IBM

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iSeries

Software Installation

Version 5

SC41-5120-05

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iSeries

Software Installation

Version 5

SC41-5120-05

Note

Before using this information and the product it supports, be sure to read the information in "Appendix I. Notices" on page 169.

Sixth Edition (May 2001)

This edition replaces SC41-5120-04. This edition applies only to reduced instruction set computer (RISC) systems.

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About Software Installation (SC41-5120)

Welcome to the iSeries *Software Installation* book. The organization of this book should make it easy for you to prepare for and perform your installation. IBM® wants your software installation process to be easy.

This book contains task-oriented instructions to install licensed programs on an iSeries system that uses IBM optical and tape distribution media. Instructions for specific tasks are:

- Replacing a release by using either the automatic or the manual installation process
- Installing licensed programs on a new iSeries server either with or without the operating system already installed
- Installing licensed programs on a server with secondary logical partitions
- Installing additional licensed programs
- Installing a secondary language
- Changing the primary language by using secondary language media
- Recovering from errors during licensed program installation processes

Information on preparing to install a new release of software (previously Chapter 3 in this book) is in the iSeries 400 Information Center at `http://www.ibm.com/eserver/iseries/infocenter`. Click **Hardware and software —> Software and licensed programs —> Prepare for software installation**. A CD-ROM version of the Information Center (*iSeries Information Center*, SK3T-4091-00) comes with your Operating System/400 order.

This book contains instructions and a recommended path for each installation task. If you choose options on any displays other than those that are recommended in this book, make a note of which option you choose. You will need this information later for recovery procedures if a failure occurs.

This book does not contain information about installing software products on personal computers.

Who Should Read This Book

This book is for the system operator or office supervisor who is responsible for installing the licensed programs or operating system. The person with these responsibilities must have security officer authority, QSECOFR, for the system.

You should be able to operate the following devices:

- Consoles, including operations console or twinaxial console
- Control panels or remote-control-panel software
- Optical (CD-ROM or DVD media) devices
- Tape libraries or stand-alone tape devices

For information about how to operate these devices, refer to the operator's guide for each device.

You should also know how to do the following tasks on your iSeries server:

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- Sign on and off your display station
- Use function keys on your display station keyboard
- Use displays, menus, and Operations Navigator
- Enter and use commands from either the command line or Operations Navigator
- Install program temporary fixes (PTFs)
- Change the system operation mode and initial program load (IPL) source on the system unit control panel
- Restart your system or logical partitions: perform an IPL

Information about how to do these tasks is in the iSeries Information Center. To locate the Information Center, see "Prerequisite and Related Information" on page x.

How To Use This Book

Software Installation gives step-by-step instructions. The installation process that you use depends on whether you are upgrading to a new software release, installing a new system, installing additional licensed programs, or installing secondary languages. You do not need to read this whole book for your particular installation.

Use the following outline as a path to familiarize yourself with the chapters that you will use for your situation.

- **If you are a new user or are familiar with the iSeries software installation process**:
  - Read the "Summary of Changes to Software Installation" on page xiii to find out what has changed or is new since the last software release.
  - Read "Chapter 1. Overview of the Software Installation Process" on page 3.
  - Start with "Chapter 2. Where to Begin" on page 11 to find out about your release upgrades and which chapters you will need to perform your particular installation.
  - Always read and perform the steps for **preinstallation tasks in the iSeries 400 Information Center**: `http://www.ibm.com/eserver/iseries/infocenter` . Click **System planning and installation —> Hardware and software —> Software and licensed programs —> Prepare for software installation**. These preparation tasks are necessary to avoid installation problems later.
  - Then choose *one or more* of the installation chapters in this book ("Chapter 3. Replacing a Release Using Automatic Installation" on page 17 through "Chapter 10. Installing a Secondary Language" on page 83) to perform specific installation tasks.
  - When you have performed the above tasks, finish your installation by using "Chapter 11. Checklist for Completing the Installation" on page 89.
  - The appendixes give specific reference information. Examples might include looking up a product in the "Licensed Product Table" on page 149, reviewing installation time estimates, or reading about the Work with Licensed Program menu. Review the Table of Contents to find the reference information that you might need.
- **If you are changing your primary language**, there are different methods depending on your situation. To change your primary language, you would choose *one* of these chapters:
  - "Chapter 4. Replacing a Release Using Manual Installation" on page 25

- "Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)" on page 49
- "Chapter 8. Changing Your Primary Language" on page 67

To determine the best method, start by using the tables in "Chapter 2. Where to Begin" on page 11.

- **If you are installing software on logical partitions,** see the following topics:
  - Read "Conventions and Terminology Used in This Book".
  - Read the most current information about logical partitions in the iSeries Information Center and the Logical Partitioning Web site. See "Prerequisite and Related Information" on page x for the location of this information.
  - Read the "Summary of Changes to Software Installation" on page xiii.
  - Read "Chapter 2. Where to Begin" on page 11, to determine the chapters you will use to install software on logical partitions. Specifically, read the following sections:
    - Table 3 on page 12, *Checklist for Replacing a Release within a Logical Partition*
    - Table 4 on page 13, *Checklist for Installing Software on a New System*

Conventions and Terminology Used in This Book

When a release is specified in this manual, the short form describes the release as shown below:

V4R4M0	Version 4 Release 4 Modification 0
V4R5M0	Version 4 Release 5 Modification 0
V5R1M0	Version 5 Release 1 Modification 0

If an *x* appears in any of the positions that contain numerals, any supported value can be used.

Optical media or optical device

The terms *optical media* or *optical device* encompass various types of media technologies and devices. Some examples are: compact disk-read only memory (CD-ROM) and digital versatile disk-random access memory (DVD-RAM).

A digital versatile disk (DVD) device will accept DVD-RAM or CD-ROM as installation media. Also, DVD-RAM provides rewritable optical storage technology, which is advantageous for system backups and recoveries.

Integrated xSeries Server for iSeries

Integrated xSeries Server for iSeries is the new name for Integrated Netfinity® Server.

Secondary Logical Partitions

When you work with secondary logical partitions:

- The word "system" in this book is synonymous with the word "partition", except in those cases where ″full″ or ″entire″ system is used. ″Full″ system means the primary partition and all participating secondary partitions. System is also synonymous with "server".
- The words "alternate installation device" are synonymous with the words "alternate IPL device".
- The words "control panel" refer to the "Work with Partition Status" display.

For **secondary logical partitions**, you change operation mode, change IPL source, and view system reference codes (SRCs) from the Work with Partition Status display (virtual control panel). You do not use the physical control panel of the system.

Prerequisite and Related Information

Use the iSeries Information Center as your starting point for looking up iSeries and AS/400e technical information. The documents that are listed and described in **System planning and installation —> Hardware and software —> Software and licensed programs —> Prepare for software installation —> Locating and verifying your software information and order** are *highly* recommended as supplemental information to this book.

You can access the Information Center two ways:

- From the following Web site:

  `http://www.ibm.com/eserver/iseries/infocenter`
- From CD-ROMs that ship with your Operating System/400 order:

  iSeries Information Center, SK3T-4091-00. This package also includes the PDF versions of iSeries manuals, *iSeries Information Center: Supplemental Manuals*, SK3T-4092-00, which replaces the Softcopy Library CD-ROM.

The iSeries Information Center contains advisors and important topics such as CL commands, system application programming interfaces (APIs), logical partitions, clustering, Java™, TCP/IP, Web serving, and secured networks. It also includes links to related IBM Redbooks and Internet links to other IBM Web sites such as the Technical Studio and the IBM home page.

With every new hardware order, you receive the following CD-ROM information:

- *iSeries 400 Installation and Service Library*, SK3T-4096-00. This CD-ROM contains PDF manuals needed for installation and system maintenance of an IBM @server iSeries 400 server.
- *iSeries 400 Setup and Operations CD-ROM*, SK3T-4098-00. This CD-ROM contains IBM iSeries Client Access Express for Windows and the EZ-Setup wizard. Client Access™ Express offers a powerful set of client and server capabilities for connecting PCs to iSeries servers. The EZ-Setup wizard automates many of the iSeries setup tasks.

You may also find the following references useful:

- If you are setting up logical partitions, refer to the topics on logical partitions within the *Systems Management* category in the iSeries Information Center. Also, refer to topics on planning and how-to information at the *Logical Partitioning* Web site:

  `http://www.ibm.com/eserver/iseries/lpar`
- If you are using auxiliary storage pools, device parity protection, or mirrored protection, you should obtain the book *Backup and Recovery*, SC41-5304-05. Backup information is also available in the *iSeries Information Center*.
- Before you begin production work on your system, be sure you have adequately protected your system from unauthorized use. To plan and set up security on your system, refer to **Security —> Basic system security and planning** in the Information Center.

  If you are interested in C2 security, refer to the book *Security - Enabling for C2*, SC41-5303-00.

Operations Navigator

IBM iSeries Operations Navigator is a powerful graphical interface for managing your iSeries and AS/400e servers. Operations Navigator functionality includes system navigation, configuration, planning capabilities, and online help to guide you through your tasks. Operations Navigator makes operation and administration of the server easier and more productive and is the only user interface to the new, advanced features of the OS/400 operating system. It also includes Management Central for managing multiple servers from a central server.

For more information on Operations Navigator, see the iSeries Information Center.

Information Available on the World Wide Web

More iSeries information is available on the World Wide Web. You can access general information from the iSeries home page, which is at the following Web site:

`http://www-1.ibm.com/servers/eserver/iseries/`

To access workshops on advanced iSeries functions, use the Technical Studio, located at:

`http://www.iseries.ibm.com/tstudio/`

Worldwide, you can read about, select, order, and take delivery of iSeries program temporary fixes (PTF) over the Internet. Internet PTF downloads and preventive service planning (PSP) information are available at the following Internet location:

`http://as400service.ibm.com`

How to Send Your Comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other iSeries documentation, fill out the readers' comment form at the back of this book.

- If you prefer to send comments by mail, use the readers' comment form with the address that is printed on the back. If you are mailing a readers' comment form from a country other than the United States, you can give the form to the local IBM branch office or IBM representative for postage-paid mailing.
- If you prefer to send comments by FAX, use either of the following numbers:
  - United States, Canada, and Puerto Rico: 1-800-937-3430
  - Other countries: 1-507-253-5192
- If you prefer to send comments electronically, use one of these e-mail addresses:
  - Comments on books:

    RCHCLERK@us.ibm.com
  - Comments on the iSeries Information Center:

    RCHINFOC@us.ibm.com

Be sure to include the following:

- The name of the book or iSeries Information Center topic.
- The publication number of a book.
- The page number or topic of a book to which your comment applies.

Summary of Changes to Software Installation

With every new release of the operating system (OS/400) or new line of iSeries servers comes necessary changes to the software installation process. Following are the changes you should be aware of for installing the V5R1M0 operating system software.

Preparing for software installation information

The steps for the preinstallation tasks (previously Chapter 3) are now in the iSeries Information Center. You can access the Information Center from the following Web site:

`http://www.ibm.com/eserver/iseries/infocenter`

or from CD-ROMs that ship with your Operating System/400 order (*iSeries Information Center*, SK3T-4091-00). The preinstallation tasks are located under **System planning and installation–> Hardware and software –> Software and licensed programs –> Prepare for software installation**.

Estimating your installation time

For this release, a number of structural changes for future growth of object types have occurred that require conversions when you replace a previous release. Before you install the operating system, you need to plan time for these object conversions. The amount of time that is required could be significant depending on the number of object types that you have on your server. Review the page in the iSeries Information Center at **System planning and installation–> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Installing the PTFs to upgrade**. Then run the programs included in the installation preparation PTF to estimate the amount of time needed for these object conversions.

Consider also the product repackaging of iSeries Application Development e-business tools to IBM WebSphere Development Studio for iSeries (5722-WDS). Because several licensed programs (57xx-CB1, CL2, CX2, CX4, CX5, PW1, and RG1) are deleted during the installation process, your installation time could be affected. Refer to “Appendix D. Estimating Your Total Installation Time” on page 125 for more information.

DVD rewritable storage technology

- You can use DVD rewritable storage technology and devices for many purposes. For example, if you have a DVD device as an alternate installation device, you can use it for the following functions:
  - Backing up and recovering the system
  - Installing, saving, and restoring licensed programs
  - Copying, loading, and installing program temporary fixes (PTFs)
  - Storing main storage dumps
  - Performing other save and restore functions

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Part 1. Software Installation

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Chapter 1. Overview of the Software Installation Process

The software installation process has three phases:

1. Pre-installation activities
2. The installation process
3. Post-installation activities

Figure 1 on page 4 shows an overview of the installation process. (Your installation process might not include all of the topics that are shown in the figure.)

1. **Pre-Installation Activities:**

   You can do these activities days or even a few weeks in advance. For planning, use "Chapter 2. Where to Begin" on page 11, which directs you to the appropriate instructions for your installation process. For preparing and saving your system, use the Prepare for software installation topic in the iSeries Information Center to guide you through the activities you need to do. Some of these activities include verifying your order, checking the amount of available disk space, backing up your system, and cleaning your media device.

   "Appendix E. Additional Installation Information" on page 147, includes more information about the installation process. Be sure to read it before you begin installing this release.

2. **The Installation Process:**

   The installation process begins when you start performing the instructions in one of the procedural chapters, which are "Chapter 3. Replacing a Release Using Automatic Installation" on page 17 through "Chapter 10. Installing a Secondary Language" on page 83. For example, to upgrade to the V5R1M0 release, you may have chosen the automatic installation as described in "Chapter 3. Replacing a Release Using Automatic Installation" on page 17. The automatic installation process installs the Licensed Internal Code, the operating system (OS/400), and licensed programs. You would have minimal interaction with the system, except to load the optical distribution media and to monitor the system.

   Your only installation activity may be using "Chapter 8. Changing Your Primary Language" on page 67, "Chapter 9. Installing Additional Licensed Programs" on page 75, or "Chapter 10. Installing a Secondary Language" on page 83. Or, you can perform these activities after an automatic or manual installation.

   For a broader explanation of the procedural chapters, see "Software Installation Procedures Overview" on page 5.

3. **Post-Installation Activities:**

   The last step of each procedure directs you to use "Chapter 11. Checklist for Completing the Installation" on page 89 to complete the installation process. You may be directed to additional steps, such as saving your system and performing installation activities on workstations for Client Access products. Other activities could include customizing your system, or setting usage limits for user-based priced products. Before you begin production work on your system, be sure to adequately protect your system from unauthorized use.

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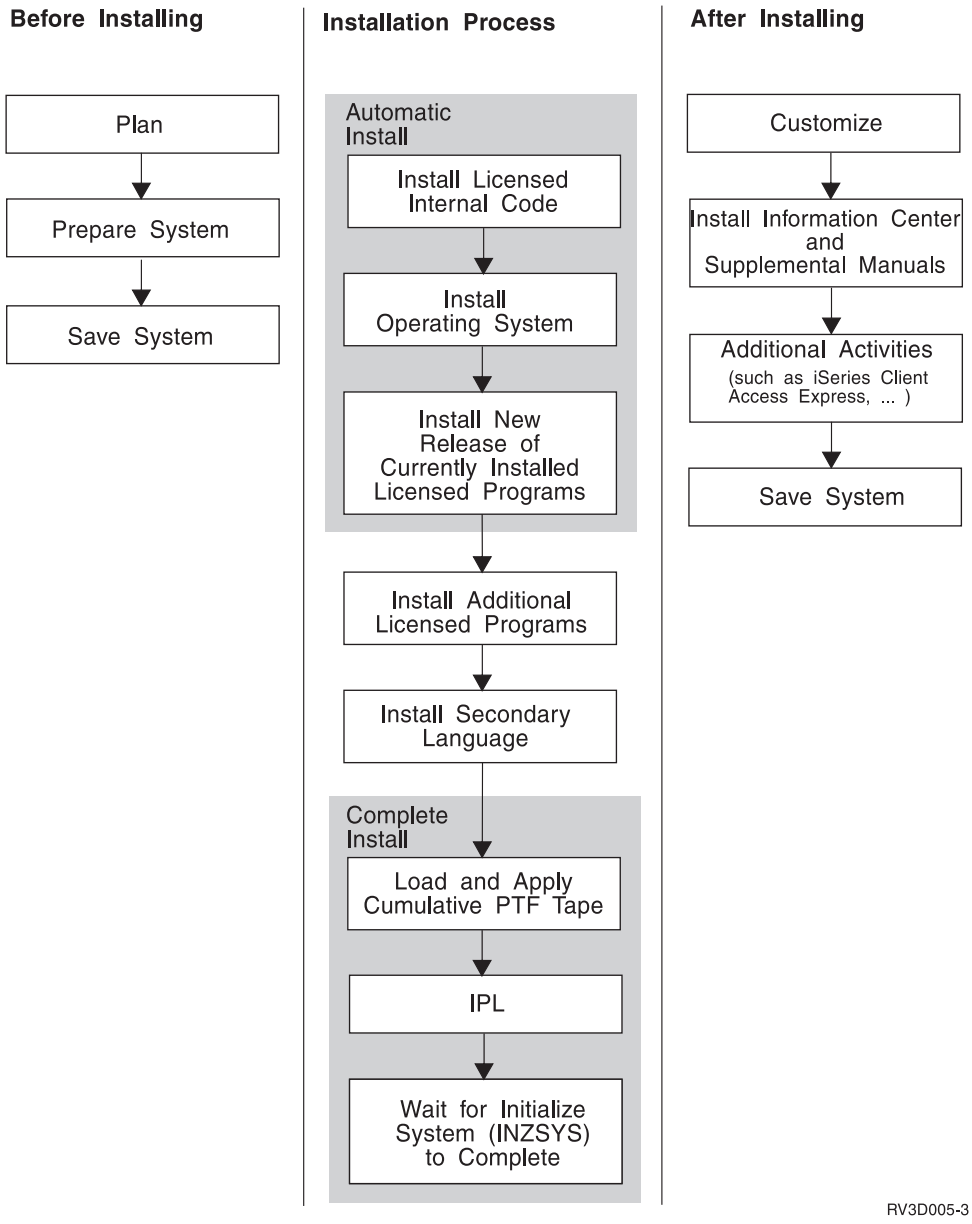

Figure 1. Overview of the Installation Process

If a failure occurs during the installation process, Appendix A. Recovery Procedures contains information that can help you determine the problem and the necessary recovery steps.

Essential Software Installation Concepts

Before you begin, you should know what to expect from the installation process you use and the possible effects of using mixed releases on iSeries. “Software Installation Procedures Overview” on page 5 provides an overview of the installation procedures that are used in this book. “Mixed Release Support–Overview” on page 7 describes how support for mixed releases interacts with the installation procedures that replace a release of software. (You replace a release when you use the automatic or manual installation procedures.) At some point, each installation procedure in this book uses the Work with Licensed Programs (LICPGM) menu. The command for the Work with Licensed Programs

menu is **GO LICPGM**. "Appendix B. Options on Work with Licensed Programs Menu" on page 107 describes the options shown on the LICPGM menu.

Software Installation Procedures Overview

This topic describes the installation procedures that are used in this book.

You will see included with these procedures some additional notes about installing software on a system with logical partitions.

Installing Software on a New System

On a new system, the operating system might or might not be installed already. The procedures in "Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)" on page 49 help you to install the operating system and licensed programs. When you use "Chapter 5. Installing Software on a New iSeries Server (with the Operating System Already Installed)" on page 41, you may already have licensed programs installed.

If you are creating **logical partitions** on a new system, you must use the procedures in "Chapter 7. Installing a New Secondary Logical Partition" on page 61 and "Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)" on page 49, for all newly created secondary partitions. You must install software separately on the primary partition and each secondary partition.

Replacing Licensed Programs: Automatic or Manual Installation Process

If you are replacing your existing software, use either Chapter 3. Replacing a Release Using Automatic Installation or Chapter 4. Replacing a Release Using Manual Installation. You should be aware of the similarities and differences between the two installation methods in this section. You should also understand how support for mixed releases of licensed programs can affect the results of these installation procedures. Topic "Mixed Release Support–Overview" on page 7 describes the impact that mixed release support has when you replace a release of software.

The **automatic installation** process replaces your existing release with minimal user interaction. (You will need to load media volumes when you use this process.) The language feature code on the distribution media is installed as the primary language on the system. The automatic installation process keeps the current environment (iSeries or System/36™ Environment) and system values. The process keeps the same configuration of those disk units that are already configured and configures those disk units that were previously not configured. The automatic installation process is recommended for use with most iSeries servers. Chapter 3. Replacing a Release Using Automatic Installation documents this method.

The **manual installation** method interactively replaces your existing release by using the Work with Licensed Programs (LICPGM) menu. Displays that require responses appear on the console. During a manual installation you can change installation options and perform tasks such as those described in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Choosing an installation procedure and preparing for globalization support**. "Chapter 4. Replacing a Release Using Manual Installation" on page 25 documents this method.

If you have existing **logical partitions**, you must install the Licensed Internal Code, Operating System/400, and licensed programs separately on each partition.

What Installs with Either Method: Both installation methods replace your currently installed level of Licensed Internal Code and Operating System/400. Both installation methods can replace your currently installed licensed programs if the LICPGM menu on the target release supports those licensed programs. If you use the Prepare for Install option on the LICPGM menu to customize an installation list, the system also installs any additionally selected products. Read more about the Prepare for Install option in "Prepare for Install–Overview" on page 7.

What Does Not Install with Either Method: In certain conditions, some licensed programs are not installed during procedures that replace a release.

- When the distribution media contains non-renewed licensed programs that are at the same level as the licensed programs that you have installed, the installed licensed programs remain unchanged. (Non-renewed licensed programs are those that do not have a new release level since the last release.) This preserves any program temporary fixes (PTFs) that are applied to the currently installed licensed programs. See "Mixed Release Support–Overview" on page 7 for more information about mixed releases licensed programs.
- If you do not use the Prepare for Install option of the LICPGM menu, the procedures that replace an existing release do not install new licensed programs or new optional parts. Licensed programs and optional parts are considered *new* if they are being added to your system for the first time. For more information on creating and customizing an installation list to preselect the licensed programs that you want to install, see iSeries Information Center page at **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Creating and customizing an installation list**.

  New licensed programs and new optional parts can be introduced with a new release of the operating system or independently of it. If you do not use the Prepare for Install option, you need to follow the directions in Chapter 9. Installing Additional Licensed Programs to install new licensed programs or optional parts. The instructions for both automatic and manual installation methods direct you to "Chapter 9. Installing Additional Licensed Programs" on page 75 at the appropriate time.

Adding Licensed Programs

If you are adding additional licensed programs or optional parts of licensed programs, you use "Chapter 9. Installing Additional Licensed Programs" on page 75. This section uses option 11 (Install licensed programs) of the Work with Licensed Programs (LICPGM) menu. When you use option 11, you select licensed programs or optional parts from a list. Typically, you use option 11 when you need to install a new licensed program or to replace a single licensed program. The licensed program or optional part that you select is always installed from the media. If the licensed program is already installed, it is replaced. This is true even when both the system and the media have the same level of the licensed program. (When you install a level of a licensed program over the same level that is already on your system, any PTFs you had applied to the licensed program may need to be applied again.)

You can add new licensed programs to your system while replacing a release of software. To do this, use the Prepare for Install option of the Work with Licensed Programs menu. Refer to "Prepare for Install–Overview" on page 7 for information about how this option functions.

Adding or Changing Globalization Support

When you add a secondary language, you add additional language objects for the licensed programs that are installed on your system. These additional language objects are a different national language version (NLV) than the system's primary language. Chapter 10. Installing a Secondary Language, adds language objects for all of the installed licensed programs that are found on the media.

When you change the primary language you replace the existing language objects. Depending on the procedure that you use, you could also be replacing program objects. Chapter 8. Changing Your Primary Language, replaces only the language objects that exist on your system. See the topic on planning for globalization installations in the iSeries Information Center for more information.

Mixed Release Support–Overview

Licensed programs do not need to have the same release as the OS/400®. This is referred to as a mixed release environment. Also, licensed programs can be packaged so that the product's options are not at the same release as its base. For these reasons, your V5R1M0 media may contain licensed programs and options that are at different releases than V5R1M0. Products that do not have any new function for this release are not repackaged, and therefore have a release previous to V5R1M0.

Normally, licensed programs are only re-installed when the release of the licensed program on the media is higher than the installed release. However, you can change the *Replace if Current* parameter to *YES (on LICPGM menu, Manual Install). Change this parameter to *YES, if you want to re-install the licensed programs, even if they are already installed at the same release. If you choose *YES, you may have to reapply PTFs to some licensed programs that were replaced from the media.

"Summary of Changes to Software Installation" on page xiii describes mixed release support for **logical partitions**.

Prepare for Install–Overview

This topic describes the Prepare for Install function. Highlights of this function include the following:

- Customizing an installation list. Pre-selecting licensed programs or options to be installed during the automatic installation process.
- Verifying the contents of the media before starting an installation.
- Determining additional storage requirements for the licensed programs that you plan to install.

This function appears as option 5 (Prepare for Install) on the Work with Licensed Programs menu. The Prepare for Install display appears when you select this option.

```
                          Prepare for Install
                                                        System:   XXXXXXXX
Type option, press Enter.
  1=Select

Opt     Description
 _      Work with user profiles
 _      Work with licensed programs for target release
 _      Display licensed programs for target release
 _      Work with licensed programs to delete
 _      List licensed programs not found on media
 _      Verify system objects
 _      Estimated storage requirements for system ASP



                                                                      Bottom
F3=Exit   F9=Command line   F10=Display job log   F12=Cancel
```

Additionally, see the iSeries Information Center: **System planning and installation–> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Creating and customizing an installation list** for the instructions to use Option 5, Prepare for install.

Prepare for Install Option Descriptions

With the **Work with user profiles** option, you can work with a list of user profiles on the system and work with the objects owned by each user profile. Use this option to clean up user profiles that are no longer needed on the system before you install the target release. For more information, refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Cleaning up user profiles**.

With the **Work with licensed programs for target release** option, you can work with a list of the licensed programs for the target release. Use this option to verify the contents of the installation media and to create a customized list of licensed programs to install for the target release. The system can use the list you create to allow the installation processes that replace a release of software to also install the selected additional licensed programs. For more information, refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Verifying your software order**.

Note: This list does not include all products. Among those are programming request for price quotations (PRPQ), licensed program offerings (LPO), and licensed programs on the single set. If you want to install these products for the first time, use the Go LICPGM menu, options 1 or 11.

With the **Display licensed programs for target release** option, you can display the list of licensed programs that will be installed when you install the target release. For each licensed program in the list, you can display information such as the expected action during the installation process and whether a product option must be separately ordered. Use this option to verify your installation plans.

With the **Work with licensed programs to delete** option, you can work with a list of installed licensed programs that should not remain on the system because either they are no longer supported or you chose not to replace them. This list also includes products for which no replacement was found on the distribution media. The display indicates the reason why a licensed program is included in this list, as well as provides options to save and delete any of the products listed. For more

information, refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Evaluating your disk storage needs –> Cleaning up your system storage space –> Deleting licensed programs during cleanup**.

With the **List licensed programs not found on media** option, you can display a list of licensed programs that could replace existing products but that were not found on the optical distribution media. For more information, refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Locating and verifying your software information and order**.

With the **Verify system objects** option, the system verifies that the system directory entries include the user profiles needed by the installation process. The system also checks database cross reference files for errors. If necessary, the QSECOFR and QLPINSTALL user profiles are added to the system distribution directory. For more information, refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Verifying the integrity of system objects –> Verifying user profiles and checking cross-reference files**.

With the **Estimate storage requirements for system ASP** option, you can determine whether additional storage is needed before you begin the installation process.

Chapter 2. Where to Begin

Always begin by reading the planning material in the iSeries Information Center at **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation**. Careful, complete, and early preparation saves a considerable amount of time and can help make your installation run smoothly. Perform these preparatory tasks before you schedule your installation. Allow ample time (a few weeks or days before the installation) to complete these tasks.

If you have not done so already, also read "Chapter 1. Overview of the Software Installation Process" on page 3.

The tables in this chapter guide you to the appropriate location for your V5R1M0 release upgrade. Use Table 1 **Supported Releases for Software Upgrades** to determine whether you can use this book for a V5R1M0 release upgrade on your iSeries server. Use the remaining tables to determine which chapters to use:

- Checklist for **Replacing a Release**, Table 2 on page 12
- Checklist for **Replacing a Release within a Logical Partition**, Table 3 on page 12
- Checklist for **Installing Software on a New System**, Table 4 on page 13
- Checklist for **Adding Licensed Programs and Secondary Languages**, Table 5 on page 14
- Checklist for **Changing the Primary Language**, Table 6 on page 14
- Checklist for **Adding a New Disk Unit**, Table 7 on page 15

These tables give additional information:

- Checklist for **Installing a Cumulative PTF Package**, Table 8 on page 15
- Checklist for **Installing a Hardware Upgrade**, Table 9 on page 16

Table 1. Supported Releases for Software Upgrades

Release of OS/400		Should You Use this Book?
Currently Installed (Source) Release	**Valid Target Releases**	
V5R1M0	V5R1M0	**Yes**. You can use this book to replace the installed operating system and licensed programs. **Note:** If you plan to use secondary logical partitions and want to understand about supported releases on logical partitions, see the iSeries Information Center: **Systems Management –> Logical partitions –> Learning about logical partitions** topics.
V4R5M0	V5R1M0 V4R5M0	
V4R4M0	V5R1M0 V4R5M0 V4R4M0	
Note: This table shows the only supported combinations for source and target releases. You may no longer be able to order some of the target releases shown in this table.		

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Table 2. Checklist for Replacing a Release

Replacing a Release with V5R1M0	
Activity	**Information Needed**
Are you replacing an installed level of V4R4M0 or V4R5M0 software?	Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center. 2. One of these chapters, either: • Chapter 3. Replacing a Release Using Automatic Installation. • Chapter 4. Replacing a Release Using Manual Installation. Automatic installation is recommended, however there are some circumstances where you must use Chapter 4. Replacing a Release Using Manual Installation. To determine if you must use manual installation, read the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Choosing an installation procedure and preparing for globalization support**. 3. You may need to complete one or both of the following: • Chapter 9. Installing Additional Licensed Programs. • Chapter 10. Installing a Secondary Language. 4. Chapter 11. Checklist for Completing the Installation.

Table 3. Checklist for Replacing a Release within a Logical Partition

Replacing a Release within a Logical Partition	
Activity	**Information Needed**
Are you replacing an installed level of V4R4M0 or V4R5M0 software within a logical partition?	Use these chapters in the following order: 1. The Prepare for software installation topic in the iSeries Information Center. 2. One of these chapters, either: • Chapter 3. Replacing a Release Using Automatic Installation. • Chapter 4. Replacing a Release Using Manual Installation. Automatic installation is recommended, however there are some circumstances where you must use Chapter 4. Replacing a Release Using Manual Installation. To determine if you must use manual installation, read the iSeries Information Center page at **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Choosing an installation procedure and preparing for globalization support**. 3. You may need to complete one or both of the following: • Chapter 9. Installing Additional Licensed Programs. • Chapter 10. Installing a Secondary Language. 4. Chapter 11. Checklist for Completing the Installation.

Table 4. Checklist for Installing Software on a New iSeries Server

Installing Software on a New iSeries Server	
Activity	**Information Needed**
Are you installing software on a new iSeries server that has the operating system already installed in your primary language?	Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center (only certain topics might apply). 2. Chapter 5. Installing Software on a New iSeries Server (with the Operating System Already Installed). You can use the automatic installation process to install software on a new iSeries server. However, you cannot change any system options during the installation process. 3. You may need to complete one or both of the following: • Chapter 9. Installing Additional Licensed Programs. • Chapter 10. Installing a Secondary Language. 4. Chapter 11. Checklist for Completing the Installation.
Are you installing software on a new iSeries server that has the operating system already installed in a language that is not your primary language, or you want to change the primary language?	You must reinstall your operating system to change your primary language. Use Table 6 on page 14 and then add your licensed programs by using the steps above (installing software on a new iSeries server that has the operating system already installed in your primary language).
Are you installing software on an iSeries server that does not have the operating system installed?	**Note:** If you are using mirrored protection, device parity protection, or auxiliary storage pools, refer to the information on working with auxiliary storage pools in the book *Backup and Recovery*, SC41-5304-05, before you begin. Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center (only certain topics might apply). 2. Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed). 3. You may need to complete one or both of the following: • Chapter 9. Installing Additional Licensed Programs. • Chapter 10. Installing a Secondary Language 4. Chapter 11. Checklist for Completing the Installation.
Are you installing software on a new secondary logical partition that does not have Licensed Internal Code and the OS/400 operating system installed?	Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center. 2. Read the iSeries Information Center: **Systems Management–> Logical partitions –> Planning for logical partitions** topics. 3. Chapter 7. Installing a New Secondary Logical Partition 4. Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed). 5. You may need to complete one or both of the following: • Chapter 9. Installing Additional Licensed Programs. • Chapter 10. Installing a Secondary Language 6. Chapter 11. Checklist for Completing the Installation.

Table 5. Checklist for Adding Licensed Programs and Secondary Languages

Installing Additional Licensed Programs and Secondary Languages	
Activity	**Information Needed**
Are you installing only additional licensed programs or optional parts of licensed programs to your existing V5R1M0 server? An example would be if you are adding a new licensed program or a new optional part of a licensed program that was shipped independently of the operating system.	Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center (only certain topics might apply). 2. Chapter 9. Installing Additional Licensed Programs. 3. If you have a secondary language installed and you want to have NLS support for the added licensed program, you need to use Chapter 10. Installing a Secondary Language 4. Chapter 11. Checklist for Completing the Installation.
Are you only installing a secondary language?	Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center. 2. Chapter 10. Installing a Secondary Language. 3. Chapter 11. Checklist for Completing the Installation.
Are you installing additional licensed programs or secondary languages to your server as part of replacing a release?	The procedures for replacing a release direct you to add additional licensed programs and secondary languages at the appropriate time. Use the checklist in Table 2 on page 12.
Are you installing additional licensed programs or secondary languages to your server as part of installing software on a new system?	The procedures for installing software on a new server direct you to add additional licensed programs and secondary languages at the appropriate time. Use the appropriate checklist from Table 4 on page 13.

Table 6. Checklist for Changing the Primary Language

Changing the Primary Language	
Activity	**Information Needed**
Are you changing your primary language using your secondary language media [single-byte character set language (SBCS) to a single-byte character set language or double-byte character set (DBCS) language to a double-byte character set language]? Are you changing your primary language from a DBCS primary language to an SBCS primary language or an SBCS primary language to a DBCS primary language?	Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center. **Note:** Be sure to read the topic **Choosing an installation procedure and preparing for globalization support**. 2. Chapter 8. Changing Your Primary Language. 3. Chapter 11. Checklist for Completing the Installation.

Table 6. Checklist for Changing the Primary Language (continued)

Changing the Primary Language	
Activity	**Information Needed**
Are you replacing a release with V5R1M0 and also want to change your primary language?	Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center. Verify that you have the proper primary language media. **Note:** Be sure to read the topic **Choosing an installation procedure and preparing for globalization support**. 2. Chapter 3. Replacing a Release Using Automatic Installation. 3. You may need to complete one or both of the following: • Chapter 9. Installing Additional Licensed Programs. • Chapter 10. Installing a Secondary Language. 4. Chapter 11. Checklist for Completing the Installation.
Are you installing software on a new iSeries server and want to change the primary language? Or, Are you only changing your primary language?	Use the checklist in Table 4 on page 13 and see also the previous two entries in this table (Table 6 on page 14).

Table 7. Checklist for Adding a New Disk Unit

Adding a New Disk Unit to a New Server	
Activity	**Information Needed**
Are you adding a new disk unit to your existing iSeries server?	**Note:** If you are using mirrored protection, device parity protection, or auxiliary storage pools, refer to the information on working with auxiliary storage pools in the book *Backup and Recovery*, SC41-5304-05, before you begin. Use these sources in the following order: 1. The Prepare for software installation topic in the iSeries Information Center (only certain topics might apply). 2. Chapter 4. Replacing a Release Using Manual Installation. 3. You may need to complete one or both of the following: • Chapter 9. Installing Additional Licensed Programs. • Chapter 10. Installing a Secondary Language. 4. Chapter 11. Checklist for Completing the Installation.

Table 8. Checklist for Installing a Cumulative PTF Package

Installing a Cumulative Program Temporary Fix (PTF) Package	
Activity	**Information Needed**
Are you loading and applying a cumulative PTF package to your system?	Go to the *iSeries PTF Shipping Information Letter* that you received with the cumulative PTF tapes for instructions to install a PTF cumulative package.

Table 9. Checklist for Installing a Hardware Upgrade

Installing a Hardware Upgrade	
Activity	**Information Needed**
Your current server uses PowerPC [Reduced Instruction Set Computer (RISC)] technology. Are you installing a hardware upgrade at the same time as you are installing V5R1M0 or licensed programs?	Refer to the book *iSeries 940x RISC-to-RISC Road Map*, SA41-5155-05. At the appropriate point in the upgrade, you are directed to use procedures in this book to install the operating system and licensed programs. You may also receive additional instructions with the upgrade package.
Are you installing a hardware upgrade or did you purchase a new server to move your server to PowerPC technology?	Upgrading to a PowerPC AS processor requires a simultaneous hardware change and software upgrade using the book *AS/400 Road Map for Changing to PowerPC Technology*, SA41-5150.

Always begin by reading the planning material as noted in the Prepare for software installation topic in the iSeries Information Center.

Chapter 3. Replacing a Release Using Automatic Installation

The instructions in this section replace the Licensed Internal Code, Operating System/400, and licensed programs currently installed on your system with the V5R1M0 level.

Before You Begin

Should you use this book? Table 1 on page 11 shows which releases are supported when you use this book. Also, review Table 2 on page 12, which shows the sequence of the chapters you will use for replacing a release. Or, review Table 3 on page 12 if you are replacing a release within a logical partition.

Complete the planning tasks in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation** topics.

Which type of console are you using to do your installation? IBM recommends that you use V5R1 Operations Console if you are upgrading to Version 5. If you use Operations Console, do one of the following before you install V5R1M0 on your server:

- Use the *iSeries 400 Setup and Operations CD-ROM*, SK3T-4098-00 to install or upgrade to the V5R1 version of Operations Console with cable connectivity. To set up Operations Console with local area network (LAN) connectivity or modem connectivity, see *Operations Console Setup*, SC41-5508-02. To view the most recent information on Operations Console, go to the following Web site:
  `http://www.ibm.com/servers/eserver/iseries/clientaccess/qnaopcons`
- Disconnect from your server and close Operations Console. Restart Operations Console and reconnect by using the user ID of 11111111 and password of 11111111 to sign on to your server.

Do you plan to use an alternate installation device? If you are using an alternate installation device, ensure that the alternate installation device is enabled. See "Appendix H. Alternate Installation Device—Overview" on page 163 for information on setting up an alternate installation device. If you are not planning on using an alternate installation device and currently have one configured, you must clear the alternate installation device configuration information from the system before you install the new release. **If you plan to use an alternate IPL device within a logical partition,** refer to the iSeries Information Center: **Systems Management –> Logical partitions –> Managing logical partitions**.

Do you plan to use or are you using logical partitions? Read the topics in the iSeries Information Center: **Systems Management –> Logical partitions –> Planning for logical partitions**. Additionally, refer to the Logical Partitioning Web site:

`http://www.ibm.com/eserver/iseries/lpar`

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Task 1. Using Automatic Installation

The automatic installation process replaces all of the products that are currently installed and have been refreshed. To add new products, use the Work with Licensed Programs menu option 5, Prepare for Install (type **GO LICPGM**) , or use LICPGM menu option 11, Install Licensed Programs, after the automatic installation. You may need to delete some products that you do not want after the installation has finished.

As you perform these steps, system reference codes (SRCs) appear on the data display of the control panel or virtual control panel (Work with Partition Status display). When the system attention light is on and an SRC starting with A6 appears, the system is waiting for you to do something. (Respond to a message or make a device ready.) When this book lists an SRC with xx (such as A6xx 6001), it means that a variety of characters may occur where the xx appears. The console may also display some SRCs during the installation of Licensed Internal Code.

For more details about SRCs, refer to "The System Reference Code (SRC)" on page 153.

__ 1. Arrange your installation media in the order in which you will use them. Refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Locating and verifying your software information and order –> Verifying the release, labels, and national language of the optical distribution media –> Media labels and their contents**.

__ 2. Verify that your system unit is powered on. If your system unit is powered off, go to "Starting from a Power-Off Condition" on page 106 and perform the procedure there. That procedure will tell you when to return here.

__ 3. On your console, ensure that you have a connection to the server.

__ 4. Load the installation media volume that contains Licensed Internal Code into the installation device that is defined for the system. Wait for the In Use indicator to go out.

Notes:

a. If you are using a tape device instead of an optical device, verify that the tape unit is varied on and allocated to your system.

b. If you are using a device that is enabled as an alternate installation device, you need to load both the Licensed Internal Code CD-ROM and your tape media. **Ensure that the tape media and the Licensed Internal Code are at the same release level, or your installation will fail.**

__ 5. Use the control panel to set the mode to **Normal**.

For logical partitions only
Instead of using the instructions in step 4, use the Work with Partition Status display to set the mode to **Normal**. Also, make sure that you have already selected the alternate IPL device, **before** performing the initial program load (IPL) in the next step. **Notes:** a. If you have not already set up an alternate IPL device for a logical partition, refer to online help information in IBM iSeries Operations Navigator. b. If you are using another method to select an alternate IPL device in a logical partition, refer to "Appendix H. Alternate Installation Device—Overview" on page 163.

__ 6. Type: **PWRDWNSYS OPTION(*IMMED) RESTART(*YES) IPLSRC(D)**

Note: Performing this step will configure disk units automatically, if you have non-configured disk units present.

Press Enter. It could take approximately 15 minutes or more for this step. The data display area of the control panel continues to display SRCs.

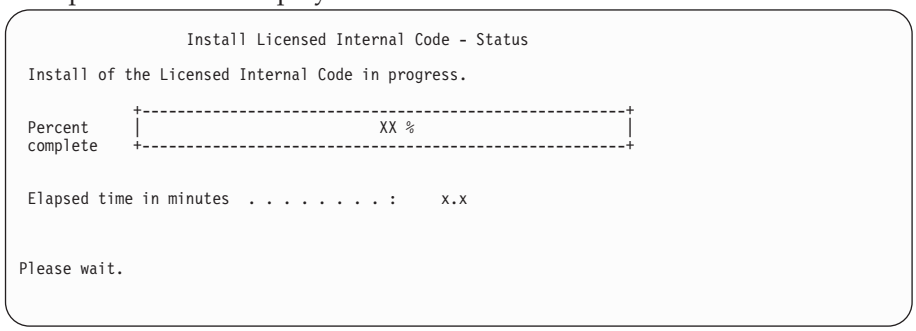
__ 7. If the system attention light appears and one of the SRCs from Table 29 on page 155 appears in the Data display on the control panel, complete the instructions for that SRC in "Corrective Action for Common SRCs" on page 155. If you have logical partitions, the SRCs appear in the Work with Partition Status display, instead of the control panel.

__ 8. If the Alternate Installation Device Failed display appears, there is an alternate installation device on the system that is enabled. Either it was not disabled before starting the installation, or the device is otherwise not ready. Do one of the following:

- To continue the installation with optical media, press Enter.
- To use the alternate installation device, make a note of the message at the bottom of the display.

  Press F12 (Cancel). SRC `B608 1105` appears on the control panel. Use the "Corrective Action for Common SRCs" on page 155 to determine how to continue.

__ 9. The Licensed Internal Code - Status display appears on your console. After 100% complete is reached, the console may appear blank for approximately five minutes and the IPL in Progress display may appear. You do not need to respond to these displays.



If an error occurs, you may see a display that requires a response. Perform the action necessary as prompted by the display. Otherwise, continue with the next step.

After a period of time (when the installation process starts to install the operating system), some displays appear on the console. One of the displays is called the Licensed Internal Code IPL in Progress. Some of the IPL steps could take a long time (even up to two hours or longer), depending on how much data recovery is required for your system. The last message shown on the IPL in Progress display should be `Start the Operating System`.

__ 10. Load the next volume when the system prompts you to do so. You may be prompted for the next volume several times during the installation process.

Note: The message shown below is sometimes used. However, it is more common to see a similar message that prompts you to type **G** (go) to continue processing.

Follow the instructions on the display.

```
                                Message

Message ID  . . . . . :   CPA2055      Type . . . . . :   Inquiry
From program  . . . . :   XXXXXXX___   Severity . . . . :   99

Message . . . . . :   The next volume in the sequence is needed to
  continue the installation process.

Cause . . . . . :   The end of the volume has been reached.

Recovery  . . . . :   Load the next volume on the installation device.


Type choice, press Enter.

  Reply . . . . .   _         1=Continue, 2=End installing


_______________________________________________________________________
```

Type 1, and press Enter.

__ 11. Status displays appear during the installation process. The screen shown below indicates how much of the installation is complete as well as how many stages remain. You do not need to respond to this status screen.

```
Message ID. . . :   CPI2070                  OS/400 Installation Status

          +-----------------------------------------------------+
Stage 2   |                       XX %                          |
          +-----------------------------------------------------+


Installation                                                    Objects
Stage                                              Completed    Restored

   1 Creating needed profiles and libraries . . . . :   X

>> 2 Restoring programs to library QSYS . . . . . :               XXXXX

   3 Restoring language objects to library QSYS . . :

   4 Updating program table . . . . . :

   5 Installing database files. . . . . :

   6 Completing OS/400 installation . . . . . :
```

If you are installing from tape and you receive a message `Device QINDEV not ready`, first make the device ready. Refer to note 4a on page 18. Then press Enter to continue.

__ 12. Status displays may appear. These displays show the status of the licensed programs and language objects as they install on the system. You do not need to respond to these status displays.

```
                    Installing Licensed Programs
                                                        System: XXXX


 Licensed programs processed . . . . . . . . . . :     0 of XXX

               Licensed program install in progress
```

The following display is an example of the display that appears during the installation process.

```
                  Installing Licensed Programs
                                                      System: XXXX
Licensed programs processed  . . . . . . . . . . :     X of XXX

Licensed
Program   Option   Description                                 Type
5722SS1     2      OS/400 - Online Information                 2924
```

Note: This display shows which licensed programs and optional parts of licensed programs are being processed. After the *PGM objects and *LNG objects are processed, the display shows the total number of licensed programs processed.

__ 13. One of the following messages may appear when the system is ready for the next media volume that contains licensed programs. When you are installing from optical media, wait for the In Use indicator to go out before you respond to the message.

```
                            Display Messages
                                                    System:   XXXX
Queue  . . . . . :    QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :      95                 Delivery  . . . :   *BREAK

Type reply (if required), press Enter.
  Load the next volume in optical device OPT01 (X G)
    Reply . . . . G
```

```
                            Display Messages
                                                    System:   XXXX
Queue  . . . . . :   QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :   95                   Delivery  . . . :   *BREAK

Type reply (if required), press Enter.
  Load a valid volume containing licensed programs in optical device OPT01 (X G).
    Reply . . . . G
```

Load the next media volume that contains licensed program products and continue the installation. Occasionally, you will be prompted to load the next volume after a short time has passed. This event usually happens when the licensed programs on the media are at the same level as the licensed programs already installed on your machine.

Type G, and press Enter.

Note:

- After you load each volume, type G and press Enter.

- If there are no more volumes to load or if you want to end the loading process, type `X` and press Enter.

__ 14. The media has been read, and now the licensed programs are going through the installation process. Even though it might take a long time, wait for the Sign On display to appear. When the installation completes successfully, the Sign On display appears. (No message indicates that automatic installation completed successfully. The Sign On display acts as the confirmation.) Continue with Task 2. Verifying Automatic Replacement Completion.

If you receive the message `Automatic installation not complete`, sign on using QSECOFR for your user ID and go to "Appendix A. Recovery Procedures" on page 95 to determine the problem.

Task 2. Verifying Automatic Replacement Completion

__ 1. The Sign On display appears on the console after the installation has completed.

```
                          Sign On
                                          System. . . . . :  XXXX
                                          Subsystem . . . . :  XXXX
                                          Display . . . . . :  XXXXXXXX

       User. . . . . . . . . . . . . .  QSECOFR
       Password  . . . . . . . . . . .
       Program/procedure . . . . . . .  _______
       Menu  . . . . . . . . . . . . .  _______
       Current library . . . . . . . .  _______
```

Type the following:

User: **QSECOFR**
Password: (Enter password, if required.)

Press Enter.

__ 2. The iSeries Main Menu (or the menu you chose as your initial menu) appears on the console.

Type: **GO LICPGM**. Press Enter.

__ 3. The Work with Licensed Programs display appears. Use the page down or roll up key to see the second display of the Work with Licensed Programs menu.

```
LICPGM                  Work with Licensed Programs
                                                        System:   XXXX
Select one of the following:

  Secondary Languages
    20. Display installed secondary languages
    21. Install secondary languages
    22. Delete secondary languages

  Redistribution
    40. Create a distribution tape
    41. Work with installation profiles

  Completion Status
    50. Display log for messages
```

Type `50`, and press Enter.

__ 4. The Display Install History display appears.

```
                        Display Install History

Type choices, press enter.

  Start date . . . . . .    ________   MM/DD/YY

  Start time . . . . . .    ________   HH:MM:SS

  Output . . . . . . . .    *_______   *, *PRINT
```

Press Enter.

__ 5. Look at the messages that appear on the Display History Log Contents display.

- If you had an installed licensed program that was not renewed by IBM, it may not be replaced. Refer to "Mixed Release Support–Overview" on page 7 for more information.
- If any of the messages on the display indicate a failure or a licensed program that is partially installed, go to "Appendix A. Recovery Procedures" on page 95 to determine the problem.

Otherwise, press F3 (Exit).

__ 6. Verify your licensed programs' installed status values and check for compatibility. It is important to make sure all of your licensed programs are compatible with the operating system. You can determine a licensed program's compatibility by checking the installed status value.

Use LICPGM menu option 10, Display licensed programs, to see the release and installed status values of the installed licensed programs. If the installed status value of a licensed program is *COMPATIBLE, it is ready for use. If the installed status value of a licensed program is *BACKLEVEL, the licensed program is installed, but its version, release, and modification is not compatible with the currently installed level of the OS/400 operating system. Check "Licensed Product Table" on page 149 to verify the current version, release, and modification of the licensed program. "Installed status values" on page 147 lists the possible installed status value descriptions.

More...

You have completed this task. Do you need to install additional licensed programs?

No	**Yes**
↓	Go to "Chapter 9. Installing Additional Licensed Programs" on page 75 and complete the instructions there.

Do you need to install a secondary language?

No	**Yes**
↓	Go to "Chapter 10. Installing a Secondary Language" on page 83 and complete the instructions there.

You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Replacing a Release Using Automatic Installation

Chapter 4. Replacing a Release Using Manual Installation

The instructions in this section replace the Licensed Internal Code, Operating System/400, and licensed programs currently installed on your system with the V5R1M0 level.

You can also change the primary language on your system.

Before You Begin

Should you use this book? Table 1 on page 11 shows which releases are supported when you use this book. Also, review Table 2 on page 12, which shows the sequence of the chapters you will use for replacing a release. Or, review Table 3 on page 12 if you are replacing a release within a logical partition.

Complete the planning tasks in the iSeries Information Center: **System planning and installation–> Hardware and software –> Software and licensed programs –> Prepare for software installation** topics.

If you are changing a primary language, you must be aware of additional considerations before you begin the installation. Be sure to read the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Choosing an installation procedure and preparing for globalization support –> Planning for changing a primary language** topic. You cannot change your primary language to a language you currently have installed as a secondary language on your system. You must delete the secondary language first before you can change it to your primary language.

Which type of console are you using to do your installation? IBM recommends that you use V5R1 Operations Console if you are upgrading to Version 5. If you use Operations Console, do one of the following before you install V5R1M0 on your server:

- Use the *iSeries 400 Setup and Operations CD-ROM*, SK3T-4098-00 to install or upgrade to the V5R1 version of Operations Console with cable connectivity. To set up Operations Console with local area network (LAN) connectivity or modem connectivity, see *Operations Console Setup*, SC41-5508-02. To view the most recent information on Operations Console, go to the following Web site:
  `http://www.ibm.com/servers/eserver/iseries/clientaccess/qnaopcons`
- Disconnect from your server and close Operations Console. Restart Operations Console and reconnect by using the user ID of 11111111 and password of 11111111 to sign on to your server.

Do you plan to use an alternate installation device? If you are using an alternate installation device, ensure that the alternate installation device is enabled. See "Appendix H. Alternate Installation Device—Overview" on page 163 for information on setting up an alternate installation device. **If you plan to use an alternate IPL device within a logical partition,** refer to the iSeries Information Center: **Systems Management –> Logical partitions –> Managing logical partitions**.

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Replacing a Release Using Manual Installation

Do you plan to use or are you using logical partitions? Read the topics in the iSeries Information Center: **Systems Management –> Logical partitions –> Planning for logical partitions**. Additionally, refer to the Logical Partitioning Web site:

`http://www.ibm.com/eserver/iseries/lpar`

Task 1. Replacing the Licensed Internal Code

As you perform these steps, system reference codes (SRCs) appear on the data display of the control panel or virtual control panel (Work with Partition Status display). When the system attention light is on and an SRC starting with `A6` appears, the system is waiting for you to do something. (Respond to a message or make a device ready.) When this book lists an SRC with `xx` (such as A6xx 6001), it means that a variety of characters may occur where the xx appears. The console may also display some SRCs during the installation of Licensed Internal Code.

For more details about SRCs, refer to "The System Reference Code (SRC)" on page 153.

For logical partitions only
If you have logical partitions and you want to replace a release using manual installation, refer to the instructions "For logical partitions only" on page 31, instead of the instructions below.

__ 1. Arrange your installation media in the order in which you will use them. Refer to the iSeries Information Center: **System planning and installation–> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Locating and verifying your software information and order –> Verifying the release, labels, and national language of the optical distribution media –> Media labels and their contents**.

__ 2. Verify that your system unit is powered on. If your system unit is not powered on, go to "Starting from a Power-Off Condition" on page 106 and perform the procedure there. That procedure tells you when to return here.

__ 3. On your console, ensure that you have a connection to the server.

__ 4. Load the installation media volume that contains Licensed Internal Code into the installation device that is defined for the system. Wait for the `In Use` indicator to go out.

Notes:

a. If you are using a tape device instead of an optical device, verify that the tape unit is varied on and allocated to your system.

b. If you are using a device that is enabled as an alternate installation device, you need to load both the Licensed Internal Code CD-ROM and your tape media. **Ensure that the tape media and the Licensed Internal Code are at the same release level, or your installation will fail.**

__ 5. Use the control panel to set the mode selection to **Manual**.

__ 6. Type: **PWRDWNSYS OPTION(*IMMED) RESTART(*YES) IPLSRC(D)**

Press Enter. This step could take approximately 15 minutes or more to complete.

__ 7. If the system attention light appears and an SRC listed in Table 29 on page 155 appears in the data display on the control panel, complete the instructions for that SRC in "Corrective Action for Common SRCs" on page 155.

__ 8. The Select a Language Group display shows the primary language that is currently installed on the system.

```
            Select a Language Group


The language feature shown is the language feature
installed on the system.

Attention:  To keep the same primary language, ensure that the
media you use for installing the operating system
matches the language feature shown.  If the operating
system media does not match what is shown, the
installation process will attempt to install the
operating system in a different language feature than
Licensed Internal Code.  This is undesirable.


Type choice, press Enter.

  Language feature . . . . . .   2924
```

To keep the same primary language, verify that the displayed language feature matches the feature that is printed on the media that contains the operating system. The operating system media are labeled B29xx_nn, where 29xx indicates the feature for the primary language.

Note: The language you select and the language of the OS/400 must match. If they do not match, do **not** continue with the upgrade. Stop and call your software provider. Get the correct language feature before continuing. If the languages do not match, you may have CCSID-related errors and the installation may fail.

Refer to "Appendix G. National Language Version Feature Codes" on page 161 for a list of language feature codes.

To change the primary language, type the language feature that appears on the media that contains the operating system.

Press Enter.

__ 9. After you enter the language feature, the Confirm Language Group display appears.

```
            Confirm Language Group


Language feature  . . . . . :   2924

Press Enter to confirm your choice for language feature.
Press F12 to change your choice for language feature.
```

Press Enter.

__ 10. The Install Licensed Internal Code display appears.

```
                    Install Licensed Internal Code
                                                          System: XXXX
Select one of the following:

     1. Install Licensed Internal Code
     2. Work with Dedicated Service Tools (DST)
     3. Define alternate installation device
```

Type 1 (See note)

Press Enter.

Note: If you have an alternate installation device attached to the system, type a 3 to verify its address and determine whether it is enabled or disabled. Continue with the Verifying Alternate Installation Device Subtask in step 11. If you have an alternate installation device configured and do not want to use it, type a 3 to clear the alternate installation device configuration information. If you are not using an alternate installation device, go on to step 13 on page 29.

__ 11. **Verifying Alternate Installation Device Subtask:** The Select Alternate Installation Device Bus display appears.

```
                  Select Alternate Installation Device Bus
                                                          System: XXXX
Type Option, press Enter.
   1=Select

Option      Bus Number          Selected
  _             1
  _             2
  1             3                 *
  _             4
  _             5
  _             6
  _             7
  _             8
  _             9
  _             A
  _             B
  _             C
  _             D
                                                        More.....
F2=Deselect Device  F3=Exit       F12=Cancel
```

a. Verify that the selected device is on the correct system bus. Type 1 in the Options field next to the selected bus, and press Enter to view information about the device that is attached to the bus. This may take several minutes. If you see the message "No alternate installation device configured," wait one minute and refresh the screen.

b. The Select Alternate Installation Device display appears. Use this display to verify the resource name, type, model, and serial number for the device.

```
                    Select Alternate Installation Device
                                                          System:  XXXX
Type Option, press Enter.
  1=Select   5=Details

            Resource                                      Serial
Option      Name                Type      Model     Number       Selected
  _         TAP01               6380      001       00-110221       *
```

c. Type 1 to select the device and make any needed corrections to select, enable, or disable the device. Press Enter to confirm the changes.

d. The message "Alternate installation device selected" appears. Press F3 to return to the Install Licensed Internal Code display.

e. Type 1, and press Enter to install the Licensed Internal Code.

End of Verifying Alternate Installation Device Subtask.

__ 12. If there is an alternate installation device defined and enabled, the Confirm Alternate Installation Device display appears.

- To install from the alternate installation device, press Enter.
- To install from optical media, press F12 to Cancel. You see the Licensed Internal Code display. Perform step 10 on page 27 and select option 3 (Define alternate installation device). Perform step 11 on page 28 and disable the alternate installation device.

__ 13. The Install Licensed Internal Code (LIC) display appears on your console.

```
                    Install Licensed Internal Code (LIC)

Disk selected to write the Licensed Internal Code to:
    Serial Number     Type     Model     I/O Bus      Controller     Device
     xx-xxxxxxx       xxxx      xxx          x             x            x

Select one of the following:

     1. Restore Licensed Internal Code
     2. Install Licensed Internal Code and Initialize system
     3. Install Licensed Internal Code and Recover Configuration
     4. Install Licensed Internal Code and Restore Disk Unit Data
     5. Install Licensed Internal Code and Upgrade Load Source
```

Type 1

Press Enter.

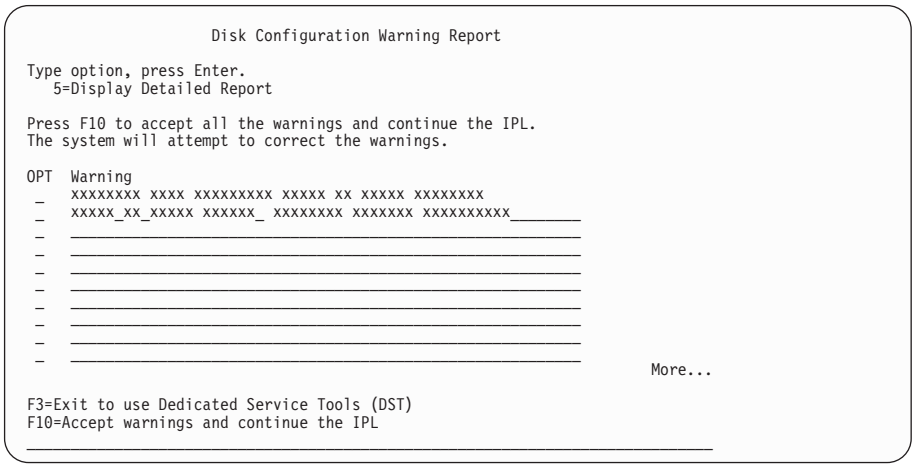
__ 14. The Install Licensed Internal Code - Status display appears on your console. You do not need to respond to this display. It will remain on your console for approximately 30 minutes.

```
                 Install Licensed Internal Code - Status

Install of the Licensed Internal Code in progress.

           +-----------------------------------------------------+
Percent    |                          XX %                       |
complete   +-----------------------------------------------------+


Elapsed time in minutes  . . . . . . . . :    x.x


Please wait.
```

__ 15. If an error occurs, you may see a display that requires a response. Perform the action necessary as prompted by the display. Otherwise, continue with step 16.

__ 16. After approximately 10 minutes, the IPL or Install the System display appears. The Licensed Internal Code is now replaced. Do not remove the distribution media at this time.

__ 17. The Disk Configuration Warning Report display may appear. If it does, display the detailed report for each warning shown on the display. Press the Help key from the Disk Configuration Warning Report display for more information about your choices. Also refer to "Appendix F. Disk Configuration Warning and Error Messages" on page 159 for more information.



Note: If the warning **Disk unit not formatted for optimal performance** appears on this display, do the following:

- Type 5, and press Enter to display the detailed report.
- Write down the information displayed. After the upgrade completes, you will need this information to format these disk units to gain optimal performance.
- Press F12 to cancel and return to the Disk Unit Warning Report.
- Press F10 to accept the warnings and continue the IPL.

__ 18. If your system processor configuration has changed, you could see other displays at this point. After you supply the requested information, the installation continues and the IPL or Install the System display appears. Refer to "System Password" on page 147 for more information.

Continue with "Task 2. Replacing the Operating System" on page 31.

Table 10. Manual Installation for a Secondary Logical Partition

For logical partitions only: Steps for replacing Licensed Internal Code
• If your system has secondary logical partitions and you are installing software on a secondary partition, the SRCs are viewable under the Working with System Partitions display in Start Service Tools (SST) or Dedicated Service Tools (DST). Refer to the iSeries Information Center: **Systems Management–> Logical partitions –> Managing logical partitions** topics for more information. • The secondary partition ″control panel″ is accessed from the Work with System Partitions display under SST or DST from the primary partition. __ 1. Arrange your installation media in the order in which you will use them. Refer to the iSeries Information Center: **System planning and installation–> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Locating and verifying your software information and order –> Verifying the release, labels, and national language of the optical distribution media –> Media labels and their contents**. __ 2. Verify that your system unit is powered on. If your system unit is not powered on, go to “Starting from a Power-Off Condition” on page 106 and perform the procedure there. That procedure tells you when to return here. __ 3. Ensure that power is on for the console (establish a connection to the server). If you are working on a secondary partition, ensure that power is on for the console of that secondary partition. __ 4. Verify that this partition has an alternate initial program load (IPL) resource assigned. For most cases, this is the optical device that supports the optical media class. **Note:** You can use the following displays and instructions to locate the alternate IPL resource. Use the Work with System Partitions then Work with Partition Configuration displays under SST or DST. Select the desired partion then select the option for alternate IPL resource. A ″%″ indicates the resource currently selected. __ 5. Load the installation media volume that contains Licensed Internal Code into the installation device that is defined for the system. Wait for the `In Use` indicator to go out. **Notes:** a. If you are using a tape device instead of an optical device, verify that the tape unit is varied on and allocated to your system. b. If you are using a device that is enabled as an alternate installation device, you need to load both the Licensed Internal Code CD-ROM and your tape media. **Ensure that the tape media and the Licensed Internal Code are at the same release level, or your installation will fail.** __ 6. Use the Work with Partition Status display to set the mode to **Manual**. Also, make sure that you have already selected the alternate IPL device **before** you perform the initial program load (IPL) in the next step. __ 7. Type: **PWRDWNSYS OPTION(*IMMED) RESTART(*YES) IPLSRC(D)** **Note:** This should be done from the partition where you are doing the installation. If you are installing on the primary partition, then power down all of the secondary partitions first (if any exist). Otherwise, the primary partition IPL might abnormally power down all secondary partitions. Press Enter. This step could take approximately 15 minutes or more to complete. If the system attention light appears and an SRC listed in Table 29 on page 155 appears in the data display on the control panel, complete the instructions for that SRC in “Corrective Action for Common SRCs” on page 155. **Note:** If you are installing a secondary partition, the system attention light will not appear. You must monitor the secondary partition SRCs from the Work with System Partitions display under SST or DST. When the State changes to `Failed`, that is the equivalent of having the attention light on for the primary partition. __ 8. Now continue with step 8 on page 27 of the instructions in Task 1. Replacing the Licensed Internal Code.

Task 2. Replacing the Operating System

__ 1. The IPL or Install the System menu appears on your console.

Load the first volume of installation media that contains OS/400. (This volume is labeled B29xx_01, where 29xx is the identifier for the primary language.) When you are installing from optical media, wait until the In Use indicator goes out before you continue. Then do the following to respond to the display:

```
                          IPL or Install the System
                                                        System: XXXX
Select one of the following:

     1. Perform an IPL
     2. Install the operating system
     3. Use Dedicated Service Tools (DST)
     4. Perform automatic installation of the operating system
     5. Save Licensed Internal Code
```

If you want to start Redundant Array of Independent Disks (RAID) or want to add new disk units to your RAID configuration, refer to the book *Backup and Recovery*, SC41-5304-05 for information about the proper sequence for configuring disk protection. Then return to this step.

After you install the new release over your previous release (V4R4M0 or V4R5M0), passwords for all service tools user profiles that still use the default password expire automatically. When you try to log on or access service tools using those profiles, you receive a message that the password has expired and must be changed. Follow the prompts or press the appropriate key (F9) to change the password for that user profile. For more information on service tools user profiles, see *Tips and Tools for Securing Your iSeries*, SC41-5300-07.

Type 2 (Install the operating system) and press Enter.

__ 2. The Confirm Install of OS/400 display is shown on your console. Press Enter.

__ 3. **Adding Disk Units Subtask**

a. If the Add All Disk Units to the System menu does **not** appear, go to step 4 on page 34. If the Add All Disk Units to the System menu appears, it could look like the following example.

```
                      Add All Disk Units to the System
                                                        System: XXXX
Select one of the following:

     1. Keep the current disk configuration
     2. Perform disk configuration using DST
     3. Add all disk units to the system auxiliary storage pool
     4. Add all disk units to the system ASP and balance data
```

If you have RAID-capable disk units on your system or if your system ASP has mirrored protection, your display has two options. If you want to configure the disk units using DST now, type 2 .

If you do not want device parity protection or mirrored protection or user ASPs, select option 3 (Add all disk units to the system auxiliary storage pool). By adding disk units before you install the operating system, you improve your overall system performance because the operating system is distributed across all of your disk units.

For logical partitions only
If you will be creating secondary logical partitions later, you do **not** want to configure all units now. Refer to the worksheet supplied by IBM for the configuration selection. To access this worksheet, refer to the Logical Partitioning Web site: **http://www.ibm.com/eserver/iseries/lpar**.

Note: If either the Disk Configuration Error Report display or the Disk Configuration Warning Report display appears, go to "Appendix F. Disk Configuration Warning and Error Messages" on page 159 to determine the appropriate action.

b. You could see the following display if your disk configuration has changed. Type 5 next to the problem and press Enter to display the detailed report.

```
                              Problem Report

Note: Some action for the problems listed below may need to
be taken.  Please select a problem to display more detailed
information about the problem and to see what possible
action may be taken to correct the problem.

Type option, press Enter.
  5=Display Detailed Report

OPT  Problem
 _   ____________________________________________________
 _   ____________________________________________________
```

c. If the following display appears, a disk unit that you selected to add to your disk configuration may already have data on it. If you choose to continue, any data on that is on the disk units listed will be removed.

Be certain that you want to configure the disk before you continue. Follow the instructions on the display. Press Enter to return to the Problem Report screen. Press F10 to continue the Add Disk Unit subtask.

```
                    Possibly Configured Units

Problem: These non-configured units appear to be
configured units of some other disk configuration and
may contain valid data.  This option will clear the
data from these units and destroy the other disk
configuration.

Press Enter to continue
Press F12=Cancel to return and change your choices.

  Serial                    Resource        Other System
  Number      Type  Model   Name            Serial Number
  __________  ____  ___   __________        __________
  __________  ____  ___   __________        __________
  __________  ____  ___   __________        __________
  __________  ____  ___   __________        __________
  __________  ____  ___   __________        __________
  __________  ____  ___   __________        __________
  __________  ____  ___   __________        __________
                                                  More..

F3=Exit         F12=Cancel
```

d. The following display shows the percentage of disk units added. This display does not require a response.

```
                             Function Status

You selected to add units.

                                  ___ % Complete
```

e. When the process completes, continue the manual installation process with the next step below. **This completes the subtask for adding disk units.**

__ 4. Status displays appear on the console. You do not need to respond to these status displays. Some of the IPL steps may take a long time. The time varies depending on how much data recovery is required for your system.

__ 5. The Install the Operating System display appears when the IPL for the Licensed Internal Code completes.

```
                        Install the Operating System

Type options, press Enter.

  Install
    option . . . . . 1           1=Take defaults (No other
                                   options are displayed)
                                 2=Change install options

Date:
  Year . . . . . __            00-99
  Month  . . . . . __          01-12
  Day  . . . . . __            01-31

Time:
  Hour . . . . . __            00-23
  Minute . . . . . __          00-59
  Second . . . . . __          00-59
```

Type the following:

Install option 1
Date: (Use the current year, month, and day.)
Time: (Use the current time, 24-hour clock.)

Press Enter.

__ 6. Status messages appear during the installation process. You do not need to respond to these displays. The following is an example of a status display. This screen may be present for 2 hours or more.

```
Message ID. . . :   CPI2070                  OS/400 Installation Status

          +-----------------------------------------------------+
Stage 2   |                      XX %                           |
          +-----------------------------------------------------+


Installation                                                      Objects
Stage                                              Completed      Restored

   1 Creating needed profiles and libraries . . . . :   X

>> 2 Restoring programs to library QSYS . . . . . :                 XXXXX

   3 Restoring language objects to library QSYS . . :

   4 Updating program table . . . . . :

   5 Installing database files. . . . . :

   6 Completing OS/400 installation . . . . . :
```

__ 7. The display may be blank for a long time. Then the Installation Status screen appears again with the indicator pointing to stage 5.

__ 8. After the base operating system has been replaced, the Sign On display appears on your console.

Continue with Task 3. Replacing the Licensed Programs.

Task 3. Replacing the Licensed Programs

__ 1. Begin this task at the Sign On display.

```
                          Sign On
                                          System. . . . . :  XXXX
                                          Subsystem . . . :  XXXX
                                          Display . . . . :  XXXXXXXX

       User. . . . . . . . . . . . . . .  QSECOFR
       Password  . . . . . . . . . . . .
       Program/procedure . . . . . . . .  _______
       Menu  . . . . . . . . . . . . . .  _______
       Current library . . . . . . . . .  _______
```

Type the following:

User: **QSECOFR**
Password: (Enter password, if required.)

Press Enter.

__ 2. The IPL Options display appears.

```
                              IPL Options

Type choices, press Enter.

  System date . . . . . . . . . . . . . .  XX / XX / XX     MM / DD / YY
  System time . . . . . . . . . . . . . .  XX : XX : XX     HH : MM : SS
  Clear job queues. . . . . . . . . . . .  N                Y=Yes, N=No
  Clear output queues . . . . . . . . . .  N                Y=Yes, N=No
  Clear incomplete job logs . . . . . . .  N                Y=Yes, N=No
  Start print writers . . . . . . . . . .  Y                Y=Yes, N=No
  Start system to restricted state  . . .  N                Y=Yes, N=No

  Set major system options. . . . . . . .  N                Y=Yes, N=No
  Define or change system at IPL. . . . .  N                Y=Yes, N=No


Last power-down operation was ABNORMAL
```

Notes:

a. Ignore the message on the bottom of the IPL Options display.

b. If you need to change system values, such as the value for the QSECURITY system value, you can do so now. Type `Y` for the *Define or change the system at IPL* prompt. Follow the instructions on the displays.

Type the following:

System date (Use the current date.)
System time (Use the current time, 24-hour clock.)
Set major system options `N`

Press Enter.

__ 3. The Edit Rebuild of Access Paths display could be shown. If it is, press Enter to continue.

__ 4. Additional display messages could be shown.

Press Enter after each message to continue.

__ 5. The iSeries Main Menu (or the menu you chose as an initial menu) appears on your console.

Do the following to put the system in a restricted state and filter the messages that appear:

a. Type: **CHGMSGQ QSYSOPR *BREAK SEV(60)**
   Press Enter.
b. A message display could appear. Press Enter.
c. Type: **ENDSBS *ALL *IMMED**
   Press Enter.
d. When the following message appears, press Enter to continue:
   `ENDSBS SBS(*ALL) command being processed`
e. The message `System ended to restricted condition` appears. Press Enter to continue.
f. Type: **CHGMSGQ QSYSOPR SEV(95)**
   Press Enter.
g. A message display could appear. Press Enter.

__ 6. The iSeries Main Menu (or the menu you chose as an initial menu) appears on your console.

Load the media volume that contains optional parts of OS/400. B29xx_02 is the volume label, where 29xx indicates the identifier for primary language.

Type: **GO LICPGM**. Press Enter.

__ 7. The Work with Licensed Programs display appears.

```
LICPGM                  Work with Licensed Programs
                                                     System:   XXXX
Select one of the following:

  Manual Install
     1. Install all
```

Type 1, and press Enter.

__ 8. The Manual Install display appears.

```
                            Manual Install
                                                     System:   XXXX
Type choices, press Enter.

  Install option . . .   1           1=Installed products
                                     2=All products
                                     3=New products


  Installation device    OPT01       Name

  Replace if current     N           Y=Yes
                                     N=No

  Automatic IPL  . . .   N           Y=Yes
                                     N=No
```

Type the following:

Install option 1
Installation device OPT01 (See note)
Replace if current N
Automatic IPL N

Press Enter.

Note: In this example, the installation device is OPT01. If you use a different naming convention, type the name that you have assigned to the installation device.

__ 9. Status displays may appear. These displays show the status of the licensed programs and language objects as they install on the system. You do not need to respond to these status displays.

```
                     Installing Licensed Programs
                                                        System: XXXX


 Licensed programs processed . . . . . . . . . . :     0 of XXX

                Licensed program install in progress
```

The following display is an example of the display that appears during the installation process.

```
                   Installing Licensed Programs
                                                        System: XXXX
 Licensed programs processed  . . . . . . . . . . :     X of XXX

 Licensed
 Program   Option   Description                                  Type
 5722SS1     2      OS/400 - Online Information                  2924
```

Note: This display shows which licensed programs and optional parts of licensed programs are being processed. After the *PGM objects and *LNG objects are processed, the display shows the total number of licensed programs processed.

__ 10. If a message similar to the following appears, load the next media volume that contains licensed program products, and continue the installation. When you are installing from optical media, wait for the In Use indicator to go out before you respond to the message.

```
                             Display Messages
                                                    System:   XXXX
Queue  . . . . . :   QSYSOPR               Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :   95                     Delivery  . . . :   *BREAK

Type reply (if required), press Enter.
  Load the next volume in optical device OPT01 (X G)
    Reply . . . . G
```

Type `G`

Note:

After loading each volume, type `G`, and press Enter.

If there are no more volumes to load that contain licensed programs, or if you want to end the loading process, type `X`, and press Enter.

Press Enter.

__ 11. The Work with Licensed Programs display appears on your console when the installation process completes. One of the following messages appears on the bottom of the Work with Licensed Programs display:

- `Work with licensed programs function has completed.`
- `Work with licensed programs function not complete.`

For either message, continue with Task 4. Verifying Completion of Manual Replacement.

Task 4. Verifying Completion of Manual Replacement

__ 1. The Work with Licensed Programs display appears. Use the page down or roll up key to see the second display of the Work with Licensed Programs menu.

```
LICPGM                  Work with Licensed Programs
                                                        System:   XXXX
Select one of the following:

  Secondary Languages
    20. Display installed secondary languages
    21. Install secondary languages
    22. Delete secondary languages

  Redistribution
    40. Create a distribution tape
    41. Work with installation profiles

  Completion Status
    50. Display log for messages
```

Type 50, and press Enter.

__ 2. The Display Install History display appears.

```
                      Display Install History

Type choices, press enter.

 Start date . . . . . _______  MM/DD/YY

 Start time . . . . . _______  HH:MM:SS

 Output . . . . . . . *______  *, *PRINT
```

Press Enter.

__ 3. Look at the messages that appear on the Display History Log Contents display.

- If you had an installed licensed program that was not renewed by IBM, it may not be replaced. Refer to “Mixed Release Support–Overview” on page 7 for more information.
- If any of the messages on the display indicate a failure or a licensed program that is partially installed, go to “Appendix A. Recovery Procedures” on page 95 to determine the problem.

Otherwise, press F3 (Exit).

__ 4. Verify your licensed programs’ installed status values and check for compatibility. It is important to make sure that all of your licensed programs are compatible with the operating system. You can determine a licensed program’s compatibility by checking the installed status value.

Use LICPGM menu option 10, Display licensed programs, to see the release and installed status values of the installed licensed programs. If the installed status value of a licensed program is *COMPATIBLE, it is ready for use. If the installed status value of a licensed program is *BACKLEVEL, the licensed program is installed, but its version, release, and modification is not compatible with the currently installed level of the OS/400 operating system. Check “Licensed Product Table” on page 149 to verify the current version, release, and modification of the licensed program. “Installed status values” on page 147 lists the possible installed status value descriptions.

More...	You have completed this task. Do you need to install additional licensed programs? **No** **Yes** ↓ Go to "Chapter 9. Installing Additional Licensed Programs" on page 75 and complete the instructions there. Do you need to install a secondary language? **No** **Yes** ↓ Go to "Chapter 10. Installing a Secondary Language" on page 83 and complete the instructions there. You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Replacing a Release Using Manual Installation

Chapter 5. Installing Software on a New iSeries Server (with the Operating System Already Installed)

This section contains instructions to install licensed programs that are on the distribution media. These instructions assume that V5R1M0 of the Licensed Internal Code and the operating system are installed and the server is powered off.

If you are not sure whether the operating system is already installed, contact your service representative.

Before You Begin

Should you use this book? Table 1 on page 11 shows which releases are supported when you use this book. Also, review Table 4 on page 13, which shows the sequence of the chapters you will use for installing a new system.

Complete the planning tasks in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation** topics.

Note: If you have added a new disk unit to your server, you should load the operating system again to use that disk unit. This will improve the performance of your server by distributing the operating system across all of your disk units. Complete "Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)" on page 49 if you are adding disk units. If you are planning to use device parity protection, auxiliary storage pools, or mirrored protection, refer to the book *Backup and Recovery*, SC41-5304, before you begin.

Do you plan to use logical partitions? Read the topics in the iSeries Information Center: **Systems Management –> Logical partitions –> Planning for logical partitions**. Additionally, refer to the Logical Partitioning Web site:

`http://www.ibm.com/eserver/iseries/lpar`

For logical partitions only
If you perform these actions on a system **with secondary logical partitions**, the instructions pertain only to that partition. If that partition is the primary partition, these instructions will change the power status and perform an IPL on the entire system. **Attention!** You must power down all secondary partitions before performing these instructions. Otherwise, you may lose data or damage system software objects. You must perform these instructions for each partition with which you will do the related work. Also, references to the control panel refer to the virtual control panel (Work with Partition Status display). If you perform these actions on a system **without secondary logical partitions**, the instructions pertain to the entire system.

Task 1. Doing the Initial Program Load (IPL)

__ 1. Ensure that the system is powered off before you begin.

__ 2. On your console, establish a connection to the server.

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__ 3. If the installation device has separate on and off switches, verify that the switch is in the On position.

__ 4. Use the control panel to set the IPL type to **A** and to set the mode to **Manual**.

__ 5. Press the Enter button on the control panel.

__ 6. Turn the system power on by pressing the power button.

__ 7. After some time, the `IPL or Install the System` display appears.

```
                          IPL or Install the System
                                                        System: XXXX
Select one of the following:

     1. Perform an IPL
     2. Install the operating system
     3. Use Dedicated Service Tools (DST)
     4. Perform automatic installation of the operating system
     5. Save Licensed Internal Code
```

Type 1, and press Enter.

__ 8. Status displays are shown on the console. You do not need to respond to any of these displays. The following is an example of a status display:

```
                      Licensed Internal Code IPL in Progress

IPL:
   Type  . . . . . .  Attended
   Start date and time .  xx/xx/xx xx:xx:xx
   Previous system end .  Normal

IPL step . . . . . :   Storage Management Recovery
```

The following list shows some of the IPL steps that are shown on the IPL Step in Progress display.

Authority Recovery
Journal Recovery
Database Recovery
Journal Synchronization
Start the Operating System

Some of the IPL steps could take a long time.

__ 9. Several messages may appear on the console. The following is an example of a message that may appear:

```
                             Display Messages
                                          System. . . . . :   XXXX
Queue  . . . . . :   QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                 Library . . . :
Severity . . . . :   10                   Delivery  . . . :   *BREAK

Press Enter to continue.
   System object xxxxx created again during IPL.
```

To continue, press Enter after each message that you receive.

__ 10. The Sign On display appears.

```
                          Sign On
                                   System. . . . :  XXX
                                   Subsystem . . :  XXXXX
                                   Display . . . :  XXXXXXXX

      User. . . . . . . . . . . . . QSECOFR
      Password. . . . . . . . . . .
      Program/procedure . . . . . . _______
      Menu. . . . . . . . . . . . . _______
      Current library . . . . . . . _______
```

Type QSECOFR for the *User* prompt, and type your password, if required. Press Enter.

Note: In case you have to change the password for the QSECOFR user profile, record the new password now. Store it in a safe location.

__ 11. The OS/400 IPL in Progress display appears.

__ 12. If the Select Products to Work with PTFs display appears, press F3 (Exit).

__ 13. The IPL Options display appears.

```
                            IPL Options

Type choices, press Enter.

System date . . . . . . . . . . . . . .  XX / XX / XX     MM / DD / YY
System time . . . . . . . . . . . . . .  XX : XX : XX     HH : MM : SS
Clear job queues. . . . . . . . . . . .  N                Y=Yes, N=No
Clear output queues . . . . . . . . . .  N                Y=Yes, N=No
Clear incomplete job logs . . . . . . .  N                Y=Yes, N=No
Start print writers . . . . . . . . . .  Y                Y=Yes, N=No
Start system to restricted state  . . .  Y                Y=Yes, N=No


Set major system options. . . . . . . .  Y                Y=Yes, N=No
Define or change system at IPL. . . . .  N                Y=Yes, N=No









Last power-down operation was ABNORMAL
```

Notes:

a. Ignore the message on the bottom of the IPL Options display.

b. If you need to change system values, such as the value for the QSECURITY system value, you can do so now. Type Y for the *Define or change system at IPL* prompt. If you do, also use the control panel to set the mode selection to the mode on which you want the system to run. Follow the instructions on the displays.

Type the following:

System date (Use the current date.)
System time (Use the current time, 24-hour clock.)
Start system to restricted state Y
Set major system options Y

Press Enter.

__ 14. Additional display messages could be shown.
Press Enter after each message to continue.

__ 15. The Set Major System Options display appears.

```
                          Set Major System Options

Type choices, press Enter.

Enable automatic configuration . . . . . Y           Y=Yes, N=No
Device configuration naming  . . . . . . *NORMAL     *NORMAL, *S36,
                                                     *DEVADR
Default special environment. . . . . . . *NONE       *NONE, *S36
```

Respond to the prompts on the Set Major System Options display.

- Enable automatic configuration

  The value Y (Yes) automatically configures local devices. N (No) indicates no automatic configuration. Refer to the book *Local Device Configuration*, SC41-5121, for information about automatic configuration.

- Device configuration naming

  Specify *NORMAL to use a naming convention unique to the iSeries server. The value *S36 uses a naming convention similar to System/36. Refer to the book *Local Device Configuration*, SC41-5121, for information about device configuration naming and *DEVADR.

- Default special environment

  The default value *NONE indicates no special environment. *S36 sets up the System/36 environment. Refer to the book, *System/36 Environment Programming*, SC41-4730 (V4R5 or earlier), for more information about working in the System/36 environment on the iSeries server.

Press Enter.

__ 16. The Edit Rebuild of Access Paths display could be shown. If it is, press Enter to continue.

__ 17. Several blank displays and Display Messages displays appear. To continue, press Enter for each message display. Do not respond to blank displays.

The following display is an example of a message that appears:

```
                              Display Messages
                                          System. . . . . :   XXXX
Queue  . . . . . :   QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                 Library . . . :
Severity . . . . :   10                    Delivery  . . . :   *BREAK

Press Enter to continue.
  All jobs in system lost.  Job and output queues cleared.
```

__ 18. When the iSeries Main Menu appears on your console, you have completed this task. Continue with Task 2. Installing the Licensed Programs.

Task 2. Installing the Licensed Programs

If you have secondary logical partitions, you must perform this procedure on each partition to which you want to install the licensed programs.

__ 1. Begin at the iSeries Main Menu.

Do the following to put the system in a restricted state and filter the messages that appear:

a. Type: **CHGMSGQ QSYSOPR *BREAK SEV(60)**

   Press Enter.

b. A message display could appear. Press Enter.

c. Type: **ENDSBS *ALL *IMMED**

Press Enter.

d. When the following message appears, press Enter to continue:

ENDSBS SBS(*ALL) command being processed

e. The message System ended to restricted condition appears. Press Enter to continue.

f. Type: **CHGMSGQ QSYSOPR SEV(95)**

Press Enter.

g. A message display could appear. Press Enter.

__ 2. When the iSeries Main Menu appears, load the media volume that contains optionally installable parts of OS/400. For optical media, this volume has the label B29xx_02, where 29xx indicates the primary language of the server.

__ 3. Type: **GO LICPGM**, and press Enter.

__ 4. The Work with Licensed Programs display appears.

```
LICPGM                  Work with Licensed Programs
                                                      System:   XXXX
Select one of the following:

  Manual Install
     1. Install all

  Preparation
     5. Prepare for install

  Licensed Programs
    10. Display installed licensed programs
    11. Install licensed programs
    12. Delete licensed programs
    13. Save licensed programs
```

Type **11** (option 11. Install licensed programs), and press Enter. Please read the note below for an **alternative to using option 11**.

Note: If you want to install all licensed programs that are on the distribution media, use Manual Install option 1, Install all, instead of using option 11. (See the Work with Licensed Programs display in the example above.) This will save time for the installation. Or, if you want most of the licensed programs on the media, then Manual Install option 1 is also the preferred choice. If you want most of the licensed programs and choose this method of installation, you will have to delete the extra unwanted licensed programs. The Manual Install display appears after selecting Manual Install option 1. Select option 2 (2=All products) on this display to install all of the licensed programs on the media. Then, continue with step 8 on page 47 of these instructions.

For more information about using Manual Install option 1, refer to "Using Option 1. Install All" on page 107.

__ 5. The Install Licensed Programs display appears.

Page through the display to find the licensed programs you want. Type a 1 in the option column next to the licensed programs that you want to install.

```
                          Install Licensed Programs
                                                               System: XXXX
 Type options, press Enter.
   1=Install

         Licensed  Product
 Option  Program   Option       Description
   _     _______   _______
   _     5722SS1               OS/400 - Library QGPL
   _     5722SS1               OS/400 - Library QUSRSYS
   _     5722SS1   1           OS/400 - Extended Base Support
   _     5722SS1   2           OS/400 - Online Information
   _     5722SS1   3           OS/400 - Extended Base Directory Support
   _     5722SS1   4           OS/400 - S/36 and S/38 Migration
   _     5722SS1   5           OS/400 - System/36 Environment
   _     5722SS1   6           OS/400 - System/38 Environment
   _     5722SS1   7           OS/400 - Example Tools Library
   _     5722SS1   8           OS/400 - AFP Compatibility Fonts
   _     5722SS1   9           OS/400 - *PRV CL Compiler Support
   _     5722SS1   11          OS/400 - S/36 Migration Assistant
   _                                                            More...
 F3=Exit   F11=Display status/release   F12=Cancel   F19=Display trademarks
```

Notes:

a. The libraries QGPL and QUSRSYS, and Extended Base Support (option 1) and Extended Base Directory Support (option 3) may be preselected. If you are adding additional (new) licensed programs or optional parts, these items may be installed already. They would be preselected only if they are in an error state.

b. A licensed program that you want to install might not appear on the Install Licensed Programs display. If a licensed program does not appear, you can add it by entering information into the blank fields at the top of the list. This product then appears on the list with the other products, after you press Enter.

   - Type 1 in the Option column
   - Type the product identifier in the Licensed Program column
   - Type the product option value in the Product Option column
   - Press Enter

   When you are typing the product option, the system accepts only the following three values: *BASE, option number, or *ALL.

   - A value of *BASE will install only the base product of the associated product identifier.
   - The product option number will install only the particular option of the associated product identifier. To be able to install options, you must install the base product (*BASE).
   - A value of *ALL will install the base product and all options of the associated product identifier.

   Keep in mind that the licensed programs that you add will appear on the list with only the product identifier. They will not list a descriptive name for the product. Also, you should check the documentation that came with the product to see whether there are any special instructions.

Press Enter.

__ 6. The Confirm Install of Licensed Programs display appears on the console. Press Enter to confirm your choices.

__ 7. The Install Options display appears.

```
                          Install Options
                                                        System:   XXXX
Type choices, press Enter.

  Installation device  . . .   OPT01          Name

  Objects to install . . . .   1              1=Programs and language objects
                                              2=Programs
                                              3=Language objects

  Automatic IPL  . . . . . .   N              Y=Yes
                                              N=No
```

Type the following:

Installation device OPT01 (See note)
Objects to install 1
Automatic IPL N

Press Enter.

Note: In this example, OPT01 is used for the installation device. If you use a different naming convention, type the name that you have assigned to the installation device.

__ 8. One or both of the following displays show the status of the licensed programs and language objects as they install on the server. You do not need to respond to these status displays.

```
                      Installing Licensed Programs
                                                        System: XXXX

Licensed programs processed . . . . . :     0 of XXX

                Licensed program install in progress
```

The following display is an example of the display that appears during the installation process.

```
                      Installing Licensed Programs
                                                        System: XXXX
Licensed programs processed  . . . . . :    X of XXX
 Licensed
 Program  Option  Description                              Type
 5722SS1   12     OS/400 - Host Servers                     2924
```

Note: This display shows which licensed programs and optional parts of licensed programs are being installed. After the *PGM objects and *LNG objects for each licensed program or optional part have been installed, the licensed program identifier disappears from the display and the number in the licensed programs processed field changes to show how many are processed.

__ 9. You will see the Display Messages display. Load the next media volume that contains licensed program products. If you are installing from optical media, wait for the In Use indicator to go out before responding to the message.

```
                                Display Messages
                                                              System:   XXXX
Queue  . . . . . :    QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :      95                 Delivery  . . . :   *BREAK

Type reply (if required), press Enter.
  Load the next volume in optical device OPT01 (X G)
    Reply . . . . G
```

Type G, and press Enter.

Note:

- After you load each volume, type G and press Enter.
- If there are no more volumes to load or if you want to end the loading process, type X and press Enter.

__ 10. The Work with Licensed Programs display appears on your console when the installation process is complete. One of the following messages appears on the bottom of the Work with Licensed Programs display:

`Work with licensed programs function not complete.` Go to "Appendix A. Recovery Procedures" on page 95 to determine the problem.

`Work with licensed programs function has completed.` Continue with the next step.

__ 11. Verify your licensed programs' installed status values and check for compatibility. It is important to make sure all of your licensed programs are compatible with the operating system. You can determine a licensed program's compatibility by checking the installed status value.

Use LICPGM menu option 10, Display licensed programs, to see the release and installed status values of the installed licensed programs. If the installed status value of a licensed program is *COMPATIBLE, it is ready for use. If the installed status value of a licensed program is *BACKLEVEL, the licensed program is installed, but its version, release, and modification is not compatible with the currently installed level of the OS/400 operating system. Check "Licensed Product Table" on page 149 to verify the current version, release, and modification of the licensed program. "Installed status values" on page 147 lists the possible installed status value descriptions.

More...

You have completed this task. Do you need to install additional licensed programs?

No **Yes**

↓ Go to "Chapter 9. Installing Additional Licensed Programs" on page 75 and complete the instructions there.

Do you need to install a secondary language?

No **Yes**

↓ Go to "Chapter 10. Installing a Secondary Language" on page 83 and complete the instructions there.

You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)

This section contains instructions to install the operating system and licensed programs on your new server. It explains how to change the primary language when you are installing the operating system if you need to change it at this time. Refer to the topic on planning for globalization installations in the iSeries Information Center for any special considerations you may need to know about other languages.

Note: These instructions assume that the V5R1M0 release of the Licensed Internal Code is installed and the system is powered off. If you do not know what level of Licensed Internal Code is on your system, contact your service representative.

Before You Begin

Should you use this book? Table 1 on page 11 identifies which releases are supported with this book. Also, review Table 4 on page 13, which shows the sequence of the chapters you will use for installing a new system.

Review the planning tasks in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation** topics. You will need to perform selected tasks.

Do you plan to use logical partitions? Read the topics in the iSeries Information Center: **Systems Management –> Logical partitions –> Planning for logical partitions**. Additionally, refer to the Logical Partitioning Web site:

`http://www.ibm.com/eserver/iseries/lpar`

For logical partitions only
If you perform these actions on a system **with secondary logical partitions**, the instructions pertain only to that partition. If that partition is the primary partition, these instructions will change the power status and perform an IPL on the entire system. **Attention!** You must power down all secondary partitions before performing these instructions. Otherwise, you may lose data or damage system software objects. You must perform these instructions for each partition with which you will do the related work. Also, references to the control panel refer to the virtual control panel (Work with Partition Status display). If you perform these actions on a system **without secondary logical partitions**, the instructions pertain to the entire system.

Task 1. Installing the Operating System

__ 1. Ensure that the server is powered off before you begin.

__ 2. On your console, establish a connection to the server.

__ 3. If the installation device has a separate power switch, set it to the On position.

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__ 4. Use the control panel to set the IPL type to **A** and set the mode to **Manual**. On some iSeries models, you use the Increment or Decrement button to scroll to function 02. Press Enter and then scroll to select **AM**.

__ 5. Press the Enter button on the control panel.

__ 6. Turn the power on for the server by pressing the power button.

Note: If either the Disk Configuration Error Report display or the Disk Configuration Warning Report display appears, go to "Appendix F. Disk Configuration Warning and Error Messages" on page 159 to determine the appropriate action.

__ 7. The IPL or Install the System menu appears on your console.

```
                          IPL or Install the System
                                                        System: XXXX
Select one of the following:

     1. Perform an IPL
     2. Install the operating system
     3. Use Dedicated Service Tools (DST)
     4. Perform automatic installation of the operating system
     5. Save Licensed Internal Code
```

Load the first volume of installation media that contains OS/400. (This volume is labeled B29xx_01, where 29xx is the identifier for the primary language.) When you are installing from optical media, wait until the In Use indicator goes out before you continue. Then do the following to respond to the display:

Type 2 and press Enter.

__ 8. The Confirm Install of OS/400 display is shown on your console. Press Enter.

__ 9. The Select a Language Group display shows the primary language currently on the system. This value should match the language feature number that is printed on the installation media. Refer to "Appendix G. National Language Version Feature Codes" on page 161 for a list of language feature codes.

```
                         Select a Language Group
                                                        System: XXXX
Note:  The language feature shown is the language feature
installed on the system.

Type choice, press Enter.

  Language feature . . . . . . . . . . . . . . .  2924
```

Verify that the displayed value is correct, or type the numbers of the feature code for the language you want. Press Enter.

__ 10. After you enter the language feature, the Confirm Language Feature Selection display appears on your console. Press Enter.

__ 11. If the Add All Disk Units to the System menu is **not** shown, go to the IPL Step in Progress display in step 12 on page 52.

a. **Adding Disk Units Subtask**

If you do not want device parity protection or mirrored protection or user ASPs, select option 3 (Add all disk units to the system auxiliary storage pool). By adding disk units before you install the operating

system, you improve your overall system performance because the operating system is distributed across all of your disk units.

Note: If you have RAID-capable disk units on your system or if your system ASP has mirrored protection, your display will not have option 3.

For logical partitions only
If you will be creating secondary logical partitions later, you do **not** want to configure all units now. Refer to the worksheet supplied by IBM for the configuration selection. To access this worksheet, refer to the Logical Partitioning Web site: **http://www.ibm.com/eserver/iseries/lpar**.

```
                    Add All Disk Units to the System
                                                          System: XXXX

Select one of the following:

     1. Keep the current disk configuration
     2. Perform disk configuration using DST
     3. Add all disk units to the system auxiliary storage pool
     4. Add all disk units to the system ASP and balance data
```

Type 3 and press Enter.

Note: If either the Disk Configuration Error Report display or the Disk Configuration Warning Report display appears, go to "Appendix F. Disk Configuration Warning and Error Messages" on page 159 to determine the appropriate action.

b. You could see the following display if your disk configuration has changed. Type 5 next to the problem and press Enter to display the detailed report.

```
                              Problem Report

Note: Some action for the problems listed below may need to
be taken.  Please select a problem to display more detailed
information about the problem and to see what possible
action may be taken to correct the problem.

Type option, press Enter.
  5=Display Detailed Report

OPT  Problem
 _   ____________________________________________________
 _   ____________________________________________________
```

c. If the following display appears, a disk unit that you selected to add to your disk configuration may already have data on it. If you choose to continue, any data on that is on the disk units listed will be removed.

Be certain that you want to configure the disk before you continue. Follow the instructions on the display. Press Enter to return to the Problem Report screen. Press F10 to continue the Add Disk Unit subtask.

```
                    Possibly Configured Units

Problem: These non-configured units appear to be
configured units of some other disk configuration and
may contain valid data.  This option will clear the
data from these units and destroy the other disk
configuration.

Press Enter to continue
Press F12=Cancel to return and change your choices.

  Serial                  Resource        Other System
  Number      Type  Model Name            Serial Number
  __________  ____  ___   __________      __________
  __________  ____  ___   __________      __________
  __________  ____  ___   __________      __________
  __________  ____  ___   __________      __________
  __________  ____  ___   __________      __________
  __________  ____  ___   __________      __________
  __________  ____  ___   __________      __________
                                                More..

F3=Exit         F12=Cancel
```

d. The following display shows the percentage of disk units added. This display does not require a response.

```
                              Function Status

You selected to add units.


                                  ___ % Complete
```

e. When the process completes, continue the software installation process with the next step below. **This completes the subtask for adding disk units.**

__ 12. Status displays appear on the console. You do not need to respond to any of these displays. The following is an example of a status display:

```
                        Licensed Internal Code IPL in Progress

IPL:
   Type  . . . . . .  Attended
   Start date and time .  xx/xx/xx xx:xx:xx
   Previous system end .  Normal

IPL step . . . . . :   Storage Management Recovery
```

The following list shows some of the IPL steps that are shown on the IPL Step in Progress display.

Authority Recovery
Journal Recovery
Database Recovery
Journal Synchronization
Start the Operating System

__ 13. The Install the Operating System display appears.

```
                      Install the Operating System

Type options, press Enter.

  Install
    option . . . . . 1           1=Take defaults (No other
                                   options are displayed)
                                 2=Change install options

Date:
  Year . . . . . __            00-99
  Month  . . . . . __          01-12
  Day  . . . . . __            01-31

Time:
  Hour . . . . . __            00-23
  Minute . . . . . __          00-59
  Second . . . . . __          00-59
```

Type the following:

Install option 1
Date (Use the current year, month, and day.)
Time (Use the current time, 24-hour clock.)

Press Enter.

__ 14. Status messages appear during the installation process. You do not need to respond to any of these status displays. The following is an example of a status display:

```
Message ID. . . :   CPI2070                  OS/400 Installation Status

          +-----------------------------------------------------+
Stage 2   |                      XX %                           |
          +-----------------------------------------------------+


Installation                                                      Objects
Stage                                              Completed      Restored

   1 Creating needed profiles and libraries . . . . :   X

>> 2 Restoring programs to library QSYS . . . . . :                 XXXXX

   3 Restoring language objects to library QSYS . . :

   4 Updating program table . . . . . :

   5 Installing database files. . . . . :

   6 Completing OS/400 installation . . . . . :
```

__ 15. Messages similar to the following may appear:

```
                             Display Messages
                                        System. . . . . :   XXXX
Queue  . . . . . :   QSYSOPR            Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                Library . . . :
Severity . . . . :   10                  Delivery  . . . :   *BREAK

Press Enter to continue.
  System operator message queue QSYSOPR created again.
  Console values lost.
```

Press Enter.

__ 16. The Sign On display is shown.

```
                              Sign On
                                       System. . . . :  XXX
                                       Subsystem . . :  XXXXX
                                       Display . . . :  XXXXXXXX

       User. . . . . . . . . . . . . . QSECOFR
       Password. . . . . . . . . . . .
       Program/procedure . . . . . . . _______
       Menu. . . . . . . . . . . . . . _______
       Current library . . . . . . . . _______
```

Type QSECOFR for the *User* prompt, and type your password, if required. Press Enter.

__ 17. Several blank displays and Display Messages displays could be shown. To continue, press Enter for each message display.

The following display is an example of a message that could be shown:

```
                                Display Messages
                                                          System:   XXXX
Queue  . . . . . :   QSYSOPR               Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :   60                     Delivery  . . . :   *BREAK

Press Enter to continue.
  System object QWCSCPF created again during IPL.
```

__ 18. The IPL Options display appears.

```
                              IPL Options

Type choices, press Enter.

System date . . . . . . . . . . . . . . .  XX / XX / XX     MM / DD / YY
System time . . . . . . . . . . . . . . .  XX : XX : XX     HH : MM : SS
Clear job queues. . . . . . . . . . . . .  N                Y=Yes, N=No
Clear output queues . . . . . . . . . . .  N                Y=Yes, N=No
Clear incomplete job logs . . . . . . . .  N                Y=Yes, N=No
Start print writers . . . . . . . . . . .  Y                Y=Yes, N=No
Start system to restricted state  . . . .  Y                Y=Yes, N=No


Set major system options. . . . . . . . .  Y                Y=Yes, N=No
Define or change system at IPL. . . . . .  N                Y=Yes, N=No









Last power-down operation was ABNORMAL
```

Notes:

a. Ignore the message on the bottom of the IPL Options display.

b. If you need to change system values, such as the value for the QSECURITY system value, you can do so now. Type Y for the *Define or change system at IPL* prompt. If you do, also use the control panel to set the mode selection to the mode on which you want the system to run. Follow the instructions on the displays.

Type the following:

System date (Use the current date.)
System time (Use the current time, 24-hour clock.)
Start system to restricted state Y
Set major system options Y

Press Enter.

__ 19. Additional display messages could be shown.

Press Enter after each message to continue.

__ 20. The Set Major System Options display appears.

```
                        Set Major System Options

Type choices, press Enter.

Enable automatic configuration . . . . . Y           Y=Yes, N=No
Device configuration naming  . . . . . . *NORMAL     *NORMAL, *S36,
                                                     *DEVADR
Default special environment. . . . . . . *NONE       *NONE, *S36
```

Respond to the prompts on the Set Major System Options display.

- Enable automatic configuration

  The value Y (Yes) automatically configures local devices. N (No) indicates no automatic configuration. Refer to the book *Local Device Configuration*, SC41-5121, for information about automatic configuration.

- Device configuration naming

  Specify *NORMAL to use a naming convention unique to the iSeries server. The value *S36 uses a naming convention similar to System/36. Refer to the book *Local Device Configuration*, SC41-5121, for information about device configuration naming and *DEVADR.

- Default special environment

  The default value *NONE indicates no special environment. *S36 sets up the System/36 environment. Refer to the book, *System/36 Environment Programming*, SC41-4730 (V4R5 or earlier), for more information about working in the System/36 environment on the iSeries server.

Press Enter.

__ 21. The Edit Rebuild of Access Paths display could be shown. If it is, press Enter to continue.

__ 22. Several blank displays and Display Messages displays are shown. To continue, press Enter for each message display. Do not respond to blank displays.

The following display is an example of a message that could be shown:

```
                              Display Messages
                                                        System:   XXXX
Queue  . . . . . :   QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                 Library . . . :
Severity . . . . :   10                   Delivery  . . . :   *BREAK

Press Enter to continue.
Library QHLPSYS in SYSVAL QSYSLIBL not found.
```

__ 23. A message, `Your password has expired`, may appear. Press Enter. The Change Password display appears. Change the password from QSECOFR to your own choice. First input the old password, QSECOFR. Then input the new password of your choice. Enter the new password again as verification.

__ 24. When the iSeries Main Menu appears on your console, you have completed this task. Continue with Task 2. Installing the Licensed Programs.

Task 2. Installing the Licensed Programs

If you have secondary logical partitions, you must perform this procedure on each partition to which you want to install the licensed programs.

__ 1. Begin at the iSeries Main Menu.

Do the following to put the system in a restricted state and filter the messages that appear:

a. Type: **CHGMSGQ QSYSOPR *BREAK SEV(60)**

Press Enter.

b. A message display could appear. Press Enter.

c. Type: **ENDSBS *ALL *IMMED**

Press Enter.

d. When the following message appears, press Enter to continue:

```
ENDSBS SBS(*ALL) command being processed
```

e. The message `System ended to restricted condition` appears. Press Enter to continue.

f. Type: **CHGMSGQ QSYSOPR SEV(95)**

Press Enter.

g. A message display could appear. Press Enter.

__ 2. Load the media volume that contains the optionally installable parts of OS/400. For optical media, this volume has label B29xx_02, where 29xx indicates the primary language.

__ 3. The iSeries Main Menu appears.

Type: **GO LICPGM**. Press Enter.

__ 4. The Work with Licensed Programs display appears.

```
LICPGM                  Work with Licensed Programs
                                                     System:   XXXX
Select one of the following:

  Manual Install
     1. Install all

  Preparation
     5. Prepare for install

  Licensed Programs
    10. Display installed licensed programs
    11. Install licensed programs
    12. Delete licensed programs
    13. Save licensed programs
```

Type **11** (`option 11. Install licensed programs`), and press Enter. Please read the note below for an **alternative to using option 11**.

Note: If you want to install all licensed programs that are on the distribution media, use Manual Install option 1, `Install all`, instead of using option 11. (See the Work with Licensed Programs display in the example above.) This will save time for the installation. Or, if you want most of the licensed programs on the media, then Manual Install option 1 is also the preferred choice. If you want most of the licensed programs and choose this method of installation, you will have to delete the extra unwanted licensed programs. The `Manual Install` display appears after selecting Manual Install option 1. Select option 2 (2=All products) on this display to install all of the licensed programs on the media. Then, continue with step 8 on page 58 of these instructions.

For more information about using Manual Install option 1, refer to "Using Option 1. Install All" on page 107.

__ 5. The Install Licensed Programs display appears.

Page through the display to find the licensed programs you want. Type a 1 in the option column next to the licensed programs that you want to install.

```
                              Install Licensed Programs
                                                                  System: XXXX
 Type options, press Enter.
   1=Install

          Licensed  Product
Option    Program   Option       Description
          _______   _______
  1       5722SS1                OS/400 - Library QGPL
  1       5722SS1                OS/400 - Library QUSRSYS
  1       5722SS1   1            OS/400 - Extended Base Support
  _       5722SS1   2            OS/400 - Online Information
  1       5722SS1   3            OS/400 - Extended Base Directory Support
  _       5722SS1   4            OS/400 - S/36 and S/38 Migration
  _       5722SS1   5            OS/400 - System/36 Environment
  _       5722SS1   6            OS/400 - System/38 Environment
  _       5722SS1   7            OS/400 - Example Tools Library
  _       5722SS1   8            OS/400 - AFP Compatibility Fonts
  _       5722SS1   9            OS/400 - *PRV CL Compiler Support
  _       5722SS1   11           OS/400 - S/36 Migration Assistant
                                                                    More...
 F3=Exit   F11=Display status/release   F12=Cancel   F19=Display trademarks
```

Notes:

a. The libraries QGPL and QUSRSYS are preselected, and Extended Base Support (option 1) and Extended Base Directory Support (option 3) are preselected to install. You must install these on your system.

b. A licensed program that you want to install might not appear on the Install Licensed Programs display. If a licensed program does not appear, you can add it by entering information into the blank fields at the top of the list. This product then appears on the list with the other products, after you press Enter.

- Type 1 in the Option column
- Type the product identifier in the Licensed Program column
- Type the product option value in the Product Option column
- Press Enter

When you are typing the product option, the system accepts only the following three values: *BASE, option number, or *ALL.

- A value of *BASE will install only the base product of the associated product identifier.
- The product option number will install only the particular option of the associated product identifier. To be able to install options, you must install the base product (*BASE).
- A value of *ALL will install the base product and all options of the associated product identifier.

Keep in mind that licensed programs that you add will appear on the list with only the product identifier and will not give a descriptive name of the product. Also, you should check the documentation that came with the product to see whether there are any special instructions.

Press Enter.

__ 6. The Confirm Install of Licensed Programs display appears on the console.

Press Enter to confirm your choices.

__ 7. The Install Options display appears.

```
                          Install Options
                                                      System:   XXXX
Type choices, press Enter.

  Installation device  . . .   OPT01          Name

  Objects to install . . . .   1              1=Programs and language objects
                                              2=Programs
                                              3=Language objects

  Automatic IPL  . . . . . .   N              Y=Yes
                                              N=No
```

Type the following:

Installation device OPT01 (See note)
Objects to install 1
Automatic IPL N

Press Enter.

Note: In this example, OPT01 is used for the installation device. If you use a different naming convention, type the name that you have assigned to the installation device.

__ 8. One or both of the following displays show the status of the licensed programs and language objects as they install on the system. You do not need to respond to these status displays.

```
                     Installing Licensed Programs
                                                    System: XXXX

Licensed programs processed . . . . . :     0 of XXX

               Licensed program install in progress
```

The following display is an example of the display that appears during the installation process.

```
                     Installing Licensed Programs
                                                    System: XXXX
Licensed programs processed  . . . . . :    X of XXX
 Licensed
 Program  Option  Description                        Type
 5722SS1   12     OS/400 - Host Servers              2924
```

Note: This display shows which licensed programs and optional parts of licensed programs are being installed. After the *PGM objects and *LNG objects for each licensed program or optional part have been installed, the licensed program identifier disappears from the display and the number in the licensed programs processed field changes to show how many are processed.

__ 9. You will see the Display Messages display. Load the next media volume that contains licensed program products. If you are installing from optical media, wait for the In Use indicator to go out before responding to the message.

```
                              Display Messages
                                                          System:   XXXX
Queue  . . . . . :    QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :       95                 Delivery  . . . :   *BREAK

Type reply (if required), press Enter.
  Load the next volume in optical device OPT01 (X G)
    Reply . . . . G
```

Type G, and press Enter.

Note:

- After you load each volume, type G and press Enter.
- If there are no more volumes to load or if you want to end the loading process, type X and press Enter.

__ 10. The Work with Licensed Programs display appears on your console when the installation process is complete. One of the following messages appears on the bottom of the Work with Licensed Programs display:

`Work with licensed programs function not complete.` Go to "Appendix A. Recovery Procedures" on page 95 to determine the problem.

`Work with licensed programs function has completed.` Continue with the next step.

__ 11. Verify your licensed programs' installed status values and check for compatibility. You **must** make sure all of your licensed programs are compatible with the operating system, before using any of the installed programs. See the caution notes below.

Use LICPGM menu option 10, Display licensed programs, to see the release and installed status values of the installed licensed programs. If the installed status value of a licensed program is *COMPATIBLE, it is ready for use. If the installed status value of a licensed program is *BACKLEVEL, the licensed program is installed, but its version, release, and modification is not compatible with the currently installed level of the OS/400 operating system. Check "Licensed Product Table" on page 149 to verify the current version, release, and modification of the licensed program. "Installed status values" on page 147 lists the possible installed status value descriptions.

More...

You have completed this task. Do you need to install additional licensed programs?

No	**Yes**
↓	Go to "Chapter 9. Installing Additional Licensed Programs" on page 75 and complete the instructions there.

Do you need to install a secondary language?

No	**Yes**
↓	Go to "Chapter 10. Installing a Secondary Language" on page 83 and complete the instructions there.

You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Installing Software on a New iSeries Server without the Operating System Installed

Chapter 7. Installing a New Secondary Logical Partition

The instructions in this section install the Licensed Internal Code on a new secondary logical partition. After you perform the instructions here, you will then use “Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)” on page 49 to install the Operating System/400, and licensed programs on a new secondary logical partition.

Before You Begin

Should you use this book? Table 1 on page 11 shows which releases are supported when you use this book. Also, review Table 4 on page 13, which shows the sequence of the chapters you will use for installing software on a secondary partition.

Review the planning tasks in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation** topics. You will need to perform selected tasks.

Do You Have to Use the Manual Installation Process? Yes, you must use the manual process for this procedure.

Which type of console are you using to do your installation? IBM recommends that you use V5R1 Operations Console if you are upgrading to Version 5. If you use Operations Console, do one of the following before you install V5R1M0 on your server:

- Use the *iSeries 400 Setup and Operations CD-ROM*, SK3T-4098-00 to install or upgrade to the V5R1 version of Operations Console with cable connectivity. To set up Operations Console with local area network (LAN) connectivity or modem connectivity, see *Operations Console Setup*, SC41-5508-02. To view the most recent information on Operations Console, go to the following Web site:

  `http://www.ibm.com/servers/eserver/iseries/clientaccess/qnaopcons`
- Disconnect from your server and close Operations Console. Restart Operations Console and reconnect by using the user ID of 11111111 and password of 11111111 to sign on to your server.

Have you read about logical partitions? Read the topics in the iSeries Information Center: **Systems Management –> Logical partitions –> Planning for logical partitions**. Additionally, refer to the articles at the *Logical Partitioning* Web site:

`http://www.ibm.com/eserver/iseries/lpar`

Attention!
This procedure causes existing data on the disk units assigned to this secondary logical partition to be lost! Make sure you really want to perform this procedure.

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Task 1. Installing the Licensed Internal Code on a Secondary Logical Partition

While you perform an installation on a secondary logical partition, system reference codes (SRCs) appear on the Work with Partition Status display. You can access this display through Start Service Tools (SST) or Dedicated Service Tools (DST).

Note:

- In this book, when an SRC appears with the characters xx (such as B2xx xxxx), xx pertains to the partition identifier and xxxx pertains to a variety of other characters.
- The term "system" refers to the secondary partition on which you are performing the installation.
- When installing on secondary partitions, the term "control panel" refers to accessing the Work with System Partitions display under SST or DST from the primary partition.
- Refer to the iSeries Information Center: **Systems Management —> Logical partitions —> Managing logical partitions —> Managing logical partitions with Operations Navigator along with DST and SST** for more information.
- Until you have completed the installation of Licensed Internal Code, the information shown about the configuration of partitions will be incorrect. Devices attached to the buses of your secondary partitions are not listed until the installation is complete. Therefore, if you look at your configuration from the primary partition before you complete the installation, you might see only buses and IOPs, but not the IOA and device details.

__ 1. Arrange your installation media in the order in which you will use them. Refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Locating and verifying your software information and order –> Verifying the release, labels, and national language of the optical distribution media –> Media labels and their contents**.

__ 2. Verify that the primary partition is powered on. If power is not on, go to the iSeries Information Center: **Systems Management –> Logical partitions –> Managing logical partitions –> Restarting and powering down a system with logical partitions** for more information. Return here when done.

__ 3. Ensure that power is on for the primary partition's console and the console for your secondary partition.

__ 4. Verify that this secondary partition has an alternate IPL resource assigned.

__ 5. Load the installation media volume that contains Licensed Internal Code into the installation resource defined for this secondary partition. Wait for the `In Use` indicator to go out.

Note: If you are using a tape device instead of the optical device optimized for optical media, verify that the tape unit is varied on and allocated to your system (partition).

__ 6. Use the Work with Partition Status display to set the mode selection to **Manual**.

__ 7. Use the Work with Partition Status display to set the IPL source to **D**.

__ 8. Use the Work with Partition Status display to power on this secondary partition. The Confirm Alternate IPL display appears.

__ 9. Press Enter to see the Select a Language Group display. (This could take several minutes.)

Note: The installation media for Licensed Internal Code is now language-independent. It is very important that you complete this step carefully.

The language for Licensed Internal Code and OS/400 must match. If they do **not** match, do **not** continue with the installation. Stop and call your software provider. Get the correct language feature before continuing. If the languages do not match, you may have CCSID-related errors and the installation may fail.

Refer to "Appendix G. National Language Version Feature Codes" on page 161 for a list of language feature codes.

```
            Select a Language Group


The language feature shown is the language feature
installed on the system.

Attention:  To keep the same primary language, ensure that the
media you use for installing the operating system
matches the language feature shown.  If the operating
system media does not match what is shown, the
installation process will attempt to install the
operating system in a different language feature than
Licensed Internal Code.  This is undesirable.


Type choice, press Enter.

  Language feature . . . . . .   2924
```

Type the primary language feature code. The language feature is shown on the label of your OS/400 installation media as B29xx_nn, where 29xx indicates the feature for the primary language.

Press Enter.

__ 10. After you enter the language feature, the Confirm Language Group display appears.

```
            Confirm Language Group


Language feature  . . . . . :   2924

Press Enter to confirm your choice for language feature.
Press F12 to change your choice for language feature.
```

Press Enter.

__ 11. The Install Licensed Internal Code display appears.

```
                    Install Licensed Internal Code
                                                      System: XXXX
Select one of the following:

     1. Install Licensed Internal Code
     2. Work with Dedicated Service Tools (DST)
     3. Define alternate installation device
```

Type 1 (See note)

Press Enter.

Note: If you have an alternate installation device attached to the system, type a 3 to verify its address and determine whether it is enabled or disabled. Continue with the Verifying and Selecting an Alternate Installation Device in Appendix H on page 167. If you are not using an alternate installation device, go on to step 12.

__ 12. The Install Licensed Internal Code (LIC) display appears on your console.

```
                    Install Licensed Internal Code (LIC)

Disk selected to write the Licensed Internal Code to:
    Serial Number     Type     Model     I/O Bus      Controller     Device
     xx-xxxxxxx       xxxx      xxx          x              x            x

Select one of the following:

     1. Restore Licensed Internal Code
     2. Install Licensed Internal Code and Initialize system
     3. Install Licensed Internal Code and Recover Configuration
     4. Install Licensed Internal Code and Restore Disk Unit Data
     5. Install Licensed Internal Code and Upgrade Load Source
```

Type 2, and press Enter.

__ 13. Read the warning and reply to the Confirmation display.

Attention! This procedure causes existing data on the disk units assigned to this secondary logical partition to be lost! Make sure you really want to perform this procedure.

__ 14. The Initialize the Disk - Status display appears while the load source for the secondary partition is being initialized.

__ 15. The Install Licensed Internal Code - Status display appears on your console. You do not need to respond to this display. It will remain on your console for approximately 30 minutes.

```
                 Install Licensed Internal Code - Status

Install of the Licensed Internal Code in progress.

            +-----------------------------------------------------+
Percent     |                          XX %                       |
complete    +-----------------------------------------------------+

Elapsed time in minutes  . . . . . . . . :    x.x


Please wait.
```

__ 16. On the Select Planned Operating System display, select OS/400.

__ 17. If an error occurs, you may see a display that requires a response. Perform the action necessary as prompted by the display. Otherwise, continue with step 18.

__ 18. After approximately 10 minutes, the IPL or Install the System display appears. The Licensed Internal Code is now replaced. Do not remove the distribution media at this time.

__ 19. The Disk Configuration Warning Report display may appear. If it does, display the detailed report for each warning shown on the display. Press the Help key from the Disk Configuration Warning Report display for

more information about your choices. Also refer to "Appendix F. Disk Configuration Warning and Error Messages" on page 159 for more information.

```
                    Disk Configuration Warning Report

Type option, press Enter.
   5=Display Detailed Report

Press F10 to accept all the warnings and continue the IPL.
The system will attempt to correct the warnings.

OPT  Warning
 _   xxxxxxxx xxxx xxxxxxxxx xxxxx xx xxxxx xxxxxxxx
 _   xxxxx_xx_xxxxx xxxxxx_ xxxxxxxx xxxxxxx xxxxxxxxxx________
 _   ____________________________________________________________
 _   ____________________________________________________________
 _   ____________________________________________________________
 _   ____________________________________________________________
 _   ____________________________________________________________
 _   ____________________________________________________________
 _   ____________________________________________________________
 _   ____________________________________________________________
                                                            More...

F3=Exit to use Dedicated Service Tools (DST)
F10=Accept warnings and continue the IPL
_______________________________________________________________________________
```

Note: If the warning **Disk unit not formatted for optimal performance** appears on this display, do the following:

- Type a 5, and press Enter to display the detailed report.
- Write down the information displayed. After the upgrade completes, you will need this information to format these disk units to gain optimal performance.
- Press F12 to cancel and return to the Disk Unit Warning Report.
- Press F10 to accept the warnings and continue the IPL.

Continue with Task 1, step 7 in "Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)" on page 49.

Chapter 8. Changing Your Primary Language

This section contains the instructions to change the primary language of your system. If you have secondary logical partitions, you must perform these instructions for each partition to which you change the primary language.

Before You Begin

Review Table 6 on page 14 to determine the most efficient method for changing your primary language. This table will direct you to the best chapters to use for changing your primary language.

Before you begin to change the primary language, be sure you have read the information in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Choosing an installation procedure and preparing for globalization support** topics.

Before you use this chapter, obtain the following:

- You need the media that contains the Operating System/400 (5722-SS1). The media label includes the characters B29xx_01, where 29xx is the language feature code for the primary language that is already on the system.
- You also need the media that contains the secondary language you want to install. The media label includes the characters N29xx and the name of the language. The character N indicates that the media contains only language objects, and 29xx is the language feature code of the secondary language.

  Note: If the label on the secondary language media does not match this description, do not continue with the instructions in this part. If the letter B precedes the language feature code, go to Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed) and use those instructions to change your primary language.
- The release and modification of your system must be the same as the release and modification of your secondary language media.

Attention: You cannot change your primary language to a language you currently have installed as a secondary language on your system. You must delete the secondary language first before you can change it to your primary language. Go to "Using Option 22. Delete Secondary Languages" on page 113 for more information about deleting secondary languages.

Complete the planning tasks in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation** topics.

Task 1. Changing the Primary Language

If you have secondary logical partitions, you must perform these instructions for each partition to which you change the primary language.

__ 1. Begin at the iSeries Main Menu (or the menu you chose as your initial menu).

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Load the first volume of the media containing the operating system (5722-SS1).

Note: Do **not** load your secondary language media at this time.

__ 2. Use the control panel to switch the mode to **Manual**.

__ 3. Type: **PWRDWNSYS OPTION(*IMMED) RESTART(*YES)**

Press Enter.

__ 4. Wait for the IPL or Install the System display to appear on your console.

```
                          IPL or Install the System
                                                        System: XXXX
Select one of the following:

     1. Perform an IPL
     2. Install the operating system
     3. Use Dedicated Service Tools (DST)
     4. Perform automatic installation of the operating system
     5. Save Licensed Internal Code
```

Type 2 and press Enter.

__ 5. The Confirm Install of OS/400 display is shown on your console. Press Enter.

__ 6. The Select a Language Group display shows the primary language currently installed on the system. Change the primary language of your system by specifying the language feature code of the secondary language media on this display.

For example, say the primary language is English (2924) and you are using secondary language media to change it to Portuguese (2922). This display would appear showing 2924. You would type 2922.

```
                          Select a Language Group
                                                        System: XXXX
Note:  The language feature shown is the language feature
installed on the system.

Type choice, press Enter.

  Language feature . . . . . . . . . . . . . . .  2924
```

Type the numbers of the feature code for the language you want.

Press Enter.

__ 7. After the language feature code is entered, the Confirm Language Feature Selection display appears on your console. Press Enter.

__ 8. Some status displays appear on the console. You do not need to respond to any of these status displays. The following is an example of a status display:

```
                       Licensed Internal Code IPL in Progress

IPL:
   Type  . . . . . . . . .  Attended
   Start date and time .  xx/xx/xx xx:xx:xx
   Previous system end .  Normal

IPL step . . . . . . :   Storage Management Recovery
```

The following list shows some of the IPL steps that are shown on the IPL Step in Progress display.

Authority Recovery
Journal Recovery
Database Recovery
Journal Synchronization
Start the Operating System

Some of the IPL steps could take a long time.

__ 9. The Install the Operating System display appears when the IPL is complete.

```
                    Install the Operating System

Type options, press Enter.

  Install
    option . . . . .   2           1=Take defaults (No other
                                     options are displayed)
                                   2=Change install options

  Date:
    Year . . . . . .  __           00-99
    Month  . . . . .  __           01-12
    Day  . . . . . .  __           01-31

 Time:
    Hour . . . . . .  __          00-23
    Minute . . . . .  __          00-59
    Second . . . . .  __          00-59
```

Type the following:

Install option 2
Date (Use the current year, month, and day.)
Time (Use the current time, 24-hour clock.)

Press Enter. The Installation Status display appears. You do not need to respond to this display.

__ 10. The Specify Install Options display appears.

```
                     Specify Install Options

Type options, press Enter.

  Restore option . . . . . 4       1=Restore programs and language objects
                                     from the current media set
                                   2=Do not restore programs or
                                     language objects
                                   3=Restore only language objects
                                     from current media set
                                   4=Restore only language objects
                                     from a different media set using the
                                     current install device.


  Job and output
    queues option . . . . 2        1=Clear, 2=Keep

  Distribute OS/400 on
    available disk units . . . 2   1=Yes, 2=No
```

Type the following:

Restore option 4
Job and output queues option 2

Press Enter. The Installation Status display appears. You do not need to respond to this display.

__ 11. When the following message appears, load the volume that contains secondary language media, which is labeled N29xx. The value 29xx is the feature code of the secondary language.

```
                              Message

Message ID  . . . . . :   CPA2057       Type . . . . . :   Inquiry
From program  . . . . :   XXXXXXX       Severity . . . :   99

Language ID . . . . . :   2922

Message . . . . . :   The installation media containing language objects
  for the system language is needed to continue the installation
  process.

Recovery  . . . . . :   Load the installation media containing language objects
  for the specified language.









Type choice, press Enter.

   Reply . . . . .   1           1=Continue, 2=End installing
```

Type 1, and press Enter.

The system searches through the media and loads the necessary language information. The Installation Status display appears, indicating that the language is being changed (in stage 3). The installation continues through the remaining stages. This display does not require a response.

__ 12. After the base part of the operating system has been changed to the new primary language, the Sign On display appears on your console. Continue with Task 2. Installing the Licensed Programs to change the language objects for the licensed programs.

Task 2. Installing the Licensed Programs

If you have secondary logical partitions, you must perform this procedure on each partition to which you want to install the licensed programs.

__ 1. Begin at the Sign On display.

```
                          Sign On
                                   System. . . . :  XXX
                                   Subsystem . . :  XXXXX
                                   Display . . . :  XXXXXXXX

       User. . . . . . . . . . . . . QSECOFR
       Password. . . . . . . . . . .
       Program/procedure . . . . . . _______
       Menu. . . . . . . . . . . . . _______
       Current library . . . . . . . _______
```

Type QSECOFR for the *User* prompt, and type your password, if required. Press Enter.

__ 2. Several display messages appear. To continue, press Enter on each display. The following is an example of a message that may appear:

```
                                Display Messages
                                                          System:   XXXX

 Queue  . . . . . :   QSYSOPR                Program . . . . :   *DSPMSG
   Library  . . . :     QSYS                    Library . . . :
 Severity . . . . :   10                      Delivery  . . . :   *BREAK

 Press enter to continue.
   System object QWCSCPF created again during IPL.
```

__ 3. The IPL Options display appears.

```
                                IPL Options

Type choices, press Enter.

  System date . . . . . . . . . . . . . .  XX / XX / XX     MM / DD / YY
  System time . . . . . . . . . . . . . .  XX : XX : XX     HH : MM : SS
  Clear job queues. . . . . . . . . . . .  N                Y=Yes, N=No
  Clear output queues . . . . . . . . . .  N                Y=Yes, N=No
  Clear incomplete job logs . . . . . . .  N                Y=Yes, N=No
  Start print writers . . . . . . . . . .  Y                Y=Yes, N=No
  Start system to restricted state. . . .  N                Y=Yes, N=No

  Set major system options. . . . . . . .  N                Y=Yes, N=No
  Define or change the system at IPL. . .  N                Y=Yes, N=No









Last power-down operation was ABNORMAL
```

Note: Ignore the message on the bottom of the IPL Options display.

Type the following:

System date (Use the current date.)
System time (Use the current time, 24-hour clock.)
Set major system options N

Press Enter.

__ 4. Additional display messages could be shown.

Press Enter after each message to continue.

__ 5. The iSeries Main Menu (or the menu you chose as the initial menu) appears on your console.

Do the following to put the system in a restricted state and filter the messages that appear:

a. Type: **CHGMSGQ QSYSOPR *BREAK SEV(60)**

   Press Enter.

b. A message display could appear. Press Enter.

c. Type: **ENDSBS *ALL *IMMED**

   Press Enter.

d. When the following message appears, press Enter to continue:

   ```
   ENDSBS SBS(*ALL) command being processed
   ```

e. The message `System ended to restricted condition` appears. Press Enter to continue.

f. Type: **CHGMSGQ QSYSOPR SEV(95)**

   Press Enter.

g. A message display could appear. Press Enter.

__ 6. The iSeriesMain Menu (or the menu you chose as your initial menu) appears again.

Type: **GO LICPGM**. Press Enter.

__ 7. The Work with Licensed Programs display appears.

```
LICPGM                  Work with Licensed Programs
                                                     System:   XXXX
Select one of the following:

  Manual Install
     1. Install all
```

Type 1, and press Enter.

__ 8. The Manual Install display appears.

```
                              Manual Install
                                                     System:   XXXX
Type choices, press Enter.

  Install option . . .   1           1=Installed products
                                     2=All products
                                     3=New products


  Installation device    OPT01       Name

  Replace if current     N           Y=Yes
                                     N=No

  Automatic IPL  . . .   N           Y=Yes
                                     N=No
```

Type the following:

Install option 1
Installation device OPT01 (See note)
Replace if current N
Automatic IPL N

Press Enter.

Note: In this example, OPT01 is used for the installation device. If you use a different naming convention, type the name that you have assigned to the installation device.

__ 9. One or both of the following displays show the status of the licensed programs and language objects as they are being installed on the system. You do not need to respond to these status displays.

```
                      Installing Licensed Programs
                                                     System: XXXX

  Licensed programs processed . . . . . . . . . . :     0 of XXX

                   Licensed program install in progress
```

The following display is an example of the display that appears during the installation process.

```
                  Installing Licensed Programs

                                                        System: XXXX
Licensed programs processed  . . . . . . . . . . :     X

Licensed
Program   Option   Description                                  Type
5722SS1            OS/400 - Library QUSRSYS                     2922
```

__ 10. If you see the following message, load the next volume of the secondary language media and continue the installation.

Note: Be certain that the label on the next volume is for the same secondary language.

```
                              Display Messages
                                                      System:   XXXX
Queue  . . . . . :    QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :       95                Delivery  . . . :   *BREAK

Type reply (if required), press Enter.
  Load the next volume in optical device OPT01 (X G)
    Reply . . . . G
```

Type G, and press Enter.

Note:

- After you load each volume, type G and press Enter.
- If there are no more volumes to load or if you want to end the loading process, type X and press Enter.

__ 11. The Work with Licensed Programs display appears on your console when the language objects for all of the licensed programs are installed. One of the following messages appears on the bottom of the Work with Licensed Programs display:

Work with licensed programs function has completed. Press F3 (Exit) to return to the iSeries Main Menu.

Work with licensed programs function **not** complete. Go to Appendix A. Recovery Procedures to determine the problem.

More...	**You have completed this task. To complete your installation, you must go to "Chapter 11. Checklist for Completing the Installation" on page 89 and follow the instructions there.**

Changing Your Primary Language

Chapter 9. Installing Additional Licensed Programs

This section contains instructions to install additional licensed programs or optional parts of licensed programs on your system. (Separately ordered features are installed as a licensed program.)

Before You Begin

Complete the planning tasks in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Choosing an installation procedure and preparing for globalization support**.

You can use this section to add additional licensed programs either as part of a software release upgrade or independently of one.

If you install an additional licensed program independently of a software release upgrade, check the following:

- Ensure that you have a recent copy of the cumulative PTF package (SF99510). You should also get the latest high-impact pervasive (HIPER) PTFs (SF98510).
- Use the Preventive Service Planning (PSP) information to determine if any prerequisite PTFs will need to be installed or if any special instructions are included for installing the licensed program.

The PTFs for licensed programs are on a separate media. Use the *iSeries PTF Shipping Information Letter* to install the cumulative PTF package after adding additional licensed programs.

If you add additional licensed programs and you have a secondary language installed on your system, you must install the secondary language after you install the licensed programs. Otherwise, the added licensed program will not have secondary language support.

Note: **Restricted State Required:** The system must be in a restricted state to install the following libraries and options of OS/400.

- OS/400 libraries QGPL and QUSRSYS
- OS/400 option 12 - Host Servers

Some licensed programs and libraries require a restricted state, while others only require a partially restricted system. However, we recommend putting the system in a restricted state to avoid installation failures and to get the best performance during your upgrade.

Other licensed programs may require special actions before saving, restoring, or installing a new copy of the product. For example, MQSeries for iSeries, V5.2, requires its own specific procedure to restrict the product.

If you want to install other licensed programs while the system is not in a restricted state, you can skip steps 3a through 3e of Task 1.

If you are selecting more than one licensed program and want to ensure that the products you select install as fast as possible, you should review the information in

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"Multiprocess Installation Overview" on page 126. Table 23 on page 135 shows which licensed programs may have conditions that affect the installation time.

Do you plan to use logical partitions? Read the topics in the iSeries Information Center: **Systems Management –> Logical partitions –> Planning for logical partitions**. Additionally, refer to the Logical Partitioning Web site:
`http://www.ibm.com/eserver/iseries/lpar`

Task 1. Using the Work with Licensed Programs Menu

__ 1. Sign on the system using QSECOFR.

Note: The iSeries Main Menu (or the menu you chose as your initial menu) appears on the console.

__ 2. Insert a volume in the installation device. If you are installing from optical media, wait until the In Use indicator goes out before you continue.

- To install the no-charge optional parts of OS/400 or no-charge licensed programs, load OS/400 media volumes B29xx_02, B29xx_03, B29xx_04, and B29xx_05 (29xx indicates the national language feature code for the primary language of your system).
- To install keyed products, load the volumes labeled L29xx_01 and L29xx_02.
- To install priced features of OS/400 or licensed program products, load the volume labeled F29xx_01.

__ 3. The iSeries Main Menu (or the menu you chose as your initial menu) appears.

Do the following to put the system in a restricted state and filter the messages that appear:

a. Type: **CHGMSGQ QSYSOPR *BREAK SEV(60)**
   Press Enter.
b. A message display could appear. Press Enter.
c. Type: **ENDSBS *ALL *IMMED**
   Press Enter.
d. When the following message appears, press Enter to continue:
   `ENDSBS SBS(*ALL) command being processed`
e. The message `System ended to restricted condition` appears. Press Enter to continue.
f. Type: **CHGMSGQ QSYSOPR SEV(95)**
   Press Enter.
g. A message display could appear. Press Enter.

__ 4. The iSeries Main Menu (or the menu you chose as your initial menu) appears again.

Type: **GO LICPGM**. Press Enter.

__ 5. The Work with Licensed Programs display appears.

```
LICPGM                  Work with Licensed Programs
                                                        System:   XXXX
Select one of the following:

  Manual Install
     1. Install all

  Preparation
     5. Prepare for install

  Licensed Programs
    10. Display installed licensed programs
    11. Install licensed programs
    12. Delete licensed programs
    13. Save licensed programs
```

Type **11** (`option 11. Install licensed programs`), and press Enter. Please read the note below for an **alternative to using option 11**.

Note: If you want to install all of the licensed programs that are on the distribution media, use Manual Install option 1, Install all. (See the Work with Licensed Programs display above.). Do this instead of using option 11. This will save time for the installation. Or, if you want most of the licensed programs on the media, then Manual Install option 1 is also the preferred choice. If you choose this method of installation and want most of the licensed programs, delete the extra unwanted licensed programs. The Manual Install display appears after you select Manual Install option 1. Select option 2 (2=All products) on this display to install all of the licensed programs on the media. Then, continue with step 9 on page 79 of these instructions.

For more information about using Manual Install option 1, refer to "Using Option 1. Install All" on page 107.

__ 6. The Install Licensed Programs display appears.

Page through the display to find the licensed programs you want. Type a 1 in the option column next to the licensed programs to be installed.

```
                          Install Licensed Programs
                                                        System: XXXX
 Type options, press Enter.
   1=Install

         Licensed  Product
Option   Program   Option       Description
  _      _______   _______
  _      5722SS1               OS/400 - Library QGPL
  _      5722SS1               OS/400 - Library QUSRSYS
  _      5722SS1   1           OS/400 - Extended Base Support
  _      5722SS1   2           OS/400 - Online Information
  _      5722SS1   3           OS/400 - Extended Base Directory Support
  _      5722SS1   4           OS/400 - S/36 and S/38 Migration
  _      5722SS1   5           OS/400 - System/36 Environment
  _      5722SS1   6           OS/400 - System/38 Environment
  _      5722SS1   7           OS/400 - Example Tools Library
  _      5722SS1   8           OS/400 - AFP Compatibility Fonts
  _      5722SS1   9           OS/400 - *PRV CL Compiler Support
  _      5722SS1   11          OS/400 - S/36 Migration Assistant
  _                                                            More...
 F3=Exit   F11=Display status/release   F12=Cancel   F19=Display trademarks
```

Notes:

a. The libraries QGPL and QUSRSYS, and Extended Base Support (option 1) and Extended Base Directory Support (option 3) are preselected if you are installing licensed programs as part of a new system installation. If you are adding additional (new) licensed programs or optional parts, these items would be preselected only if they are in an error state.

b. A licensed program you want to install may not be listed on the Install Licensed Programs display. If a licensed program is not listed, it can be added to the list by entering information into the blank fields at the top of the list. After you press Enter, this product then appears on the list with the other products.
   - Type 1 in the Option column
   - Type the product identifier in the Licensed Program column
   - Type the product option value in the Product Option column
   - Press Enter

   When you are typing the product option, the system accepts only the following three values: *BASE, option number, or *ALL.
   - A value of *BASE will install only the base product of the associated product identifier.
   - The product option number will install only the particular option of the associated product identifier. To be able to install options, you must install the base product (*BASE).
   - A value of *ALL will install the base product and all options of the associated product identifier.

   Keep in mind that licensed programs that you add will appear on the list with only the product identifier and will not give a descriptive name of the product. Also, you should check the documentation that came with the product to see whether there are any special instructions.

   If you get a message that the product already appears in the list, scroll down to the product. Make sure that there is a 1 in the Option column. Make sure that it is selected for installation.

Press Enter.

__ 7. The Confirm Install of Licensed Programs display appears on the console.

Press Enter to confirm your choices.

__ 8. The Install Options display appears.

```
                          Install Options
                                                      System:   XXXX
Type choices, press Enter.

  Installation device  . . .  OPT01          Name

  Objects to install . . . .  1              1=Programs and language objects
                                             2=Programs
                                             3=Language objects

  Automatic IPL  . . . . . .  N              Y=Yes
                                             N=No
```

Type the following:

Installation device OPT01 (See note)
Objects to install 1
Automatic IPL N

Press Enter.

Note: In this example, OPT01 is used for the installation device. If you use a different naming convention, type the name that you have assigned to the installation device.

__ 9. One or both of the following displays show the status of the licensed programs and language objects as they are being installed on the system. You do not need to respond to these status displays.

```
                    Installing Licensed Programs
                                                        System: XXXX


 Licensed programs processed . . . . . . . . . . :     0 of XXX

                Licensed program install in progress
```

The following display is an example of the display that appears during the installation process.

```
                        Installing Licensed Programs
                                                        System: XXXX

 Licensed programs processed  . . . . . . . . . . . . . . . :    X of XXX

 Licensed
 Program  Option  Description                                Type
 5722SS1   12     OS/400 - Host Servers                      2924
```

Note: This display shows which licensed programs and optional parts of licensed programs are being installed. After the *PGM objects and *LNG objects for each licensed program or optional part have been installed, the licensed program identifier disappears from the display and the number in the licensed programs processed field changes to show how many are processed.

__ 10. You will see the Display Messages display. Load the next media volume that contains licensed program products. If you are installing from optical media, wait for the In Use indicator to go out before responding to the message.

```
                              Display Messages
                                                        System:   XXXX
Queue  . . . . . :    QSYSOPR              Program . . . . :   *DSPMSG
  Library  . . . :     QSYS                  Library . . . :
Severity . . . . :       95                Delivery  . . . :   *BREAK

Type reply (if required), press Enter.
  Load the next volume in optical device OPT01 (X G)
    Reply . . . . G
```

Type `G`, and press Enter.

Note:

- After you load each volume, type `G` and press Enter.
- If there are no more volumes to load or if you want to end the loading process, type `X` and press Enter.

__ 11. The Work with Licensed Programs display appears on your console when the installation process is complete. One of the following messages appears on the bottom of the Work with Licensed Programs display:

`Work with licensed programs function` **`not`** `complete.` Go to "Appendix A. Recovery Procedures" on page 95 to determine the problem.

`Work with licensed programs function has completed.` Continue with the next step.

__ 12. Verify your licensed programs' installed status values and check for compatibility. It is important to make sure all of your licensed programs are compatible with the operating system. You can determine a licensed program's compatibility by checking the installed status value.

Use LICPGM menu option 10, Display licensed programs, to see the release and installed status values of the installed licensed programs. If the installed status value of a licensed program is *COMPATIBLE, it is ready for use. If the installed status value of a licensed program is *BACKLEVEL, the licensed program is installed, but its version, release, and modification is not compatible with the currently installed level of the OS/400 operating system. Check "Licensed Product Table" on page 149 to verify the current version, release, and modification of the licensed program. "Installed status values" on page 147 lists the possible installed status value descriptions.

More...	You have completed this task. Do you have more licensed programs or optional parts to install, but they did not appear in the list displayed in step 6 on page 77 (or could not be added to the list)?
	No **Yes**
	↓ Go to "Task 2. Using the Restore Licensed Program Command", below, to install these licensed programs or optional parts.
	Do you need to install a secondary language?
	No **Yes**
	↓ Go to "Chapter 10. Installing a Secondary Language" on page 83 and complete the instructions there.
	You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Task 2. Using the Restore Licensed Program Command

You may be instructed to use the RSTLICPGM command to install non-IBM licensed programs. All IBM-supplied licensed programs, including PRPQs, LPOs and single set licensed programs, should have been installed already by using the LICPGM menu options 1 or 11, or during automatic installation.

Note: If you do not have non-IBM licensed programs, you can skip this task. If you need to install a secondary language, go to "Chapter 10. Installing a Secondary Language" on page 83 and complete the instructions there. Otherwise, you **must** complete the installation process. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

__ 1. You may have received special installation instructions with these products. If you did, you should use those instructions.

__ 2. Load the media containing the licensed program or optional part in the installation device.

In the following steps, OPT01 is used for the installation device. If you are using a different naming convention, use the name you have assigned to the installation device.

__ 3. To install a new licensed program, type the command:

```
RSTLICPGM LICPGM(xxxxxxx) DEV(OPT01) OPTION(*BASE)
```

where *xxxxxxx* is the product identifier for the licensed program you are installing.

Press Enter.

__ 4. To install a new optional part, type the command:

```
RSTLICPGM LICPGM(xxxxxxx) DEV(OPT01) OPTION(n)
```

where *xxxxxxx* is the product identifier for the licensed program you are installing and *n* is the option number.

Press Enter.

__ 5. Repeat steps 3 and 4 until you have installed all of the new licensed programs and optional parts that could not be installed in Task 1.

More...	You have completed this task. Do you need to install a secondary language? **No** **Yes** ↓ Go to "Chapter 10. Installing a Secondary Language" on page 83 and complete the instructions there. You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Chapter 10. Installing a Secondary Language

This section contains instructions for installing a secondary language on your system (or partition if you have secondary logical partitions).

Before You Begin

Complete the planning tasks in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation**.

IMPORTANT: Before you install a secondary language on your system, review the topic **Choosing an installation procedure and preparing for globalization support** for more information about installing and using secondary languages.

If you are installing a double-byte character set (DBCS) secondary language, you must have a DBCS primary language installed on your system. You can install a single-byte character set (SBCS) secondary language on a system with a DBCS primary language.

Task 1. Using the Work with Licensed Programs Menu

__ 1. You must sign on to the system as QSECOFR. If you are not, sign off and then sign on again using QSECOFR.

__ 2. Write down the national language version identifier on the secondary language media. You will need this in step 8 on page 84. _____

Secondary language media is identified by the N29xx on the label. The identifier is in the form 29xx, where xx is a unique number for each language. Refer to "Appendix G. National Language Version Feature Codes" on page 161 to see a list of national language feature codes.

__ 3. Load the secondary language media volume in the installation device.

__ 4. Type the following command on any command line:

```
CHGMSGQ QSYSOPR *BREAK SEV(95)
```

Press Enter.

__ 5. A message display could appear.

Press F3 (Exit).

Note: Ignore the messages that are shown.

__ 6. Type the following command on any command line:

```
GO LICPGM
```

Press Enter.

__ 7. The Work with Licensed Programs menu appears. Use the page down or rollup key to see the second display of the Work with Licensed Programs menu.

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```
LICPGM                  Work with Licensed Programs
                                                        System: XXXX
Select one of the following:

  Secondary Languages
    20. Display installed secondary languages
    21. Install secondary languages
    22. Delete secondary languages
```

Type 21, and press Enter.

__ 8. The Install Secondary Languages display appears.

```
                       Install Secondary Languages
                                                        System:   XXXX
Primary language . . . . . :   2924
Description  . . . . . . . :   English

Type options, press Enter.
  1=Install

                                                                Installed
Option  Language  Description                     Library     Release
  _       2902    Estonian                        QSYS2902
  _       2903    Lithuanian                      QSYS2903
  _       2904    Latvian                         QSYS2904
  _       2905    Vietnamese                      QSYS2905
  _       2906    Lao                             QSYS2906
  _       2909    Belgian English                 QSYS2909
  1       2911    Slovenian                       QSYS2911
  _       2912    Croatian                        QSYS2912
```

Use the Page Down key until you see the language that you want to install. Type 1 in the option column next to the language you want to install. You install one language at a time.

Press Enter.

__ 9. After the language feature is entered, the Confirm Install of Secondary Languages display is shown.

```
                Confirm Install of Secondary Languages
                                                        System:   XXX
Press Enter to confirm your choices for 1=Install.
Press F12 to return to change your choices.

                                                                Installed
Option  Language  Description                     Library     Release
  1       2911   Slovenian                       QSYS2911
```

Press Enter.

__ 10. The Install Option for Secondary Languages appears.

```
               Install Option for Secondary Languages
                                                        System:   XXX
Type choice, press Enter.

  Installation device  . . .   OPT01        Name
  Replace if Current . . . .   N            Y=Yes
                                            N=No
```

Type the following:

Installation device `OPT01` (See note)
Replace if Current `N`

Press Enter.

Note: OPT01 is used for the installation device in this example. If you are using a different naming convention, type the name you have assigned to the installation device.

One or both of the following displays show the status of the language objects as they are installed on the system.

```
                      Installing Licensed Programs
                                                        System: XXXX


  Licensed programs processed . . . . . . . . . . :     0 of XXX

                 Licensed program install in progress
```

The following display is an example of the display that appears during the installation process.

```
                   Installing Licensed Programs
                                                          System: XXXX
     Licensed programs processed  . . . . . . . . . . :     X of XXX

Licensed
Program   Option   Description                                  Type
5722WDS    *BASE   WebSphere Development Studio                 2911
```

__ 11. If you see the following message, load the next volume of the secondary language media and continue the installation.

Note: Be certain that the label on the next volume is for the same secondary language.

```
                               Display Messages
                                                    System:   XXXX
 Queue  . . . . . :    QSYSOPR              Program . . . . :   *DSPMSG
   Library  . . . :     QSYS                  Library . . . :
 Severity . . . . :       95                 Delivery  . . . :   *BREAK

 Type reply (if required), press Enter.
   Load the next volume in optical device OPT01 (X G)
     Reply . . . . G
```

Type `G`, and press Enter.

Note:

- After you load each volume, type `G` and press Enter.
- If there are no more volumes to load or if you want to end the loading process, type `X` and press Enter.

__ 12. The Work with Licensed Programs display appears on your console when the installation process is complete. One of the following messages appears on the bottom of the Work with Licensed Programs display:

`Work with licensed programs function not complete.` Go to "Appendix A. Recovery Procedures" on page 95 to determine the problem.

`Work with licensed programs function has completed.` Continue with the next step.

Note: Some licensed program options do not have language objects or are not supported for secondary languages. For example, options 6, 7, and 9 of the operating system are not supported. Option 8 of the operating system does not have any language objects. You can use LICPGM menu option 20 to see

the products that have secondary languages installed.

More...	Do you have more secondary languages to install? **No** **Yes** ↓ Go to step 2. You have completed this task. Do you need to install secondary languages for licensed programs, which are not shown in the list using option 10 of the Work with Licensed Programs menu? **No** **Yes** ↓ Go to "Task 2. Using the Restore Licensed Program Command" to install secondary languages for these licensed programs. You have completed this task. You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Task 2. Using the Restore Licensed Program Command

You may be instructed to use the RSTLICPGM command to install secondary languages for non-IBM licensed programs. All IBM-supplied licensed programs, including PRPQs, LPOs and single set licensed programs, should have had secondary languages installed already by using the LICPGM menu option 21.

Note: If you do not have non-IBM licensed programs, you can skip this task. However, you **must** complete the installation process. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

__ 1. You may have received special installation instructions with independently shipped licensed programs (those that are not on the same media as the software release). If you did, you should use those instructions.

__ 2. Load the media volume containing the secondary language that you want to install.

In the following steps, OPT01 is used for the installation device. If you are using a different naming convention, use the name you have assigned to the installation device.

__ 3. To install a secondary language for a licensed program, type the command:

```
RSTLICPGM LICPGM(xxxxxxx) DEV(OPT01)
  OPTION(*BASE) RSTOBJ(*LNG) LNG(29xx)
```

where *xxxxxxx* is the product identifier for the licensed program and 29*xx* is the national language version feature code.

Press Enter.

__ 4. To install secondary language for an optional part of a licensed program, type the command:

```
RSTLICPGM LICPGM(xxxxxxx) DEV(OPT01)
  OPTION(n) RSTOBJ(*LNG) LNG(29xx)
```

where *xxxxxxx* is the product identifier for the licensed program, *n* is the option number, and 29*xx* is the national language version feature code.

Press Enter.

__ 5. Repeat steps 3 and 4 until you have installed all of the secondary languages for the licensed programs and optional parts that were independently installed.

More...	You have completed this task. You **must** complete the installation process before putting your system into operation. Go to "Chapter 11. Checklist for Completing the Installation" on page 89 and complete the instructions there.

Installing a Secondary Language

Chapter 11. Checklist for Completing the Installation

Use this checklist to complete any of the installation processes in this book.

__ 1. If you still have default passwords for your service tools user profiles, you need to change them now. See *Tips and Tools for Securing Your iSeries*, SC41-5300-07 for information on service tools user profiles.

__ 2. Remove the media volume when the installation is complete. If your media is tape, wait for the tape to rewind completely.

__ 3. If you have any IBM or non-IBM products with special installation instructions, install these products now. Check the product's documentation, and follow the special instructions there. Otherwise, continue with the next step.

__ 4. Install the cumulative PTF package (the package that came with your distribution media or a more recent current cumulative PTF package). Use the instructions in the *PTF Shipping Information Letter*. Then return here and continue with the next step.

Note: If you do not install the cumulative PTF package now, you need to perform an IPL and let the Initialize System (INZSYS) process complete. Before you do, set the IPL type to **B** (or the IPL type you use for everyday operation) and then set the mode selection to **Normal**. Refer to "INZSYS Recovery Information" on page 105 for more information.

For logical partitions only
Attention! Do not use this step to install the cumulative PTF package on a system with logical partitions. You could potentially lose data. Instead refer to the iSeries Information Center: **Systems Management —> Logical partitions** topics to understand how to install the cumulative PTF package on a system with logical partitions.

__ 5. Apply any group PTFs that you may have ordered. For more information on group PTFs, refer to the iSeries Information Center: **System planning and installation —> Hardware and software —> Software and licensed programs —> Prepare for software installation —> Ordering and applying program temporary fixes —> Evaluating release-level interoperability**. To apply group PTFs, refer to the cover letter and instructions for the program temporary fix (PTF). For general information on applying PTFs, refer to the Getting started with iSeries topic in the System planning and installation category of the iSeries Information Center.

__ 6. Look for messages in the install history log that indicate the status of the Initialize System (INZSYS) process. Use option 50 (Display log) on the Work with Licensed Programs display to look for messages.

Note: On some systems, the INZSYS process could take 2 or more hours to complete; on most systems, it should complete within a few minutes.

a. Type **GO LICPGM**, and press Enter.
b. Type **50** on the Work with Licensed Programs display, and press Enter.
c. The Display Install History display appears. Press Enter.

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The Display History Log Contents display appears. If you do not see either of the following messages on the display, wait a few minutes and select option 50 again. Find the message **Initialize System (INZSYS) started**. After this message appears, wait for a period of time and look for the **Initialize System (INZSYS) processing completed successfully** message (CPC37A9). If you do not see this message on the display, go to "INZSYS Recovery Information" on page 105 to determine the problem.

__ 7. Install software license keys for your OS/400 and keyed products. Use the Work with License Information (WRKLICINF) command to display the installed keyed products to add license key data. For instructions, refer to the iSeries Information Center: **System planning and installation —> Hardware and software —> Software and licensed programs —> Concepts for licensed program management —> Software license keys —> Updating license key information**.

After updating the license key information, return here and continue with the next step.

__ 8. Update the usage limit for nonkeyed, usage-based priced (UBP) products by using the WRKLICINF command. The usage limit is listed on the Proof of Entitlement (POE) for each usage-based priced product. Refer to "Setting the Usage Limit" on page 117 for instructions.

After updating the usage limit, return here and continue with the next step.

__ 9. Vary on your server and perform the Level Check command for the product 5722-WSV, Integration for Windows Server. Refer to the iSeries Information Center: **System planning and installation —> Hardware and software —> Software and licensed programs —> Prepare for software installation —> Ordering and applying program temporary fixes —> Upgrading Windows servers to the current level**.

__ 10. If you have installed the product 5722-VI1, ImagePlus VisualInfo, you can use the product. However, you must apply a PTF and perform post-installation commands before you can save the product. For more information, refer to the section "Post Installation" in the product document *IBM ImagePlus® VisualInfo™ for AS/400: Planning and Installation Guide*, GC34-4585 (V4R5 or earlier).

__ 11. If you have not already verified the compatibility of your licensed programs with the OS/400, then do this now. Use LICPGM menu option 10, Display installed licensed programs. If *COMPATIBLE is not listed next to a licensed program, then go to Appendix E, "Installed status values" on page 147, and determine how to proceed.

__ 12. Save your system using your normal save procedures. (Refer to the instructions in the book *Backup and Recovery*, SC41-5304.) Make sure that the Initialize System (INZSYS) process is complete before you save your system.

Note: Before you start a save operation, use the Work with Active Jobs (WRKACTJOB) command to check the status of QDCPOBJx jobs. These jobs decompress objects. There could be more than one QDCPOBJx job. You can start your save operation if these jobs are in an inactive state. If you put the system in a restricted state by ending subsystems, the QDCPOBJx jobs become inactive. The jobs will restart when the system is not in a restricted state. For more information about decompressing objects, see Compressed objects and storage space under the Evaluating your disk storage needs topic in the iSeries Information Center.

__ 13. If you plan to install and use the iSeries Information Center either from a workstation or the iSeries, refer to the CD-ROMs that ship with your Operating System/400 order: *iSeries Information Center*, SK3T-4091-00. This package also includes the PDF versions of iSeries manuals, *iSeries Information Center: Supplemental Manuals*, SK3T-4092-00, which replaces the Softcopy Library CD-ROM. You will find the installation instructions in the readme.txt file.

__ 14. If you have installed Client Access products, you may have other tasks that you need to complete. You can find further information about installing Client Access products in the following sources:
- The book, *Client Access Express for Windows - Setup*, SC41-5507-02.
- The iSeries Client Access Web site:

  http://www.ibm.com/eserver/iseries/clientaccess

__ 15. You may have installed licensed programs that require additional installation steps on PCs. Or, you may have programs that install on PCs through a Client Access function. If you have products such as this, complete your PC installation by using the instructions for the product.

__ 16. If you have an Integrated Netfinity Server that you stopped before you began the installation process, restart it now.
a. Type `GO NWSADM` on the AS/400 command line. The Network Server Administration display appears.
b. Select option 2, Start a network server.

__ 17. If you installed 5722-TC1, TCP/IP Utilities, go to the iSeries Information Center: **Networking –> TCP/IP** topics for advanced configuration and setup information.

__ 18. If you installed 5722-JV1, IBM Developer Kit for Java, verify that the program is installed. Type `java Hello` at the command line, and press Enter.

Additional information about the Developer Kit for Java licensed program is available under the Programming category of the iSeries Information Center.

__ 19. You might have to run the Convert Performance Data (CVTPFRDTA) command to convert the collected data to a format that is usable by this new release. Run the conversion if you have **both** of the following conditions:
- 5722-PT1, Performance Tools for iSeries installed
- Performance data on your system that was collected prior to performing the installation of this new release

For instructions, see "Converting the Performance Data" on page 120.

You have completed installing V5R1M0 on your server.

Part 2. Appendixes

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Appendix A. Recovery Procedures

If you encounter a problem during installation, the information in this appendix may help you locate and correct the problem, then complete installing licensed programs.

Error messages and system reference codes (SRCs) let you know that an error occurred during the installation process. Use the error messages or SRCs to determine which part of the process failed.

Note: If an SRC appeared during the automatic or manual installation procedures, you should check "Corrective Action for Common SRCs" on page 155 first.

Where You Begin Recovery

First, determine the type of failure by using Table 11.

Table 11. Type of failure

When Failure Occurred	What To Do
Saving system before install	If a problem occurs while you are saving the system, review your job log to determine what caused the failure. Correct the error and complete your system save procedure. Do not continue to replace the new release until you have a complete backup copy of your system. If you cannot complete installing the new release, you will need this backup copy to restore the system to the previous release.
Installing new release or licensed program	Use Table 12 to direct you to the recovery information you need to find the problem, determine what caused it, correct the problem, and then complete installing this release.
Power failure during an installation process	If you have a power failure anytime during the installation process, go to Table 12 to determine where to start the installation again. You should be able to start with the task where you were at when the failure occurred. For example, if you had completed installing the operating system when the power failed, and are installing licensed programs, start with the task to install licensed programs. If you are using the automatic process, start at the beginning. The system can determine which tasks have not been completed and will resume at the appropriate task.

If the installation process fails and you cannot continue the current installation, use the book *Backup and Recovery*, SC41-5304-05 and your system's backup to restore the previous release level.

In the farthest left column of Table 12, locate the installation section you were using when the failure occurred. In the second column, locate which task you were performing in that section. Locate the first task that failed during your installation and then use the information in the last column to determine your recovery starting point.

Table 12. Where to start recovery

Installation Section in Use	Task Number in Use at Time of Failure	Where to Start
Chapter 3. Replacing a Release Using Automatic Installation	"Task 1. Using Automatic Installation" on page 18	Go to "Starting Point for Automatic Installation Recovery" on page 96.

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Table 12. Where to start recovery (continued)

Installation Section in Use	Task Number in Use at Time of Failure	Where to Start
Chapter 4. Replacing a Release Using Manual Installation	"Task 1. Replacing the Licensed Internal Code" on page 26	Go to "Licensed Internal Code Recovery" on page 97.
	"Task 2. Replacing the Operating System" on page 31	Go to "Operating System Recovery" on page 98.
	"Task 3. Replacing the Licensed Programs" on page 35	Go to "Licensed Programs, PTFs, and Secondary Language Recovery" on page 100.
Chapter 5. Installing Software on a New iSeries Server (with the Operating System Already Installed)	"Task 1. Doing the Initial Program Load (IPL)" on page 41	Go to "Operating System Recovery" on page 98.
Chapter 6. Installing Software on a New iSeries Server (without the Operating System Installed)	"Task 1. Installing the Operating System" on page 49	Go to "Operating System Recovery" on page 98.
Chapter 8. Changing Your Primary Language	"Task 1. Changing the Primary Language" on page 67	Go to "Operating System Recovery" on page 98.
	"Task 2. Installing the Licensed Programs" on page 70	Go to "Licensed Programs, PTFs, and Secondary Language Recovery" on page 100.
Chapter 9. Installing Additional Licensed Programs	"Task 1. Using the Work with Licensed Programs Menu" on page 76	Go to "Licensed Programs, PTFs, and Secondary Language Recovery" on page 100.
	"Task 2. Using the Restore Licensed Program Command" on page 80	Look at the messages for the command.
Chapter 10. Installing a Secondary Language	"Task 1. Using the Work with Licensed Programs Menu" on page 83	Go to "Licensed Programs, PTFs, and Secondary Language Recovery" on page 100.
	"Task 2. Using the Restore Licensed Program Command" on page 86	Look at the messages for the command.

Starting Point for Automatic Installation Recovery

If you used the automatic installation process in "Chapter 3. Replacing a Release Using Automatic Installation" on page 17, use the following table to determine where the failure occurred and the appropriate recovery section. After you have the problem corrected, go to "Starting the Automatic Installation Process Again" on page 103 to start the installation process again.

Notes:

1. To use automatic installation recovery, you must use the same version, release, and modification distribution media that caused the failure.
2. If you have a failure during the automatic installation process, and sign on to do problem analysis, your system will be running under the QSYSSBSD controlling subsystem. When your system completes an IPL after the installation has completed successfully, your controlling subsystem is active again.

Table 13. Where to start recovery for the automatic installation process

Finding the Problem (Symptom)	Where to Start
SRC B608 1105	Go to step 4 on page 98 of Licensed Internal Code Recovery.
SRCs other than B900 xxxx	Go to Licensed Internal Code Recovery, below.
SRCs starting with B900 xxxx	Go to "Operating System Recovery" on page 98.
Messages starting with CPZ20xx	Go to "Operating System Recovery" on page 98.
Message indicating automatic installation not complete	Go to "Licensed Programs, PTFs, and Secondary Language Recovery" on page 100.

Licensed Internal Code Recovery

__ 1. If the Install Licensed Internal Code - Error display appears, use Table 14 to determine the action to take for the reason code displayed.

```
                Install Licensed Internal Code - Error

Error:
    An unrecoverable error occurred.  The error reason code
    is listed below.  This install can not be completed.
    Give the reason code to you service representative.
    Do not re-IPL the system until your service representative
    can retrieve any needed information.


    Error reason code . . . . . . . . . . . . :  __




Press Enter to return to the Dedicated Service Tools display.
```

Table 14. Return code for Licensed Internal Code - Error display

Reason Code	Action
51 52 53 54	If you are using optical media, clean the media. If you are using tape, clean the tape device. Then retry the installation.
All others	Retry the installation. If the installation fails again with the same reason code, retry the installation with another set of media. If the same failure occurs, contact your service representative.

__ 2. For Licensed Internal Code SRCs, go to one of the following manuals.

- If the SRC is of the form A6xx 6xxx, refer to the appendix on Licensed Internal Code SRCs in the book *Backup and Recovery*, SC41-5304.
- If any SRC other than an A6xx 6xxx appears, go to the iSeries Information Center: **System planning and installation –> Getting started with iSeries –> Handling system problems and getting help –> Troubleshooting your system** topic and follow the instructions.

__ 3. Find the SRC that is shown on the control panel display and take the appropriate recovery action.

Note: If the SRC indicates that you have a media error, thoroughly clean the installation device. If you are using optical media, clean the media. If you are using tape, clean the tape head and tape path thoroughly. Then continue with the next step. If you receive another error message that indicates a media error on the same media, get another set of media to complete the installation process.

__ 4. You are trying to do one of the following:

- Install from optical media when an alternate installation device is enabled.
- Use an alternate installation device which is not enabled.

Go to"How to Set Up an Alternate Installation Device" on page 164 and "How to Disable an Alternate Installation Device" on page 166 and perform the appropriate procedure.

Note: If you cannot find the address information, or the configuration has changed and the address is wrong, you must determine the address by physical inspection. This inspection can be difficult and may vary depending on your system model and the specific configuration of your IO buses. For this reason, IBM recommends that you call your next support level for help in determining the addresses for the alternate installation device. A service agreement may be required for this type of assistance.

__ 5. Start the installation process again.

If you were using the automatic installation process, go to "Starting the Automatic Installation Process Again" on page 103 to start the installation process again. You must load the first volume in the installation device to start the automatic recovery installation process.

If you were using the manual installation process, go to "Starting the Manual Installation Process Again" on page 104 to start the installation process again.

Operating System Recovery

__ 1. If a problem occurs when you are replacing or installing the operating system, an SRC appears on the control panel display, or an error message appears on the console. Use table 15 and table 16 below to determine the cause of the problem and take the action indicated. Then continue with step 2.

__ 2. If you were using the automatic installation process, start the process again using the instructions in "Starting the Automatic Installation Process Again" on page 103.

__ 3. Start the manual installation again using the following steps

Note: **Attention!** If you do this on a primary partition when secondaries are active, this will cause all partitions to IPL immediately. If you have active secondary partitions, power them off prior to using this procedure.

__ a. Load the first volume (B29xx_01) into the installation device for the alternate IPL. Prepare the device.

__ b. Use the control panel to set the mode to **Manual** and select function **03**.

Press Enter on the control panel.

__ c. Return to the task that failed and start the task again at the step where the IPL or Install the System display appears on the console.

__ d. After you respond to the Confirm Install of Operating System display you should see the Select a Language Group display. Verify that the language feature that is displayed matches the language feature for the OS/400 installation media that you are using.

Table 15. Operating system problems

Symptom	Action
B900 3000 through B900 308F	The SRCs in this range are displayed by the installation of the operating system process. Review the information in the iSeries Information Center: **System planning and installation–> Getting started with iSeries –> Handling system problems and getting help –> Troubleshooting your system** topic. Take the appropriate recovery action. Then return to this manual to start the installation process again.
B900 3100 through B900 37FF	The SRCs in this range are displayed by the start operating system process. Go to the iSeries Information Center: **System planning and installation–> Getting started with iSeries –> Handling system problems and getting help –> Troubleshooting your system** topic.. Take the appropriate recovery action.
Other SRCs not listed in this table.	If the SRC is not in the range of SRCs listed in this table, go to the iSeries Information Center: **System planning and installation–> Getting started with iSeries –> Handling system problems and getting help –> Troubleshooting your system** topic.

The following table contains some of the failure messages that could occur during the installation of the operating system.

Table 16. Error messages

Message	Description
CPZ2003 CPZ2004 CPZ2005 CPZ2010 CPZ2011	**Cause:** The installation process received a tape or optical media error code. **Recovery for Error Code Ex10 0019 or Ex10 001A:** 1. Clean the media. • If you are using tape, clean the tape head and tape path thoroughly. • If you are using optical media, clean the media with a clean lint free cloth. Gently wipe the disc from the center to the outside of the disc. 2. Try the installation process again. • If you were using the automatic installation process, go to “Starting the Automatic Installation Process Again” on page 103 to start the installation process again. • If you were using the manual installation process, go to step 3 on page 98 to start the installation process again. If you receive another error message indicating a media error on the same installation media, contact your software provider to get another set of installation media to complete the installation process. **Recovery for all other error codes:** Contact your service representative
CPZ2022	**Cause:** The restore options read from the installation profile are not valid. **Note:** If you create distribution media and specify *NONE for the installation profile name, the media will contain an empty installation profile. These media cannot be used to perform an automatic installation. **Recovery:** Record the recovery information for the error message. Try to install the operating system again using the manual installation process. You can also try to use the automatic installation process with a different set of media. If the problem occurs again during an automatic installation process, contact your next level of service.

Table 16. Error messages (continued)

Message	Description
CPZ2023	**Cause:** The installation options read from the installation profile are not compatible with the current state of the system. The installation requested by the options read from the installation profile cannot be performed. For example, this condition can occur when an installation is requested that does not load program objects and the QSYS library is damaged. **Recovery:** Try to install the operating system again using the manual installation process.
CPZ20xx	**Cause:** These termination messages are displayed by the installation of the operating system process. Print the display if possible; otherwise, copy all of the information. **Recovery:** Read the instructions for the messages that are displayed on the console. Perform the recovery action described in the message to correct the problem and then try the installation process again. **Note:** A short time after you press Enter, a B900 xxxx SRC is displayed. The iSeries Information Center: **System planning and installation–> Getting started with iSeries –> Handling system problems and getting help –> Troubleshooting your system** topic contains additional information.

Licensed Programs, PTFs, and Secondary Language Recovery

__ 1. Type `GO LICPGM` on any command line.

__ 2. Type `50` (Display log for messages) on the Work with Licensed Programs menu. Press Enter.

__ 3. The Display Install History display appears. Press Enter.

__ 4. The Display History Log Contents display appears. Look at the messages to determine the installation status of the licensed programs and PTFs. The messages show what part of the licensed program installation function has failed. Areas where the failure could have occurred are:

- Installing the IBM-supplied libraries
- Installing the licensed programs
- Installing PTFs
- Installing a secondary language
- Initialization process

If a problem, such as a power failure, occurs during a process in the preceding list, you could see a message that the process has started. An example of such a message is `Licensed program installation process started`. However, the failed or completed status message may not display.

__ 5. There should be one or more messages that indicate which IBM-supplied library or licensed program failed. Be sure to look at all of the messages. Use F10 (Display all) to see all messages.

__ 6. To see the online help information, move the cursor to the message and press the Help key. Look at the online help information for the error message to get the message identifier and more information about the cause and recovery for the failure. Go to Table 17 on page 102 for a list of some possible messages you could see.

__ 7. A copy of the job log has been spooled to an output queue.

Note: To locate and display the job log, enter one of the following Work with Spool File (WRKSPLF) commands:

- For the automatic installation process, type the following command: `WRKSPLF SELECT(QLPAUTO) ASTLVL(*INTERMED)`, and press Enter.
- For the manual installation process, type the following command: `WRKSPLF SELECT(QSECOFR) ASTLVL(*INTERMED)`, and press Enter.
- For the PTF process, type the following command: `WRKSPLF SELECT(QSYS *ALL *ALL SCPF) ASTLVL(*INTERMED)`, and press Enter.

If the display shows More..., on the bottom of the display, page down (Roll up) until Bottom... appears. Select option 5 (5=Display) on the last entry.

Note: Ignore any error messages listed in the nnnnnn/QSYS/QLPINSTALL job log. These messages are not installation error messages.

__ 8. Scan the job log for error messages. Determine the cause and recovery for each error message in the job log. Go to Table 17 on page 102 for a list of some possible messages you could see.

Note: Be sure to scan the entire job log. There could be more than one failure. Scan the job log by using the message ID. Remember that the message ID is case-sensitive.

__ 9. Select option 10 (Display installed licensed programs) on the Work with Licensed Programs display. The Installed Status column indicates which licensed programs and optional parts are installed. The Installed Status column also indicates if each licensed program installed successfully and if it is compatible with the installed operating system. Refer to Appendix E, “Installed status values” on page 147, for a description of the installed status values.

You can press the F11 key to see a view of the display that shows the Installed Release column. The version, release, and modification value appears for licensed programs that are either installed compatibly or are installed at a back level. Page down (Roll up) through all of the displays to see the status of your licensed programs.

Check to see if the licensed program that you are installing had a different language feature code than your primary language feature code. If it does, the licensed program is flagged as *ERROR, or the column is blank. The language objects for the licensed program are installed in a secondary language library. Obtain distribution media with the correct primary language feature code. Press the F3 key to return to the Work with Licensed Programs menu.

__ 10. After you determine the cause of the error and complete the recommended recovery action, resume the installation process. If you were using the automatic installation process, go to“Starting the Automatic Installation Process Again” on page 103. If you were using the manual installation process, go to “Starting the Manual Installation Process Again” on page 104.

The following table contains some of the error messages with possible causes of the errors. Look at the messages on your system to determine the exact cause and recovery.

Recovery Procedures

Table 17. Error messages

Message	Description
CPA3DD2 CPA3DD3	**Cause:** The system could not identify the last volume loaded in the device. **Recovery:** Open the device door, verify that correct volume is loaded, and close the device door.
CPA3DDD CPA3DDF	**Cause:** The installation process is expecting more licensed programs to be loaded. **Recovery:** If you have more media that contains licensed programs, load the volume and type a G to continue the installation process. If you do not have any more volumes that contain licensed programs, type an X to indicate that there is no more media to load. When the installation process completes, use option 50 of the LICPGM menu to verify messages in the installation history log.
CPA3DE1	**Cause:** The volume loaded does not contain licensed programs that are supported through the Work with Licensed Programs (LICPGM) menu. **Recovery:** Load the optical media that contains licensed programs.
CPD32B0 reason code 7 CPF327E reason code 3	**Cause:** 5722SS1 option 1 Extended Base Support failed to install. **Recovery:** Use the Reclaim Storage (RCLSTG) command and try to install option 1 again.
CPD3713	**Cause:** The licensed program is currently installed on your system and was not found on the distribution media. **Recovery:** Get another set of distribution media that contains the licensed program. Install the licensed program again from "Chapter 9. Installing Additional Licensed Programs" on page 75, or delete the licensed program from your system if you no longer want it.
CPD3D82 CPF3D8F	**Cause:** These messages could be shown if you did not end all of the subsystems before you started the installation process. **Recovery:** End all subsystems and start installing the licensed programs again.
CPF371C CPF3731	**Cause:** Look at the messages previously listed in the job log to determine the failure. **Recovery:** Take the recommended recovery action. **Note:** If you received one of these messages, the installation process ended before you completed installing the licensed programs.
CPF371D CPF371E	**Cause:** These messages could be shown if the wrong volume is loaded. The online information of the message can help determine the cause. **Recovery:** Load the correct volume and start the process again.
CPF3D96	**Cause:** Errors occurred during the restoring process for a licensed program. **Recovery:** Take the recommended recovery action explained in the online help information. If you receive these messages, the installation continued with the other licensed programs if the problem was not too severe. However, problems with the tape or system storage level would have caused the installation to end.
CPF3D80 CPF3D81 CPF3D84 CPF3D8B CPF3D8C CPF3D90 CPF3D91	**Cause:** Errors occurred when restoring a licensed program or PTFs. **Recovery:**Use the Display Job (DSPJOB) command. Enter `DSPJOB nnnnnn/QLPINSTALL/QBCHINST` or `DSPJOB nnnnnn/QLPINSTALL/QLPINSTALL` where nnnnnn is the job number of the job log in the message help of the error message. Select option 4 on the Display Job display to display spooled files. Select option 5 on the Display Job Spooled Files display to determine the cause of the failure. Correct the error and start the installation process again. Ignore error messages in the nnnnnn/QSYS/QLPINSTALL job log. These messages are not installation error messages.

Table 17. Error messages (continued)

Message	Description
CPF3D82 CPF3D83	**Cause:** There is not enough auxiliary storage to install the licensed programs you selected. **Recovery:** Go to "Appendix C. Licensed Program Information" on page 117 to determine the space requirements for each licensed program you want to install. Obtain additional auxiliary storage and start the installation process again.
CPF3D85 CPF3D86 CPF3D8E	**Cause:** An object or PTF is not installed because it requires successful installation of a licensed program. That licensed program may not be installed or may be installed at the wrong release level. **Recovery:** See the previous messages in the job log to determine if the licensed program is installed successfully. Correct any errors or install the required licensed program and start the installation process again.
CPF3DD3	**Cause:** The device description could not be found or could not be used. **Recovery:** Create a device description for the installation device (optical or tape). Use the CRTOPTDEV command to create a device description for the optical device that supports the optical media class. Use the CRTDEVTAP command to create a device description for the tape device. Then start the process again.
CPI3D82 CPI3D84 CPI3D85	**Cause:** A licensed program included on the distribution media was not currently installed on the system. **Recovery:** Use the online information of the message for recovery help. Use "Chapter 9. Installing Additional Licensed Programs" on page 75 to install the licensed program.
Media Error Messages	**Cause:** A media error occurred during the installation process. **Recovery:** If you are using optical media, clean the disc, then follow the recovery actions that are indicated for this message. If you are using tape, clean the tape head and tape path thoroughly. If you receive another error message indicating a media error on the same tape, get another set of tapes to complete the installation process.

Starting the Automatic Installation Process Again

Use one of the three methods in the following table to start an automatic installation again.

Table 18. Starting the Automatic Installation Process Again

Method	Instructions
Method 1: Licensed Internal Code	**When to Use:** This method should be used if the Licensed Internal Code needs to be installed again. If you are sure the Licensed Internal Code has been successfully installed, you do not need to use this method. No message indicates that the Licensed Internal Code has been installed successfully; however, messages do indicate that the operating system has been installed successfully. If the operating system has been installed successfully, so has the Licensed Internal Code. **How to Use:** To start an installation process again, use the instructions in Chapter 3. Replacing a Release Using Automatic Installation of this manual. Start at the beginning of Chapter 4.

Table 18. Starting the Automatic Installation Process Again (continued)

Method	Instructions
Method 2: Operating System	**When to Use:** If you are sure the Licensed Internal Code has been installed successfully, use Method 2 to install the operating system again. Method 2 is faster than using Method 1 because the Licensed Internal Code does not need to be installed again. No message indicates that the Licensed Internal Code has been installed successfully; however, messages do indicate that the operating system has been installed successfully. If the operating system has been installed successfully, so has the Licensed Internal Code. **How to Use:** 1. Use the control panel to the set the mode selector to **Manual** and the function selected is **03** (Start IPL). 2. Press the Enter button on the control panel. 3. Load the volume B29xx_01 in the installation device. 4. When the IPL or Install the System display is shown, set the mode selector on the control panel to **Normal**. 5. Select option 4 (Perform an automatic install of the operating system) on the IPL or Install the System display. 6. Continue with step 10 on page 20.
Method 3: Licensed Programs	**When to Use:** Use the Work with Licensed Programs display to install only the licensed programs that failed to install. Make sure the Licensed Internal Code and the operating system are successfully installed. **How to Use:** Determine which products failed to install. Use option 11 (Install licensed programs) on the Work with Licensed Programs display. Refer to "Chapter 9. Installing Additional Licensed Programs" on page 75 to install the licensed programs from a list.

Starting the Manual Installation Process Again

Use this section to start the manual installation process again when recovering from an error while installing licensed programs, PTFs, or secondary languages. One of the four following methods can be used to start a manual installation process. Your Licensed Internal Code and the operating system do **not** need to be installed again.

The following table contains specific information when and how to use each method.

Table 19. Starting the Manual Installation Process Again

Method	Instructions
Method 1	**When to Use:** This method should be used if several licensed programs are not installed. **How to Use:** To start an installation process again using method 1, use option 1 (Install all) on the Work with Licensed Programs display. Refer to "Using Option 1. Install All" on page 107 to install all of the licensed programs.
Method 2	**When to Use:** This method should be used if one or more licensed programs are not installed and you want to install only those licensed programs or optional parts that failed. **How to Use:** To start the installation of only those licensed programs or optional parts that failed, use the instructions in "Chapter 9. Installing Additional Licensed Programs" on page 75. Complete all of the instructions in that part.

Table 19. Starting the Manual Installation Process Again (continued)

Method	Instructions
Method 3	**When to Use:** This method can be used if only one or two licensed programs had PTFs that fail to install. Consider installing PTFs for only those licensed programs that failed. **How to Use:** To install PTFs for selected licensed programs, use the `GO PTF` menu and select option 7.
Method 4	**When to Use:** This method should be used if several licensed programs had PTFs that fail to install. Consider installing the entire cumulative PTF package again. **How to Use:** To install the cumulative PTF package, use the instructions in the *iSeries System PTF Shipping Information Letter*.

INZSYS Recovery Information

The installation of V5R1M0 is complete when the licensed program portion of the installation process completes and the Initialize System (INZSYS) process successfully completes. The installation process must end before the INZSYS process is automatically started. This process is initiated during each IPL after you install the QUSRSYS library until the INZSYS process has successfully completed. The INZSYS process will not be initiated during the IPL if the system is in the restricted state. If the INZSYS process is initiated during the IPL, it runs in the SCPF system job.

Note: If you perform an IPL before installing a cumulative PTF package, make sure that the INZSYS process has completed before you start to install the PTF package. Using any PTF commands before INZSYS completes causes the INZSYS to fail.

The completion time for INZSYS varies. Allow sufficient time for this process to complete.

When you select option 50 (Display log for messages) on the Work with Licensed Programs menu, you should see the message `Initialize System (INZSYS) started`. Later, you should see the message `Initialize System (INZSYS) processing completed successfully` (CPC37A9). If you do not see the completed message, or if the message `Initialize System (INZSYS) failed` appears, look at the job log to determine the problem. Use the information in the job log to correct the problem. Then start the conversion process again.

To start the conversion process yourself, you can either use a batch job or enter INZSYS on the command line. If you use a batch job, you can use your work station while the process is running, but the system cannot be in restricted state. Batch jobs do not run when the system is in a restricted state. If you enter INZSYS from a command line, we recommend that the system be in restricted state. Setting the system to restricted state will reduce the time that is needed for the INZSYS process to complete. Before you use the INZSYS command, set the mode selection to **Normal** and set the IPL type to **B** (or the IPL type that you use for everyday operation).

To set the system to restricted state, do the following:

1. Type: **CHGMSGQ QSYSOPR *BREAK SEV(60)** and press Enter.
2. A message display could be shown. Press Enter.

Note: Ignore the messages that are shown.

3. To put the system in a restricted state, type the End Subsystem (ENDSBS) command: **ENDSBS *ALL *IMMED**

   The message `System ended to restricted condition` appears. Press Enter to continue.

To start the conversion process again, do the following:

1. Type: **INZSYS** and press Enter.
2. Use option 50 (Display log for messages) on the Work with Licensed Programs menu to make sure that the process completes successfully.

Do not attempt to save your system until the INZSYS process has completed successfully.

Starting from a Power-Off Condition

You are here because your system unit power is off. Perform the following steps to power on the system and begin a normal installation. When you complete this section, you will be instructed to return to the appropriate step of your original installation procedures.

__ 1. Use the control panel to select function **02** and press the Enter button. Then select IPL type **D**.

__ 2. Set the mode selector on the control panel to the appropriate position.
   - If you were directed here from Chapter 3. Replacing a Release Using Automatic Installation, set the mode selector to **Normal**.
   - If you were directed here from Chapter 4. Replacing a Release Using Manual Installation, verify that the mode selector is in the **Manual** position. On some iSeries models, you will not have a mode selector. Instead, use the Increment or Decrement buttons to scroll to function 02, press Enter, and then scroll through to **DM** or **DN**.

__ 3. Press Enter on the control panel.

__ 4. Make sure that the power is on for the display station being used as the console.

__ 5. Verify that the switch is in the On position if the installation device used for the alternate initial program load (IPL) has separate on and off switches.

__ 6. Load the media and make the device ready. If you cannot load the media now, you will be able to in step 9.

__ 7. **Optional:** If you have a 1/4-inch cartridge tape, load the first tape volume into the tape device for the alternate IPL. Close the door on the tape device.

__ 8. Turn the power on for the system by pushing the power switch once.

__ 9. If you could not load your media in the previous steps, load the first volume into the tape or optical device for the alternate IPL now.

__ 10. You are ready to return to your original installation procedures.
   - If you are performing an automatic installation, continue with step 7 on page 19.
   - If you are performing a manual installation, continue with step 7 on page 27.

Appendix B. Options on Work with Licensed Programs Menu

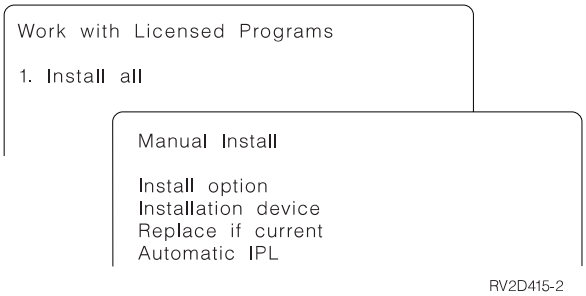
This appendix contains information about the options on the Work with Licensed Programs menu. Use this information to determine when and how you can use these options. For each display, you can use the Help key for more information about the display.

Manual Install Options

Use the ″Install all″ option on the Work with Licensed Programs menu if you want to install all of the licensed programs on the distribution media.

Using Option 1. Install All

Option 1 (Install all) on the Work with Licensed Programs menu allows you to install all of the licensed programs and optional parts of the licensed programs from distribution media. Secondary languages on a distribution media can also be installed with this option.



The Manual Install display allows you to make choices for the prompts in the following list. Use the Help key for more information about each prompt.

1. Install option

   This option determines what types of licensed programs and optional parts are installed from the distribution media. You can choose to install only new releases of products that already exist on your system, install all products, install only new products, or install new releases of products that exist on your system plus additionally selected products.

   Notes:

   a. The *Install option* does not apply to the QGPL and QUSRSYS libraries. QGPL and QUSRSYS libraries always install if they are found on the media and are not at the new release level. For all *Install option* choices, only new objects are installed in the QGPL and QUSRSYS libraries.

   b. To complete the installation successfully, the installation media must contain all renewed products that are currently installed on your system. The installation media may contain products whose version, release, and modification is earlier than that of the new operating system release. (The products did not renew at the same time as the operating system.)

2. Installation Device

   The examples in this manual use OPT01 for the name of the installation device. For more information about the installation device naming convention, go to

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the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Performing basic system tasks for software installation preparation –> Determining installation device names**.

3. Replace if current

   By specifying *NO, the licensed programs that are currently installed and at the same release level on the installation media will not be replaced during an upgrade. You can change the *Replace if Current* parameter to *YES if you want to replace licensed programs that are already installed, including products installed at the same release level as on the installation media. By choosing *YES, you may have to reapply PTFs to some licensed programs that were replaced from the media.

4. Automatic IPL

   This option determines whether the system will automatically IPL when the installation process has completed successfully.

   Attention! If you do this on a primary partition when secondaries are active, this will cause all partitions to IPL immediately. If you have active secondary partitions, power them off prior to using this procedure.

Automatic Install Options

The `Prepare for install` option helps you to create an installation list and select the programs that you want to install during the automatic installation process. Prepare for install also helps you verify the contents of the installation media and determine the storage requirements, among other necessary tasks in preparation for automatic installation. "Prepare for Install–Overview" on page 7 describes `Option 5. Prepare for Install` in more detail.

Using Option 5. Prepare for Install

The following page in the iSeries Information Center provides the instructions for using `Option 5. Prepare for Install`: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Creating and customizing an installation list**.

Displaying, Installing, Deleting, and Saving from a List

This section contains information about displaying, installing, deleting, and saving licensed programs from a list.

Using Option 10. Display Installed Licensed Programs

After an installation process has completed, it is often necessary to determine if a licensed program is installed successfully on your system. To do this, select option 10 (Display installed licensed programs) on the Work with Licensed Programs menu. The Display Installed Licensed Programs display shows the licensed programs, optional parts, and IBM-supplied user libraries that are installed on your system.

The Installed Status column indicates whether or not the licensed program is successfully installed. Refer to Appendix E, "Installed status values" on page 147, for a description of the installed status values.

If a licensed program did not install successfully, use the recovery procedures in "Appendix A. Recovery Procedures" on page 95 to install the licensed program again.

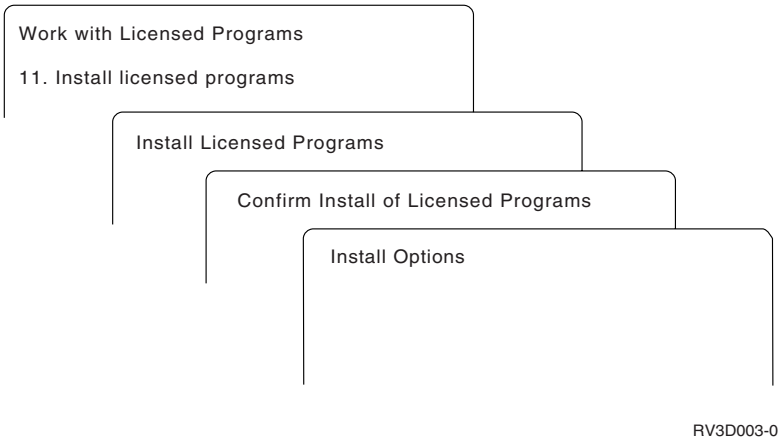
You can use the F11 key to view the Installed Release column. This column shows the release and modification of each installed licensed program. The F11 key has a third view, also, that shows the product option number of each licensed program.

Using Option 11. Install Licensed Programs

Before you install any licensed programs, be sure to check the documentation that came with the product to see whether there are any special instructions.

When you select option 11 (Install licensed programs) on the Work with Licensed Programs display, you see a list of licensed programs and optional parts of licensed programs. The listed items are the licensed programs and optional parts that were supported by the LICPGM installation processes at the time your currently installed operating system became available.

You can use this list to select licensed programs and optional parts to install on your system. You can also use this list to install a licensed program that did not successfully install during a previous installation process.



To install one or more licensed programs from the list, type a 1 in the option column next to the licensed programs and any optional parts that you want to install. Refer to "Licensed Product Table" on page 149 for a list of the licensed programs that are on the media.

A licensed program you want to install may not be listed on the Install Licensed Programs display. If a licensed program is not listed, it can be added to the list by entering information into the blank fields at the top of the list. After you press Enter, this product then appears on the list with the other products.

- Type 1 in the Option column
- Type the product identifier in the Licensed Program column
- Type the product option value in the Product Option column
- Press Enter

When you are typing the product option, the system accepts only the following three values: *BASE, option number, or *ALL.

- A value of *BASE will install only the base product of the associated product identifier.
- The product option number will install only the particular option of the associated product identifier. To be able to install options, you must install the base product (*BASE).

- A value of *ALL will install the base product and all options of the associated product identifier.

Keep in mind that licensed programs that you add will appear on the list with only the product identifier and will not give a descriptive name of the product.

The Confirm Install of Licensed Programs display shows which licensed programs you selected to install. If you do not need to make any changes, press Enter to confirm your choices.

Fill in the choices listed below on the Install Options display. Use the Help key for more information about each prompt on this display.

1. Installation Device

   The examples in this manual use OPT01 for the name of the installation device. For more information about the installation device naming convention, go to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Performing basic system tasks for software installation preparation –> Determining installation device names**.

2. Objects to install

   This option allows you to choose to install both programs and language objects, only programs, or only language objects.

3. Automatic IPL

   This option determines if the system will automatically IPL when the installation process has completed successfully.

When the licensed programs are installed, the Work with Licensed Programs menu or the Sign On display appears again. To verify that all of the licensed programs are installed successfully, use option 50 (Display log for messages). More information about that option is available in "Using Option 50. Display Log for Messages" on page 114. If an error occurs, you will see the message `Work with licensed program function not complete`, on the bottom of the Work with Licensed Programs display. Go to "Appendix A. Recovery Procedures" on page 95 to determine the problem.

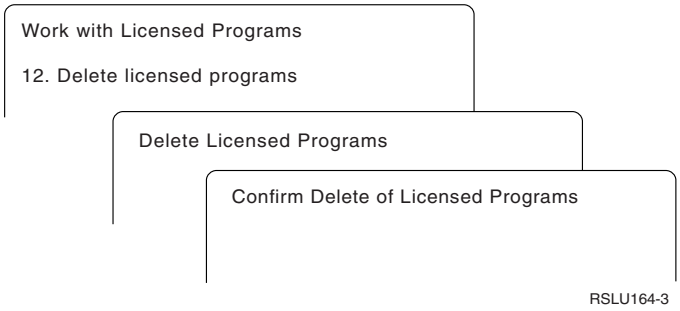
If you install a licensed program or optional part again, you must also install the PTFs for that licensed program again.

Using Option 12. Delete Licensed Programs

Before you delete a licensed program, review "Notes About Deleting Licensed Programs" on page 122, then return here.

Select option 12 on the Work with Licensed Programs menu to delete a licensed program or optional part of a licensed program that is installed on your system. When you select this option, the Delete Licensed Programs display appears. The list shows the licensed programs and optional parts that are installed on your system. Use this list to select licensed programs or optional parts to delete.

If you delete a (*BASE) licensed program that has optional parts, the system deletes all of the optional parts for that licensed program. If you delete only an optional part, the base program and other optional parts remain on your system. This option deletes all objects that are associated with the licensed program or optional part you select.



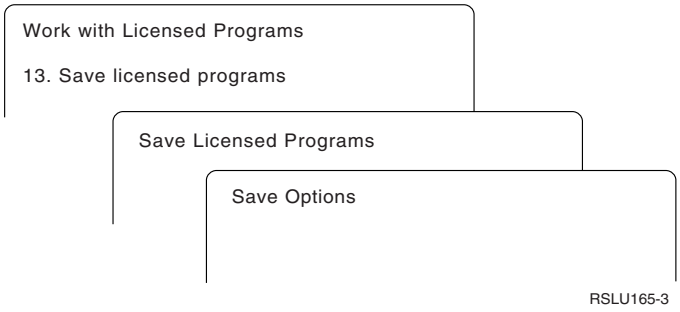
Type a 4 in the *Option* column next to the licensed program or optional part of a licensed program that you want to delete from your system.

The Confirm Delete of Licensed Programs display shows you which licensed programs or optional parts you selected to delete. Press Enter to delete the licensed programs or optional parts.

Using Option 13. Save Licensed Programs

Select option 13 on the Work with Licensed Programs menu to save one or more licensed programs for redistribution.

The Save Licensed Programs display lists the licensed programs and optional parts that are installed on your system. Use this list to select licensed programs or optional parts to save. Type a 1 in the option column on the Save Licensed Programs display next to the licensed programs that you want to save.



Fill in the information on the Save Options display by using the following information.

Use the Help key for more information for each of the prompts on the display

1. **Device**

   The examples in this manual use TAP01 for the name of the tape device. For more information about the tape device naming convention, go to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Performing basic system tasks for software installation preparation –> Determining installation device names**.
2. **Sequence number**

   Use *Default, or enter your choice for the sequence number to be used for the save process.
3. **End of media option**

Options on Work with Licensed Programs Menu

Tape - Determines the automatic positioning operation that is done on the tape volume when the save operation completes. In the case of a multiple-volume save operation, this parameter applies to the last volume only. All other volumes rewind and unload, if the tape reaches its end. You can specify these values:

- *REWIND: The tape automatically rewinds after the operation ends, but it does not unload the tape.
- *LEAVE: The tape does not rewind or unload after the operation ends. It remains at the current position on the tape drive.
- *UNLOAD: The tape automatically rewinds and unloads after the operation ends.

Optical - Specifies the operation that is automatically performed on the optical volume after the save operation ends. Optical devices only support the special value *UNLOAD; they ignore *REWIND and *LEAVE. Some optical devices will eject the volume after the operation ends.

Notes:

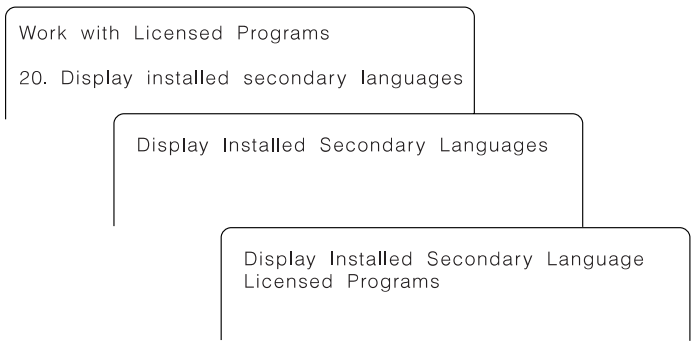
1. Licensed programs and optional parts that are shipped independently of an operating system release or modification are not displayed. Use the Save Licensed Program (SAVLICPGM) command to save independently shipped IBM licensed programs and optional parts.
2. This option should not be used for backup and recovery. It is only for redistribution. More information about redistribution is available in the iSeries Information Center: **Systems Management –> Using central site distribution to install multiple iSeries servers** topic. For information on saving your system, refer to the iSeries Information Center: **Systems Management –> Backup, recovery, and availability** topic.

Secondary Language Options

This section contains information about displaying, installing, and deleting secondary languages on your system.

Using Option 20. Display Secondary Languages

After an installation process has completed, it is often necessary to determine if a secondary language is installed successfully on your system. To do this, select option 20 on the Work with Licensed Programs menu. The Display Installed Secondary Languages display shows the primary and any secondary languages that are installed on your system.

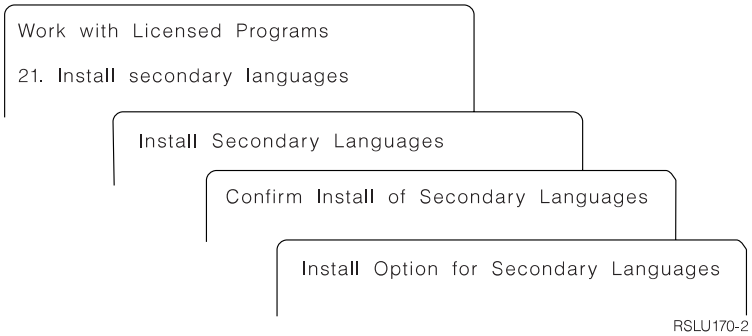


Type 5 in the Option column next to a secondary language, and press Enter to see the licensed programs that are installed with the particular secondary language. This information is shown on the subsequent display, Display Installed Secondary Language Licensed Programs. By pushing the F11 key a few times, you will see this display change information. This display shows the secondary language library, product release, installed status value, or product option.

For a description of the installed status values, refer to Appendix E, "Installed status values" on page 147.

Using Option 21. Install Secondary Languages

Use option 21 to selectively install a secondary language for the licensed programs that are installed on your system.



Type 1 by the language you want to install, and press Enter. Only one secondary language can be installed at a time. The Confirm Install of Secondary Language display shows

- which language you selected to install,
- the library where it will be installed,
- and the release level of the language.

On the Install Option for Secondary Languages display, you will select your

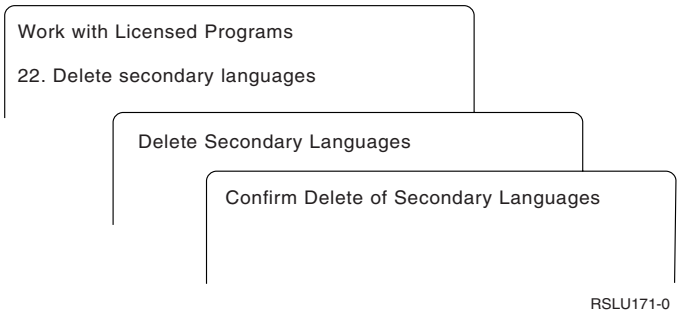
- Installation device,
- and the Replace if current parameter.

The examples in this manual use OPT01 for the name of the installation device. The topic, Determining installation device names, in the Prepare for software installation category of the iSeries Information Center contains more information about the installation device naming convention. By specifying *NO to the Replace if current parameter, the secondary languages that are currently installed and at the same release level on the installation media will not be replaced during an upgrade. You can change the *Replace if Current* parameter to *YES if you want to replace secondary languages that are already installed, including secondary languages installed at the same release level as on the installation media.

Using Option 22. Delete Secondary Languages

Use option 22 to delete secondary languages you no longer want installed on your system.

Options on Work with Licensed Programs Menu



On the Delete Secondary Languages display, type 4 to select the secondary language that you want to delete. Press Enter. Press Enter again at the confirmation display.

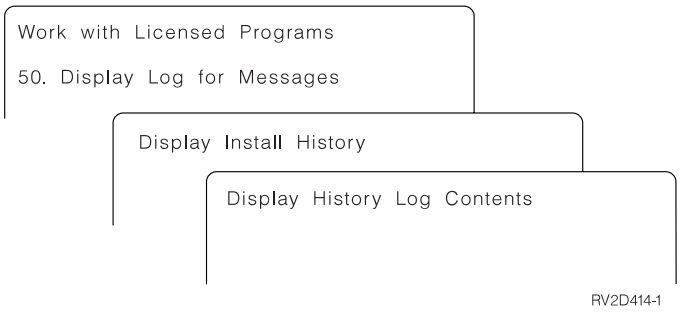
More information about secondary language libraries in user profiles is available in the Globalization topic of the System planning and installation category in the iSeries Information Center.

Completion Status

When you install licensed programs, a secondary language, or PTFs, make sure that the installation process has successfully completed to avoid problems when you begin using the system.

Using Option 50. Display Log for Messages

Selecting option 50 shows the Display Install History display. Press Enter to view the installation start and completion messages on the Display History Log Contents display. This option displays specific messages that are shown in the history log.



Each part of the installation process (such as licensed programs, PTFs, Initialize System (INZSYS)) should have a completion message. If you do not see the message on the display, wait a few minutes and select option 50 again. If you still do not see a completion message, use the recovery procedures in Appendix A. Recovery Procedures to install any licensed programs or PTFs that are not successfully installed.

Related Commands

Options 70, 71, and 72 display menus of additional commands you can use.

Selecting option 70 shows the Save and Restore Commands display. This display shows a list of related command menus you can use.

Selecting option 71 shows the Program Temporary Fix Commands display. You can use these commands to work with one or more individual PTFs. More information about fixes is in the Managing fixes topic of the Getting started with iSeries category in the iSeries Information Center.

Selecting option 72 shows the Licensed Commands display.

More information about the following commands is available in the iSeries Information Center topic, Managing fixes.

CPYPTFSAVF	Copy PTF to Save File
CRTPTF	Create Program Temporary Fix
CRTPTFPKG	Create PTF Package
HLDPTF	Hold Program Temporary Fix
ORDSPTPTF	Order Supported Product PTFs
RLSPTF	Release Program Temporary Fix
SNDPTF	Send Program Temporary Fix

Options on Work with Licensed Programs Menu

Appendix C. Licensed Program Information

This appendix contains information that is useful when planning for your software installation. This appendix includes notes about the usage based limit, specific licensed programs, and information to help you determine whether you should delete optional parts of OS/400.

Setting the Usage Limit

After completing the installation process and before making the system available to all users, you must set the usage limit for the user-based priced (UBP) products. These UBP products are listed on the Proof of Entitlement (POE) document that you have received with your software order. For products that have a usage limit, you can provide the information with the WRKLICINF command.

__ 1. Type: **WRKLICINF**, press Enter.

__ 2. Press F11 (Display Usage Information). The usage limit for each product listed on the display must match the usage limit number on each POE for its associated product.

__ 3. Move the cursor to the line containing the product name whose usage limit is to be updated.

__ 4. Type **2** (Change), press Enter.

__ 5. When the Change License Information display is shown, update the Usage Limit prompt with the usage limit shown on the POE. In addition, update the Threshold prompt with either *CALC or *USGLMT. Do not leave the Threshold set to zero.

Note: If the following message is issued, respond with **G**. "CPA9E1B: Usage Limit Increase Must be Authorized. Press help before replying (C G)."

__ 6. If the POE lists more products than the Work with License Information display, set the usage limits after you install those products.

Licensed Program Sizes

See "Licensed Product Table" on page 149 for the licensed program size information for V5R1M0.

The Technical Studio Web site has information on licensed program sizes for this release and prior releases. The direct Web address is:
http://www.as400.ibm.com/tstudio/tech_ref/Indexfr.htm

For instructions on using the Work with Licensed Programs menu to assist in your storage requirement calculations, refer to the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Evaluating your disk storage needs** topic.

Installation Notes about the OS/400 Operating System

Note: The system must be in a restricted state to install the QGPL and QUSRSYS libriaries, and to install Option 12 (Host Servers).

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5722-SS1, OS/400 Option 1: This option installs automatically when you install the new release of OS/400. You cannot delete this option.

5722-SS1, OS/400 Option 3: This option installs automatically when you install the new release of OS/400. This option contains IFS directories. You cannot delete this option.

5769-SS1 Option 15 OS/400 – Common Programming APIs Toolkit has been removed.

5769-SS1 Option 17 OS/400 – PSF/400 Fax Support has been removed.

5769-SS1, OS/400 Option 20: Option 20 for Advanced 36® was removed. At V5R1M0, you cannot use Advanced 36 guest machines to run System Support Programs (SSP). You must migrate your SSP guests to the System/36 Environment or to stand-alone OS/400 before you ungrade to this release. You can use normal SSP utilities to save libraries, files, and folders from the SSP to tape or diskette. Then the System/36 Migration Assistant (option 11) can be used to restore the libraries, files, and folders to the System/36 Environment on OS/400. The following information describes this process in greater detail:

- Informational authorized program analysis report (APAR) II09900
- SC41-4151-00 OS/400 System/36 Migration Assistant V3R6
- SC41-4152-00 System/36 Migration Planning V3R6

5769-SS1, OS/400 Option 24: Option 24 (Lotus Notes Enhanced Integration) has been removed.

5769-SS1, OS/400 Option 29: Option 29 (Integration for Windows NT® Server) was removed. V5R1M0 does not support this Option. It is now a no-charge licensed program 5722-WSV, Integration for Windows Server.

5722-SS1, OS/400 Option 34: Digital Certificate Manager installs over 5769-NC1 or 5769-NCE.

Installation Notes about Other Licensed Programs

5722-JV1, IBM Developer Kit for Java: If you have V4R2M0 or V4R3M0 5769-JV1 installed and you are upgrading only your installed products, then option 4 will install for V5R1M0 along with the base product. If you have V4R4M0 or V4R5M0 5769-JV1 options 1, 2, or 4 installed; option 4 is installed for V5R1M0. Options 1 and 2 are no longer supported.

5722-MG1, Managed System Services for iSeries: You should use the ENDMGDSYS and ENDMGRSRV commands to end the product before performing any save, restore, or install functions. The system must be in a restricted state to install this licensed program.

Performance Management/400e of the OS/400 Operating System and 5722-PT1, Performance Tools for iSeries: If you have performance data on your system, which was collected prior to performing the new release installation, run the Convert Performance Data (CVTPRFDTA) command. This converts the collected data to a format that is usable by the new release. For instructions to convert the data, refer to the section “Converting the Performance Data” on page 120.

57xx-SA3, Integration for NetWare, and 57xx-XZ1, OS/2® Warp Server for AS/400®: The system deletes these products when you upgrade from V4R4M0 to V5R1M0. You must migrate to an alternative product before the end of service dates for these products:

- Integration for NetWare (57xx-SA3)
- OS/2 Warp Server for AS/400 (57xx-XZ1)

Refer to Novell's Support Life Cycle Product Forecast for information regarding their end of support dates for Novell NetWare 4.1 at the Internet:

`http://support.novell.com/lifecycle/forecast.htm`

You can use alternative products, AS/400 Netserver (SMB) or AS/400 Integrated PC Server with Windows NT. You may also choose to migrate to an external PC server. For more information about iSeries and Netware, refer to:

`http://www.iseries.ibm.com/netware/as4nwhm.htm`

5722-SM1, System Manager for iSeries: If you have this product installed, be sure to end all subsystems before you replace the product or install secondary languages.

Licensed Programs That Are No Longer Supported in V5R1

V5R1M0 does not support the following licensed programs:

- 5769-AC1 Cryptographic Access Provider 40-bit for AS/400
- 5697-ADS Tivoli® ADSTAR Distributed Storage (replaced by 5697-TSM Tivoli Storage Manager)
- 5769-AS1 WebSphere™ Application Server for AS/400
- 5769-CB1 ILE COBOL (included in 5722-WDS WebSphere Development Studio)
- 5769-CE1 AS/400 Client Encryption (40-bit)
- 5769-CF1 Retail Application Interface Suite for AS/400
- 5769-CL1 ADTS CS (included in 5722-WDS WebSphere Development Studio)
- 5769-CL2 VA RPG and CODE/400 (included in 5722-WDS WebSphere Development Studio)
- 5769-CL3 VisualAge RPG and Cooperative Development Environment for AS/400 (Super PID for ordering CL1 and CL2)
- 5769-CX2 ILE C for AS/400 (included in 5722-WDS WebSphere Development Studio)
- 5769-CX5 VisualAge for C++ for AS/400 (included in 5722-WDS WebSphere Development Studio)
- 5716-DCT Language Dictionaries for AS/400 (An application that uses 5716-DCT can use 5769-DL1 Dictionary and Linguistic Tools for iSeries instead)
- 5769-FW1 Firewall for AS/400
- Tivo-ITD Tivoli IT Director
- 5769-MQ2 MQSeries for AS/400 (replaced with 5733-A38 MQSeries for iSeries, V5.2)
- 5798-NC3 NetCommerce for AS/400, Version 3.1
- 5769-PM1 Performance Management/400e (function moved to 5722-SS1 Operating System/400)
- 5769-PW1 ADTS Application Development ToolSet (included in 5722-WDS WebSphere Development Studio)
- 5733-PY1 Payment Server for AS/400, Version 1.2

- 5769-RD1 Option 6 OnDemand Client for Windows® 3.1, Option 7 OnDemand Client for OS/2, and Option 8 OnDemand Client for 32-bit Windows
- 5769-RG1 ILE RPG (included in 5722-WDS WebSphere Development Studio)
- 5769-SA2 Integration Services for FSIOP
- 1-TD-SVR Tivoli IT Director
- 5798-TBY Facsimile Support for AS/400 (replaced with 5798-FAX Facsimile Support for iSeries)
- 5798-TBW IBM Wireless Connection for AS/400
- 5639-VW5 Visual Warehouse™ 5.2 (part number only)
- 5769-WP1 OfficeVision for AS/400
- 5763-XD1 Client Access for Windows 95/NT
- 5763-XK1 Client Access Enhanced for Windows 3.1
- 5649-xxx All Model 150 products (no new or no upgrades available for V5R1; P05-level software is available)

Converting the Performance Data

If you use either Performance Management/400 or Performance Tools for iSeries and you collected data prior to installing your new release, follow these steps to convert the data into a format that is readable by the new release.

Performance Management/400:

If you are upgrading Performance Management/400 from a prior release in which data was collected, you must clear or convert the data in the collection library.

1. Type: **GO PM400**, and press Enter.
2. Select option 3. Note the data collection library (usually QMPGDATA). Press F12 until you return to the iSeries Main Menu.
3. To clear the library, type **CLRLIB xxxxx**, where xxxxx is the data collection library. Press Enter.
4. To convert the data, type **CVTPFRDTA**.
5. Press F4 to prompt. Use the iSeries help instructions to complete this task. Consider the size of the performance data library. Does the system have sufficient space to accommodate another library of that size?

5722-PT1, Performance Tools for iSeries:

1. To convert the data, type **CVTPFRDTA**.
2. Press F4 to prompt. Use the iSeries help instructions to complete this task. Consider the size of the performance data library. Does the system have sufficient space to accommodate another library of that size?

How to Delete Licensed Programs

The following information should help you determine if you should delete an unwanted part of a licensed program. For example, some licensed programs have requirements that certain parts of OS/400 be installed. These requirements are not always apparent. You can use the procedures in this topic to delete the parts of licensed programs you have determined you do not need.

Determining What Unused Parts of Products to Delete

Depending on your business needs, you might be able to delete some of the optional parts of the licensed programs that are shown in Table 20 on page 122.

(Table 20 shows V5R1M0 product identifiers, but the information in the table applies to deleting unwanted parts either before or after installing the new release of software.) For example, you can delete the licensed programs for any clients that you do not use. Deleting unwanted licensed programs or optional parts will give you more storage for your business needs.

Before deleting anything, read the following:

- If you do not have the original or a current copy of OS/400 software distribution media, make sure that you first save the affected licensed program. Type GO LICPGM on the command line and select option 13 (Save licensed programs). You will need extra tapes for this save operation. To save these licensed programs to tape can take several hours. At a later time, if you need any of the licensed programs or deleted optional parts, you can install them from these tapes. To install them, use GO LICPGM and select option 11 (Install licensed programs).
- System back-up tapes ship with some systems. These back-up tapes are not the same as software distribution media. While you can use software distribution media to reinstall individual licensed programs or optional parts, you cannot use system back-up tapes. If you cannot locate or your system did not ship with the original installation media, you must save the licensed programs and optional parts before you delete them. You will need the saved copy, if you need to restore the licensed programs or optional parts at a future time.

Use Table 20 on page 122, "Installation Notes about the OS/400 Operating System" on page 117, "Installation Notes about Other Licensed Programs" on page 118, and the following keys to help you determine which programs or optional parts you might want to delete.

Keys for Table 20 on page 122:

a You cannot delete the entire OS/400 operating system. You can delete optional parts, but you cannot delete OS/400 option 1 or option 3.

b It is recommended that you do not delete this part.

c Delete this optional part if you are not migrating from a System/36 or System/38™ to this iSeries.

d Delete this optional part if you are running only iSeries applications.

e This optional part is needed only by software developers.

f Do not delete this optional part if you are using the Print Services Facility/400 (see optional part number 17 in this table).

g Delete this part if you do not need to compile CL programs for a previous release.

h This option is a separately orderable feature.

i Do not delete this part if you have applications using Ultimedia System Facilities.

j Do not delete if you are using Client Access products.

k If you are not using this specific client, you can delete the complete licensed program for that client.

q If you delete this optional part, you must first remove QHLPSYS from the system library list. Refer to note 122 for more information.

r You may delete these, if you are not using them.

s To prevent the problem of not getting Application Program Driver (APD) converted for use with PowerPC technology and redoing all APD work, IBM strongly advises you to configure APD to disable the Simplified Sign-on Panel. Perform the following steps to disable the Simplified Sign-on Panel and enable the Standard Sign-on Panel. Sign-on with a user ID that has authority identical to QSECOFR and enter STRAPD:

1. Select 1. Application Program Driver
2. Select 2. Install and Delete Applications
3. Select 6. Install the Standard Sign-on Panel

After following these steps, the Standard Sign-on Panel will be active. You can save your data and begin the migration.

Table 20. Deleting Unwanted Licensed Programs and Optional Parts After the Installation Is Complete

Keys	Licensed Program and Optionally Installable Product Part	Number for Product Option
a	**5722-SS1** OS/400	
a	Extended Base Support	1
q	OS/400 Online Information (Online help information)	2
a	Extended Base Directory Support	3
c	OS/400 System/36 and System/38 Migration	4
d	OS/400 System/36 and System/38 Environment	5 and 6
e	OS/400 Example Tools Library	7
f	OS/400 AFP™ Compatibility Fonts	8
g	OS/400 *PRV CL Compiler Support	9
c	OS/400 System/36 Migration Assistant	11
b, j	OS/400 Host Servers	12
e	OS/400 System Openness Includes	13
r	OS/400 GDDM®	14
i	OS/400 Ultimedia System Facilities	16
h	OS/400 Media and Storage Extensions	18
r	OS/400 optional parts 21, 22, 23, 25, 26, 27, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, and 41.	21 - 38
j	**57xx-XW1** Client Access Family	Base
j	**57xx-XW1** Client Access Enablement Support	1
k	**57xx-XE1** Client Access Express for Windows	Base
s	**5722-PD1** Application Program Driver for AS/400	Base

Notes About Deleting Licensed Programs

Do not attempt to use the DLTLIB command to remove a licensed program or optional part of a licensed program from the system. Some licensed programs copy objects into other libraries; the DLTLIB command will not delete the duplicated objects. Using the DLTLIB command to delete a licensed program or optional part could leave the licensed program in a partially installed condition. For a list of IBM-supplied libraries, that are organized by licensed program, see Appendix D of the book *CL Programming*, SC41-5721-04.

If you are unable to delete a licensed program, it may be because the library for the licensed program exists in one of the library lists. Use the WRKSYSVAL command to check both the system library and the user library lists. When the Work with System Values display appears, type a **5** next to the QSYSLIBL and QUSRLIBL system values to display the associated libraries. If the library for the licensed program is listed on this display, press Enter to return to the Work with System Values display. Then type a **2** to change the system value. When the Change System Value display appears, use the spacebar to remove that licensed program library from the library list. You will be able to delete your licensed program after your next IPL.

Procedures for Deleting Licensed Programs

To delete licensed programs, do the following steps:

__ 1. Type: **GO LICPGM**, and press Enter. The Work with Licensed Programs menu appears.

__ 2. Select option 12 (Delete licensed programs). The Delete Licensed Programs display appears.

__ 3. Type **4** (Delete) in the Option column in front of each licensed program that you want to delete. Page down to display additional licensed programs.

__ 4. Press Enter. You are shown the Confirm Delete of Licensed Programs display.

__ 5. Press Enter if your selections are correct. Press F12 to make corrections.

__ 6. You receive confirmation messages from the system when the licensed programs are deleted.

__ 7. Press F12 to return to the Work with Licensed Programs menu.

If you have difficulty deleting a licensed program following these steps, type: **ENDSBS *IMMED**, and press Enter. Then proceed with step 1 again.

Appendix D. Estimating Your Total Installation Time

It is difficult to accurately estimate the amount of time needed to install a new release of software. Many variables combine to create a unique set of circumstances for each system. This appendix helps you estimate the time that you need to install your new release. This appendix does the following:

- Lists common ways to estimate installation time and describes the installation process
- Describes conditions that affect the performance of the installation process
- Lists the types of products that are installed when you replace a release of software
- Provides a checklist and work sheets for determining an estimate that reflects your system and software environment.

Common Methods of Estimating Installation Time

The following list contains the most common methods of estimating your installation time.

- Base your estimate on the installation time of a previous release. If the system configuration and load remain similar, you can use the installation time of a previous release on this system *as the start* of your estimate. ***If you rely on only the installation time of the previous release, your estimate may not be accurate.***

  This method may not be accurate if many data conversions occur during the installation process. If you are skipping a release level, generally the time is longer. Be sure to add information for conversions that occur in the release you are skipping and for the new release.
- Base your estimate on the installation time for a similar system. If your enterprise has multiple systems, you can record the actual time to install the new release on one system. You can use this to estimate the time that is needed to install the new release on a system with a similar configuration and load. Of course, you cannot use this method until you complete the installation on the first system.
- Estimate time using a formula. You can use the information in the following sections to estimate how long it will take to install this release on your system. Keep in mind that the number at which you arrive will vary from your actual installation time because of the variables that affect installation time.
- Combine one or more of the methods that are listed above.

Types of Products Installed

A new release consists of these parts, installed in the following order:

1. Licensed Internal Code
2. Operating system
3. Licensed programs and optional parts

For installation purposes, the IBM-supplied libraries QGPL and QUSRSYS and the optional parts of the operating system are considered licensed programs.

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Installation Processes

The system determines the installation process based on available system resources and the type of product being installed.

A **single-process installation** is when licensed programs are installed one at a time (sequentially). A **multiprocess installation** is when the system starts multiple jobs to perform the installation of two or more licensed programs at the same time.

Licensed Internal Code and the base part of the operating system are always installed using single-process installation. Licensed programs (including libraries QGPL and QUSRSYS and optional parts of the operating system) can be installed using either single-process or multiprocess installation.

If you are installing only one licensed program, the system uses single-process installation. If you are installing more than one licensed program, multiprocess is used if system resources are available. If system resources are not available, single-process is used. Single-process is used when a system's main storage or auxiliary storage is limited, and when a licensed program exceeds the requirements for multiprocess installation. For any set of licensed programs, if the system must use single-process, the installation takes longer. "Multiprocess Installation Overview" describes the system requirements necessary for multiprocess installation.

Tip: Think of multiprocess installation as meaning installing multiple licensed programs.

When replacing a release of software, your choice of the manual or automatic methods has no effect on whether the system uses single-process or multiprocess installation.

Conditions that Affect Installation Time

The amount of time it takes to install the licensed programs depends on your system configuration and the licensed programs you are installing. That is, the larger models with more system capacity have a shorter installation time than smaller models loading the same licensed programs. The major factors that affect installation performance are:

- Installation device
- Number and type of disk unit I/O processors
- Processing unit capacity
- Disk unit space available
- Main storage available in base pool
- Human interaction
- User data conversions
- Licensed programs to be installed

Multiprocess Installation Overview

The operating system determines if your system configuration has enough system capacity to use multiprocess to install licensed programs. If your system has the required resources, the licensed programs are installed concurrently by:

- Loading the licensed program installation files from the media to temporary save files.

- Using multiple batch jobs to concurrently install licensed programs from the save files. The save files are deleted during the installation process.

During installation, a status panel indicates the licensed programs that are currently being installed from save files. The display lists the licensed programs and the type of item being installed for each, as follows:

***PGM** program objects

***LNG** language objects

If your system does not have the required resources for a multiprocess installation, the licensed programs are installed sequentially from the installation media (single-process). In this case, the status panel indicates the licensed program that is currently being installed from the media.

Additional Requirements for Multiprocess Installation

To use the multiprocess installation for licensed programs, the system requires the following:

1. You must select more than one licensed program to install from the installation media (this includes IBM-supplied libraries and operating system options). If you are only installing one new licensed program and choose option 11 (Install licensed programs), the system uses the single-process installation to install the licensed program.
2. A multiprocess installation cannot currently be in progress. If another job is currently performing a multiprocess installation, the system uses the single-process installation to install your licensed programs from a different tape device.
3. You must have at least 11 megabytes of available auxiliary storage on your system. If you do not, the system uses single-process to install the licensed programs.

   The licensed programs that require the system to have more than 11 megabytes of additional auxiliary storage are shown in the *Multiprocess Storage* column of Table 23 on page 135.
4. You must have at least 1536 KB (kilobytes) of main storage available in the base storage pool of the system. The system requires 512K in the system base pool for each of the first three installing jobs. The first job that is started loads the media files into save files. After the requirements for the first three jobs are met, each additional job requires an additional 1024K in the base pool. Therefore, the larger the base pool, the greater number of installation jobs that can be started. This results in a faster installation.

If you are using the automatic installation process, or are installing the licensed programs with all subsystems ended, you only need to verify the auxiliary storage and main storage requirements. See the book *Work Management*, SC41-5306, for procedures to change these values if they do not meet the criteria for multiprocess installation. If you do not have the required resources to enable the system to use multiprocess installation, the installation of licensed programs may take significantly longer than a multiprocess installation. The time difference between the single-process installation and the multiprocess installation depends on your system configuration and the licensed programs to be installed.

How to Determine Additional Storage for Multiprocess-Scenario

Compare the list of licensed programs that you plan to install with the *Multiprocess Storage* column of Table 23 on page 135.

Estimating Installation Time

Licensed programs install as two types of objects: Program objects (*PGM) and language objects (*LNG). If any licensed program that you plan to install shows a value for either object type in Table 23, that object requires that the system have more auxiliary storage. More storage is required before the object can be installed with the multiprocess method. You can calculate the amount of additional auxiliary storage space the system needs for multiprocess installation.

__ 1. Determine which licensed programs or optional parts that you plan to install have values in the *Multiprocess Storage* column of Table 23.

Note: Options 1 and 3 of OS/400 and the IBM-supplied libraries QGPL and QUSRSYS are always installed when you are replacing a release of software.

__ 2. Determine which two licensed programs (or optional parts) from step 1 have the highest values. Add the sizes of the two largest entries.

__ 3. Add 10 to the sum from step 2. This is the total amount of additional storage, in megabytes, that the system needs to use multiprocess installation for the licensed programs that you plan to install.

For example, you are replacing your release with V5R1M0 and plan to install OS/400 with options 1, 2, 3, and 12, plus iSeries Client Access Family with option 1. You would need to have 68.9 megabytes of additional auxiliary storage (30.4 + 28.5 + 10) for the system to use multiprocess installation for all these products. (QUSRSYS is automatically selected when you replace a release so you need to account for it in your calculations.)

Another example could be that you decide to add additional licensed programs to your existing V5R1M0 server. One of the products you selected, Advanced Function Printing DBCS Fonts for AS/400 (5769-FN1), is listed in the *Multiprocess Storage* column of Table 23. You would need 114.4 megabytes of additional auxiliary storage (78.4 + 26.0 + 10) for the system to use multiprocess installation. This would install the base and options 1 through 5 of Advanced Function Printing DBCS Fonts for AS/400.

Checklist for Estimating Installation Time

The following information is provided to assist you in estimating the approximate installation time of this release on your system. Use the checklist below as a guide. The checklist refers you to other information or work sheets to obtain values. The checklist assumes that you are not changing the primary language of your system. The estimate you arrive at using this checklist is based on the assumption that your system must perform a single-process installation; if your system is able to use multiprocess installation, your time will be less.

Note: The checklist and supporting work sheets do not include the amount of time that is spent on loading of next volumes, media errors, or recovery procedures. User data is not included. The time needed for INZSYS to complete is also not included.

Do the following to estimate your total installation time.

__ 1. Estimate the amount of time you need to save your system before you install the new release. Time for saving the system depends on how much storage you have and what percentage of the storage you are using. Use the amount of time from the last backup of your system.

Time: _____

__ 2. Estimate the amount of time to replace Licensed Internal Code. Allow 30 minutes for smaller systems.

Time: _____

__ 3. Use Table 21 on page 130 to estimate the amount of time to replace OS/400.

Time: _____

__ 4. Add time for object conversions. Follow the steps in "Estimating Time for Conversions" on page 141 to determine how much time you need to add.

Time for data protection mechanisms: _____

Time for database cross-reference files: _____

Time for spooled files: _____

Time for user profiles: _____

Time for directory files: _____

__ 5. Consider extra time that might be needed because of the product repackaging of iSeries Application Development e-business tools to IBM WebSphere Development Studio for iSeries (5722-WDS). If you have any of the following licensed programs, your installation time could be increased due to the time needed to delete them. Do not delete these on your own. You could lose user data, and the follow-on licensed program (5722-WDS) will not be automatically installed. The amount of extra time depends on the type of processor and how many of these licensed programs are on your server.

- ILE COBOL for AS/400 (57xx-CB1)
- VisualAge RPG and CODE/400 (57xx-CL2)
- ILE C for AS/400 (57xx-CX2)
- VisualAge for C++ for OS/400 (57xx-CX4)
- VisualAge for C++ for AS/400 (57xx-CX5)
- Application Development ToolSet for AS/400 (57xx-PW1)
- ILE RPG for AS/400 (57xx-RG1)

Time: _____

__ 6. Consider the time required for your system to perform an IPL. If your system takes more than 20 minutes to perform an IPL, include the amount of time that exceeds 20 minutes. For example, if your system takes 45 minutes to perform an IPL, enter the difference of 25 minutes for the time (45 - 20 = 25).

Time: _____

__ 7. Add time for saving your system after the installation. Be aware that **data conversions can occur during the save operation** that could increase the time needed for saving your system.

Time: _____

__ 8. Use "Work Sheet 1. Licensed Programs" on page 131 to estimate the time to install licensed programs. Be sure to include all the licensed programs and optional parts that you intend to install. This time assumes that the you are installing licensed programs using single-process installation. The time will be shorter if you use multiprocess installation.

Time: _____

__ 9. Determine the amount of time required to install the cumulative PTF package. Use the timing information in the *iSeries System PTF Shipping Information Letter*.

Time: _____

__ 10. Add time for any extra clean-up work and to re-customize your system. If you plan to use the softcopy library as part of your installation, include time for this activity.

Time: _____

The total of these steps is your total estimated time for installing your new release.

Estimated Time: _____

Estimates for the Operating System

Installation time is influenced by two primary factors; the speed of the processor model and the speed of the optical device. The speed of the processor model determines how fast installation processing occurs. The speed of the installation device determines how fast data is retrieved from the media.

Table 21. Estimated Installation Time for Base OS/400, in Minutes

Advanced Systems and Servers		
Model	**Processor**	**Time**
150	2269 2270	105 100
170	2159 2290 All other processors	85 85 80
250	2295 2296	85 80
270	All processors	80
400®	2130 2131 2132 2133	155 115 105 100
500	2140 2141 2142	115 115 100
510	2143 2144	85 80
530	All processors	80
600	2129 2134 2135 2136	130 105 100 85
620	2175 2179 2180 2181 2182 2228 2230 2231 2232 2233	95 85 80 80 80 85 80 80 80 80
640	All processors	80
650	All processors	80

Table 21. Estimated Installation Time for Base OS/400, in Minutes (continued)

Advanced Systems and Servers		
Model	**Processor**	**Time**
720	All processors	80
730	All processors	80
740	All processors	80
820	All processors	80
830	All processors	80
840	All processors	80
SB1	2289 All other processors	85 80
SB2	2315	80
40S	2109 2110 2111 2112	85 80 85 80
50S	2120 2121 2122	85 80 80
53S	All processors	80
S10	2118 2119	100 85
S20	All processors	80
S30	All processors	80
S40	All processors	80
Note: These installation times are based on using optical installation media. If you install from tape (such as a distribution tape created by a central site), these numbers are not valid. The speed of the optical drive is 600 kilobytes per second, which is the same rate as the 6390 tape drive (8mm). The next closest tape speed is 300 kilobytes per second for the 6380 tape drive (1/4 inch).		

Work Sheet 1. Licensed Programs

This work sheet helps you estimate the maximum amount of time that is needed to install licensed programs.

The size and complexity of a licensed program are primary factors that determine the installation time required. The time needed is also influenced by the speed of the processor, the speed of the media device used, and which installation process the system is able to use.

Note: This work sheet determines an estimate for the single-process installation time for your selected licensed programs. This provides the maximum expected time for installing licensed programs. Since the system attempts to perform a multiprocess installation whenever possible, your actual time should be somewhat less than the value you arrive at by using this work sheet. Because of the unique combination of conditions affecting installation time for your system, it is not possible to provide meaningful estimates for multiprocess installation.

Estimating Installation Time

__ 1. Determine the total base time for the licensed programs that you are replacing.

   a. Identify the licensed programs and optional parts that are currently installed on your system and that you plan to replace.

      Note: If you are replacing all IBM supplied software, be sure to include values for OS/400 options 1 and 3 and IBM-supplied libraries QGPL and QUSRSYS.

   b. For the licensed programs and optional parts that you identified, add the values shown in the *Base Value A* column of Table 23 on page 135. The sum is your base time in minutes for replaced licensed programs. Write this sum here.

      Replacing: _____

__ 2. Determine the total base time for the licensed programs and optional parts that you are adding to your system for the first time.

   a. Identify the licensed programs and optional parts that you are adding to your system. If you have verified your media and created a customized installation list, use the printout from the steps in the topic, Creating and customizing an installation list (Prepare for software installation category of the iSeries Information Center) to identify the products.

      Note: If you are installing a new server, include all the licensed programs and optional parts that you plan to install. Be sure to include values for OS/400 options 1 and 3 and IBM-supplied libraries QGPL and QUSRSYS.

   b. For the licensed programs and optional parts that you identified, add the values shown in the *Base Value B* column of Table 23 on page 135. The sum is your base time in minutes for added licensed programs. Write this sum here.

      Adding: _____

__ 3. Add the base values shown in steps 1 and 2.

      Sum: _____

__ 4. Use Table 22 on page 133 to determine the multiplication factor to use for your model and processor. Write the value here.

      Multiply by: _____

__ 5. Multiply the time shown in step 3 by the value in step 4. The result is your estimated maximum value for installing licensed programs (in minutes). Use this value for the licensed program installation time in step 8 of the "Checklist for Estimating Installation Time" on page 128.

      Total Estimate: _____

Note: The estimated time that you determine with this work sheet is for a single-process installation. Expect some variation in the value you determine for the licensed programs you estimated in step 5. The optical device is the only valid installation device. These values are not accurate if you install from tape, such as for distribution tapes created by a central site. The speed of the optical drive is 600 kilobytes per second, which is the same rate as the 6390 tape drive (8mm). The next closest tape speed is 300 kilobytes per second for the 6380 tape drive (1/4 inch).

Table 22. Estimating Licensed Program Installation Time: Multiplication Factor

Model	Processor	Multiplication Factor for Licensed Programs
150	All processors	2.2
170	2159	1.6
	2160	1.0
	2164	0.9
	2176	0.9
	2183	0.9
	2290	1.6
	2291	1.0
	2292	0.9
	2385	0.9
	2386	0.9
	2388	0.9
250	2295	1.6
	2296	1.0
270	All processors	0.9
400	2130	2.5
	2131	2.5
	2132	2.2
	2133	2.2
500	2140	2.5
	2141	2.5
	2142	2.2
510	2143	1.6
	2144	1.0
530	All processors	0.9
600	2129	2.5
	2134	2.2
	2135	2.2
	2136	1.6
620	2175	1.9
	2179	1.6
	2180	1.0
	2181	0.9
	2182	0.9
	2228	1.6
	2230	1.0
	2231	0.9
	2232	0.9
	2233	0.9
640	All processors	0.9
650	All processors	0.9
720	All processors	0.9
730	All processors	0.9
740	All processors	0.9
820	All processors	0.9
830	All processors	0.9
840	All processors	0.9

Table 22. Estimating Licensed Program Installation Time: Multiplication Factor (continued)

Model	Processor	Multiplication Factor for Licensed Programs
SB1	2289 All other processors	1.6 0.9
SB2	2315	0.9
40S	2109 2110 2111 2112	2.2 2.2 1.6 1.3
50S	2120 2121 2122	1.6 1.0 0.9
53S	All processors	0.9
S10	2118 2119	2.2 1.6
S20	2161 All other processors	1.0 0.9
S30	All processors	0.9
S40	All processors	0.9

Times for Installing Licensed Programs

Table 23 on page 135 will help you determine the maximum time that you need to install licensed programs. Table 23 shows the base values to use for time calculations and factors that influence your calculations.

Note: The maximum installation time values that you calculate assumes that the system uses single-process installation. For most licensed programs, the system uses multiprocess installation. Because multiprocess installation has many variables that are unique to each system, the time for multiprocess installation is virtually unpredictable using Table 23 on page 135 and "Work Sheet 1. Licensed Programs" on page 131. Consider the time you arrive at using this information as your worst-case installation time.

Multiplication Values are base values used to calculate the installation time for the licensed programs and options you plan to install. The base value is not the installation time. You must use this value with the information provided in Table 22 on page 133.

Base Value A
Use this base value for the licensed programs that you are replacing as part of an upgrade.

Base Value B
Use this base value for the licensed programs that you are adding to an existing system after an upgrade.

Factors Influencing Installation Time indicate which licensed programs or optional parts may be affected by additional factors. Characteristics of the licensed programs being installed can sometimes cause a significant impact on your installation time. Table 23 on page 135 indicates which licensed programs and options may cause your installation to run longer.

Multiprocess Storage

If the size of a licensed program exceeds the 11MB of auxiliary storage that the system uses for multiprocess installation, the licensed program is installed with the single-process method. Values shown in this column (either *PGM or *LNG) indicate which part of the licensed program requires additional storage for multiprocess installation. "Multiprocess Installation Overview" on page 126 describes multiprocess installation. A dash indicates the product will multiprocess install within the system's standard settings.

Table 23. Licensed Program Time Information

		Multiplication Values(1)		Factors Influencing Installation Time	
				Multiprocess Storage(2)	
Product or Option and Description		**Base Value A**	**Base Value B**	***PGM**	***LNG**
5722-999					
–	Licensed Internal Code	NA	NA	NA	NA
5722-SS1					
Base	Operating System/400	NA	NA	NA	NA
Library	OS/400–Library QGPL	0.3	0.1	–	–
Library	OS/400–Library QUSRSYS	7.5	6.1	–	–
1	OS/400 Extended Base Support	7.2	3.1	–	12.1
2	OS/400–Online Information	4.5	3.8	–	32.2
3	OS/400–Extended Base Directory Support	20.5	19.5	–	–
4	OS/400–S/36 and S/38 Migration	8.8	6.2	17.4	–
5	OS/400–System/36 Environment	7.3	5.2	14.0	–
6	OS/400–System/38 Environment	4.3	3.9	–	–
7	OS/400–Example Tools Library	6.1	3.6	–	–
8	OS/400–AFP Compatibility Fonts	2.7	3.6	17.6	NA
9	OS/400–*PRV CL Compiler Support	25.1	10.8	–	35.9
11	OS/400–S/36 Migration Assistant	4.8	3.6	–	–
12	OS/400–Host Servers	4.5	5.0	13.3	–
13	OS/400–System Openness Includes	40.2	28.3	177.0	NA
14	OS/400–GDDM	5.0	3.7	–	–
16	OS/400–Ultimedia System Facilities	9.7	8.7	17.4	–
18	OS/400–Media and Storage Extensions	2.2	1.6	–	–
21	OS/400–Extended NLS Support	3.6	2.7	42.0	–
22	OS/400–ObjectConnect	4.3	3.3	–	–
23	OS/400–OptiConnect	3.8	3.0	–	–
25	OS/400–NetWare Enhanced Integration	5.4	3.7	11.9	12.8
26	OS/400–DB2 UDB Symmetric Multiprocessing	1.7	1.3	–	–
27	OS/400–DB2 Multisystem	1.6	1.3	–	–
30	OS/400–QShell Interpreter	5.2	4.4	–	–
31	OS/400–Domain Name System	4.8	3.8	–	–

Table 23. Licensed Program Time Information (continued)

Product or Option and Description		Multiplication Values(1)		Factors Influencing Installation Time	
				Multiprocess Storage(2)	
		Base Value A	Base Value B	*PGM	*LNG
32	OS/400–Directory Services	1.5	1.7	–	–
33	OS/400–Portable Application Solutions Environment	21.8	24.0	348.0	–
34	OS/400–Digital Certificate Manager	7.9	6.8	21.5	50.2
35	OS/400–Cryptographic Services Provider	6.5	1.6	–	–
36	OS/400–PSF/400 1-28 IPM Printer Support	2.0	1.6	–	–
37	OS/400–PSF/400 1-45 IPM Printer Support	2.0	1.6	–	–
38	OS/400–PSF/400 Any Speed IPM Printer Support	2.0	1.6	–	–
39	OS/400–International Components for Unicode	1.3	1.6	–	–
41	OS/400–HA Switchable Resources	1.3	1.6	–	–
5722-AC2					
Base	Cryptographic Access Provider 56-bit	2.9	2.9	–	–
5722-AC3					
Base	Cryptographic Access Provider 128-bit	0.3	0.3	–	–
5722-AF1					
Base	AFP Utilities for AS/400	8.4	6.1	11.0	–
5722-AP1					
Base	Advanced DBCS Printer Support for AS/400	NA	NA	–	–
1	Adv DBCS Printer Support for OS/400–IPDS™	NA	NA	–	–
5722-BR1					
Base	Backup Recovery and Media Services for iSeries	24.6	24.0	40.4	90.9
1	BRMS/400–Network Feature	1.8	1.3	–	–
2	BRMS/400–Advanced Functions Feature	1.6	1.3	–	–
5722-CE2					
Base	Client Encryption (56-bit)	4.0	3.3	16.4	–
5722-CE3					
Base	Client Encryption (128-bit)	4.0	3.2	14.9	–
5722-CM1					
Base	Communications Utilities for iSeries	4.9	3.9	–	–
5722-CR1					
Base	Cryptographic Support for AS/400	3.7	3.0	–	–
5722-DB1					

Table 23. Licensed Program Time Information (continued)

Product or Option and Description		Multiplication Values(1)		Factors Influencing Installation Time	
				Multiprocess Storage(2)	
		Base Value A	Base Value B	*PGM	*LNG
Base	System/38 Utilities for AS/400	5.2	3.9	11.6	–
5769-DC1					
Base	DCE Base Services for AS/400	9.4	10.0	62.5	36.7
5769-DC3					
Base	DCE DES Library Routines	4.0	3.2	16.1	–
5722-DE1					
Base	DB2 Universal Database Extenders for iSeries	2.6	2.6	–	–
1	Text Extender for AS/400	5.8	5.7	11.4	–
2	XML Extender for AS/400	3.9	3.8	–	–
3	Text Search Engine	4.9	4.9	76.8	94.8
5722-DFH					
Base	CICS Transaction Server for iSeries	9.9	6.5	24.6	33.8
1	CICS for AS/400–Sample Applications	4.1	3.2	–	–
5722-DG1					
Base	HTTP Server for iSeries	13.8	12.5	44.5	19.6
1	Triggered Cache Manager	3.8	4.2	–	–
5769-DL1					
Base	Dictionary and Linguistic Tools for iSeries	5.3	4.4	64.7	–
5769-DP3					
Base	DB2 DataPropagator for iSeries Version 7.1	5.1	4.6	–	–
5722-DS1					
Base	Business Graphics Utility for AS/400	3.7	2.9	–	–
5769-FNT					
Base	Advanced Function Printing Fonts for AS/400	3.3	2.6	–	–
1	AS/400 Font–Sonoran Serif[1]	1.8	1.6	–	NA
2	AS/400 Font–Sonoran Serif Headliner	1.7	1.4	–	NA
3	AS/400 Font–Sonoran Sans Serif[2]	1.8	1.6	–	NA
4	AS/400 Font–Sonoran Sans Serif Headliner	1.7	1.4	–	NA
5	AS/400 Font–Sonoran Sans Serif Condensed	1.7	1.6	–	NA
6	AS/400 Font–Sonoran Sans Serif Expanded	1.7	1.5	–	NA
7	AS/400 Font–Monotype Garamond	1.7	1.5	–	NA
8	AS/400 Font–Century Schoolbook	1.7	1.5	–	NA

Table 23. Licensed Program Time Information (continued)

Product or Option and Description		Multiplication Values(1)		Factors Influencing Installation Time	
				Multiprocess Storage(2)	
		Base Value A	Base Value B	*PGM	*LNG
9	AS/400 Font–Pi and Specials	1.7	1.3	–	NA
10	AS/400 Font–ITC Souvenir	1.7	1.5	–	NA
11	AS/400 Font–ITC Avant Garde Gothic	1.7	1.5	–	NA
12	AS/400 Font–Math and Science	1.7	1.5	–	NA
13	AS/400 Font–DATA1	1.7	1.3	–	NA
14	AS/400 Font–APL2	1.7	1.3	–	NA
15	AS/400 Font–OCR A and OCR B	1.7	1.3	–	NA
5769-FN1					
Base	Advanced Function Printing DBCS Fonts for AS/400	3.3	2.6	–	NA
1	AS/400 Font (DBCS)–Japanese	3.1	5.5	76.7	NA
2	AS/400 Font (DBCS)–Korean	2.2	3.0	25.5	NA
3	AS/400 Font (DBCS)–Traditional Chinese	1.9	2.0	14.2	NA
4	AS/400 Font (DBCS)–Simplified Chinese	1.8	1.9	–	NA
5	AS/400 Font (DBCS)–Thai	1.7	1.5	–	NA
5722-IP1					
Base	Infoprint Server for iSeries	12.7	12.5	93.3	NA
5722-JC1					
Base	Toolbox for Java	6.9	12.0	65.3	–
5722-JS1					
Base	Job Scheduler for iSeries	10.2	9.8	27.6	26.8
5722-JV1					
Base	Developer Kit for Java	3.1	3.8	–	–
3	Java Developer Kit 1.2	2.2	2.5	22.7	–
4	Java Developer Kit 1.1.8	3.1	3.3	68.0	–
5	Java Developer Kit 1.3	6.3	6.6	247.0	–
1TME-LCF					
Base	Tivoli Management Agent	4.5	3.7	–	–
5722-MG1					
Base	Managed System Services for iSeries	7.9	7.5	21.9	24.2
5722-PD1					
Base	Application Program Driver for AS/400	18.0	10.1	42.5	14.9
5722-PT1					
Base	Performance Tools for iSeries	8.4	6.4	46.1	17.3
1	Performance Tools - Manager Feature	4.3	3.3	–	19.2
2	Performance Tools - Agent Feature	3.5	2.7	–	18.4

Table 23. Licensed Program Time Information (continued)

Product or Option and Description		Multiplication Values(1)		Factors Influencing Installation Time	
				Multiprocess Storage(2)	
		Base Value A	Base Value B	*PGM	*LNG
5722-QU1					
Base	Query for iSeries	3.6	2.8	–	–
5722-RD1					
Base	Content Manager OnDemand for iSeries	7.4	7.6	11.7	–
1	OnDemand Spooled File Archive Feature	5.9	7.7	–	39.2
2	OnDemand Object Archive Feature	4.1	3.7	–	38.7
3	OnDemand Record Archive Feature	3.9	3.0	–	38.7
4	OnDemand AnyStore Feature	2.0	1.5	–	–
5	OnDemand Server Feature	1.8	1.4	–	–
10	OnDemand Common Server Feature	5.0	4.9	12.2	39.6
11	OnDemand Web Enablement Kit	1.8	1.8	–	–
12	OnDemand PDF Indexer for OnDemand Common Server	1.7	1.7	17.4	–
5722-SM1					
Base	System Manager for iSeries	6.7	5.1	17.3	–
5722-ST1					
Base	DB2 Query Manager and SQL Development Kit for iSeries	4.7	3.4	–	–
5722-TC1					
Base	TCP/IP Connectivity Utilities for iSeries	8.1	6.8	23.9	18.2
5769-VG1					
Base	VisualAge Generator Server for iSeries	4.2	3.8	–	–
5722-VI1					
Base	Content Manager for iSeries	5.5	4.0	12.2	–
1	Content Manager for iSeries	21.6	12.9	27.5	17.1
2	Content Manager for iSeries	3.4	2.6	–	14.7
3	Content Manager for iSeries Client for Windows	0.5	0.5	–	–
4	Content Manager for iSeries Workflow Builder			–	–
5722-WDS					
Base	WebSphere Development Studio	7.7	4.2	12.0	12.9
21	Tools - Application Development	4.9	5.5	21.4	16.7
22	Tools - Application Development Manager	6.7	5.9	17.7	–
23	Tools - Application Dictionary Services	10.3	9.9	32.4	–
31	Compiler–ILE RPG IV	2.9	2.9	–	–

Table 23. Licensed Program Time Information (continued)

Product or Option and Description		Multiplication Values(1)		Factors Influencing Installation Time	
				Multiprocess Storage(2)	
		Base Value A	Base Value B	*PGM	*LNG
32	Compiler–System/36-Compatible RPG II	3.0	3.0	–	–
33	Compiler–System/38-Compatible RPG III	2.8	2.9	–	–
34	Compiler–RPG/400	2.9	2.9	–	–
35	Compiler–ILE RPG IV - *PRV	1.4	1.4	–	–
41	Compiler–ILE COBOL	2.9	2.9	–	–
42	Compiler–System/36-compatible COBOL	2.9	3.0	–	–
43	Compiler–System/38-compatible COBOL	2.9	3.0	–	–
44	Compiler–OPM COBOL	3.0	3.1	–	–
45	Compatible–ILE COBOL *PRV	1.5	1.4	15.0	–
51	Compiler–ILE C	4.3	4.2	14.9	–
52	Compiler–ILE C++	3.6	3.5	40.4	–
53	Compiler–ILE C *PRV	3.6	3.5	–	–
54	Compiler–ILE C++ *PRV	8.4	8.5	12.2	–
55	IBM Open Class®–source and samples	18.1	18.1	45.9	–
60	Workstation Tools–Base	10.5	10.9	16.6	–
61	Workstation Tools–WebFacing, CODE	1.4	1.4	–	–
62	Workstation Tools - VisualAge RPG	1.4	1.4	–	–
63	Workstation Tools–WebSphere Studio	1.4	1.4	–	–
64	Workstation Tools–VisualAge for Java	1.4	1.4	–	–
5722-WSV					
Base	iSeries Integration for Windows Server	5.2	4.4	15.6	–
1	Integration for Windows NT 4.0	7.2	6.4	–	–
2	Integration for Windows 2000	7.1	5.9	–	–
5722-XE1					
Base	iSeries Client Access Express for Windows	9.6	7.3	123.4	14.8
5722-XW1					
Base	iSeries Client Access Family	3.4	2.6	–	–
1	Client Access Enablement Support	1.3	1.3	–	–

Table 23. Licensed Program Time Information (continued)

	Multiplication Values(1)		Factors Influencing Installation Time	
			Multiprocess Storage(2)	
Product or Option and Description	**Base Value A**	**Base Value B**	***PGM**	***LNG**

Notes:

1. Do not use only these values for your time estimate; the result will not be accurate. Use"Work Sheet 1. Licensed Programs" on page 131 and the multiplication factors in Table 22 on page 133 to calculate the single-process installation time for the licensed programs you plan to install.
2. When a product has a numerical value shown in this column, use the value shown with the example within "Additional Requirements for Multiprocess Installation" on page 127 to determine the extra storage required to use multiprocess installation. If no value is shown, there is no additional storage requirement for multiprocess installation.

Estimating Time for Conversions

The number and type of conversions that occur when you install the new release can have a significant affect on your installation time. *Only the conversions that add to your installation time are discussed in the following paragraphs.*

More conversions occur if you are skipping a release level. You need to consider the time for conversions in both the release you are skipping and in the new release. To estimate the time that conversions will take during your installation, you may need to gather information about specific object types on your system.

The following table lists the object conversion types affected in V5R1M0 and the system reference codes (SRCs) that refer to the conversions taking place.

Table 24. System Reference Codes for Object Conversions

Conversion type	System reference code
Database cross-reference files	C900 2950
Spooled files	C900 29B0
User profiles	C600 4055
Directory files	C900 2AAC

Data Protection Mechanisms

If your system uses mirroring or an implementation of a RAID-5 technique in the system ASP, your installation time can be longer. Mirroring and implementations of RAID-5 techniques do not affect the duration of saves.

Include the time estimate for your server in step 4 under "Checklist for Estimating Installation Time" on page 128.

Database Cross-Reference Files

If your system has database cross-reference files from an earlier release, these files will need to be converted before you install the new release. Converting these files may add some time to your installation process. However, the conversion will enable faster access times for future database queries.

Follow the procedure given below to determine how much time you will need to complete the conversion of the cross-reference files:

Estimating Installation Time

1. Determine if you have any cross-reference files.
   a. Type `DSPFD QADBIFLD` at the command line and press Enter.
   b. Record the number shown in the Current Number of Records field:

      _____

      If that number is zero, you do not need to add more time to your installation process. Otherwise, complete the steps below to estimate how much time the conversion will take.
2. Look up your system in the table that follows to find the applicable time factor.

Table 25. Database Cross-Reference Files Multiplication Factors

Model	Feature Code	Time Factor
150	2269	1.1
	2270	1.4
170	2159	2.2
	2160	3.3
	2290	2.2
	2291	3.3
	All other feature codes	9.7
250	2295	2.2
	2296	3.3
270	All feature codes	9.7
400	2130	0.5
	2131	0.7
	2132	1.0
	2133	1.3
500	2140	0.5
	2141	1.0
	2142	1.4
510	2143	2.4
	2144	3.1
530	2150	4.6
	2151	5.7
	2152	5.7
	2153	5.7
	2162	5.7
600	2129	0.7
	2134	1.0
	2135	1.4
	2136	2.2

Table 25. Database Cross-Reference Files Multiplication Factors (continued)

Model	Feature Code	Time Factor
620	2175	2.2
	2179	2.2
	2180	3.3
	2181	6.4
	2182	6.4
	2228	2.2
	2230	3.3
	2231	6.4
	2232	6.4
	2233	6.4
640	All feature codes	9.7
650	All feature codes	9.7
720	All feature codes	9.7
730	All feature codes	9.7
740	All feature codes	9.7
820	All feature codes	9.7
830	All feature codes	9.7
840	All feature codes	9.7
SB1	2289	2.2
	All other feature codes	9.7
SB2	2315	9.7
40S	2109	1.0
	2110	1.3
	2111	2.2
	2112	2.9
50S	2120	2.4
	2121	3.1
	2122	3.7
53S	All feature codes	5.7
S10	2118	1.4
	2119	2.2
S20	2161	3.3
	All other feature codes	6.4
S30	All feature codes	9.7
S40	All feature codes	9.7

3. To estimate the time, in minutes, for the database cross reference file conversions, use the number from 1b on page 142 and the time factor from the table in this equation:

   ```
   Estimated Time = [(CRN x .0002) + 31.5]/Time Factor
   ```

Note: CRN = Current number of records.

For example, assume you have a Model 510, with a feature number of 2144. The table shows a time factor of 3.1 for this model and feature number. You determined that the current number of records (CRN) in QADBIFLD is 53,254. The equation would be set up as follows:

```
Estimated Time = [(53,253 x .0002) + 31.5] / 3.1
```

In this example, it would take approximately 13.6 minutes to convert the database cross reference files on the system.

Include the time estimate for your server in step 4 under "Checklist for Estimating Installation Time" on page 128.

Spooled-File Conversions

In Version 5, spooled files on the system are being converted to increase the limitation on the number of files per job and also to allow for future growth of the spooled files and their attributes. Depending on the number of jobs and output queues you currently have on your server and also the type of hardware that you have, the installation for this release could take longer than in previous releases.

To find out how much time will be needed for spooled-file conversion, install *Installation Estimation PTFs for V4R4M0 and V4R5M0 Software*, SK37-4105. Directions for installing these PTFs are in the iSeries Information Center: **System planning and installation –> Hardware and software –> Software and licensed programs –> Prepare for software installation –> Ordering and applying program temporary fixes –> Installing the installation PFFs to upgrade**. The cover letter for these PTFs and all other PTFs is on the iSeries and AS/400 Technical Support Web site:

```
http://as400service.ibm.com/
```

In the navigation bar, click **Fixes and Updates**. Then in the right frame, click **PTF Cover Letters Database**.

A week or so before you install the next release, run the QSPESTMT program that is included in the installation estimation PTF. Do this when your server is in a restricted state and is not busy. The estimates are placed into the QESTIMATE spooled file. Include this time estimate in step 4 under "Checklist for Estimating Installation Time" on page 128.

User-Profile Conversions

User profiles are being converted this release to support independent auxiliary storage pools (disk pools). The amount of time that these conversions take depend on the size of the user profiles on your server and also the number of private authorities that are granted.

To estimate the amount of time these conversions will take, follow the same procedure as for estimating the time for spooled-file conversions: install *Installation Estimation PTFs for V4R4M0 and V4R5M0 Software*, SK37-4105. A week or so before the installation and when the server is in a restricted state, run the QSYESTMT program for estimating user profiles. The estimates are placed into the QSYESTMT spooled file. Include the estimated time for your server in step 4 under "Checklist for Estimating Installation Time" on page 128.

Directory Conversions

Directories for /(root), /QOpenSys, and user-defined file systems are being converted this release. If you have a significant number of directories in these file systems, allow about 15 minutes during installation for the conversion. The conversion could take longer than 15 minutes if you use Java, SAP, Content Manager OnDemand for iSeries, or Lotus Domino Server for iSeries applications. Include the directory conversion time estimate in step 4 under “Checklist for Estimating Installation Time” on page 128.

Appendix E. Additional Installation Information

This appendix contains information that may help you to streamline and to prevent problems in your installation process.

Blank Displays

During the installation process, you can see some blank displays. Some of these are predictable and the instructions give an approximate amount of time when there appears to be no installation activity. Other blank displays are less predictable because of unique situations on your system. If the processor light is blinking or SRC codes are changing, the installation process is active. If the processor light goes out, the attention light turns on, and an SRC code appears on the control panel, go to "Appendix A. Recovery Procedures" on page 95 and follow the instructions.

System Password

Support exists to detect processor model changes on all model iSeries servers through the use of a 16-character system password. The system password identifies all model changes to help maintain the quality and integrity of the iSeries server. The system password also ensures the protection of IBM's intellectual property, including IBM Licensed Internal Code and licensed programs.

New servers ship from the factory with the correct system password already installed. A new system password is required for each model change or for conditions that indicate probable change of ownership. If you do not have the system password at the first IPL, contact your marketing representative to place an iSeries system password RPQ (Request for Price Quotation) order. IBM manufacturing receives the RPQ order and sends the system password to you for installation. If the correct system password is not entered, you can select a system password bypass period to allow you to obtain the correct system password from your marketing representative. If the correct password is not available and the bypass period expires, the system will not complete the next IPL unless the correct password is installed. While in bypass mode, the system uses operator messages to indicate the time that remains until the bypass period expires.

For more details on the system password, see *Tips and Tools for Securing Your iSeries*, SC41-5300-07.

Installed status values

Here is a description of the installed status values you may see on the LICPGM displays. You can use these values to determine whether you can use a product or whether you may need to upgrade a licensed program. If you do not see a value of *COMPATIBLE, you can check the other installed status values for how to proceed.

***COMPATIBLE**
The product is installed. Its version, release, and modification is compatible with the installed level of the OS/400. You can use this program with the V5R1M0 OS/400.

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Additional Installation Information

***INSTALLED**

The product is installed, but may or may not be compatible with the installed OS/400. It cannot be determined if the licensed program on the media is compatible with the OS/400 or with the currently installed licensed program.

Note: **Caution!** Licensed programs that are now part of the single set will be listed on the display panel as *INSTALLED. You will need to verify that the release level of the licensed program is compatible with the release level of OS/400. For IBM products, check the current release levels for licensed programs in the "Licensed Product Table" on page 149. Or check with your software supplier before you use the licensed program.

***ERROR**

The product has not installed successfully, or the product is only partially installed. Use the Check Product Option (CHKPRDOPT) command to determine the cause of the failure.

Note: The product lists now show many products, such as Programming Request for Price Quotations (PRPQ), licensed program offerings (LPO), and non-IBM products. This *ERROR status may have existed prior to the upgrade of V5R1M0, but was not detected. Use the CHKPRDOPT to find out why the product shows an *ERROR, and contact your software provider if you need help correcting the problem.

***BACKLEVEL**

The product is installed. Its version, release, and modification is not compatible with the currently installed level of the OS/400. To correct this problem, install a current release of this product. And if you have secondary languages, install a new release of these languages as well, using LICPGM menu option 21.

Note: **Caution!** If you use a licensed program that is listed as *BACKLEVEL, you run the risk of having an information mix up between release levels, or some portions of the licensed program may not work properly. An installed status value of *COMPATIBLE is desired.

***BKLVLOPT**

The product is installed. Its version, release, and modification is not compatible with the currently installed level of the base product that is associated with the option. To correct this problem, install a current release of this option.

***BKLVLBASE**

The product is installed, but its associated base product is not compatible with this option. To correct this problem, install a current release of the base product.

Blank (on LICPGM menu, option 11)

If no value is shown, a blank in the installed status column means that the product is not installed.

***NOPRIMARY**

The product is installed, but the language for the product is not the same

as the primary language of the OS/400. To correct this problem, install the primary language for the product by using the RSTLICPGM command or from the LICPGM menu.

Note: If this product is an LPO, PRPQ or non-IBM product, it is possible that the licensed program (from the manufacturer) is not available in the primary language of the OS/400.

Licensed Product Table

The products listed in this table are available at the V5R1M0 release. The VxRxMx listed for each program is compatible with the V5R1M0 OS/400 release. The products' storage requirements (in megabytes) are also shown.

Table 26. IBM Licensed Product Table for V5R1M0 OS/400 Release

Product	VxRxMx	Storage (MB)	Description
5722999	V5R1M0	10^3 (MB)	Licensed Internal Code
5722AC2 *BASE	V5R1M0	1.5	Cryptographic Access Provider 56-bit for iSeries
5722AC3 *BASE	V5R1M0	0.5	Cryptographic Access Provider 128-bit for iSeries
5722AF1 *BASE	V5R1M0	18.1	AFP Utilities for AS/400
5722AP1 *BASE	V5R1M0	14.8	Advanced DBCS Printer Support for AS/400
5722AP1 option 1	V5R1M0	0.5	Advanced DBCS Printer Support for AS/400 - IPDS
5722BR1 *BASE	V5R1M0	212.6	Backup Recovery and Media Services for iSeries
5722BR1 option 1	V5R1M0	87.5	BRMS/400 - Network Feature
5722BR1 option 2	V5R1M0	88.2	BRMS/400 - Advanced Functions Feature
5722CE2 *BASE	V5R1M0	16.4	iSeries Client Encryption (56-bit)
5722CE3 *BASE	V5R1M0	15.8	iSeries Client Encryption (128-bit)
5722CM1 *BASE	V5R1M0	11.0	Communications Utilities for iSeries
5722CR1 *BASE	V5R1M0	2.2	Cryptographic Support for AS/400
5722DB1 *BASE	V5R1M0	23.1	System/38 Utilities for AS/400
5769DC1 *BASE	V4R3M0	134.2	DCE Base Services for AS/400
5769DC3 *BASE	V4R3M0	34.5	DCE DES Library Routines for AS/400
5722DE1 *BASE	V5R1M0	0.9	DB2 Universal Database Extenders for iSeries
5722DE1 option 1	V5R1M0	30.6	Text Extender for AS/400
5722DE1 option 2	V5R1M0	0.1	XML Extender for AS/400
5722DE1 option 3	V5R1M0	266.0	Text Search Engine
5722DFH *BASE	V5R1M0	85.6	CICS Transaction Server for iSeries
5722DFH option 1	V5R1M0	5.8	CICS for AS/400 - Sample Applications
5722DG1 *BASE	V5R1M0	75.9	HTTP Server for iSeries

Table 26. IBM Licensed Product Table for V5R1M0 OS/400 Release (continued)

Product	VxRxMx	Storage (MB)	Description
5722DG1 option 1	V5R1M0	3.9	Triggered Cache Manager
5769DL1 *BASE	V4R5M0	68.9	Dictionary and Linguistic Tools for iSeries
5769DP3 *BASE	V4R5M0	12.3	DB2 DataPropagator for iSeries Version 7.1
5722DS1 *BASE	V5R1M0	6.3	Business Graphics Utility for AS/400
5769FN1 *BASE	V4R2M0	0.9	Advanced Function Printing DBCS Fonts for AS/400
5769FN1 option 1	V4R2M0	76.7	AFP DBCS Fonts - Japanese
5769FN1 option 2	V4R2M0	25.5	AFP DBCS Fonts - Korean
5769FN1 option 3	V4R2M0	14.2	AFP DBCS Fonts - Traditional Chinese
5769FN1 option 4	V4R2M0	8.4	AFP DBCS Fonts - Simplified Chinese
5769FN1 option 5	V4R2M0	3.5	AFP DBCS Fonts - Thai
5769FNT *BASE	V4R2M0	0.9	Advanced Function Printing DBCS Fonts for AS/400
5769FNT option 1	V4R2M0	5.1	AFP Fonts - Sonoran Serif
5769FNT option 2	V4R2M0	5.2	AFP Fonts - Sonoran Serif Headliner
5769FNT option 3	V4R2M0	5.0	AFP Fonts - Sonoran Sans Serif
5769FNT option 4	V4R2M0	5.1	AFP Fonts - Sonoran Sans Serif Headliner
5769FNT option 5	V4R2M0	3.6	AFP Fonts - Sonoran Sans Serif Condensed
5769FNT option 6	V4R2M0	2.3	AFP Fonts - Sonoran Sans Serif Expanded
5769FNT option 7	V4R2M0	3.8	AFP Fonts - Monotype Garamond
5769FNT option 8	V4R2M0	4.3	AFP Fonts - Century Schoolbook
5769FNT option 9	V4R2M0	1.0	AFP Fonts - Pi and Specials
5769FNT option 10	V4R2M0	4.2	AFP Fonts - ITC Souvenir
5769FNT option 11	V4R2M0	3.9	AFP Fonts - ITC Avant Garge Gothic
5769FNT option 12	V4R2M0	3.4	AFP Fonts - Math and Science
5769FNT option 13	V4R2M0	0.4	AFP Fonts - DATA1
5769FNT option 14	V4R2M0	0.9	AFP Fonts - APL2®
5769FNT option 15	V4R2M0	0.3	AFP Fonts - OCR A and OCR B
5722IP1 *BASE	V4R1M0	101.1	Infoprint Server for iSeries
5722JC1 *BASE	V5R1M0	66.8	Toolbox for Java
5722JS1 *BASE	V5R1M0	65.7	Job Scheduler for iSeries
5722JV1 *BASE	V5R1M0	1.7	Developer Kit for Java
5722JV1 option 3	V5R1M0	23.4	Java Developer Kit 1.2
5722JV1 option 4	V5R1M0	68.6	Java Developer Kit 1.1.8
5722JV1 option 5	V5R1M0	247.7	Java Developer Kit 1.3
1TMELCF *BASE	V3R7M0	9.2	Tivoli Management Agent

Table 26. IBM Licensed Product Table for V5R1M0 OS/400 Release (continued)

Product	VxRxMx	Storage (MB)	Description
5722MG1 *BASE	V5R1M0	70.3	Managed System Services for iSeries
5722PD1 *BASE	V5R1M0	68.0	Application Program Driver for AS/400
5722PT1 *BASE	V5R1M0	73.1	Performance Tools for iSeries
5722PT1 option 1	V5R1M0	42.4	Performance Tools - Manager Feature
5722PT1 option 2	V5R1M0	37.1	Performance Tools - Agent Feature
5722QU1 *BASE	V5R1M0	7.1	Query for iSeries
5722RD1 *BASE	V5R1M0	18.0	Content Manager OnDemand for iSeries
5722RD1 option 1	V5R1M0	77.9	OnDemand Spooled File Archive Feature
5722RD1 option 2	V5R1M0	77.3	OnDemand Object Archive Feature
5722RD1 option 3	V5R1M0	77.8	OnDemand Record Archive Feature
5722RD1 option 4	V5R1M0	48.7	OnDemand AnyStore Feature
5722RD1 option 5	V5R1M0	42.7	OnDemand Server Feature
5769RD1 option 9	V4R5M0	42.1	OnDemand Server Trial Feature
5722RD1 option 10	V5R1M0	90.3	OnDemand Common Server Feature
5722RD1 option 12	V5R1M0	56.0	OnDemand PDF Indexer for OnDemand Common Server
5722SM1 *BASE	V5R1M0	17.5	System Manager for iSeries
5722SS1 *BASE	V5R1M0	range 934 to 1285	Operating System/400
5722SS1 option 1	V5R1M0	20.6	OS/400 - Extended Base Support
5722SS1 option 2	V5R1M0	33.5	OS/400 - Online Information
5722SS1 option 3	V5R1M0	10.3	OS/400 - Extended Base Directory Support
5722SS1 option 4	V5R1M0	27.5	OS/400 - S/36 and S/38 Migration
5722SS1 option 5	V5R1M0	25.2	OS/400 - System/36 Environment
5722SS1 option 6	V5R1M0	3.8	OS/400 - System/38 Environment
5722SS1 option 7	V5R1M0	7.7	OS/400 - Example Tools Library
5722SS1 option 8	V5R1M0	17.6	OS/400 - AFP Compatibility Fonts
5722SS1 option 9	V5R1M0	36.0	OS/400 - *PRV CL Compiler Support
5722SS1 option 11	V5R1M0	4.1	OS/400 - S/36 Migration Assistant
5722SS1 option 12	V5R1M0	20.4	OS/400 - Host Servers
5722SS1 option 13	V5R1M0	178.9	OS/400 - System Openness Includes
5722SS1 option 14	V5R1M0	9.2	OS/400 - GDDM
5722SS1 option 16	V5R1M0	30.7	OS/400 - Ultimedia System Facilities
5722SS1 option 18	V5R1M0	0.6	OS/400 - Media and Storage Extensions
5722SS1 option 21	V5R1M0	42.1	OS/400 - Extended NLS Support
5722SS1 option 22	V5R1M0	2.0	OS/400 - ObjectConnect
5722SS1 option 23	V5R1M0	4.2	OS/400 - OptiConnect

Table 26. IBM Licensed Product Table for V5R1M0 OS/400 Release (continued)

Product	VxRxMx	Storage (MB)	Description
5722SS1 option 25	V5R1M0	34.1	OS/400 - NetWare Enhanced Integration
5722SS1 option 26	V5R1M0	0.4	OS/400 - DB2® Symmetric Multiprocessing
5722SS1 option 27	V5R1M0	0.3	OS/400 - DB2 Multisystem
5722SS1 option 30	V5R1M0	26.9	OS/400 - Qshell Interpreter
5722SS1 option 31	V5R1M0	11.7	OS/400 - Domain Name System
5722SS1 option 32	V5R1M0	6.2	OS/400 - Directory Services
5722SS1 option 33	V5R1M0	352.6	OS/400 - Portable Application Solutions Environment
5722SS1 option 34	V5R1M0	117.8	OS/400 - Digital Certificate Manager
5722SS1 option 35	V5R1M0	20.7	OS/400 - CCA Cryptograhic Service Provider
5722SS1 option 36	V5R1M0	0.3	OS/400 - PSF/400 1-28 IPM Printer Support
5722SS1 option 37	V5R1M0	0.3	OS/400 - PSF/400 1-45 IPM Printer Support
5722SS1 option 38	V5R1M0	0.3	OS/400 - PSF/400 Any Speed Printer Support
5722SS1 option 39	V5R1M0	10.9	OS/400 - International Components for Unicode
5722SS1 option 41	V5R1M0	0.4	OS/400 - HA Switchable Resources
5722ST1 *BASE	V5R1M0	21.6	DB2 Query Manager and SQL Development Kit for iSeries
5722TC1 *BASE	V5R1M0	56.0	TCP/IP Connectivity Utilities for iSeries
5769VG1 *BASE	V4R4M0	6.5	VisualAge Generator Server for iSeries
5722VI1 *BASE	V5R1M0	23.5	Content Manager for iSeries
5722VI1 option 1	V5R1M0	58.5	Content Manager for iSeries
5722VI1 option 2	V5R1M0	29.5	Content Manager for iSeries
5722WDS *BASE	V5R1M0	29.0	WebSphere Development Studio
5722WDS option 21	V5R1M0	46.3	Tools - Application Development
5722WDS option 22	V5R1M0	33.5	Tools - Application Development Manager
5722WDS option 23	V5R1M0	40.6	Tools - Application Dictionary Services
5722WDS option 31	V5R1M0	21.2	Compiler - ILE RPG IV
5722WDS option 32	V5R1M0	8.4	Compiler - System/36 Compatible RPG II
5722WDS option 33	V5R1M0	7.2	Compiler - System/38 Compatible RPG III
5722WDS option 34	V5R1M0	7.8	Compiler - RPG/400®
5722WDS option 35	V5R1M0	4.8	Compiler - ILE RPG IV *PRV

Table 26. IBM Licensed Product Table for V5R1M0 OS/400 Release (continued)

Product	VxRxMx	Storage (MB)	Description
5722WDS option 41	V5R1M0	20.2	Compiler - ILE COBOL
5722WDS option 42	V5R1M0	9.0	Compiler - System/36 Compatible COBOL
5722WDS option 43	V5R1M0	8.1	Compiler - System/38 Compatible COBOL
5722WDS option 44	V5R1M0	10.5	Compiler - OPM COBOL
5722WDS option 45	V5R1M0	12.0	Compiler - ILE COBOL *PRV
5722WDS option 51	V5R1M0	35.1	Compiler - ILE C
5722WDS option 52	V5R1M0	41.6	Compiler - ILE C++
5722WDS option 53	V5R1M0	8.4	Compiler - ILE C *PRV
5722WDS option 54	V5R1M0	32.8	Compiler - ILE C++ *PRV
5722WDS option 55	V5R1M0	55.7	IBM Open Class - source and samples
5722WDS option 60	V5R1M0	21.0	Workstation Tools - Base
5722WDS option 61	V5R1M0	5.2	Workstation Tools - WebFacing, CODE
5722WDS option 62	V5R1M0	5.2	Workstation Tools - VisualAge® RPG
5722WDS option 63	V5R1M0	5.2	Workstation Tools - WebSphere Studio
5722WDS option 64	V5R1M0	5.2	Workstation Tools - VisualAge for Java
5722WSV *BASE	V5R1M0	22.4	iSeries Integration for Windows Server
5722WSV option 1	V5R1M0	15.4	Integration for Windows NT 4.0
5722WSV option 2	V5R1M0	6.3	Integration for Windows 2000
5722XE1 *BASE	V5R1M0	138.2	iSeries Client Access Express for Windows
5722XW1 *BASE	V5R1M0	1.0	iSeries Client Access Family
5722XW1 option 1	V5R1M0	0.4	Client Access Enablement Support

The System Reference Code (SRC)

An SRC is an 11, 11-2, or 11-3 in the function display. The format of the SRC that you see depends on the system or server on which you view it.

For systems or servers that are introduced with V4R4M0 and previous releases, an SRC consists of nine ″words″. A word (usually a word = 4 bytes of sequential data) usually consists of 8 hexadecimal characters ("0"-"9" and "A"-"F"). The function number corresponds to the function on the control panel or virtual control panel (Work with Partition Status display) that shows the specific word of the SRC. For these systems the word number corresponds to the function number. For example, only word "1" (typically called word "11" to match the function number) of the SRC appears in function "11". See Table 27 on page 154 for the others. Following this table is a description of the SRC format for the newer servers.

Table 27. Older (pre-V4R5M0 hardware) SRC Format and Terminology

Function	Word	Word Number (common name)
11	1	11
12	2	12
13	3	13
14	4	14
15	5	15
16	6	16
17	7	17
18	8	18
19	9	19

The new servers introduced concurrently with V4R5M0 have a larger control panel than previous models. They can display up to four words at a time. In addition, the first word of the SRC can consist of American National Standard Code for Information Interchange (ASCII) or hexadecimal characters. The other eight words of the SRC still consist of hexadecimal data. Function 11 still displays the first word of the SRC. However, the first word can contain 8 to 32 characters (expanded word 1. In the Product Activity Log (PAL) and other software displays, the SRC appears similar to earlier releases, except that word 1 may contain up to 32 characters. Words display as a number from 1 to 9 instead of 11 to 19, thus disassociating the word number from the function number. Refer to the following table to see the new format.

Table 28. New (V4R5M0 or later hardware) SRC Format

Function	Word
11	1
11	expanded word 1
11	expanded word 1
11	expanded word 1
12	2
12	3
12	4
12	5
13	6
13	7
13	8
13	9

For more details about SRCs, refer to the following in order, if you have them:

1. The iSeries Information Center: **System planning and installation –> Getting started with iSeries –> Handling system problems and getting help –> Troubleshooting your system** page
2. The iSeries Information Center: **Systems Management** topic (for SRCs related to logical partitions)

3. Problem Analysis book for your system type (for service representatives)
4. *iSeries Service Functions*, SY44-5902-04 (for service representatives)
5. *iSeries Licensed Internal Code Diagnostic Aids - Volume 1*, LY44-5900-03 (for service representatives)
6. *iSeries OS/400 Diagnostic Aids*, LY44-5907-03 (for service representatives)

Corrective Action for Common SRCs

This section gives a brief explanation of common system reference codes (SRCs) that you may see while replacing a release. "Appendix A. Recovery Procedures" on page 95 discusses steps to take if you encounter a problem during installation.

If you are looking at SRC codes on a system with logical partitions, the SRC gives an indication of of the type of partition to which it pertains. For example, the SRC B1xx xxxx indicates a primary partition. The SRC B2xx xxxx indicates a secondary partition.

Table 29. Common SRC codes

Symptom	Action
A1xx 19xx **A12x 19xx** **(x is any character)**	These SRCs appear if the installation device for an alternate IPL is not ready. Check the following: • Is the correct media volume loaded? • Is the device ready? • Is the device being used for a different purpose than the device was used for the previous IPL? • Is the installation media loaded in the alternate IPL or alternate installation device allocated for that partition? Any of these situations may cause these SRCs to appear. In the first two examples, ensure that the media volume is loaded correctly and that the device is ready. In the last example, you will need to wait while the system finds the new installation device. Then perform the appropriate procedure under "Installation Recovery after SRCs" on page 157.
A600 1103	This SRC appears when Licensed Internal Code is damaged. Use the control panel or virtual control panel (Work with Partition Status display) to set the IPL type to D and the mode to Manual. Then use the instructions for "Chapter 4. Replacing a Release Using Manual Installation" on page 25.
A600 1104	This SRC appears if the installation media is not readable. Either the media is dirty or damaged, or there is an error with the optical device. Clean the media or acquire a new set of media. Then perform the appropriate procedure under "Installation Recovery after SRCs" on page 157.
B101 4500	This SRC appears when an error is detected with the Integrated xSeries Server for iSeries. Make sure that you vary off the Integrated xSeries Server for iSeries before you perform the function that resulted in this SRC. If the SRC still occurs, try the installation again. If the same error occurs again, contact your service representative. **Note:** Integrated xSeries Server for iSeries is the new name for Integrated PC Server (IPCS) or File Server Input/Output Processor (FSIOP).

Recovery Common SRCs

Table 29. Common SRC codes (continued)

Symptom	Action
B1xx 4504 **B1xx 1933**	This SRC appears when the system cannot locate the device used for the alternate IPL. Check that the installation media is loaded in correct device and, if necessary, make the device ready. Then perform the appropriate procedure under "Installation Recovery after SRCs" on page 157.
B1xx 4505	These SRCs appear if the installation media is dirty or if the wrong media was loaded. Verify that the correct media is loaded. If the problem still remains, clean the optical disc. If you are using tape, clean the tape head and tape path. Then perform the appropriate procedure under "Installation Recovery after SRCs" on page 157.
B1xx 4507	These SRCs appear if the tape device for the alternate IPL was not found or was not ready. Make sure the tape device is powered on and the correct tape is loaded and ready. To make tape devices ready, you may need to open and close the tape device door. Then perform the appropriate procedure under "Installation Recovery after SRCs" on page 157.
B2pp 1310 (pp equals the partition ID)	No alternate IPL device IOP selected. The IPL will attempt to continue, but there might not be enough information to find the correct alternate IPL load source. Go to the primary partition Work With System Partitions display and configure an alternate IPL device IOP for the secondary partition. Then, retry the secondary partition IPL. If it continues to fail, contact your service provider. For more information, refer to the iSeries Information Center: **Systems Management –> Logical partitions –> Managing logical partitions** topics, or view the Web site at: `http://www.ibm.com/eserver/iseries/infocenter`
B2pp 1320 (pp equals the partition ID)	No default load source IOP selected for a type A or type B IPL. The IPL will attempt to continue, but there might not be enough information to find the correct load source. Go to the Work With System Partitions display and configure a load source IOP for the secondary partition. Then, retry the secondary partition IPL. If it continues to fail, contact your service provider. For more information, refer to the iSeries Information Center: **Systems Management –> Logical partitions –> Managing logical partitions**.
B2pp 3110 (pp equals the partition ID)	Partition power on failed. Look further into the SRC history for prior B2xx xxxx failure SRCs to pinpoint the source of the problem. Select Work with System Partitions, then Display partition information, then Display secondary partition reference code history. Resolve each problem found, and then retry the secondary partition IPL. If it continues to fail, contact your service provider.
B2pp 3200 (pp equals the partition ID)	Secondary partition failed to initialize program load. If you performed a power-on from IPL type D, remove the installation media (optical or tape media), clean the device and clean the media if possible. Insert the media again and attempt to power-on using IPL type D.
B2xx xxxx	All other SRCs: If you performed a power-on using IPL type D, clean the device and media, and then retry the same type of power-on. For more information, refer to the iSeries Information Center: **Systems Management –> Logical partitions** topics or view the Web site at: `http://www.ibm.com/eserver/iseries/infocenter` If you have them, you can also use the *iSeries Licensed Internal Code Diagnostic Aids - Volume 1*, LY44-5900-03 or Problem Analysis book for your system. If you have no documentation, contact your next level of support.

Table 29. Common SRC codes (continued)

Symptom	Action
B350 420A	This SRC may appear if you use the command `PWRDWNSYS RESTART(*YES) IPLSRC(D)` and you have an AS/400 model 530 with feature code 2150. To work around this problem, power off the server, change the IPL source to D, then power on the server: • Switch the server to Manual mode and press the Power push button twice to power off the server. • Use the function data buttons on the control panel to change the IPL source to D: 1. Use the Increment or Decrement buttons to scroll to function 02. 2. Press Enter to start function 02. 3. Use the Increment or Decrement buttons to scroll to DN. 4. Press Enter. • Press the Power push button once to power on the server.
B608 1105	This SRC occurs when you exit from the automatic installation because an alternate installation device that is attached to the system has one of the following problems: • The device is enabled, but it is not ready because the tape is not loaded. • The device is not enabled as an alternate installation device. • The device itself has a problem. To use the alternate installation device, do the following: 1. Power off the system. 2. If necessary, fix the device. 3. Power on the system. 4. Verify that the alternate installation device is enabled as an alternate installation device. 5. Load the tape media in the alternate installation device and start the installation procedure again.
B900 3121	This SRC occurs when an IPL is attempted after an installation failure. You need to reinstall some or all of the operating system. Start with the media volume containing the base operating system. (For optical media, this volume is labeled B29xx_01.) Then perform the appropriate procedure under "Installation Recovery after SRCs".
2644 3136	This SRC appears if the tape device is assigned to another system or partition. Go to the other system or partition and vary off this tape device. Make sure the correct tape is loaded. Then perform the appropriate procedure under "Installation Recovery after SRCs".
Any other SRC	Go the "Appendix A. Recovery Procedures" on page 95, and follow the instructions there.

Installation Recovery after SRCs

After taking the corrective action for the SRC, perform one of the following procedures. Use the procedure that is appropriate for the installation process, either automatic or manual, that was in use when the SRC appeared.

If You Were Using Automatic Installation:

1. Set the mode selector or toggle on the control panel to **Manual**.
2. Press the power switch to delayed off, press it again, and wait for the entire system to power off.
3. Set the mode selector or toggle on the control panel to **Normal**.
4. Press the power switch on and make the installation device ready. If the system attention light appears and the same SRC appears again, go to "Licensed Internal Code Recovery" on page 97. Otherwise, continue with step 9 on page 19.

If You Were Using Manual Installation:

__ 1. Make sure that the media is loaded in the installation device for the alternate IPL.

__ 2. Press the power switch to delayed off, press it again, and wait for the entire system to power off.

__ 3. Press the power switch on and make the installation device ready. If the system attention light appears and the same SRC appears again, go to "Licensed Internal Code Recovery" on page 97. Otherwise, continue with step 8 on page 27.

Appendix F. Disk Configuration Warning and Error Messages

You see a Disk Configuration Warning or Error Report when your system detects errors or warning conditions in your disk configuration. Following is an example:

```
Disk Configuration Warning Report

Type option, press Enter.
5=Display Detailed Report

Press F10 to accept all the warnings and continue the IPL.
The system will attempt to correct the warnings.

OPT  Warning
_   xxxxxxxx xxxx xxxxxxxxx xxxxx xx xxxxx xxxxxxxx
_   xxxxx_xx_xxxxx xxxxxx_ xxxxxxxx xxxxxxx xxxxxxxxxx_______
_   ________________________________________________________
_   ________________________________________________________
_   ________________________________________________________
_   ________________________________________________________
_   ________________________________________________________
_   ________________________________________________________
_   ________________________________________________________
More...

F3=Exit to use Dedicated Service Tools (DST)
F10=Accept warnings and continue the IPL
_____________________________________________________________________________
```

You may see this display immediately after the hardware upgrade procedure or while you are installing the operating system.

The action you should take for each message depends on the upgrade method that you are using. Table 30 lists the messages that you might see on the display and the actions that you should take.

For each message, you can select option 5 (Display Detailed Report) to see more information about why the message occurred and what possible actions are available.

Attention: Are you using Option 1? When you are installing the Licensed Internal Code by using option 1 from the Install the Licensed Internal Code (LIC) menu, disk configuration warning messages may mean that the system will not be able to recover its ability to access the data on your disk units. Please do not ignore these messages or attempt to resolve them without consulting the table. An incorrect response will probably require you to reload your data.

Table 30. Disk Configuration Warning Messages

	Your Action
Warning Messages	**Option 1 (Restore Licensed Internal Code)**
Disk unit not formatted for optimal performance	Do the following: 1. Type a 5 (Display Detailed Report). 2. Write down which disk units should be reformatted. 3. Press F12 to return to the warning report display. 4. Press F10 to accept the warning and continue. You cannot reformat the disk units during the upgrade procedure.
Unit possibly configured for PowerPC AS	Contact software support before you proceed.

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Disk Configuration Messages

Table 30. Disk Configuration Warning Messages (continued)

Warning Messages	Your Action Option 1 (Restore Licensed Internal Code)
Unit possibly configured for IMPI	Contact software support before you proceed.
Missing disk configuration	Contact hardware support before you proceed.
Unknown load source status	Contact hardware support before you proceed.
Load source failure	Contact hardware support before you proceed.
Restore load source	Contact software support before you proceed.
Missing disk units in the configuration	Contact hardware support before you proceed.
Restore in progress	View the online information and take the appropriate recovery action.
Device parity protected units in exposed mode	You have a failed unit in a parity set. You can ignore this message and continue the upgrade procedure. However, you should contact hardware support immediately after the upgrade procedure.
No alternatives available	Contact software support before you proceed.
New disk configuration	Contact software support before you proceed.
Incorrect Licensed Internal Code installed	Contact hardware support before you proceed. The load source unit and its mirrored pair may be configured incorrectly.
Change Load Source location	Contact hardware support before you proceed. Your load source unit may be configured incorrectly.
Bad load source configuration	
Overflowed ASPs	Wait to correct the problem until after the upgrade process is complete. The *Backup and Recovery*, SC41-5304-05, book describes how to reset an overflowed ASP.
Lower level of protection	Ignore during the installation procedure. However, you should analyze your mirrored configuration after the installation procedure.
Logical partition configuration error	Do the following: 1. Type a 5 (Display Detailed Report). 2. Write down which disk units contain the error. 3. Press F12 to return to the warning report display. 4. Press F10 to accept the warning and continue. Refer to the logical partition topics in the book *Backup and Recovery*, SC41-5304 or the iSeries Information Center: **Systems Management –> Logical partitions** topics.

Appendix G. National Language Version Feature Codes

Use this appendix to locate the appropriate feature code for your primary or secondary language.

Table 31. Feature Codes

Primary Language Feature Code	Secondary Language[1] Feature Code	National Language
[1]: Labels on the installation media indicate the feature code for the primary language (29xx). When you install OS/400, the system prompts for the primary language in the form 29xx. The secondary language feature code is only used when ordering secondary languages (55xx). When you install the secondary language, you select a feature code, in the form 29xx, from a list of national language feature code identifiers. For example, if you ordered French as a secondary language, the secondary language media volume would be labeled N2928 and you would select 2928 from the list of feature codes when you install the secondary language.		
2902	5502	Estonian
2903	5503	Lithuanian
2904	5504	Latvian
2905	5505	Vietnamese
2906	5506	Lao
2909	5509	Belgian English
2911	5511	Slovenian
2912	5512	Croatian
2913	5513	Macedonian
2914	5514	Serbian Cyrillic
2922	5522	Portuguese
2923	5523	Dutch Netherlands
2924	5524	English
2925	5525	Finnish
2926	5526	Danish
2928	5528	French
2929	5529	German
2931	5531	Spanish
2932	5532	Italian
2933	5533	Norwegian
2937	5537	Swedish
2938	5538	English Uppercase Support for Double-Byte Character Set (DBCS)
2939	5539	German Multinational Character Set
2940	5540	French Multinational Character Set
2942	5542	Italian Multinational Character Set
2950	5550	English Uppercase
2954	5554	Arabic
2956	5556	Turkish
2957	5557	Greek
2958	5558	Icelandic
2961	5561	Hebrew
2962	5562	Japanese Double-Byte Character Set (DBCS)
2963	5563	Belgian Dutch
2966	5566	Belgian French
2972	5572	Thai
2974	5574	Bulgarian
2975	5575	Czech

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Table 31. Feature Codes (continued)

Primary Language Feature Code	Secondary Language[1] Feature Code	National Language
2976	5576	Hungarian
2978	5578	Polish
2979	5579	Russian
2980	5580	Brazilian Portuguese
2981	5581	Canadian French
2984	5584	English Uppercase and Lowercase Support for Double-Byte Character Set (DBCS)
2986	5586	Korean Double-Byte Character Set (DBCS)
2987	5587	Traditional Chinese Double-Byte Character Set (DBCS)
2989	5589	Simplified Chinese Double-Byte Character Set (DBCS) (PRC)
2992	5592	Romanian
2994	5594	Slovakian
2995	5595	Albanian
2996	5596	Portuguese Multinational Character Set
2998	5598	Farsi

Appendix H. Alternate Installation Device—Overview

The procedures discussed in this appendix apply only to systems with V5R1M0 already installed. To set up an alternate installation device on a previous release, refer to the Software Installation book for that release. You can find earlier versions on the IBM online publications Web site:

`http://publib.boulder.ibm.com/pubs/html/as400/onlinelib.htm`

You can perform installation and recovery procedures by using a combination of devices. In earlier releases, these types of activities could be performed only by using devices that were attached to the first system bus. (The first system bus connects to the service processor IOP. Typically this is where the optical device or tape devices that is used for installations are attached.) Now, you can use a combination of devices that are attached on the first system bus and on additional buses. The alternate installation device is not attached to the first system bus.

If you use this function, the system uses existing support (a device on the first system bus) to install or recover enough of the Licensed Internal Code required to perform an IPL from IPL source D. Then, using the new alternate installation device support, the system continues the operation using media in the alternate installation device. This function supports installation and recovery from tape media, such as SAVSYS or distribution tapes which you created, that contain Licensed Internal Code and may contain the operating system, licensed programs, and data.

Some models, typically with attached 3590 tape devices, may see a performance improvement when using an alternate installation device for save operations.

Installation and Recovery Implications for Models 600 and 620

The alternate installation device function can be used for any installation or recovery that requires replacing Licensed Internal Code. Some models may require the use of an alternate installation device to install distribution tapes created by a central site or to recover using a SAVSYS tape.

In Models 600 and 620, the input-output processors (IOP) to which certain older tape devices attach require an expansion unit in order to use the devices. The following tape devices are affected: 2440, 3422, 3430, 9347, 3480, some models of 3490, and 7208-002. Other 7208 models and 3490 models Exx, C11, and C22 are supported without an expansion unit. 3490 models C1A and C2A can be converted to SCSI format which is supported without an expansion unit. If you want to use these older tape devices as alternate installation devices on models 600 and 620, you need the expansion unit and you need to set them up as alternate installation devices.

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How to Set Up an Alternate Installation Device

Before you use an alternate installation device, you must ensure that it is defined on a bus other than system bus 1, and you must enable the device. You need to record and keep the logical address of the system bus and system card at which the alternate installation device is attached. If you have the device set up on different bus and you do not have this information, you will not be able to complete installations or recoveries.

If you change the configuration of your system, you need to ensure that this information is correct before you start to use the alternate installation device.

Do the following to set the addresses and enable the alternate installation device:

Note: You need to know the password for Dedicated Service Tools to perform this procedure.

__ 1. Place the optical media containing the V5R1M0 Licensed Internal Code into the optical device.

__ 2. Use the control panel to set the mode to **Manual**. Then perform an IPL by using the Power Down System (PWRDWNSYS) command: **PWRDWNSYS OPTION(*IMMED) RESTART(*YES) IPLSRC(B)**.

Attention! If you do this on a primary partition when secondaries are active, this will cause all partitions to IPL immediately. If you have active secondary partitions, power them off prior to using this procedure.

__ 3. When the IPL or Install the System display appears, select option 3 (Use Dedicated Service Tools (DST)), and press Enter.

__ 4. The Dedicated Service Tools (DST) Sign On display appears.

```
                  Dedicated Service Tools (DST) Sign On
                                                        System:   SYSTEMA
Type choices, press Enter.
   DST user . . . . . . . . . . . . QSECOFR
   DST password . . . . . . . . . .
```

Sign on using the QSECOFR user profile.

__ 5. The Use Dedicated Service Tools (DST) display appears.

```
                    Use Dedicated Service Tools (DST)
                                                    System:   SYSTEMA
Select one of the following:

     1. Perform an IPL
     2. Install the operating system
     3. Work with Licensed Internal Code
     4. Work with disk units
     5. Work with DST environment
     6. Select DST console mode
     7. Start a service tool
     8. Perform automatic installation of the operating system
     9. Work with save storage and restore storage
    10. Work with remote service support
    11. Work with system partitions


Selection   5

F3=Exit   F12=Cancel
```

Type 5 (Work with DST Environment), and press Enter.

__ 6. The Work with DST Environment display appears.

```
                        Work with DST Environment
                                                              System:   SYSTEMA
Select one of the following:

     1. Active service tools
     2. System devices
     3. DST user profiles
     4. System values


Selection  2

F3=Exit   F12=Cancel
```

Select option 2 (System devices), and press Enter.

__ 7. The Work with System Devices display appears.

```
                     Work With System Devices
                                                              System:   SYSTEMA
Select one of the following:

     1. Printers
     2. Tape devices
     3. Diskette devices
     4. Optical devices
     5. Alternate installation device
     6. Console mode
```

Select option 5 (Alternate installation device), and press Enter.

__ 8. The Alternate Installation Device display appears.

```
                     Alternate Installation Device
                                                              System:   SYSTEMA
Type option, press Enter.
  1=Select   5=Display details

           Resource                              Serial
Option     Name           Type     Model        Number        Selected
    5      TAP02          3490     C11          00-00000          *
    _      TAP03          3490     C11          00-00000
```

Type 5 (Display) next to the resource you want, and press Enter.

__ 9. The Display Device Details display appears.

```
                           Display Device Details
                                                              System:   SYSTEMA
Resource                                    Serial
Name           Type       Model             Number
TAP02          3490       C11               00-0000000

Physical location:
  Location text . . . . . . . . :
  Frame ID  . . . . . . . . . . :
  Card slot . . . . . . . . . . :

Logical address:
 SPD bus:
  System bus  . . . . . . . . . :   0002
  System board  . . . . . . . . :   0000
  System card . . . . . . . . . :   0002

 Storage:
  I/O bus number  . . . . . . . :   0000
  Controller  . . . . . . . . . :   0007
  Device address  . . . . . . . :   0000

F3=Exit   F12=Cancel
```

You need to have a record of the addresses assigned to the alternate installation device for installing and recovering your system. Record the following information:

Type/Model: _____ System bus: _____ Serial number: _____
Type/Model: _____ System bus: _____ Serial number: _____
Type/Model: _____ System bus: _____ Serial number: _____

Notes:

a. You may want to repeat this process to record the addresses for all alternate installation devices that appear in step 9 on page 165.
b. If more than one alternate installation device is defined, only one can be enabled.

Press Enter.

__ 10. The Select Alternate Installation Device display appears. Type 1 (Select) next to the resource you want, and press Enter.

__ 11. You should see the following message at the bottom of the display:

```
Alternate installation device selected
```

__ 12. Press F3 (Exit) to return to the Use Dedicated Service Tools (DST) display.

__ 13. Press F3 (Exit) again. The Exit Dedicated Service Tools (DST) display appears.

```
                    Exit Dedicated Service Tools
                                                    System:   SYSTEMA
Select one of the following:

     1. Exit Dedicated Service Tools (DST)
     2. Resume Dedicated Service Tools
```

Type 1 (Exit Dedicated Service Tools (DST)), and press Enter.

__ 14. The next display you see is the IPL or Install the System display. Type 1 (Perform an IPL), and press Enter to complete the procedure.

How to Disable an Alternate Installation Device

You may need to disable an alternate installation device for one of the following reasons:

- To continue with an installation using optical media.
- To enable a different device as an alternate installation device.
- To correct the logical address if hardware has been moved or changed.

__ 1. Use the control panel to set the mode to **Manual**. Then perform an attended IPL by using the command:

```
PWRDWNSYS OPTION(*IMMED) RESTART(*YES) IPLSRC(B)
```

Note: **Attention!** If you do this on a primary partition when secondaries are active, this will cause all partitions to IPL immediately. If you have active secondary partitions, power them off prior to using this procedure.

Note: An alternative to this step is to use the control panel to select function 21. (Dedicated Service Tools). If you use this alternative, the next step is step 3.

__ 2. When the IPL or Install the System display appears, select option 3 (Use Dedicated Service Tools (DST)), and press Enter.

__ 3. The Dedicated Service Tools (DST) Sign On display appears. Sign on using the QSECOFR user profile.

__ 4. The Use Dedicated Service Tools (DST) display appears. Type a 5 (Work with DST Environment), and press Enter.

__ 5. The Work with DST Environment display appears. Select option 2 (System devices), and press Enter.

__ 6. The Work with System Devices display appears. Select option 5 (Work with alternate installation device), and press Enter.

__ 7. The Select Alternate Installation Device display appears.

```
                Select Alternate Installation Device
                                                          System:   SYSTEMA
Type option, press Enter.
  1=Select   5=Display details

            Resource                            Serial
Option      Name            Type      Model     Number        Selected
    _       TAP02           3490      C11       00-00000          *
    _       TAP03           3490      C11       00-00000


F2=Deselect device   F3=Exit   F5=Refresh   F12=Cancel
```

Press F2 to deselect the device.

__ 8. You should see the following message at the bottom of the display:

```
Alternate installation device deselected
```

__ 9. Press F3 (Exit) to return to the Use Dedicated Service Tools (DST) display.

__ 10. Press F3 (Exit) again. The Exit Dedicated Service Tools (DST) display appears. Type 1 (Exit Dedicated Service Tools (DST)), and press Enter.

__ 11. The next display you see is the IPL or Install the System display. Type 1 (Perform an IPL), and press Enter to complete the procedure.

How to Verify and Select an Alternate Installation Device During a Manual Installation

__ 1. The Install Licensed Internal Code display appears.

```
                    Install Licensed Internal Code
                                                      System: XXXX
Select one of the following:

     1. Install Licensed Internal Code
     2. Work with Dedicated Service Tools (DST)
     3. Define alternate installation device
```

Type a 3, and press Enter. This will verify the address of an alternate installation device attached to the system and determine whether it is enabled or disabled.

__ 2. **Verifying and Selecting Alternate Installation Device:** The Select Alternate Installation Device Bus display appears.

```
                    Select Alternate Installation Device Bus
                                                                 System: XXXX
Type Option, press Enter.
   1=Select

Option      Bus Number          Selected
  _             1
  _             2
  1             3                  *
  _             4
  _             5
  _             6
  _             7
  _             8
  _             9
  _             A
  _             B
  _             C
  _             D
                                                                More.....
F2=Deselect Device  F3=Exit       F12=Cancel
```

__ a. Verify that the selected device is on the correct system bus. Type 1 in the Options field next to the selected bus, and press Enter to view information about the device that is attached to the bus. This may take several minutes. If you see the message ″No alternate installation device configured,″ wait one minute and refresh the screen.

__ b. The Select Alternate Installation Device display appears. Use this display to verify the resource name, type, model, and serial number for the device.

```
                    Select Alternate Installation Device
                                                                 System:  XXXX
Type Option, press Enter.
  1=Select   5=Details

            Resource                                  Serial
Option      Name                 Type      Model     Number       Selected
  _         TAP01                6380      001       00-110221        *
```

__ c. Type 1 to select the device and make any needed corrections to select, enable, or disable the device. Press Enter to confirm the changes.

__ d. The message ″Alternate installation device selected″ appears. Press F3 to return to the Install Licensed Internal Code display.

__ e. Type 1, and press Enter to install the Licensed Internal Code.

End of Verifying and Selecting Alternate Installation Device.

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Version 5

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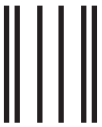

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