IBM

@server

iSeries

Add or replace a hardware feature

Version 5 Release 3

IBM

@server

iSeries

Add or replace a hardware feature

Version 5 Release 3

> **Note**
>
> Before using this information and the product it supports, be sure to read the information in
> "Notices," on page 7.

Contents

Add or replace a hardware feature

You may need to change one or more hardware features to satisfy capacity and compatibility requirements before upgrading to V5R3 and to the new server. For example, you may have SPD-attached hardware that must either be replaced or converted to PCI-attached hardware before you can upgrade to a new model. You may need to add more memory, or you may need to replace a tape drive that is not compatible with your target server. The unique requirements of the hardware feature will indicate when you change the hardware feature. Some examples are:

- If you have hardware features that will not work with OS/400^(R) V5R3, you will need to replace these hardware features before upgrading the OS/400 release to V5R3.
- If you are adding a hardware feature that will work only with OS/400 V5R3, you will need to upgrade to V5R3 before adding the hardware features.
- If you have hardware features that will not work with the new server, you will need to replace these hardware features either before, or when you upgrade to the new server.

You may need to change more than one hardware feature. If you plan to upgrade both OS/400 and the server, ensure that all your hardware features are compatible with both OS/400 V5R3 and the new server. You should identify these hardware feature changes when you plan for your upgrade. For information

about hardware features that you may need to replace, see the iSeries^(TM) Upgrade Planning 🔄 Web site.

Before you begin these tasks, be sure you have completed the necessary upgrade planning. Then, to change a hardware feature, perform the following tasks:

1. **Prepare to change the hardware feature.**
   Choose the procedure that is appropriate for your environment:
   - For nonpartitioned servers, see "Prepare to change the hardware feature."
   - For partitioned servers, see Prepare to change the hardware feature for a partitioned server.
2. **"Perform the hardware feature change" on page 4.**
   Perform the tasks in this topic to change the hardware feature.
3. **Perform resource management.**
   Choose the procedure that is appropriate for your environment:
   - For nonpartitioned servers, see "Perform resource management" on page 4.
   - For partitioned servers, see Perform resource management for a partitioned server.

To view or download the PDF version of this topic, select one of the following:

- Add or replace a hardware feature (about 75 KB)
- Add or replace a hardware feature for a partitioned server (about 75 KB)

To view or print other topics related to Upgrades, see Print this topic.

Prepare to change the hardware feature

This topic describes how to prepare for adding or replacing a hardware feature. Before you begin this procedure, be sure you have completed these prerequisite tasks:

- Obtain and review the preventive service planning (PSP) information.
  The PSP document for V5R3 upgrades is SF98167. Review this document for the most current information about conditions that can affect your upgrade.

- Review the Memo to Users.
  This document provides information about software and hardware changes that can potentially affect your system operations.
- View the Migration Web site

  .
  This Web site includes information about the current migration and upgrade paths, a link to relevant Redbooks[TM], and information about converting from SPD to PCI-attached I/O.
- Review the *Performance Capabilities Reference* available on the Performance Management

  Web site.
  This reference provides information about server performance that is useful for customers who plan to upgrade their servers and software.
- Plan the upgrade.

Then to prepare for adding or replacing the hardware feature, perform the following tasks:

Prepare the server

1. Install fixes (program temporary fixes or PTFs).
   Use the information in this topic to put the fixes on the server before adding or replacing the hardware feature.
2. If you are replacing disk units, you can use the Disk migration while active option of the STRASPBAL (Start ASP Balance) command to reduce the downtime associated with removing a disk unit. This option allows you to move data from specified disk units while your server is running.
   For information, see the STRASPBAL (Start ASP Balance) command.
3. Save the entire server using GO SAVE option 21.
   This is vital for recovery should you experience errors when changing the hardware feature.

Document the server

To ensure that the server is fully documented before you add or replace a hardware feature, perform these tasks:

1. If you are changing the disk configuration, follow these steps:
   a. "Print disk configuration status" of the server.
   b. "Print parity set configuration and status" on page 3 of the server.
2. If you are changing a workstation, communications, or LAN, "Display, verify, and print hardware resource information" on page 3.
   Use this information to record the hardware resource information so that you can perform the necessary resource management after the hardware feature change is complete.
3. Print the system configuration list.
   This printout provides details of your current server configuration.

Now that you have finished preparing for the hardware feature change, your next step is to "Perform the hardware feature change" on page 4.

Print disk configuration status

To print the disk configuration status of your server, you need security officer authority. Complete the following steps to print the disk configuration status:

1. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.

Note: To use system service tools, you need a valid service tools user ID.

2. Select option 3 (Work with Disk Units) and press Enter. The Work with Disk Units display appears.

3. Select option 1 (Display Disk Configuration) and press Enter. The Display Disk Configuration display appears.

4. Select option 1 (Display Disk Configuration Status) and press Enter.

5. At the Display Disk Configuration Status display, print the disk configuration by pressing the Print Screen key on your keyboard.

6. Page down and repeat until you have printed the entire disk configuration. Ensure that all the disk configuration information is printed.

7. Record the serial number of the load-source disk unit (unit number 1) for each partition on the server.

   Note: If the server is partitioned, repeat steps 1 through 7 for each partition. Be sure to mark each printout for the partition it represents.

Print parity set configuration and status

To print the parity set configuration and status of the server, complete the following steps:

1. Enter STRSST on a command line to start system service tools (SST). Sign on to SST.
   Note: To use system service tools, you need a valid service tools user ID.

2. Select option 3 (Work with Disk Units) and press Enter. The Work with Disk Units display appears.

3. Select option 1 (Display Disk Configuration) and press Enter. The Display Disk Configuration display appears.

4. Select option 1 (Display Disk Configuration Status) and press Enter.

5. At the Display Disk Configuration Status display, select option 5 (Display Device Parity Status) and press **Enter**. The Display Device Parity Status display appears.

6. Print the parity set configuration by pressing the Print Screen key on your keyboard.

7. Page down and repeat until you have printed the entire parity set configuration.

Note: If the server is partitioned, repeat these steps from each partition. Be sure to mark each printout for the partition it represents.

Display, verify, and print hardware resource information

To display, verify, and print the hardware resource information, complete the following steps:

1. At the OS/400^(R) command line, enter the Work with Hardware Products (WRKHDWPRD) command.

2. Select option 4 (Display Description Label Locations) and press Enter to display the label information associated with the hardware resources.

3. On the Display Description Label Locations display, verify that the label information about the hardware resources is accurate.

4. Delete the configuration descriptions (also called configuration objects) that are not associated with any physical hardware at this time.

5. Press F17 (Print) to print the description label locations. This information must be given to the service representative.

6. At the OS/400 command line, enter the following commands:

```
DSPHDWRSC TYPE(*LWS) OUTPUT(*PRINT)
DSPHDWRSC TYPE(*STG) OUTPUT(*PRINT)
DSPHDWRSC TYPE(*CMN) OUTPUT(*PRINT)
DSPHDWRSC TYPE(*PRC) OUTPUT(*PRINT)
```

   This creates a report of your hardware and configuration objects.

Note: If the server is partitioned, repeat these steps from each partition. Be sure to mark the printout for the partition it represents.

Perform the hardware feature change

This topic describes how to complete the hardware feature change.

Before you begin

Before you begin these tasks, be sure you have performed the necessary upgrade planning and performed the preparation procedure that is appropriate for your environment:
- For nonpartitioned servers, see "Prepare to change the hardware feature" on page 1.
- For partitioned servers, see Prepare to change the hardware feature for a partitioned server.

Install the hardware feature

For any single upgrade order, some of the hardware features may be installed by the service representative and others may be your responsibility to install. Discuss this in advance with the IBM^(R) service representative so that you know which, if any, responsibilities are yours, and which are the responsibility of the service representative. If you are responsible for installing this hardware feature, follow the instructions that come with the feature or use the procedure for this feature in Install iSeries^(TM) features.

Next step

When the hardware feature installation is complete, the next step is to perform the resource management procedure that is appropriate for your environment:
- For nonpartitioned servers, see "Perform resource management."
- For partitioned servers, see Perform resource management for a partitioned server.

Perform resource management

After you change a hardware feature, you may need to perform the following tasks:
- If you have changed the disk configuration, perform disk unit management to first protect and then configure the disks on your server.
  To do this, you can use the Work with Disk Units option from the Dedicated Service Tools display. To learn how, see Chapter 19. "Procedures for Configuring Disks and Disk Protection" of the Backup and

  Recovery Guide .

  Note: Once you have completed your disk configuration, you can remove any unused disk units from the configuration using dedicated service tools (DST). For information, see "How to Remove a Disk unit from an Auxiliary Storage Pool" in Chapter 20. "Working with Auxiliary Storage Pools" of the Backup and Recovery Guide

  .
  Disk units that you remove from the configuration should also be physically removed to prevent them from being added back into the configuration during an IPL.
- Update workstations, communications, removable media, LAN, WAN, or Integrated xSeries^(R) Server (IXS) hardware resource names as necessary.
  For information about changing hardware resource names, see "Fix hardware resource names after an upgrade" on page 5.

- If you have changed your console type, perform the IPL and resource management tasks in Prepare the server for production.
- If you have made changes to enable clusters or independent disk pools, use the information in Configure a cluster and Configure independent disk pools.

Congratulations! You have changed your hardware feature. You can now return to the customized upgrade task list or to the complete list of upgrade tasks.

Fix hardware resource names after an upgrade

Following an upgrade or migration, you may have hardware resources that are in different locations than they were on your source server. To fix these hardware resource names, follow these steps:

1. At the OS/400$^{(R)}$ command line, enter WRKHDWPRD.
2. On the Work with Hardware Products display, select option 5 (Change description label locations) and press Enter.
3. Read the information about the Using Change Label Locations display and press Enter.
4. Compare the label information about the display with the source server's label locations. Label information matches if the Label column on the display matches that of the source server. Label information does not match if any one of the following is true:
   - The display has label information, but the source server did not have label information in that location.
   - The source server label information does not match the information found in the *Label* column on the display.
   - *NONE appears in the Label column on the display, and there is label information for the source server.
     Note: When *NONE appears in the Label column for a controller or device that was added or upgraded, select option 2 (Change). Then select the correct label description from the list provided. If you experience any problems, call your service provider.
   - *INCORRECT or *INVALID appears in the Label column.
     This means that the type and model number of the hardware resource information does not match the type and model of the configuration description that is currently associated with that resource. The server cannot vary on the configuration description.
   - *INCORRECT — where the physical location is also '**'.
     This identifies a controller or device description that no longer has a valid resource on the server.
5. If there are any locations where the server label information is not the same as the (physical) label, on the Change Description Label Locations display, type 2 in the Opt column for each location that requires a label change. Press Enter. The Change Description Label display appears.
   Note: You may make more than one selection at a time, but if More... appears on the bottom of the display, do not press Enter. Instead, page forward to select the remaining labels.
6. A list of possible label names is shown. To select the label name (on the display) that matches the label that was on the source server, type 1 in the Opt column for each location that you want to change and press Enter.
   Note: If you cannot find the label (on the display) that matches the label on the source server, contact your service representative.
7. If you chose to change more than one label, the Change Description Label display appears for the next label. A message at the bottom of the display indicates whether the previous change was successful.
8. For all the labels that need a change, repeat the previous three steps.
9. After you change the last label, the Change Description Label Locations display appears with the updated information. A message at the bottom of the display indicates whether the last change was successful. If More... appears on the bottom of the display, scroll forward to view more information.

10. Press the F17 key on the Change Description Label display to request a printout of the new information for your records.
Note: The printout will be in the default output queue for your workstation. You can print it later when you vary on your printer devices and start printer writers.
11. Verify that the labels on the printout match the labels in the Label column on your source server. If you find any errors, go back to step 5 (See 5) and repeat the steps.
Attention: Do not exchange cards for problem analysis purposes. Card and device serial numbers are tied to the server configuration.

Appendix. Notices

This information was developed for products and services offered in the U.S.A.

This document may contain references to Licensed Internal Code. Licensed Internal Code is Machine Code and is licensed to you under the terms of the IBM License Agreement for Machine Code.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

```
IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.
```

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

```
IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106-0032, Japan
```

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

7

IBM Corporation
Software Interoperabiblity Coordinator, Department 49XA
3605 Highway 52 N
Rochester, MN 55901
U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this information and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, IBM License Agreement for Machine Code, or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

SUBJECT TO ANY STATUTORY WARRANTIES WHICH CANNOT BE EXCLUDED, IBM, ITS PROGRAM DEVELOPERS AND SUPPLIERS MAKE NO WARRANTIES OR CONDITIONS EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT, REGARDING THE PROGRAM OR TECHNICAL SUPPORT, IF ANY.

UNDER NO CIRCUMSTANCES IS IBM, ITS PROGRAM DEVELOPERS OR SUPPLIERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY:

1. LOSS OF, OR DAMAGE TO, DATA;
2. SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR
3. LOST PROFITS, BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.

SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO SOME OR ALL OF THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

The drawings and specifications contained herein shall not be reproduced in whole or in part without the written permission of IBM.

IBM has prepared this publication for use by hardware service representatives in the maintenance or repair of the specific machines indicated. IBM makes no representations that it is suitable for any other purpose.

The drawings and specifications contained herein shall not be reproduced in whole or in part without the written permission of IBM.

IBM has prepared this publication for use by customer personnel for operating and planning for the specific machines indicated. IBM makes no representations that it is suitable for any other purpose.

Trademarks

The following terms are trademarks of International Business Machines Corporation in the United States, other countries, or both:
AS/400
AS/400e
e (logo)
eServer
e(logo)Server
IBM
iSeries
xSeries
Operating System/400
OS/400
400
POWER4
Redbooks

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Other company, product or service names may be trademarks or service marks of others.

Product recycling and disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product-return programs in several countries. Information on product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of programs and services to assist equipment owners in

recycling their IT products. Information on product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

IBM Cryptographic Coprocessor Card Return Program

This machine may contain an optional feature, the cryptographic coprocessor card, which includes a polyurethane material that contains mercury. 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

Electronic Emission Notices

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(R) 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.

Responsible Party:
International Business Machines Corporation
New Orchard Road
Armonk, NY 10504

Telephone: 1-919-543-2193

Industry Canada Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC 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.

Australia and New Zealand Class A Statement

Attention: 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.

Terms and conditions for downloading and printing publications

Permissions for the use of the information you have selected for download are granted subject to the following terms and conditions and your indication of acceptance thereof.

Personal Use: You may reproduce this information for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative works of this information, or any portion thereof, without the express consent of IBM.

Commercial Use: You may reproduce, distribute and display this information solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of this information, or reproduce, distribute or display this information or any portion thereof outside your enterprise, without the express consent of IBM.

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the information or any data, software or other intellectual property contained therein.

IBM reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the information is detrimental to its interest or, as determined by IBM, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations. IBM MAKES NO GUARANTEE ABOUT THE CONTENT OF THIS INFORMATION. THE INFORMATION IS PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.

All material copyrighted by IBM Corporation.

By downloading or printing information from this site, you have indicated your agreement with these terms and conditions.

IBM ®

Printed in USA