.boulder.ibm.com/infocenter/pseries/v5r3/index.jsp?topic=/com.ibm.aix.prftungd/doc/prftungd/performance_management-kickoff.htm) and AIX 5L Performance Tools Guide and Reference (http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.prftools/doc/prftools/prftools.htm).

Upgrading the server

View information about upgrading your server, such as planning and preparation tasks and tasks on how to perform your upgrade.

This topic explains in detail all the tasks that are listed in the upgrade checklist. They are listed in chronological order starting from the time you first start planning for your server upgrade until the time you have finished preparing your target server for production. These tasks are also separated into various stages, which are described in the upgrades concepts topic. See "Upgrade timeline" on page 2 for information about what each upgrade stage entails. To see all of these tasks, including who is responsible for each task, in a checklist format, see the "Upgrade checklist" on page 5.

To determine hardware and software compatibility, see the IBM Prerequisite Web site (http://www-912.ibm.com/e_dir/eServerPreReq.nsf).

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Upgrade planning tasks

Understand the items to consider before you upgrade your server, including hardware, software, and the physical site preparation.

Read the items that you need to consider before you upgrade your server. These planning topics are essential and can assist you when planning for hardware, software, and the physical site preparation. For more information, see "Upgrade considerations" on page 5.

You can help to minimize your downtime and make performing the upgrade easier by planning carefully. The many items that you need to consider before upgrading your server are included in a checklist for each server model. To review the checklist for your server, see the Planning checklist (https://www.ibm.com/servers/resourcelink/lib03030.nsf/pages/SiteandHardwarePlanningGuide?OpenDocument&pathID=sa76-0091.pdf) in the Planning topic.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Order tasks

Understand the order process, such as how to configure, validate, and place your order.

Use this information to learn the order process. Learn how to configure and validate your order as well as how your order is placed. In this stage, you and your reseller or authorized service provider must analyze your detailed plan that you developed in the previous step. Some items to be taken into consideration include whether your upgrade is feasible, the risk involved with your upgrade, and whether your requirements will be met. If everything appears acceptable after analyzing your detailed plan, place your order.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Configuring your order

Learn how to develop a solution that is correct for you.

After planning for your upgrade, determine if your solution is correct and available. The configurator tool performs the following tasks:

- Validating your hardware and software order
- Analyzing possible problems with disk space and console requirements
- Analyzing performance, I/O structure, and server availability
- Providing a price estimate for your new solution
- Validating combinations of hardware and software based on your configuration and order availability

Your reseller assists you when using the configurator tool.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Validating your order

Ensure that your order is complete.

Finalize your order based on your solution by completing a solutions assurance review. Validate the following items with your reseller or marketing representative when you examine your order:

- The target server meets your performance requirements.
- Thorough hardware and feature placement and cabling plans are available.
- Software requirements are identified for all logical partitions.
- Data, hardware configuration, and business continuity requirements can be maintained.
- Customer acceptance criteria is established.
- The backup plan is supported.
- The System Planning Tool (SPT) information, which is used to plan LPAR configurations, is appropriate.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Validating your upgrade project plan

Ensure that you have developed a thorough upgrade schedule and project plan.

Ensure that your upgrade project plan is extensive and detailed. Validate that your plan includes the following information:

- A list of responsibilities for the tasks involved in an upgrade
- The skills and people that have been assigned to complete the tasks
- Adequate backup or contingency plans
- A contact list for the people assigned to the upgrade tasks
- An upgrade schedule that includes your dependencies, expectations, and limitations
- The parts that will be returned to IBM following the upgrade

Items that are billable during or after the upgrade include the following:

- Rearranging existing hardware that is not required to physically install new items
- Developing a plan that lists unnecessary actions where the same result can be attained without those actions
- Moving items that are not affected by your new hardware, or moving items to provide for placement of your new hardware for items other than placing them in a supported location within the system. For example, supporting a specific environment, such as placement for logical partitioning or clustering considerations, is considered a billable item.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Placing your order

Understand who places your order and how your order will be placed.

Place your order with your reseller or authorized service provider after you have configured and validated it. Your reseller or authorized service provider ensures that your order has been properly placed and that everything is correct. They also ensure that you sign your contract. Your reseller or authorized service provider confirms with you what parts or features will be returned to IBM at the conclusion of the upgrade.

The typical method by which your reseller or marketing representative assists you in placing your order is through the Advanced Administration System (AAS) or IBM Passport Advantage®. Your reseller or authorized service provider confirms with you what parts are returned to IBM.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Preparation tasks

Learn how to prepare your server for an upgrade, and complete other preparation tasks.

During this stage, you prepare your server for an upgrade. The major tasks associated with this stage include adding, replacing, or removing a hardware feature, activating inactive resources, and converting expansion units. You must also clean up and back up your server, and ensure that your target console is prepared and running, and develop a test plan.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Confirming your upgrade schedule

Understand why and who you should confirm your upgrade schedule with.

Confirm your schedule with all parties involved. Include IBM and your IBM Business Partner, if necessary. By confirming your schedule, you ensure that everyone understands when the upgrade tasks will be completed and that they must be available to support the portion of the upgrade for which they are responsible if questions or problems arise. Resolve any potential conflicts immediately.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Cleaning up disk storage

It is important that you clean up your disk storage before you back up your data and eventually perform your upgrade. Understand why you should clean up your disk storage.

Cleaning up your disk storage is important for several reasons:

- It shortens the amount of time it takes you to back up your data.
- It might improve performance.
- It frees up additional storage space.
- If it is necessary to perform an unplanned recovery from media, your recovery time is shorter.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Adjusting memory and processing resources

Understand why and how to adjust memory and processing resources. Adjusting those resources can help you adjust to changing workloads.

If your target server or partition has already been set up and you realize there is inadequate processor or memory, you can adjust these without having to re-create the partition. If the target server has fewer processors than the source server, you must adjust the configuration on the source server to reflect the target server's processing resources. If the target server has less memory than the source server, you can adjust the minimum memory values per logical partition.

For more information on adjusting processing power, see Dynamically managing processing power. For more information about adjusting memory, see Dynamically managing memory .

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Developing your test plan

Understand how to develop acceptance criteria, a test plan, and a test schedule. You can also learn why you should develop these items.

Before you develop your test plan, determine your acceptance criteria. These criteria must establish the requirements and steps it will take to return your new server to the appropriate level of function, performance, availability and risk following the upgrade. These criteria will help promote a quick and easy transition from the time when the authorized service provider presents the server to you until you formally accept your new server.

When developing your test plan, assess your business situation to determine the level of testing that you need. Examine the risk involved by not testing and whether that risk justifies the time, expense, and resources required to complete the test.

After you have determined the preliminary tasks, your next step is to develop your actual test plan, which should be partially based on your criteria and risk assessment. To continue developing your test plan, complete the following tasks:

1. Identify focus areas to be covered by testing
2. Identify resources that can support this testing
3. Assign appropriate personnel to develop a test strategy and test schedule

After you have covered those tasks, your next steps are to:

1. Develop a test strategy, plan, and timeline
2. Ensure that you have enough resources to complete your test. Consider the following resources:
   - Hardware
   - Software
   - Labor
   - Tools
   - Licenses
   - Location

3. Verify that you have taken into consideration physical planning and installation requirements
4. Develop a test schedule

Review your plan thoroughly before implementing it. Use this review to focus on your timeline, requirements, cost, and steps necessary to complete your plan.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Scheduling your acceptance review

Understand why you need an acceptance review and who should be involved.

The acceptance review is a meeting where you can evaluate whether the hardware configuration matches your plan. At the meeting, include the service provider and anyone else who needs to evaluate the new server. The service provider presents the new server and its physical configuration to you.

You use the information provided by the service representative to prepare the server for production. Therefore, it is important to determine whether the current server hardware configuration matches your plan.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Preinstallation tasks

The major tasks in this stage include reviewing system requirements, preparing your location, and reviewing your project and contingency plans. Find links to instructions for preparing for your upgrade.

Use this stage as a checkpoint to examine what you have done so far and to determine whether you are now ready for the upgrade. Also, gather all necessary information for the authorized service provider. Determine if any tasks still exist that need to be done. If you determine that you are ready, your next step is to establish a meeting with your authorized service provider. In this case, you can then show them all pertinent information.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Software considerations

Different options are available for upgrading an existing IBM AIX environment. Learn about those options before you perform an upgrade.

You can use the following methods to upgrade an existing environment:

Using a mksysb backup image
: If you can migrate your server to AIX 5L Version 5.2 with the 5200-04 Technology Level or later, you can create a mksysb backup image of the older server. You can then use the mksysb image to reinstall AIX on the new server.

Using alternate disk migration
: If you want to decrease the amount of time that your production environment is down, you can use the **nimadm** command to perform an alternate disk migration. This method requires more

resources than the other methods. You must have an existing AIX Network Installation Management (NIM) master that is running the same version of AIX to which you are migrating the new server.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

System backup requirements

Understand the options to back up your current server before you perform an upgrade. Before performing an upgrade, you can back up your server using a mksysb image or alternate disk installation.

Before you perform any upgrade tasks, verify that you have a current system backup in the IBM AIX environment of your rootvg and all of your data. An AIX system backup is called a mksysb image. You can either create a mksysb backup image or use alternate disk installation.

If you create a mksysb backup image, you can record a backup on any of the following media:

- Tape
- Network file system
- CD-RW
- DVD-RW
- DVD-RAM

To make recovery flexible and reliable, back up to more than one media if possible. For additional information on creating a mksysb backup, see Creating system backups (http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/create_sys_backup.htm).

To back up your system using alternate disk installation, you can clone a copy of your running system to another drive. For additional information about using alternate disk installation, see Alternate disk installation (http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/HT_insgdrf_altdiskinstall_clone.htm).

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Preparing your location for the upgrade

Learn how to prepare your location for the upgrade. Specifically, use this information to understand what you need to do to ensure that your location is ready for the authorized service provider.

To prepare your location for the upgrade, perform the following tasks:

- Validate that all of your existing cables are labeled appropriately with the port and location where they plug into the server and the destination information on both ends.
- Assemble and lay out all of the new cables. The service provider connects the cables to your new server.
- Install any network or telephone connections such as telephone twisted pair or Ethernet cables.
- Rearrange hardware, whenever possible, to ensure that it is located in its final location. This might involve billable services, and you might need to have a plan to determine when the hardware relocation activity should occur.
- Prepare a work space that provides enough room for the service provider to lay out their ESD-protective mat and display I/O and other items.

- Validate that when the service provider arrives, the server is available to the service provider with all users off the machine and no production jobs running. This allows the service provider to power off the machine and perform other jobs.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Reviewing your project and contingency plans

Learn how to validate that your project and contingency plans are thorough and correct.

Review your project plan to ensure that you have correctly planned for everything in the upgrade. This prepares you for the installation and post-installation stages. Also, understand all billable items and the responsibilities of all the parties involved.

Discuss your target hardware configuration with your reseller or marketing representative. Focus on any changes that you want to make because they need to be examined to determine if additional services are required and if they might cause any problems with the configuration.

In the event that you experience problems during an upgrade, ensure that you understand your recovery or installation backout plan when reviewing your contingency plans. A contingency plan should include the following items:

- Alternate site processing
- Alternate backup schedule
- Availability of a backup server to run critical applications

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Running the AIX pre_migration command

Learn when you should run and how to run the AIX **pre_migration** command.

Before you migrate AIX, ensure that your server does not have existing installation issues.

If you are migrating to AIX 5.2 or later, you can run the **pre_migration** command on the CD that runs a set of tests and verifications on your server before you start the migration process. All output from the **pre_migration** command is saved in the /home/pre_migration.*date* directory. To run the **pre_migration** command, complete the following steps:

1. Mount the AIX 5.2 or AIX 5.3 CD using the following command:
   ```
   # mount -v cdrfs -o ro /dev/cd0 /mnt
   ```
2. Copy the script to your server. The script is located in the /mnt/usr/lpp/bos/pre_migration directory. Run the following command:
   ```
   # cp /mnt/usr/lpp/bos/pre_migration /tmp/pre_migration
   ```
3. Run the script using the following command:
   ```
   # /tmp/pre_migration
   ```

The script performs the following checks:

- Placement and size of boot logical volume
- Requirements for disk space
- Verification of current system installation

If any problems are found, they are logged and reported to you. The premigration script does not make any changes on the server. The script verifies the current environment and checks for specific circumstances that might cause problems during a migration.

Run the premigration script before starting any migration, including alternate disk migration. Although all of the checks are also done before migration, it is easier to correct problems on a running server.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Performing the upgrade

Performing your upgrade entails saving your partition profiles, and updating, migrating, backing up, and restoring AIX on your system. Use these instructions to perform those tasks.

This topic describes how to upgrade your IBM System p system. Before you begin these tasks, complete the necessary steps in "Upgrade planning tasks" on page 7. Depending on which scenario you are using, performing an upgrade includes a subset of steps.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Saving your existing partition profiles from a Hardware Management Console

Saving your existing partition profiles allows for an easier restoration of your partitions following your upgrade. Learn how to save your existing partition profiles from a Hardware Management Console (HMC).

You can use this procedure to save the logical partition definition information from a POWER4™ HMC. In this procedure, the managed server is named `7038-6M2*10A59BC`.

The following steps show you how to use the HMC to save the logical partition definition information:

1. Log in to the POWER4 HMC that is connected to the managed server using an SSH client application.
2. Run the **lssyscfg** command to list all the partitions on the server, as follows:

   ```
   lssyscfg -r lpar -m "7038-6M2*10A59BC" -F name
   ```
3. Save this information. For example:
   a. On your local system, redirect the output to a file when you issue the **ssh** command. For example, type the following:

      ```
      ssh username@hmchostname lssyscfg -r lpar -m "7038-6M2*10A59BC" -F name > outputfile
      ```
4. On the POWER4 HMC, run the **lssyscfg** command to list the partition profiles for each partition on the server, as follows (where *name_from_step2* is one of the partition names returned in step 2):

   ```
   lssyscfg -r prof -m "7038-6M2*10A59BC" -p name_from_step2 //
   -F name:boot_mode:desired_cpu:minimum_cpu:maximum_cpu:desired_mem:minimum_mem:maximum_mem://
   desired_io:required_io:service_authority:sfp_surveillance:sni_device_id
   ```

   Note: You do not need to perform this step for the `FullSystemPartition` name that was returned in step 2.
5. Save this information. For example:
   a. On your local system, redirect the output to a file when you issue the **ssh** command. For example, type the following:

      ```
      ssh username@hmchostname lssyscfg -r lpar -m "7038-6M2*10A59BC" -F name > outputfile
      ```

6. On the POWER4 HMC, run the **lshwres** command to list all the slot information for the server, as well as the partition that the slot is assigned, as follows:

   ```
   lshwres -m "7038-6M2*10A59BC" -r slot -F phys_loc:drawer_id:slot_id:slot_type:assigned_to
   ```

7. Save this information. For example:
   a. On your local system, redirect the output to a file when you issue the **ssh** command. For example, type the following:

      ```
      ssh username@hmchostname lssyscfg -r lpar -m "7038-6M2*10A59BC" -F name > outputfile
      ```

After you have saved the partition profile information, do the following:

1. Use the HMC to create an AIX logical partition and partition profile on your new server. For more information, see Configuring AIX logical partitions.
2. Update your partition profile on the new server using the information from the partition profile that you saved. For more information, see "Restoring an AIX system backup from a CD" on page 21.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Related information

HMC lssyscfg command

HMC lshwres command

Updating AIX with a new maintenance level

Your current version and release of AIX must match the level of AIX to which you are updating. Learn how to update your current maintenance level of IBM AIX.

Before you update AIX, review the information in "Saving your existing partition profiles from a Hardware Management Console" on page 14.

Attention: This procedure requires that you restart AIX. Whenever you restart AIX, schedule your downtime when it least impacts your workload to protect yourself from a possible loss of data or functionality. Before you update AIX with a new maintenance level, ensure that you have reliable backups of your data and any customized applications or volume groups. For instructions on how to create a system backup, see Creating system backups.

The following steps show you how to use a CD-ROM or DVD device to update AIX with a new maintenance level.

Step 1. Prepare for the update procedure

Before starting the update procedure, complete the following prerequisites:

- You must be logged in to the server as the root user.
- Either insert the media that contains the optional software or service updates into the appropriate drive or know the local or routed path to the software.
- If system files have been modified, back them up separately before updates are applied, because the update process might replace configuration files.
- Ensure that other users who have access to your server are logged off.
- Verify that your applications run on the new AIX maintenance level.
- Verify that all currently installed software is correctly entered in the Software Vital Product Database (SWVPD), by using the **lppchk** command. To verify that all filesets have all required requisites and are completely installed, type the following:

  ```
  # lppchk -v
  ```

- Check that your hardware microcode is up-to-date.

- Ensure that all requisite hardware, including any external devices (such as tape drives or CD or DVD-ROM drives), are physically connected and powered on. If you need further information, refer to the hardware documentation that accompanied your server.
- Use the **errpt** command to generate an error report from entries in the system error log. To display a detailed report, type the following command:

  ```
  # errpt -a
  ```
- Ensure that adequate disk space and memory are available. For additional release information, see the *AIX Release Notes* that correspond to the maintenance level that you are installing.
- Make a backup copy of your server software and data. For instructions on how to create a system backup, see Creating system backups.

You can perform the update procedure either using the SMIT interface or the command line. Use one of the following sets of instructions, depending on whether you are using the SMIT interface or the command line:

Step 2. Perform the update procedure using the SMIT interface

1. Insert the AIX maintenance level CD into the CD-ROM or DVD device.
2. Type `smitty update_all` at the command line.
3. Type or select the input device that contains the AIX maintenance level CD, and then press Enter.
4. Type or select values in all entry fields, and then press Enter.

   When you press Enter to start the installation, the COMMAND STATUS panel is displayed. As the installation proceeds, a series of messages is displayed. The amount of time that the installation takes varies depending on your server and the software that you are installing and updating.

   When the installation is complete, the panel returns to the top of the list of messages that are displayed during installation. The **Command: status** field on the COMMAND STATUS panel changes to **OK** or **failed**. **OK** indicates that the installation ran to completion, although some filesets might not have installed successfully. The **failed** status means that there was a problem with the installation. Although a preview installation always finishes with an **OK** status, always check the summaries.
5. Press F10 (or Esc+0) to exit SMIT.
6. Review the **smit.log** file (**/smit.log** or **/home/***user_id***/smit.log**).
7. Remove all installation media for the maintenance level from the drives.
8. When you are directed, restart your server by typing the following command:

   ```
   # shutdown -Fr
   ```

Step 2. Perform the update procedure using the command line

1. Use the **install_all_updates** command to install all installp updates on the `/dev/cd0` device and to verify the current recommended maintenance level:

   ```
   # install_all_updates -d /dev/cd0
   ```
2. Remove all installation media for the maintenance level from the drives.
3. When you are directed, restart your server by typing the following command:

   ```
   # shutdown -Fr
   ```

For more information about the **install_all_updates** command, see the **install_all_updates** command in the *AIX 5L Commands Reference*.

Step 3. Verify server configuration after installation

After the update procedure is complete and AIX has been restarted, verify the server configuration, as follows:

1. Verify that all currently installed software is correctly entered in the Software Vital Product Database (SWVPD), by using the **lppchk** command. To verify that all filesets have all required requisites and are completely installed, type the following:

   ```
   # lppchk -v
   ```

2. Use the **errpt** command to generate an error report from entries in the system error log. To display a detailed report, type the following:

   ```
   # errpt -a
   ```

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Related information

Creating system backups
(http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/create_sys_backup.htm)

Migrating AIX
(http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/bos_migration_installation.htm)

Migrating AIX to a new version or release

Using this procedure, you can migrate a server from an earlier version or release of AIX to AIX 5.3.

Before you migrate AIX, review the information in "Saving your existing partition profiles from a Hardware Management Console" on page 14. In this procedure, you perform a migration installation from an earlier version or release of AIX to AIX 5.3 using the following options:

- Use English as the primary language
- Use the default options in the **Advanced Options** menu

If you are overwriting an existing server, get the TCP/IP information before you begin this procedure.

Attention: This procedure requires shutting down and reinstalling the base operating system. Whenever you reinstall any operating system, schedule your downtime when it least impacts your workload to protect yourself from a possible loss of data or functionality. Before you perform a migration installation, ensure that you have reliable backups of your data and any customized applications or volume groups. For instructions on how to create a system backup, see Creating system backups.

Use the following steps to use the server's built-in CD-ROM device to perform a migration installation of the base operating system. For information about preparing for the migration, see "Preinstallation tasks" on page 11.

Step 1. Boot from the AIX product CD

Before you begin: Ensure that you run the **pre_migration** command and that you are logged in as the root user. For more information about running the **pre_migration** command, see "Running the AIX pre_migration command" on page 13.

1. If they are not already on, turn on your attached devices.
2. Insert the *AIX Volume 1* CD into the CD-ROM device.
3. Verify that the boot list is set to boot from the CD-ROM device, by typing the following command:

   ```
   # bootlist –m normal –o
   ```

4. Add the CD-ROM device to the boot list, if the CD-ROM device is not in the boot list. For example, to add the cd0 device to the boot list to include both the CD-ROM device and the hard disk in the boot list, type the following command:

```
# bootlist –m normal –o cd0 hdisk0
```

5. Restart the server by typing the following command:
   ```
   # shutdown -r
   ```
6. When the server beeps twice, press F5 on the keyboard (or 5 on a nongraphical terminal). If you have a graphics display, the keyboard icon is displayed when the beeps occur. If you have a nongraphical terminal (also called a tty terminal), the word keyboard is displayed when the beeps occur.

   Note: If your server does not boot using the F5 key (or the 5 key on a nongraphical terminal), see your hardware documentation for information about how to start your server from an AIX product CD.
7. Select the server console by pressing F1 (or 1 on a nongraphical terminal), and then press Enter.
8. Select the English language for the BOS Installation menus by typing a 1 at the **Choice** field, and then press Enter. The Welcome to Base Operating System Installation and Maintenance menu opens.
9. Type 2 to select **2 Change/Show Installation Settings and Install** in the **Choice** field, and then press Enter.

```
                    Welcome to Base Operating System
                    Installation and Maintenance

Type the number of your choice and press Enter.  Choice is indicated by >>>.

    1 Start Install Now with Default Settings

    2 Change/Show Installation Settings and Install

    3 Start Maintenance Mode for System Recovery


    88  Help ?
    99  Previous Menu
>>> Choice [1]: 2
```

Step 2. Verify migration installation settings and begin installation

1. Verify that migration is the method of installation. If migration is not already selected as the method of installation, select it now. Select the disk or disks that you want to install.

```
    1  System Settings:
         Method of Installation.............Migration
         Disk Where You Want to Install.....hdisk0
```

2. Select **Primary Language Environment Settings (AFTER Install)**.
3. Type 3, and then press Enter to select **More Options**. To use the Help menu to learn more about the options available during a migration installation, type 88, and then press Enter in the Installation Options menu. For more information about the installation options available in AIX 5.3, see BOS installation options.
4. Verify the selections in the Migration Installation Summary panel, and then press Enter.
5. When the Migration Confirmation menu is displayed, follow the menu instructions to list the server information, or continue with the migration by typing 0 and then pressing Enter.

```
                              Migration Confirmation

  Either type 0 and press Enter to continue the installation, or type the
  number of your choice and press Enter.

    1  List the saved Base System configuration files which will not be
       merged into the system.  These files are saved in /tmp/bos.
    2  List the filesets which will be removed and not replaced.
    3  List directories which will have all current contents removed.
    4  Reboot without migrating.

    Acceptance of license agreements is required before using system.
    You will be prompted to accept after the system reboots.

>>> 0  Continue with the migration.
   88  Help ?

+-------------------------------------------------------------------------------
  WARNING: Selected files, directories, and filesets (installable options)
    from the Base System will be removed.  Choose 2 or 3 for more information.


>>> Choice[0]:
```

Step 3. Verify server configuration after installation

After the migration is complete, the server restarts. Verify the server configuration, as follows:

1. On servers with a graphics display, after a migration installation, the Configuration Assistant opens. On servers with a nongraphical display, after a migration installation, the Installation Assistant opens.

   For more information about the Configuration Assistant or the Installation Assistant, see Configuring AIX.
2. Select the **Accept Licenses** option to accept the electronic licenses for the operating system.
3. Verify the administrator (root user) password and network communications (TCP/IP) information.

   Use any other options at this time. You can return to the Configuration Assistant by typing `configassist` or the Installation Assistant or by typing `smitty assist` at the command line.
4. Select **Exit the Configuration Assistant** and select **Next**. Or, press F10 (or `ESC+0`) to exit the Installation Assistant.
5. If you are in the Configuration Assistant, select **Finish now, and do not start Configuration Assistant when restarting AIX** and select **Finish**.
6. When the login prompt is displayed, log in as the root user to perform system administration tasks.
7. Run the **post_migration** command, which is located in the `/user/lpp/bos` directory on your server.
8. Verify the output files, which are saved in the `/home/post_migration.date` directory.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Related information

Creating system backups
(http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/create_sys_backup.htm)

Migrating AIX
(http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/bos_migration_installation.htm)

Configuring AIX
(http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/bos_configuration.htm)

BOS installation options
(http://publib.boulder.ibm.com/infocenter/pseries/v5r3/topic/com.ibm.aix.install/doc/insgdrf/bos_install_more_options.htm)

Backing up AIX to a CD

Ensuring you have a current backup of your operating system is essential to ensure a smooth upgrade. Learn how to back up your current environment and then restore it on your new server.

This procedure provides information about how to back up the IBM AIX operating system to a CD. This procedure assumes that your server might not have a CD-R or CD-RW drive. If your server does not have a CD-R or CD-RW drive, you can back up AIX to a file, and then use FTP to send the AIX backup file to a server that does have a CD-R or CD-RW drive.

This procedure involves performing the following tasks:

1. Backing up AIX to an ISO image file
2. Transferring the ISO image to another server
3. Burning the ISO image to a CD

The following steps show you how to back up the AIX operating system to a CD.

1. Log in to the server as the root user.
2. Verify your running server.
3. Check the firmware code level from AIX, and update the firmware, if necessary.
4. Use the **errpt** command to generate an error report from entries in the system error log. To display a complete detailed report, type the following command:

   ```
   # errpt -a
   ```

   Note: There must be adequate disk space and memory available. For additional release information, see the *AIX 5L Release Notes*.
5. Run the **smitty mkcd** command as follows

   ```
   # smitty mkcd
   ```
6. Select **No** from the **Use an existing mksysb image** menu. Selecting **No** allows you to create a new system backup that reflects your current running environment.
7. Select the options that are appropriate to your environment from the **Back Up This System to CD** menu. You can also leave the default options as they are.
8. Select **Yes** for the **Do you want the CD to be bootable** option.
9. Select **No** for the **Remove final images after creating CD** option.

10. Select **No** for the **Create the CD now** option.
11. Press Enter to begin the system backup creation when you finish making selections. When the operation completes successfully, there is a file or files located in the `/mkcd/cd_images` directory.
12. Transfer the ISO backup image to a server that has a CD-R or CD-RW device.
13. Create a bootable CD from the ISO backup image using the CD-burning software available in your environment.

Related concepts

"Upgrade checklist" on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Restoring an AIX system backup from a CD

In this procedure, you restore an IBM AIX system backup, also called a mksysb, on a logical partition using the logical partition's CD-ROM device.

This procedure assumes that there is a Hardware Management Console (HMC) attached to the managed server.

Note: Ensure that you follow the sequence of steps for the installation method that you choose. Within each procedure, some steps are completed in AIX and some steps are completed using the HMC interface.

Prerequisites

Before you begin this procedure, ensure that you have already used the HMC to create an AIX logical partition and partition profile with the information from "Saving your existing partition profiles from a Hardware Management Console" on page 14. Ensure that the AIX logical partition has the following resources assigned:

- A device adapter attached to the DVD or CD-ROM drive
- A network adapter
- A hard disk with the minimum amount of space needed for AIX

Set the boot mode for this partition to be **Normal** mode. After you have successfully created the logical partition and partition profile, leave the logical partition in the *Ready* state.

Step 1. Activate and install the partition (performed in the HMC interface)

1. Insert the AIX system backup CD into the CD device of the AIX logical partition.
2. Right-click the partition to open the menu.
3. Click **Activate**. The **Activate Partition** menu opens with a selection of partition profiles. Ensure that the correct profile is highlighted.
4. Click **Open a terminal window or console session** from the menu to open a virtual terminal (vterm) window.
5. Click **Advanced** to open the **Advanced options** menu.
6. Click **SMS** for the Boot mode.
7. Click **OK** to close the **Advanced options** menu.
8. Click **OK** again. A vterm window opens for the partition.

Step 2. Select the boot device

Note: The default password for the administrator is `admin`.

In the SMS menu on the vterm window, complete the following steps:

1. Press the 5 key, and then press Enter to select **5. Select Boot Options**.

```
Firmware
--------------------------------------------------------------------------------
Main Menu

1. Select Language
2. Setup Remote IPL (Initial Program Load)
3. Change SCSI Settings
4. Select Console
5. Select Boot Options


--------------------------------------------------------------------------------
Navigation Keys:

                X = eXit System Management Services
--------------------------------------------------------------------------------
Type the number of the menu item and press Enter or select Navigation Key: 5
```

2. Press the 2 key, and then press Enter to select **2. Select Boot Devices**.
3. Press the 1 key, and then press Enter to select **1. Select 1st Boot Device**.
4. Press the 3 key, and then press Enter to select **3. CD/DVD**.
5. Select the media type that corresponds to the CD-ROM device, and then press Enter.
6. Select the device number that corresponds to the CD-ROM device, and then press Enter.
7. Set the boot sequence to configure the first boot device. The CD-ROM device is now the first device in the Current Boot Sequence list.
8. Press the x key to exit the SMS menu and confirm that you want to exit SMS.

Step 3. Restore the AIX system backup

Install the AIX system backup, as follows:

Note: As you exit the SMS menus, the AIX base operating system (BOS) installation environment loads. It might take a few minutes for the boot image to load before the BOS Installation menus are displayed.

1. Define the System Console, and then press Enter.
2. Select the language for the Base Operating System (BOS) Installation menus, and then press Enter to open the **Welcome to Base Operating System Installation and Maintenance** menu.
3. Type 1 to select **Start Install Now with Default Settings** in the **Choice** field, and then press Enter.

```
Welcome to Base Operating System
                     Installation and Maintenance

Type the number of your choice and press Enter.  Choice is indicated by >>>.

    1 Start Install Now with Default Settings

    2 Change/Show Installation Settings and Install

    3 Start Maintenance Mode for System Recovery

    88  Help ?
    99  Previous Menu
>>> Choice [1]: 1
```

4. Verify that the selections are correct in the **Installation Summary** menu.

```
                    System Backup Installation Summary

   Disks: hdisk0
   Use Physical Location Maps: No
   Shrink File System: No
   Import User Volume Groups: Yes
   Recover Devices: No

>>> 1 Continue with Install

88  Help ?
99  Previous Menu

>>> Choice [1]: 1
```

5. Type 1 in the **Choice** field, and then press Enter to confirm the installation options and begin the installation. If the AIX system backup spans multiple CDs, the BOS installation program prompts you to switch to the next volume, and then press Enter. Repeat as many times as necessary until all the system backup volumes have been processed.

The server automatically restarts after installation is complete.

Step 4. Log in to AIX

When AIX has been successfully restored, the login prompt is displayed. Complete the following steps:

1. Log in to AIX using your user name and password.
2. Run the errpt command to verify that there are no errors on the server, as follows:

   ```
   # errpt –a | pg
   ```

Related concepts

“Upgrade checklist” on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Testing your server

Understand how to ensure that your new system is running correctly.

Test your server as you have previously specified in your planning phase. After you finish testing, track and report any problems that arose to the appropriate people. You also need to develop a readiness report. After you have completed a readiness report, finish returning your server to production.

Related concepts

“Upgrade checklist” on page 5
Use this checklist as a guide to complete your upgrade. The checklist contains a list of tasks for upgrading your server and also lists who is responsible for each task.

Scenarios: System p system upgrades

View scenarios for IBM System p system upgrades. Use these scenarios to help you become familiar with the details involved with upgrading your System p system.

These scenarios cover upgrading from a specific server. If you are upgrading from an older System p system or performing server consolidation to a new IBM POWER5 server, you can still use some of the same procedures.

Upgrading an IBM System p 650 with an HMC to an 570 with an HMC

Learn how to upgrade from an IBM System p 650 with a Hardware Management Console (HMC) to an IBM System p5 or IBM eServer p5 570 with an HMC.

As you read the information in each step, remember to come back to this scenario for additional help.

Note: Determine your network requirements before proceeding with this upgrade scenario. You can connect your HMC in either an open or a private network. An open network requires only one Ethernet adapter, and a private network requires two Ethernet adapters. If you are upgrading an HMC model 7315–C03 hardware to an HMC model 7310-C03 hardware, you might have to order an additional adapter for the private network configuration. For additional information about open networks and private networks, see Gathering required configuration settings in the Setting up the HMC topic.

Upgrading a System p 650 with an HMC to an IBM System p5 or IBM eServer p5 570 with an HMC includes the following steps:

1. "Upgrade planning tasks" on page 7. Planning for your upgrade can help minimize your downtime and make performing the upgrade easier. There are many different items that you must consider before you upgrade your server.
2. "Preinstallation tasks" on page 11. Completing these steps helps you prepare your location and your IBM AIX environment.
3. "Saving your existing partition profiles from a Hardware Management Console" on page 14. Saving your existing partition profile information allows you to migrate your partition information to your new environment.
4. "Updating AIX with a new maintenance level" on page 15 or "Migrating AIX to a new version or release" on page 17 (depending on whether you are moving to AIX 5L Version 5.2 with the 5200-04 Technology Level or AIX 5.3). Updating or migrating AIX allows you to use IBM POWER5 hardware.
5. "Backing up AIX to a CD" on page 20.
6. "Restoring an AIX system backup from a CD" on page 21. Restoring the partition profiles on the new server allows you to re-create the partition information from the server that you migrated from.

Upgrading an IBM System p 650 without an HMC to an 570 without an HMC

Learn how to upgrade from an IBM System p 650 without an HMC to an IBM System p5 or IBM eServer p5 570 without an HMC.

As you read the information in each step, remember to come back to this scenario for additional help. Upgrading a System p 650 without an HMC to an IBM System p5 or IBM eServer p5 570 without an HMC includes the following steps:

1. "Upgrade planning tasks" on page 7. Planning for your upgrade can help minimize your downtime and make performing the upgrade easier. There are many different items that you must consider before you upgrade your server.
2. "Preinstallation tasks" on page 11. Completing these steps helps you prepare your location and your IBM AIX environment.
3. "Updating AIX with a new maintenance level" on page 15 or "Migrating AIX to a new version or release" on page 17 (depending on whether you are moving to IBM AIX 5L Version 5.2 with the 5200-04 Technology Level or AIX 5.3). Updating or migrating AIX allows you to use IBM POWER5 hardware.
4. "Backing up AIX to a CD" on page 20.

Upgrading an IBM System p 650 without an HMC to an 570 with an HMC

Learn how to upgrade from an IBM System p 650 without an HMC to an IBM System p5 or IBM eServer p5 570 with an HMC.

As you read the information in each step, remember to come back to this scenario for additional help. Upgrading a System p 650 without an HMC to an IBM System p5 or IBM eServer p5 570 with an HMC includes the following steps:

1. "Upgrade planning tasks" on page 7. Planning for your upgrade can help minimize your downtime and make performing the upgrade easier. There are many different items that you must consider before you upgrade your server.
2. "Preinstallation tasks" on page 11. Completing these steps helps you prepare your location and your IBM AIX environment.
3. "Updating AIX with a new maintenance level" on page 15 or "Migrating AIX to a new version or release" on page 17 (depending on whether you are moving to IBM AIX 5L Version 5.2 with the 5200-04 Technology Level or AIX 5.3). Updating or migrating AIX allows you to use IBM POWER5 hardware.
4. "Backing up AIX to a CD" on page 20.
5. Configuring the HMC. Configuring the HMC allows you to use the HMC on your new server.

Troubleshooting the upgrade for IBM System p5 or eServer p5 servers

Learn about upgrade-specific problems and solutions that might occur with IBM System p5 or eServer p5 servers.

The time you spend planning for the upgrade and performing the upgrade according to instructions can prevent most upgrade problems from occurring. Below are problems and solutions related to upgrading your server:

Table 2. Troubleshooting the upgrade

Problem	Solution
The IPL takes longer than you expect.	Check the control panel display for a system reference code (SRC). For information about SRCs, use the Reference codes list in the Getting started with troubleshooting topic. If an SRC indicates that SPCN code is being loaded, the initial program load (IPL) might take up to 45 minutes. Do not try to stop the server during this period. If you suspect a problem, go to Getting started with troubleshooting. If you cannot solve the problem, contact your authorized service provider.

Table 2. Troubleshooting the upgrade (continued)

Problem	Solution
Using the same partition profile on two very similar systems produces differing LPAR configurations.	Installations of very similarly configured systems can have different PCI bus number assignments. This is because when a system is first installed and powered on, the firmware checks the system buses for available hardware. If all system resources, such as I/O expansion drawers or multiple system unit configurations, are not connected, or if the two systems are not identical in cabling order, the firmware numbers the I/O bus resources in the order in which they are detected. After the initial numbering occurs, the firmware keeps the same bus numbering on subsequent restarts of the hardware. This can create administrative difficulties for customers who would like to use identical LPAR profiles and OS scripts across all systems. To have the PCI bus numbering set the same in all servers, do the following: 1. Check to ensure that the servers are set up with their I/O drawers cabled in the same configuration. 2. On each system, reset the PCI bus numbering to the factory settings. See Restoring your server to factory settings. This topic includes information about resetting the PCI bus configuration using the Advanced System Management interface (ASMI). 3. Reinstall your system using a mksysb image. For more information, see "Restoring an AIX system backup from a CD" on page 21.

Related information for IBM System p5 or eServer p5 upgrades

View information related to IBM System p5 or eServer p5 model upgrades.

Listed below are IBM Redbooks® (in PDF format), Web sites, and information center topics that relate to the Upgrades topic. You can view or print any of the PDFs.

Logical partitions

- Advanced POWER Virtualization 
  This Web site contains an introduction to logical partitioning as well as information on planning, services, and education.
- System Planning Tool 
  The System Planning Tool (SPT) is a PC based browser application that assists users in planning for a partitioned environment.

Hardware and software prerequisites and compatibility

- IBM eServer Prerequisite Web site 
  From this Web site, you can determine hardware and software prerequisites and compatibility for the IBM eServer i5 server models.

Redbooks

- Effective System Management Using the IBM Hardware Management Console for pSeries®, SG24–7038–00 .
- AIX and Linux® Interoperability, SG24–6622–00 .
- Performance Management Services for AIX in a Partitioned Environment, REDP-0223-00).

Other information

- Planning
- Customer service and support
- Installing AIX
- Partitioning for AIX

Saving PDF files

To save a PDF on your workstation for viewing or printing:

1. Right-click the PDF in your browser (right-click the link above).
2. Click **Save Target As...** if you are using Internet Explorer. Click **Save Link As...** if you are using Netscape Communicator.
3. Navigate to the directory in which you would like to save the PDF.
4. Click **Save**.

Downloading Adobe Acrobat Reader

You need Adobe Acrobat Reader to view or print these PDFs. You can download a copy from the Adobe Web site .

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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The following Class A statements apply to the IBM System i models and IBM System p servers with the exception of those that are specifically identified as Class B.

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A respecte est conforme à la norme NMB-003 du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

European Community contact:
IBM Technical Regulations
Pascalstr. 100, Stuttgart, Germany 70569
Tele: 0049 (0)711 785 1176
Fax: 0049 (0)711 785 1283
E-mail: tjahn@de.ibm.com

Warning: This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

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Electromagnetic Interference (EMI) Statement - People's Republic of China

声　明

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在这种情况下，可能需要用户对其
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Electromagnetic Interference (EMI) Statement - Taiwan

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能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

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Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user will be required to take adequate measures.

IBM Taiwan Contact Information:

台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

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Germany Compliance Statement

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Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

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Verantwortlich für die Konformitätserklärung nach des EMVG ist die IBM Deutschland GmbH, 70548 Stuttgart.

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The following Class B statements apply to model 9111-520 (stand-alone version), 9131-52A (stand-alone version), 7047-185 and the 9111-285.

Federal Communications Commission (FCC) statement

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables or connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interferences, and (2) this device must accept any interferences received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

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This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

Properly shielded and grounded cables and connectors must be used in order to reduce the potential for causing interference to radio and TV communications and to other electrical or electronic equipment. Such cables and connectors are available from IBM authorized dealers. IBM cannot accept responsibility for an interference caused by using other than recommended cables and connectors.

European Community contact:
IBM Technical Regulations
Pascalstr. 100, Stuttgart, Germany 70569
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IBM Taiwan Product Service Contact Information

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台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

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Dieses Produkt entspricht dem “Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)“. Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

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