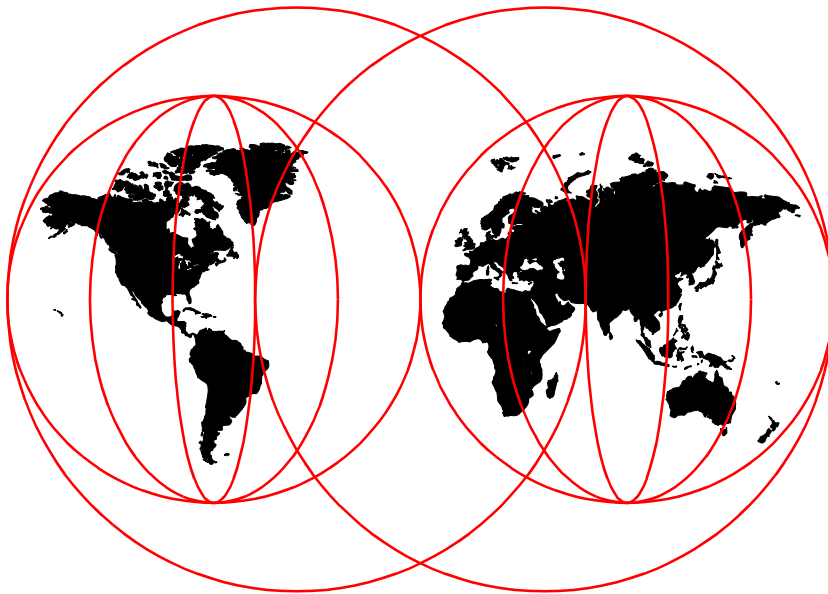




Make Your AS/400 System Year 2000 Ready

Nick Harris, Brian R. Smith, Dan Lacine, Jayne Sims



International Technical Support Organization

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International Technical Support Organization

Make Your AS/400 System Year 2000 Ready

April 1999

Take Note!

Before using this information and the product it supports, be sure to read the general information in Appendix C, "Special Notices" on page 91.

First Edition (April 1999)

This edition applies to Version 4 Release 4 Modification 0 and earlier releases of Operating System/400 (5769-SS1).

Comments may be addressed to:
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Dept. JLU Building 107-2
3605 Highway 52N
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Contents

Figures	vii
Tablesix
Prefacexi
The Team That Wrote This Redbook	xii
Comments Welcome	xiii
Chapter 1. Introduction	1
1.1 What Is Year 2000 Ready?	1
1.2 AS/400 System Roadmap to Become Year 2000 Ready	1
1.3 A Year 2000 Readiness Plan for Your AS/400 System	1
1.3.1 Investigating the Year 2000 Issue	2
1.3.2 Taking an Inventory of Your Hardware and Software	2
1.3.3 Taking an Inventory of Your External Relationships	3
1.3.4 Determining Which Components Are Ready or Not Ready	3
1.3.5 Backing Up Your System before Testing	4
1.3.6 Testing Your System	4
Chapter 2. Getting Your AS/400 System Year 2000 Ready	7
2.1 Is My AS/400 Hardware Year 2000 Ready?	7
2.2 Is My OS/400 Release Year 2000 Ready?	7
2.2.1 Moving to a Supported CISC Release of OS/400	9
2.2.2 Moving to a Supported RISC Release of OS/400	10
2.3 Checking Your Licensed Program Products	11
2.3.1 Using Display Software Resources to Obtain Product IDs	11
2.3.2 Using Quick Search in the Product Readiness Database	13
2.3.3 Generating a Software Report	14
2.4 Checking Your Applications	18
Chapter 3. Backup and Testing Your AS/400 System	19
3.1 Objectives	21
3.2 Points to Consider before Creating a Test Plan	21
3.3 What Dates Are Critical?	22
3.4 Setting Up a Test Environment	22
3.5 Moving the Date Forward	24
3.6 Suggested Test Scenarios	25
3.7 A Guide to Save/Restore	27
3.7.1 Saving Your System	27
3.7.2 Restoring Your System (Scratching)	31
3.7.3 The Final Save for 1999	37

Chapter 4. System/36 Concerns	39
4.1 System/36 Hardware Readiness	39
4.1.1 Finding Your System Type	40
4.2 System/36 Software Readiness	41
4.2.1 System/36 SSP Readiness and Support	42
4.2.2 Finding Your SSP Release	43
4.2.3 The Advanced 36 Models 236 and 436	43
4.2.4 Determining Your Machine Type on a System/36 with VASP	45
4.2.5 Checking Your LIC Level	46
4.3 Testing and Backups	47
Chapter 5. A Year 2000 Readiness Plan for PCs	49
5.1 Investigating the Year 2000 Issue	49
5.2 Taking Inventory of Your PC System Components	50
5.3 Assessing the Year 2000 Readiness of PC Components	50
5.3.1 Assessing PC Hardware	50
5.3.2 Assessing PC Software—Your Operating System	54
5.3.3 Assessing PC Software—PC Applications	57
5.3.4 Identifying Dates in Data Files	57
5.3.5 Analyzing and Testing	58
Chapter 6. Client Access/400 Concerns	61
6.1 How Client Access is Packaged	61
6.2 Client Access Releases Compared to OS/400 Releases	61
6.3 Client Access Parts—License Component and Program Product	62
6.4 Moving to a Year 2000 Ready and Supported Release	62
6.5 Year 2000 Readiness of Client Access Products	66
6.6 Getting Ready—Migration Examples	66
6.6.1 Case 1—A CISC Example	67
6.6.2 Case 2—A RISC Example	67
Chapter 7. System/34 and System/38 Concerns	69
7.1 IBM System/34	69
7.2 IBM System/38	69
Appendix A. Frequently Asked Questions	71
A.1 OS/400 and SSP Operating System	71
A.2 PC Questions	78
A.3 Client Access/400 Questions and Answers	79
Appendix B. Useful Year 2000 Related Links and Resources	83
B.1 General Year 2000 Sites	83
B.2 General IBM Web Sites	83
B.3 AS/400 System Web Sites	84

B.3.1 AS/400 System General Information	84
B.3.2 AS/400 Technical Support Databases	84
B.3.3 AS/400 System Year 2000 Books	85
B.4 System/36 Resources	85
B.4.1 System/36 Links	85
B.4.2 System/36 Manuals	86
B.5 Client Access/400 Links	87
B.6 IBM Service Offerings	87
B.7 PC Information	88
B.7.1 IBM PC Related Sites	88
B.7.2 IBM PC Operating Systems	88
B.7.3 OEM PC Vendor Sites	89
B.7.4 PC Application Related Year 2000 Information	89
Appendix C. Special Notices	91
Appendix D. Related Publications	95
D.1 International Technical Support Organization Publications	95
D.2 Redbooks on CD-ROMs	95
D.3 Other Publications	96
How to Get ITSO Redbooks	97
IBM Redbook Fax Order Form	98
Index	99
ITSO Redbook Evaluation	101

Figures

1. AS/400 System Roadmap to Y2K Readiness	5
2. AS/400 Applications Roadmap to Year 2000 Readiness.	6
3. Display Software Resources (DSPSWRSC)	12
4. Using the Quick Search Option of the Product Readiness Database	13
5. Results of a Single Product Number Entry	14
6. Generate a Software Report Start Display.	15
7. Inputting Product Numbers for a Software Readiness Report.	16
8. Year 2000 Readiness Database Software Report Display	17
9. DSPLOG Input Showing Implicit (2-Digit Year) Dates	20
10. Example of Explicit (4-Digit Year) Dates in a Spooled File	20
11. RISC Save Options	29
12. CISC Save Options	30
13. RISC Restore Options	32
14. CISC Restore Options	33
15. Status System (D S) to Find Your SSP Release	43
16. DSPSYS to Find the Model of an Advanced 36.	44
17. DSPSYS to Determine Machine Type	46
18. Using DSPSYS to Find Your LIC (Licensed Internal Code) Level	47
19. PC Hardware Readiness	54
20. PC Software Readiness.	56
21. PC Application Readiness	59

Tables

1. Service End Dates for OS/400 Releases	8
2. Year 2000 Group PTFs	9
3. Types of Entries in a Typical DSPSFWRSC Report	12
4. Year 2000 Readiness of System/36 Models and AS/400 Advanced 36 . .	40
5. How to Determine Your System Type	41
6. SSP Year 2000 Readiness and End of Service Dates	42
7. Client Access/400 for Windows Family Product Descriptions—XW1	64
8. Client Access/400 Family Product Descriptions—XY1	64
9. Previous Client Access/400 Family Product Descriptions—XA1	65
10. Client Access Year 2000 Readiness for All Clients	66
11. Models 236 and 436 Required PTF Levels for Additional Date Support . .	71
12. System/36 Models 536x and AS/400 Y10 Additional Date Support PTFs.	71
13. Enabler PTFs and Their Functions	73
14. AS/400 Year 2000 Related Publications	85
15. System/36 Manuals for S/36 SSP, AS/400, and OS/400.	86

x Make Your AS/400 System Year 2000 Ready

Preface

The world has massed volumes of material about how to ensure your AS/400 system is Year 2000 ready. You can find an enormous wealth of information available both on paper and online through the Internet. With so many sources to turn to, how do you know which is the right one for you?

As the Year 2000 approaches, the guide you *really* need is right here. This redbook is designed specifically for the IBM AS/400 system or System/36 Y2K project manager or system administrator. It offers practical information you need to assist in preparing your systems for the turn of the century. This book helps you explore your options, identify worldwide resources, and execute a project determined to make your AS/400 system Year 2000 ready.

This redbook contains a collection of information to help you determine whether your AS/400 system hardware and OS/400 operating system are Year 2000 ready. This information includes AS/400 hardware requirements, OS/400 operating system releases, licensed program products, how to move to a Year 2000 ready environment, and the vital steps involved in testing Year 2000 dates on your AS/400 system.

The first three chapters lead you through these steps, focusing specifically on the AS/400 system. These chapters include valuable information about preparing, backing up, and testing your AS/400 system.

No computer system stands alone in a customer's information systems department. The next chapters address what you need to know about some of the other IBM systems, new and old, that you may find still attached to your AS/400 system. For example, Chapter 4, "System/36 Concerns" on page 39, targets customers who still plan to retain this product in the short term. Then, the chapters that follow review PC hardware and software issues. For example, Chapter 5 addresses bringing PCs into Year 2000 readiness, and Chapter 6 covers the Client Access/400 licensed program. Chapter 7 focuses on System/34 and System/38 concerns.

Throughout this document, we refer you directly to the worldwide resources that can help you succeed with your Year 2000 project. As an alternative to reading through the entire document to find those

key answers and resources, we include two appendices which consolidate this information. Appendix A addresses frequently asked questions, and Appendix B offers a quick reference guide for useful Year 2000 related links and resources. As an added bonus, all URLs throughout the book, when viewed online, link you directly to the site you need. With so much information right at your fingertips, you have all you need to make your AS/400 Year 2000 ready.

Note

Throughout this publication, references are made to Web sites, and in particular, the IBM Product Readiness Database. Since this information is constantly being updated, it is imperative that you check the databases and other Internet information frequently. Be sure to confirm the information you locate again just prior to making changes on your system.

The Team That Wrote This Redbook

This redbook was produced by a team of specialists from around the world working at the International Technical Support Organization Rochester Center.

Nick Harris is a Senior Systems Specialist for the AS/400 in the International Technical Support Organization, Rochester Center. He writes and teaches IBM classes worldwide on areas of AS/400 System Design, Business Intelligence, and Database. He spent 11 years as an AS/400 system specialist in the United Kingdom.

Dan Lacine is a Staff Software Engineer at the AS/400 Support Center in Rochester. He has been with IBM for 21 years. He supported enterprise customers running MVS and VM before he moved to AS/400 System Support. For the past 10 years, he has served in the Client Access area where he currently works as a technical advisor. His areas of specialty include SNA and TCP connectivity. He has written and taught classes for technical support personnel.

Jayne Sims is an ITAP Software Specialist in the AS/400 Support Line Centre at North Harbour in the UK. Prior to moving to the AS/400 area in IBM, she worked five years on midrange systems both in the UK and in

New Zealand. In the last year she has performed extensive Y2K testing of the AS/400 operating system and LPP's for major IBM customers.

Brian R. Smith is a Senior AS/400 Specialist in the International Technical Support Organization in IBM Rochester. The first half of his career was spent in design, coding, and testing on the System/38 and AS/400 in the area of communications. In 1990, he began teaching and writing in the area of technical marketing support. You can reach Brian on the Internet at: finneous@vnet.ibm.com

Thanks to the following people for their invaluable contributions to this project:

Veronica Chatfield
AS/400 Technical Specialist, IBM Global Services Australia

Larry Pederson
Tom Severson
AS/400 Partners in Development, AS/400 Year 2000 Technical Support Center

Comments Welcome

Your comments are important to us!

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- Fax the evaluation form found in "ITSO Redbook Evaluation" on page 101 to the fax number shown on the form.
- Use the online evaluation form found at:
<http://www.redbooks.ibm.com>
- Send your comments in an Internet note to redbook@us.ibm.com

Chapter 1. Introduction

The Year 2000 issue cannot be ignored for two important reasons. The first reason is that the time to fix the issue is truly running out. The second and even more important reason is the potential dire consequences that it may cause your company. This redbook describes actions you can take to prepare your business for Year 2000 readiness. It focuses on the AS/400 system, System/36, Client Access/400, and PCs.

1.1 What Is Year 2000 Ready?

The phrase *Year 2000 ready* means that a product, when used in accordance with its associated documentation, is capable of correctly processing, providing, or receiving date data within and between the 20th and 21st centuries. This is true, provided that all products (for example, hardware, software, and firmware) used with the product properly exchange accurate date data with it.

In short, a system that is "ready" for the Year 2000 performs all date-related operations correctly using non-ambiguous dates. That is to say, the dates are stored in a format that distinguishes between 1909 and 2009. You do not need to guess the year!

IBM considers products as *not* Year 2000 ready if we know that they do not meet the definition of *Year 2000 ready*, or if they have not been tested. Products not affected by the Year 2000, such as hardware frames, keyboards, power supplies, and hardware or software product publications, are considered ready.

1.2 AS/400 System Roadmap to Become Year 2000 Ready

We include a roadmap to help you determine what resources to use in your readiness quest. Figure 1 on page 5 describes the content covered in the chapters that follow. Application readiness, as outlined in Figure 2 on page 6, is discussed in other IBM redbook publications.

1.3 A Year 2000 Readiness Plan for Your AS/400 System

There is no single approach to this problem. Therefore, making a successful transition to Year 2000 readiness can be an involved and

lengthy process. However, a general Year 2000 readiness plan should include the following steps:

1. Investigate the Year 2000 issue.
2. Take an Inventory of your hardware and software.
3. Take an Inventory of your external relationships.
4. Determine which components are ready and not ready.
5. Back up your system before testing.
6. Test your system.

1.3.1 Investigating the Year 2000 Issue

According to a report published by the Gartner Group, up to 90 percent of existing business computer systems will be affected by Year 2000 problems. From a technical perspective, the Year 2000 issue is not complex. Year 2000-related failures usually do not cause programs and systems to stop working. That would be too easy. Unfortunately, Year 2000 failures usually result in applications producing unpredictable results, which are discovered only when the resulting business issues arise.

For more information on this topic, refer to the article "Year 2000: A Business Issue," which is located at this Web site:
<http://www.ibm.com/ibm/year2000/news/yr2prob.htm>

1.3.2 Taking an Inventory of Your Hardware and Software

All IBM AS/400 hardware is Year 2000 ready, assuming that you are up to date on OS/400 operating system releases. However, you may have older IBM systems, non-IBM systems, PCs, or network components that need to be checked. The chapters that follow cover IBM AS/400 hardware and the OS/400 operating system. In regard to OEM components, you need to check each networking device and verify with the manufacturer whether the processor, the operating system, and the online diagnostics are Year 2000 ready. To find devices that may be affected, consider the following items as a starting point:

- Systems that record time such as time clocks
- Devices that activate alarms such as security systems
- Systems that control heat and air conditioning
- Systems that control the flow of a liquid, gas, or other material
- Uninterruptible Power Supply Systems (UPS)
- Systems that automatically report or schedule maintenance

Other devices that are not listed here may also be time or date sensitive. Consult the manufacturer of the product for information.

1.3.3 Taking an Inventory of Your External Relationships

Many organizations receive and supply data, software updates, and hardware components. It is equally important to businesses to check the Year 2000 direction of their upstream and downstream partners:

- Importing files into a business intelligence environment from an external source can destroy the integrity of the whole database causing lengthy recreation activities.
- Finding out that your disaster recovery site is running in a non-Year 2000 ready environment can severely impact your business.

1.3.4 Determining Which Components Are Ready or Not Ready

All internal AS/400 Input Output Processors (IOPs), adapter cards, and devices within an AS/400 machine are Year 2000 ready. You can view these internal components by using the `GO HARDWARE` command or Work with Hardware Resources `WRKHDWRSC` command. These features do *not* yield any search results if they are used as input to the IBM Year 2000 Readiness Database. This database is found at:
<http://wwwyr2k.raleigh.ibm.com/>

In other words, there is no need to enter part numbers or feature codes of hardware items contained in your AS/400 hardware box.

IBM has a number of products, services, resources, and support offerings that can help you identify Year 2000-ready and non-ready equipment and system software. For a list of AS/400 Year 2000 service offerings and tools, see the Web site at:
<http://www.ibm.com/ibm/year2000/mkt/as400matrix.html>

The IBM Business Partners Database has a list of non-IBM Year 2000 ready tools and applications as well. This list is located at:
<http://www2.software.ibm.com/solutions/ISV/Year2000.nsf>

Note

While the AS/400 Input Output Processors (IOPs) supported at a Year 2000 ready release should not prove a problem, some of these IOPs run IBM and OEM software. This software needs to be assessed for its Year 2000 Readiness. Examples of these IOPs are the FSIOP, the IPCS, and the Integrated Netfinity Server. These IOPs are effectively PCs, and the software running on them should be tested as if it were a stand-alone PC.

1.3.5 Backing Up Your System before Testing

This step is often omitted to save time. You may not encounter system difficulties when testing a new application, for example. However, testing a new date on the AS/400 system is not a normal type of test. It affects more than just user data. Therefore, a full system backup is required before any changes are made to system values, and so on. Skipping this step can result in unrecoverable errors that require a complete scratch (restored) installation from your latest backup tapes.

1.3.6 Testing Your System

Testing should be performed at two levels. At the first level, test the individual components that constitute your system to make sure each device functions correctly by itself. At the second level, test all the components together. The interaction between components may reveal other issues you must address. This testing insures that all of the interfaces work properly, including applications from outside your environment that provide data and dates to your systems. To help you in the testing phase of the Year 2000 transition, IBM and our Business Partners offer assistance in the form of Business Recovery Services (BRS), which are found at Web site: <http://www.brs.ibm.com>

IBM and our Business Partners also provide AS/400 Year 2000 offerings. For more information about these offerings, refer to the Web site: <http://www.ibm.com/ibm/year2000/mkt/as400matrix.html>

In terms of how to test the AS/400 software and applications, it is imperative to complete the steps outlined in the following chapters to insure a successful operation and prevent the loss of valuable data.

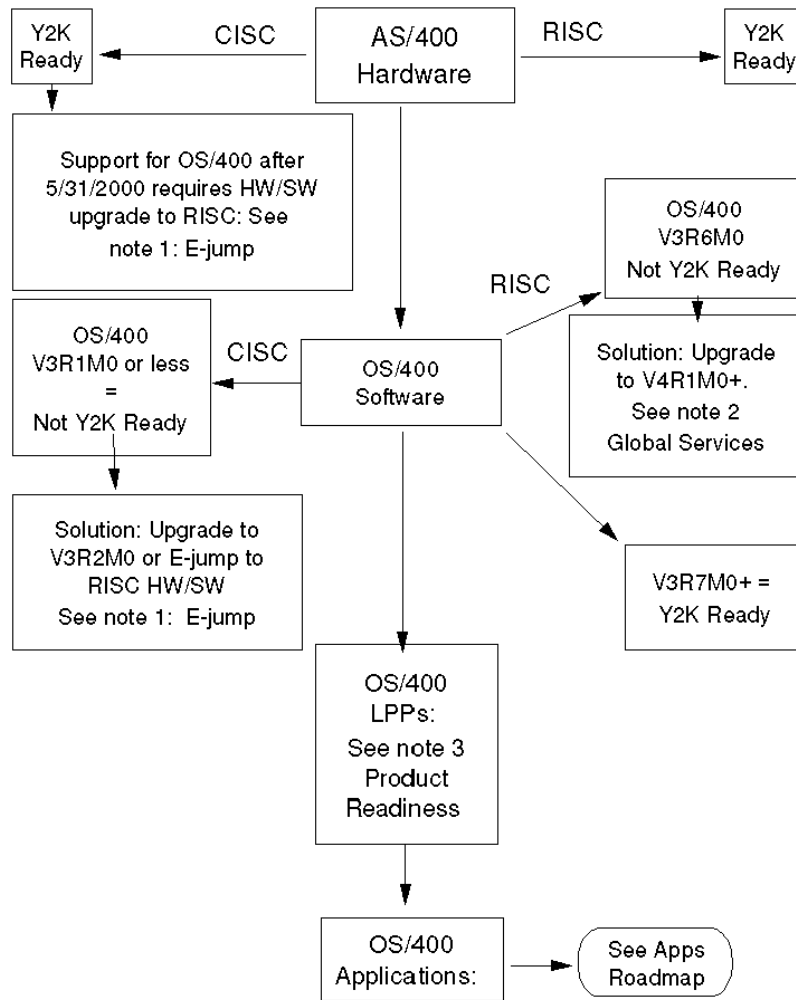


Figure 1. AS/400 System Roadmap to Y2K Readiness

Notes:

1. For details on E-jump, see the Web site at:
<http://www.as400.ibm.com/SFTSOL/ejump.htm>
2. More information on Global Services can be found at:
<http://www.as.ibm.com/asww/offerings/oww16sE.html>
3. The Product Readiness Data Base can be accessed at:
<http://www.yr2k.raleigh.ibm.com/>

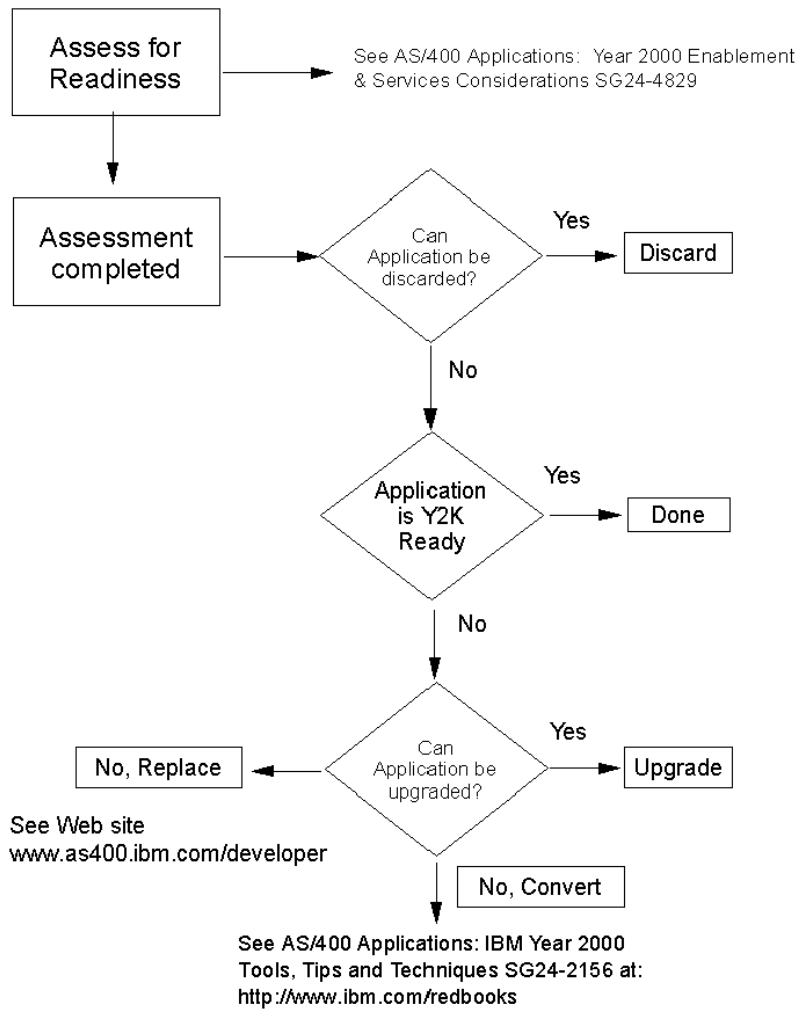


Figure 2. AS/400 Applications Roadmap to Year 2000 Readiness

Chapter 2. Getting Your AS/400 System Year 2000 Ready

This chapter helps you determine whether your AS/400 software and hardware are currently supported and Year 2000 ready. If they are not ready, this chapter can help you move to a Year 2000 ready position.

2.1 Is My AS/400 Hardware Year 2000 Ready?

All of the Complex Instruction Set Computer (CISC) (Internal Micro Program Instruction (IMPI)) and Reduced Instruction Set Computer (RISC) AS/400 models are Year 2000 ready. Therefore, all cards, disks, internal tape units, internal optical drives, controllers, and so on, that make up the box are considered Year 2000 ready as well. To view them, use the Work With Hardware Resources (`WRKHDWRSC`) command.

For all external IBM hardware (for example, 3995 optical drive, 5494 remote work station controller, or 3590 tape drive), you must check the following database for Year 2000 readiness:

<http://www.yr2k.raleigh.ibm.com>

Note

As discussed in the following section, the important point to consider is that currently the only supported Year 2000-ready CISC release of OS/400 is V3R2M0. This will no longer be supported after May 31, 2000. Therefore, while it is true that all CISC and RISC AS/400 model *hardware* are Year 2000 ready, the *operating system* code that runs on top is *not* all Year 2000 ready. The OS/400 version release and modification (often expressed as V4R1M0, for example) will force you to move to newer hardware.

2.2 Is My OS/400 Release Year 2000 Ready?

To establish whether you are currently running with a supported release of OS/400, refer to Table 1 on page 8. Notice that the only Year 2000 ready releases of OS/400 are the currently supported ones.

Table 1. Service End Dates for OS/400 Releases

Product Number	OS/400 Release	CISC or RISC	Service End Date	Year 2000 Status
5769-SS1	V4R4	RISC	May 31, 2001 *	Ready
5769-SS1	V4R3	RISC	January 31, 2001	Ready
5769-SS1	V4R2	RISC	May 31, 2000	Ready
5769-SS1	V4R1	RISC	May 31, 2000	Ready
5763-SS1	V3R2	CISC	May 31, 2000	Ready
5716-SS1	V3R7	RISC	June 30, 1999	Ready
5716-SS1	V3R6	RISC	October 31, 1998	Not Ready
5763-SS1	V3R1	CISC	October 31, 1998	Not Ready
5763-SS1	V3R0M5	CISC	June 30, 1997	Not Ready
5738-SS1	V2R3	CISC	June 30, 1996	Not Ready
5738-SS1	V2R2	CISC	June 30, 1995	Not Ready
5738-SS1	V2R1M1	CISC	June 30, 1994	Not Ready
5738-SS1	V2R1	CISC	June 30, 1994	Not Ready

* Program Services for some other V4R4 products end before this date. Refer to the Product Readiness Database at: <http://wwwyr2k.raleigh.ibm.com/>

Important

Although all currently marketed IBM AS/400 products are designed to be Year 2000 ready, there may be problems found over time, as with any product. Table 2 on page 9 lists Informational APARS that document these problems and their fixes for each Year 2000-ready release of OS/400 software. The table also lists the PTF numbers required for ordering these Group PTFs over Electronic Customer Support (ECS).

Table 2. Year 2000 Group PTFs

OS/400 Release	CISC or RISC	Informational APAR	Group PTF
V3R2M0	CISC	II11534	SF99201
V3R7M0	RISC	II11543	SF99200
V4R1M0	RISC	II11544	SF99200
V4R2M0	RISC	II11545	SF99200
V4R3M0	RISC	II11546	SF99200
V4R4M0	RISC	II11685	SF99200

2.2.1 Moving to a Supported CISC Release of OS/400

The only CISC release of OS/400 that is Year 2000 ready is V3R2M0. Therefore, if you are currently running V3R1M0 or earlier on an IMPI (CISC) AS/400 box, you must upgrade your operating system and licensed program products (LPPs).

There are two upgrade options. The first option is a straight upgrade to V3R2M0. The second option is a migration to RISC.

2.2.1.1 Upgrading to V3R2M0

A straight upgrade to V3R2M0 is the simplest solution. However, remember that this release of OS/400 is only supported until May 31, 2000. Also, if your AS/400 system did not come preloaded with V3R1M0, you must run the Set Disk Clean (`SETDSKCLN`) command before performing the upgrade. Load this command by installing and applying a PTF. When you run this command, it scans your disks for potential problems. Unfortunately, this is the only way to check for these disk problems and can take a considerable amount of time to run.

For further information on upgrading to V3R2M0, please refer to *Read This First and Memo To Users for AS/400* in Preventative Service Planning (PSP). You can download this information from ECS using PTF number SF98VRM (V=Version, R=Release, and M=Modification). Or, refer to the AS/400 Technical Support home page at: <http://as400service.ibm.com/>

You can find the PSP database under the *Tech Info and Databases* link on the left side navigation bar.

Do Not Forget

You also need to apply a PTF for the Licensed Internal Code extension space.

See the manual *AS/400 Software Installation*, SC41-5120, for additional information.

2.2.1.2 Migrating from CISC to RISC

A migration from CISC to RISC technology has many advantages. However, this is a *major upgrade task* that requires detailed planning. This step is made easier for you with help from e-Jump, which allows you to upgrade directly from CISC to RISC hardware without any intermediate CISC upgrade. For information about e-Jump, please see: <http://www.as400.ibm.com/sftsol/ejump.htm>

If you are ready to move to RISC, a *free* upgrade assistant package is available to guide you through the analysis of your system. This package is required *before* you place your upgrade order. The package covers everything you need to do and think about before ordering, the preparation work after you place your order, the procedures for the upgrade, the actual software upgrade, and the post-upgrade cleanup.

You can order this *free* package from your software provider. Be sure to specify the following items:

- AS/400 CISC to RISC Upgrade Kit, program 5798-TBU
- Your current release of OS/400
- The feature number that identifies the type of tape device you are using (the kit includes PTFs on tape)

2.2.2 Moving to a Supported RISC Release of OS/400

If your AS/400 system is currently running V3R7M0 or any of the Version 4 releases of OS/400, you are Year 2000 ready. However, if you are at V3R6M0, you must upgrade to Version 4 to be Year 2000 ready, since V3R7M0 is no longer available.

Upgrading from V3R6M0 to the latest release of Version 4, V4R4M0, is a two-stage process. First, you must install V4R1M0. Then, you must upgrade to V4R4M0. Again, you must check *Read This First and Memo To Users for AS/400* in Preventative Service Planning (PSP) to

review all the considerations and changes. You can download this information from ECS using PTF number SF98VRM (V=Version, R=Release, and M=Modification). Or, refer to the AS/400 Technical Support home page at: <http://as400service.ibm.com/>

You can find the PSP database under the *Tech Info and Databases* link on the left side navigation bar.

You can upgrade to V4R1M0 and not continue to V4R4M0. However, it is worth pointing out that V4R1M0 is also only supported until May 31, 2000.

2.3 Checking Your Licensed Program Products

Some AS/400 software products are not Year 2000 ready. You can use an interactive Internet tool to input your product numbers and receive a product-readiness report from the on-line IBM Product Readiness Database. The tool can be accessed through a link titled *IBM Product Readiness Reports on the AS/400 Year 2000* home page at: <http://www.ibm.com/as400/developer/year2000/>

This page also has a *Hints* link that explains how to generate a report. Or, you can link directly to the Product Readiness Database at: <http://wwwy2k.raleigh.com/>

You need the seven-character product number for each of the products as input for the tool. How to find the product numbers of your installed Licensed Programs is described in the following section.

2.3.1 Using Display Software Resources to Obtain Product IDs

For AS/400 software products, you can determine these product numbers by using the Display Software Resources (`DSPSFWRSC`) command. This command generates a list of the IBM licensed programs and their respective Version/Release/Modification (VRM) levels installed on an AS/400 system. From that list, you can input the product numbers or product IDs, for example, Operating System/400 (OS/400) is 5769SS1. Then, you can request an e-mail report to be sent directly to you. The e-mail report indicates Year 2000-ready products by VRM levels.

Figure 3 on page 12 shows the screen view of the output generated from using the `DSPSFWRSC` command.

```

                                Display Software Resources
                                System:   AS01

Resource
  ID      Option  Feature  Description
5769999  *BASE    5050    AS/400 Licensed Internal Code
5769SS1  *BASE    5050    Operating System/400
5769SS1  *BASE    2924    Operating System/400
5769SS1  1        5050    OS/400 - Extended Base Support
5769SS1  1        2924    OS/400 - Extended Base Support
5769SS1  2        5050    OS/400 - Online Information
5769SS1  2        2924    OS/400 - Online Information
5769SS1  3        5050    OS/400 - Extended Base Directory Support
5769SS1  3        2924    OS/400 - Extended Base Directory Support
5769SS1  7        5050    OS/400 - Example Tools Library
5769SS1  7        2924    OS/400 - Example Tools Library
5769SS1  8        5050    OS/400 - AFP Compatibility Fonts
5769SS1  9        5050    OS/400 - *PRV CL Compiler Support
5769SS1  9        2924    OS/400 - *PRV CL Compiler Support
                                More...

Press Enter to continue.

F3=Exit   F11=Display libraries/releases  F12=Cancel
F19=Display trademarks

```

Figure 3. Display Software Resources (DSPSFWRSC)

The DSPSFWRSC report shows all of the IBM licensed programs installed on the machine. The following table summarizes the different types of entries in a typical DSPSFWRSC report.

Table 3. Types of Entries in a Typical DSPSFWRSC Report

Resource ID	Description
57nn999	"AS/400 Licensed Internal Code"
57nnSS1	"Operating System/400"
57nnccc	a product title unique to that product
AJcccn	"AS/400 Licensed Internal Code AJcccn"
AJcccn	"AS/400 Licensed Internal Code AJcccn"

In Table 3, "nn" indicates numbers, and "ccc" indicates characters used in the resource ID. You can exclude any resource IDs starting with "AJcccn". They are part of the AS/400 Licensed Internal Code product (57nn999) and do not need to be considered separately. The list of licensed programs to evaluate start with the ID "57nn999". It

continues to include the last entry "57nnccc". It ends just before the "AJcccn" entries start.

There are two different types of reports. The first type is the *Quick Search Report*, which is described in the following section. The second type is a *Software Report*. This report is described in 2.3.3, "Generating a Software Report" on page 14.

2.3.2 Using Quick Search in the Product Readiness Database

The "Quick Search" type of report is generated based on using a single product number. On the initial menu, select **Software**. Next, enter a product number. Click the **Search** button. See Figure 4. A quick summary of that product and readiness status are presented to you as shown in Figure 5 on page 14.

Quick Search

Product Number (7 digits):
5716PT1

Hardware
 Software

Search

Generate a Hardware Report
Generate a Software Report

IBM Microelectronics Products

Non-Java Users

Generate a Hardware Report
Generate a Software Report

How to Use This Database
Readiness Report Definitions

Figure 4. Using the Quick Search Option of the Product Readiness Database

Year 2000 Software Product Readiness Database

Search Results

Product Number:	5716SS1
Year 2000 Readiness:	READY# (see Readiness Legend below)
Product Description:	OPERATING SYSTEM FOR AS/400
Latest Release:	3.7.0
Platform:	AS400
Operating System:	OS/400
Category:	OP SYSTEM SW
PTF Required:	no
Replacement Product:	
IBM Customer Comments:	Version 3 OS/400 software is Year 2000 ready at releases 2 and 7. Earlier releases should upgrade to these levels. See Informational APAR.II11543 for most current information on V3R7 Year 2000 related PTFs.

Figure 5. Results of a Single Product Number Entry

2.3.3 Generating a Software Report

The Software Report is generated by using the Generate a Software Report option from the Product Readiness Database. The database may take some time to load onto your PC. Please be patient. It took about two minutes on our system. You should see the message in the middle of your screen: Loading application, please wait... Once it loads, a display appears that is similar to the one in Figure 6 on page 15.

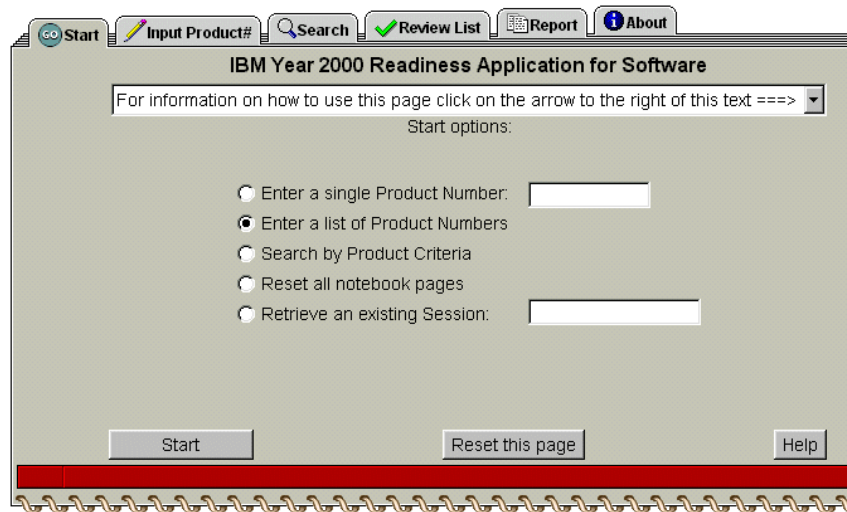


Figure 6. Generate a Software Report Start Display

Instead of selecting the Search tab, choose **Input Product #** instead. This tab requires that you have seven-character product IDs for everything, but gives you exactly the right products.

Type the product IDs in the large scroll box and click on the **Add Product(s)** button. When it is done, you should see the message at the bottom: All Product(s) were successfully added. The Remaining Product(s) are Invalid... message displays the invalid product IDs and allows you to try again. See Figure 7 on page 16.

Note

The input displays from the Web page also allow you to copy and paste your product IDs by using the Shift+Insert keys.

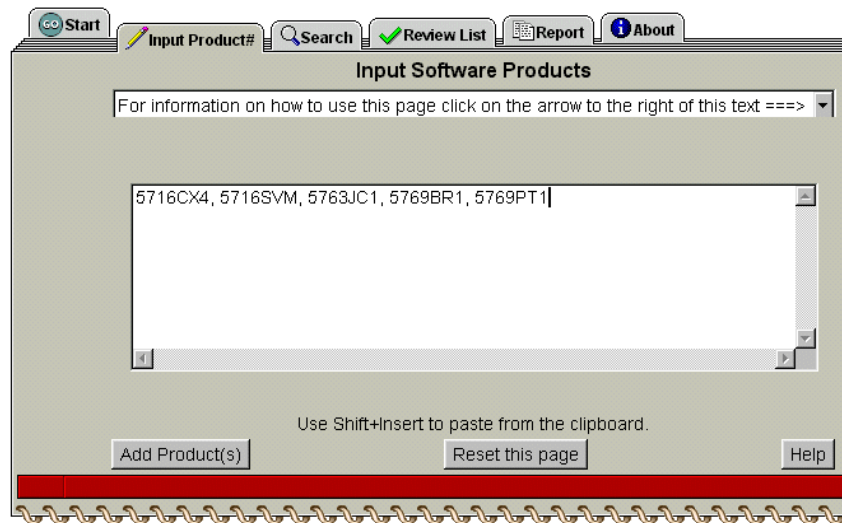


Figure 7. Inputting Product Numbers for a Software Readiness Report

When using the interactive Internet tool, you are presented with a Report display. This is the interface to request the e-mail note containing the database query results. On this display, fill in any "prefix" such as your name, initials, company name, and so on. The system appends a number to your prefix for later reference. For the "type" of report, consider requesting an *expanded* report. You may need to use the pull-down list to view your options. The expanded report offers more information than the *columnar* report. See Figure 8 on page 17.



Figure 8. Year 2000 Readiness Database Software Report Display

You can also fax the printed results of the `DSPSEWRSC` command to IBM (in the US) at 1-800-426-1748. Please include the words, "Attention: ASKY2K." You will receive a reply in less than 30 days with the same information on an IBM letterhead. We suggest that you use the interactive Internet method to determine readiness. Keep those results on file before submitting the request for the letterhead version. That way, you have a known readiness status before waiting for the formal IBM letter.

For customers outside the US, please contact your geographic Year 2000 center. You can locate the nearest center from this site: <http://www.ibm.com/as400/developer/year2000/0210news.html>

Note

For more information, see: <http://www.ibm.com/year2000>

On this site, click on **General information**. Then, click **IBM positions** to see statements regarding Year 2000 readiness.

For AS/400 hardware products, you also need the seven-character product numbers for each system unit (the AS/400 can be 9406F95) and device (a remote controller can be 5394001).

The Display Hardware Resources (`DSPHDWRSC TYPE(*PRC)`) command identifies the specific seven character "type-model" of the Main Card Enclosure, for example, 9402436, which identifies that system unit. Other resources listed by this command are part of the system unit and do not need to be considered separately.

In addition to the system unit, other hardware device product numbers can be identified through your asset inventory list or hardware maintenance agreements with IBM or other third party service providers. Other hardware devices may include display stations, printers, remote controllers, personal computers, and other products unique to your environment.

Your list of hardware product numbers can also be faxed to IBM in the same package as the software product numbers for a combined reply on letterhead.

You can also use the interactive Web site to obtain IBM hardware and software product Y2K readiness reports for other IBM platforms such as S/390, RS/6000, and PC.

2.4 Checking Your Applications

For information about Year 2000 tools and testing of AS/400 applications or custom-built programs, please refer to the following redbooks:

- *AS/400 Applications: Year 2000 Enablement & Services Considerations* SG24-4829
- *AS/400 Applications: IBM Year 2000 Tools, Tips, and Techniques* SG24-2156

Note: This redbook is currently being updated. It is available as a redpiece, with the number SG24-2156-01, under the Redpieces option on this site: <http://www.ibm.com/redbooks>

Chapter 3. Backup and Testing Your AS/400 System

This chapter provides advice about backing up and testing your AS/400 system. It focuses only on the backup and testing of the AS/400 system's OS/400 and key LPPs. You must integrate, if necessary, your own applications into this test plan. This chapter allows you to see how the AS/400 system handles the transition into the millennium so you can create an integrated test plan to prepare your business systems for the Year 2000.

This chapter also looks at your backup strategy and considerations for performing a final save of your system in 1999.

It is worth noting that the year digits of the dates are still represented as two-digit. The AS/400 system uses the system value QCENTURY to determine whether the year is 19xx or 20xx. The fields within this system value are "0", which represents 1928 to 1999, and "1", which represents 2000 to 2053.

Most AS/400 functions, such as display and print, generally use the *implicit* two-digit year form. See Figure 9 on page 20 for an example of an implicit two-digit year input field. An exception to this general rule can be seen in Figure 10 on page 20 where the four-digit year is highlighted in bold.

Helpful Tip

Figure 9 on page 20 shows an example date of 03/30/99, which is implicit. It is also valid to specify 03301999 in the same Beginning date input field to explicitly declare that the century is "19."

Programming interfaces such as outfiles, APIs, system call interfaces, and so on are unambiguous.

```

Display Log (DSPLOG)

Type choices, press Enter.

Log . . . . . QHST          QHST
Time period for log output:
  Start time and date:
    Beginning time . . . . . 01:10:00      Time, *AVAIL
    Beginning date . . . . . 03/30/99      Date, *CURRENT, *BEGIN
  End time and date:
    Ending time . . . . . *AVAIL          Time, *AVAIL
    Ending date . . . . . *CURRENT        Date, *CURRENT, *END
  Output . . . . . *                  *, *PRINT, *PRIWRAP

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F10=Additional parameters  F12=Cancel
F13=How to use this display  F24=More keys

```

Figure 9. DSPLOG Input Showing Implicit (2-Digit Year) Dates

```

5769SS1 V4R3M0 980729          Display Job
Job . . . : QPADEV0009  User . . . : BRSDAN          Number . . . . :
Job Definition Attributes
Job description . . . . . : JOBID          QDFTJOBID
Library . . . . . : QGPL
Job queue . . . . . : JOBQ
Library . . . . . :
Job priority (on job queue) . . . . . : JOBPTY          5
Output priority (on output queue). . . . . : OUTPTY          5
End severity . . . . . : ENDSEV          30
Message logging:
  Level . . . . . : LOG
  Severity . . . . . : 4
  Text . . . . . : *SECLVL
Log CL program commands . . . . . : LOGCLPGM      *YES
Printer device . . . . . : PRIDEV          PRIDEFAUL
Default output queue . . . . . : OUTQ          *DEV
  Default output queue . . . . . : OUTQ          *DEV
  Library . . . . . :
Job date . . . . . : DATE          03/30/1999
Date format . . . . . : DATEFMT      *MDY
Date separator . . . . . : DATESEP      /

```

Figure 10. Example of Explicit (4-Digit Year) Dates in a Spooled File

3.1 Objectives

The overall objectives of testing systems for Year 2000 dates are to:

- Confirm that the AS/400 system can process dates into the new century
- Confirm that no new errors are introduced during the fixing exercise
- Confirm that any possible Year 2000 errors are detected and addressed successfully
- Document the action that was taken where readiness was not achieved
- Update any necessary in-house documentation

Important

The tests described in the following sections are similar to those conducted by IBM to check for date discrepancies. Although IBM lists specific OS/400 releases as Year 2000 ready, some customers want to ensure that the operating system, data, and applications will return expected results. They may be reassured by trying some of the scenarios described here. These examples can be included as part of a *total* environment test.

3.2 Points to Consider before Creating a Test Plan

Before you start testing your system, consider these points:

- What system functions use dates?
- Which dates are viewed as critical to your company?
- What is the source for dates used in the system (for example, obtained from the system values QDATE and QCENTURY, entered at run time, or retrieved from data files)?
- What is the underlying format for holding dates within the system (two-digit years greater than or equal to 40 are assumed to be 20th century; two-digit years less than 40 are assumed to be 21st century)?
- What date-related data is held in non-date format (for example, accounting periods)?

- What explicit date calculations are there within the system?
- What batch processes have date implications (for example, end of day, weekly, monthly, automated housekeeping)?
- What data archive or restore processes are used to manage the data?
- What are the implications from any time-related licenses (for example, licensed program products have expiration dates, and user profiles have expiration intervals)?

3.3 What Dates Are Critical?

Decide what dates are important to you and your company. For example, you may consider the last day of the tax year, your first working day of 2000, or your first end-of-week processing in 2000.

The following list contains the global key dates and their significance:

- 9/9/99—Possible shorthand for null, end of data, or error date condition
- 12/31/1999—End of the century rollover
- 01/01/2000—First day of the new century
- 02/29/2000—Leap year date
- 12/31/2000—Last day of the year
- 02/28/2001—Last day of "Leap" month
- 02/29/2001—Invalid date

Try using 0/0/00 since this is used in many applications as an invalid date.

3.4 Setting Up a Test Environment

Once you decide which dates are critical to you and what your key LPPs are, set up a test environment.

The AS/400 system operates with the current system date and time. Messages, system logs, system utilities, and so on, use date and time stamps to identify activities on the system. Therefore, changing the system date can affect data and system operational characteristics.

IBM recommends that you use a non-production, stand-alone system to perform Year 2000 testing. Perform testing in a controlled environment. This minimizes the risk of accidentally deleting or

altering system or user data. It also allows testing to be more productive. You must save your entire system and restore it on your test box to create a realistic environment.

If you decide to use your production box for the testing, it is imperative that you backup your system totally *before* you move the date forward. When testing is complete, you must scratch (restore) your system.

Details of how to perform the save and the scratch are described in 3.7, "A Guide to Save/Restore" on page 27. Other useful references for these procedures are detailed in the *Backup and Recovery Guide* for the particular release of OS/400 you are using. You should also refer to *System Administrators Companion to Availability & Recovery*, SG24-2161.

If you are currently running at V4R4M0 and have a model 6XX, SXX, or 7XX, you *may* have the advantage of LPAR (Logical Partitioning). This is useful for setting up a separate "system" alongside your production system for Year 2000 testing. For more information about LPAR and how to set it up, refer to the Web site:
<http://www.as400.ibm.com/lpar/index.htm>

Make every effort to avoid unpredictable results and retain the ability to recover from such problems that can occur when testing on a production system. IBM recommends that you follow these general procedures:

- Schedule testing of Year 2000 changes immediately after completing system saves.
- Record all password changes made during testing. You must change passwords for user IDs used for testing when advancing the system date and again when returning it to the current date.
- Develop a test of basic production activities as part of your testing plan. Perform the basic production activity after the system is returned to a normal production environment.
- Schedule time in your testing plan for recovery activities that may be required based on your test of production activities.
- Make any changes to source code when the system date is set to the current date. Unpredictable results can occur when your source code contains a date for a changed line of code set in the future.

- Make all basic system definition and system object changes while the system is in a restricted state, both going to and returning from the Year 2000 testing environment.
- Do not use production objects such as files, journals, subsystems, and user IDs when testing. The goal is to create an independent environment within the limits of required activities.
- Design your testing process in a modular fashion. Do not start any production subsystems that are not required for testing the current module when coming out of a restricted state into the Year 2000 testing state.
- Analyze any subsystems that are required for testing for potential activity outside of the test environment. Potential unpredictable activity may require putting the subsystem's job queue on hold and manually activating only those jobs required for testing.
- Check License Authorization Codes for SS1. Ensure you have the Partners in Development (PID) CDs or tapes that were supplied to you when your system was delivered.

Note

All models of the AS/400 system contain a hardware timer that maintains the correct date and time, including the date change between December 31, 1999, and January 1, 2000. This change will occur correctly if the system is powered off or on when the year changes from 1999 to 2000. It is important that the system is *not* performing an IPL as the date changes from 1999 to 2000.

3.5 Moving the Date Forward

There are various techniques for advancing the date of test data:

- **The Long Sleep**—The system date is advanced in a single leap to January 1, 2000, for example, but no adjustment is made to the data.
- **Fast Forward**—The system date is advanced in a series of increments and the test data is aged each time.
- **Time Machine**—A new set of test data is created to match the test date sometime in the future.

The Long Sleep method is the quicker method. However, there is the possibility that you may encounter a few discrepancies. Therefore, it is to your advantage to allow time to adjust the data so that it matches the date.

To move the date forward, change the system value QDATE. Then, use the PWRDWNSYS command, and set the restart parameter to *YES *FULL.

3.6 Suggested Test Scenarios

The following list offers some useful date integrity tests to check your OS/400 operating system and LPPs. It is not intended to be a complete test list, but mainly gives examples:

- Try to add invalid dates when manually performing an IPL. For example, enter a date of 02/29/2001. This will be rejected by OS/400. You will be unable to continue with the IPL until you enter a valid date.
- As you move the date forward, check the system values QCENTURY and QDATE.
- Test the correct treatment of shorthand dates. Do this by entering the command:

```
DSPLOG QHST DATE(0/0/00 and 9/9/99)
```

In this statement, 0/0/00 should be invalid, and 9/9/99 should be Thursday, September 9, 1999.

- To check for correct operation on denoted high-risk dates, enter the command:

```
DSPJOB *PRINT
```

This creates a spooled file with the current test date, which can either be viewed or printed to check the date stamp. Also check the date stamp on the Licensed Internal Code entries (known as VLOGS) and the Product Activity Log (PAL) in System Service Tools (SST). Look in the QSYSOPR message queue, the history log QHST, and your current joblog, and check the date stamps.

- Check for correct backup and tape operation on high-risk dates by performing a save of either an IBM library or one of your own. Then, restore that same library. Check the date stamps for the last save, and restore them by looking at the library object. A restored

library should contain the correct objects, associated by the correct dates.

- Check the system utilities at critical dates by using the Send Break Message (`SNDBRKMSG`) command to all users. Ensure the correct receive date. Check the Power On/Off scheduler functions correctly at designated times.
- Perform tests for correct date operation across high-risk transitions while powered down and up. Set the system date to a high risk date, for example, 12/31/99 or 02/28/00. Set the time to 23:55. Then, add an entry in the power scheduler for 15 minutes later. Power down the system with Restart set to *No. The system will power on 15 minutes later, and the date and time will be correct. Do the same again, but this time, do not power the box off or set the power scheduler. Check the QDATE/QTIME/QCENTURY directory, and check the system logs.
- Check the job scheduler using one of your own jobs or submit a job using the Submit Job (`SBMJOB`) command over a high-risk date. Ensure it runs at the time and date specified. Check the date stamps.
- Test whether dates entered with an *implicit* two-digit year are interpreted correctly. For example, display the history log QHST. Or, create a physical file with a two-digit year and run the DSPFD command to check the date. When you schedule a job, use a two-digit year date and verify that it runs at the given date and time.
- The key LPPs should be fairly straight forward to test. When the date is forwarded, you can collect performance data and check time stamps. You can use Query/400 to query data or use PDM to list members and F17 for the subset list. The subset list date range should match the OS/400 date range for QCENTURY. You can also check that the RPG, C, and COBOL compilers function correctly (use a source that previously compiled successfully). Plus, you can use SQL to retrieve the current date from the system.
- It is important to read the information listed at the following Web site: <http://www.as400.ibm.com/developer/year2000/y2sysdat.html>
This site offers a list of key concerns for testing certain products such as BRMS, SNADS, ANYNET, and so on.

3.7 A Guide to Save/Restore

As previously discussed, IBM recommends that you carry out an entire system save before starting any testing, for the purpose of restoring the system again once the testing is completed. This avoids causing any unpredictable results if you are using your production box for the testing.

You need to carry out a save of your entire system even if you are using a disaster recovery system on which to test. This way, you can set up an *exact* replica of your production box.

If you are unfamiliar with backup and recovery, there are certain customer setups that can cause difficulty. For example, when restoring individual libraries where you are working from a list, beware of restoring data libraries before program libraries. For more information, see the *Backup and Recovery Guide* for your OS/400 release.

Note

The prime resource used in backup and recovery is the tape device. Test and clean this device thoroughly before *each* critical save. Tape media should also be examined. We strongly recommend that you use new tape media. Many tapes are used repeatedly without maintaining tape life-cycle information. In other words, they are used until they wear out. These system saves and restores are critical. Prevent "media errors" from causing your testing or backups to fail by using new tapes and carefully cleaning your tape drives.

3.7.1 Saving Your System

The backup device you use for your save must be a designated alternate IPL device.

The easiest method is to select option 21 from the GO SAVE menu. This saves the entire system. However, it is worth noting that data queues, message queues, job queues, and output queues are saved, but their *contents* are not saved.

The option 21 save procedure is good for simple systems that have a balance between tape capacity and database size. For

disproportionate systems (for example, very large database or very slow tape drives), the length of time to perform the save may dictate an alternative save strategy (for example, BRMS or, by leasing or renting a faster tape drive).

If you prefer to perform your saves individually or you have your own procedure, make sure you save everything you need to restore your system totally. Figure 11 (RISC) and Figure 12 on page 30 (CISC) will help you check if you are saving the right information.

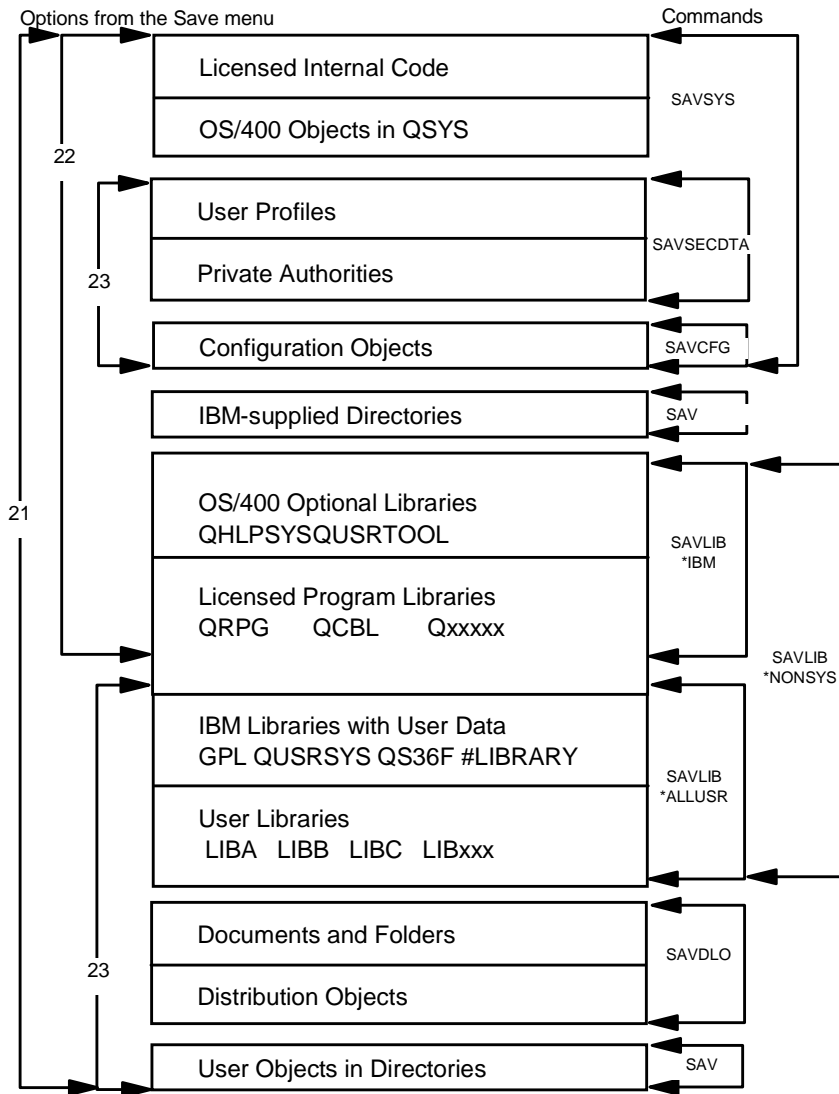


Figure 11. RISC Save Options

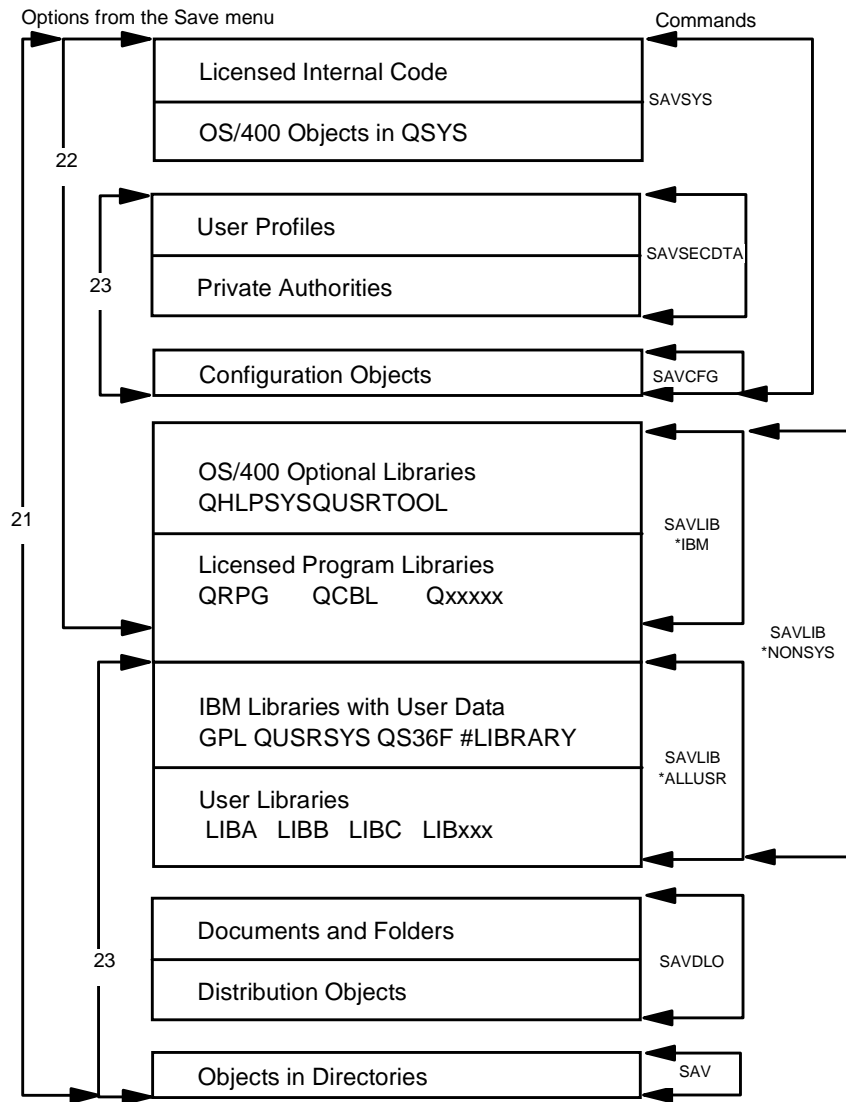


Figure 12. CISC Save Options

IBM does not recommend that you use of the Save Storage (SAVSTG) command. The Save options in Figure 12 have much better recoverability.

Once your save is completed, check the joblog to ensure that everything saved successfully.

3.7.2 Restoring Your System (Scratching)

Once the testing is complete, it is important to scratch the box, especially if it is your main production box. The procedure for doing this varies depending on whether you have a CISC or RISC system. Figure 13 on page 32 and Figure 14 on page 33 break down the restore options for your type of system.

Most of the information given here about saving and restoring your system should already be detailed in your disaster recovery plan. If you do not currently have such a plan in place, IBM can assist you with one of its Global Services offerings, such as Business Recovery Services (BRS). IBM Global Services can be found at:
<http://as.ibm.com>

The link to BRS is at: <http://www.brs.ibm.com>

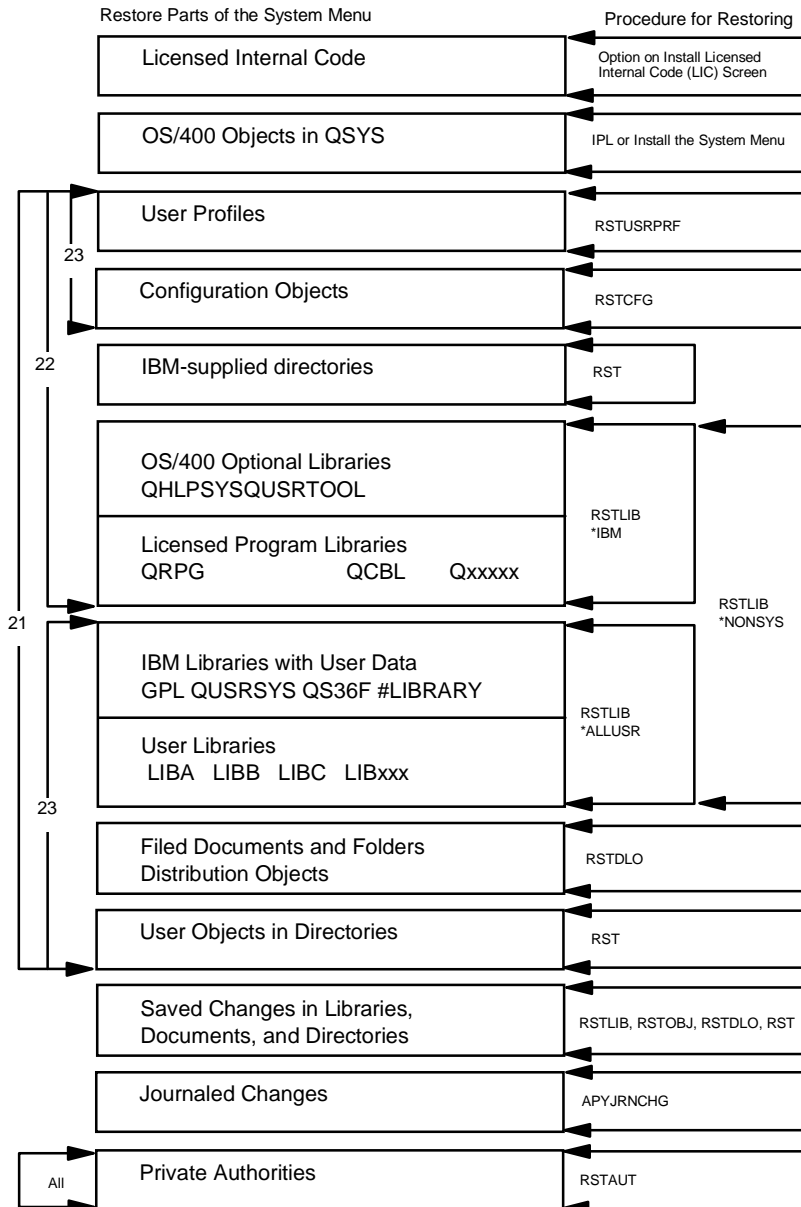


Figure 13. RISC Restore Options

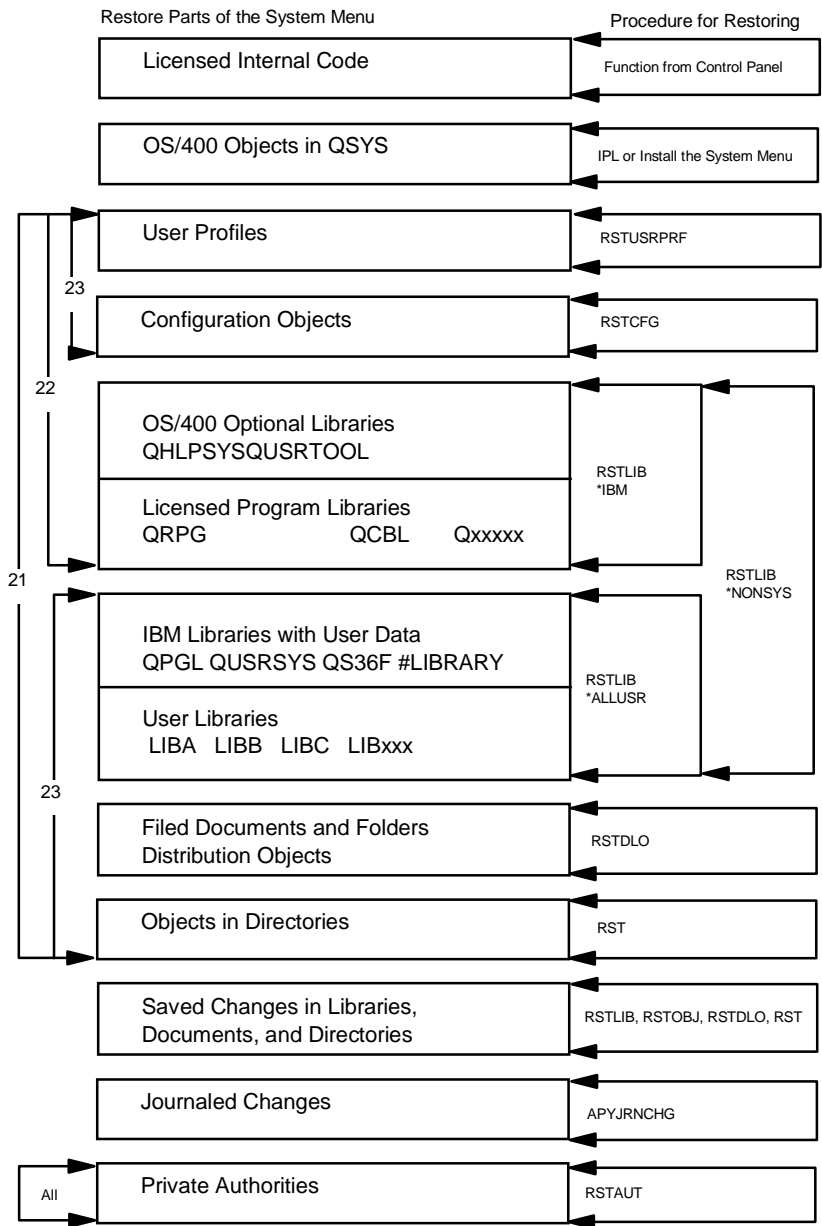


Figure 14. CISC Restore Options

When you "scratch" your system, disk unit 1 is cleared. This disk unit contains information about how all the other disk units on the system are configured. All the disks are then assigned to the System ASP. All

the data in the System ASP is deleted. Basically, what you are doing is "wiping" your system clean and installing it again from scratch.

Note

Ensure that you have a full system save before proceeding with the scratch installation.

3.7.2.1 CISC

This section outlines the procedure for scratching your IMPI (CISC) system.

Note

It is important that you refer to the *Backup and Recovery Guide*, which pertains specifically to your system, to learn the full details on how to scratch your AS/400 system. You should also advise your CE (customer engineer) or your hardware vendor of your plans.

If your AS/400 hardware is IMPI (CISC), be sure to have the MULIC (Model Unique Licensed Internal Code) or FULIC (Feature Unique Licensed Internal Code) tape that was supplied when the system was shipped to you. You should not be prompted for this tape when you restore your system unless you made any hardware changes. It is worth having it available just in case! Follow this process:

1. Load the tapes that contain the entire system save into the tape device.
2. Make sure the system is in a restricted state and start a MANUAL D IPL.
3. When SRCA6XX6001 is displayed on the front panel, select **F24** and press **Enter**. When SRCA6XX6002 is displayed, select **F24** again.
4. When the Licensed Internal Code is loaded, an IPL or Install the System menu appears. At this point, if you had user ASPs configured on your system and you want to recover the data on those ASPs, select the **DST** option from the menu. Refer to the *Backup and Recovery Guide*, specific to your system, for more information.
5. To install the operating system, select **option 2**, Install the Operating System, from the IPL or Install the System menu.

Note: Do not use option 4.

6. If you did not select the option to recover your disk configuration in step 4, you must do so now (again, refer to the *Backup and Recovery Guide*, specific to your system, for assistance).
7. You will be advised that the IPL is complete. An IPL signon display appears. The system is ready to complete the IPL. Sign on as QSECOFR and continue with the IPL. You need to respond when prompted.
8. When the operating system is installed successfully, go to the GO RESTORE menu. Select **option 21**. If you did not use option 21 from the GO SAVE menu, you will be unable to do this. Refer to the *Backup and Recovery Guide*, specific to your system, for assistance on restoring the user profiles, system configuration and so on separately.
9. Once this is completed, restore the private authorities by using the RSTAUT command.

Important

If at any point the system attention light comes on and an SRC is displayed other than the SRCs mentioned above, refer to the *Backup and Recovery Guide*, specific to your system, or *AS/400 System Startup and Problem Handling*, SC41-3206, (release and model unique) for assistance on the next step to take.

3.7.2.2 RISC

This section outlines the procedure for scratching your RISC system.

Note

It is important that you refer to the *Backup and Recovery Guide*, specific to your system, for a full explanation on how to scratch your AS/400 system. You should also advise your CE (customer engineer) or your hardware vendor of your plans.

Follow these steps:

1. Load the tapes that contain the entire system save into the tape device.

2. Make sure the system is in a restricted state and start a MANUAL D IPL.
3. When the Install Licensed Internal Code menu is displayed, select **option 2**, Install Licensed Internal Code and Initialize System.
4. When the Licensed Internal Code is installed, the Disk Configuration Attention Report display appears. Refer to the *Backup and Recovery Guide*, specific to your system, for assistance.
5. You should now see the IPL or Install the System menu. Select **option 2**, Install the Operating System.
Note: Do *not* select option 4.
You will get the option to add the disks if you have not already done so.
6. You are then prompted with the Install the Operating System menu. Select **option 1** to use the defaults.
7. A display appears that advises that the operating system has been installed and IPL in progress. When the IPL completes, the IPL signon display is shown, and the system is ready to complete the IPL. Sign on as QSECOFR. Then, IPL will continue. You need to respond when prompted.
8. When the operating system has installed successfully, go to the GO RESTORE menu. Select **option 21**. If you did not use option 21 from the GO SAVE menu, you will be unable to do this. Refer to the *Backup and Recovery Guide*, specific to your system, for assistance on restoring the user profiles, system configuration, and so on separately.
9. Once this is completed, restore the private authorities by using the RSTAUT command.

Important

If at any point the system attention light comes on and an SRC is displayed other than the SRCs mentioned above, refer to the *Backup and Recovery Guide*, specific to your system, or *AS/400 System Startup and Problem Handling*, SC41-3206 (release and model unique), for assistance on the next step to take.

3.7.3 The Final Save for 1999

When performing the final save for 1999, perform these tasks:

- Recheck the Product Readiness Database at:
<http://wwwyr2k.raleigh.ibm.com>
- Recheck and apply any Year 2000 Group PTFs. See Table 2 on page 9.
- Back up your *entire* system. Again, select **option 21** from the GO SAVE menu, which is the safest and easiest option. Once your save has completed, check the joblog to ensure that everything saved successfully.

Chapter 4. System/36 Concerns

As in the previous chapters, the roadmap we use is requires you to check your hardware first, and then your software. Software is further divided into operating system software, licensed program products, and applications.

When IBM designates a product as being "Year 2000 ready", it refers to products that meet the following definition:

"A product, when used in accordance with its associated documentation, is capable of correctly processing, providing, and/or receiving date data within and between the 20th and 21st centuries, provided that all products (for example, hardware, software, and firmware) used with the product properly exchange accurate date data with it."

4.1 System/36 Hardware Readiness

The original System/36 models: 5360, 5362, 5363, and 5364 are *not* Year 2000 ready. The AS/400 9402 Model Y10 is not Year 2000 ready.

The Year 2000 ready models start with the Advanced 36 9402 Model 236 and Model 436. Also, the AS/400 RISC models that can host SSP are Year 2000 ready. Table 4 on page 40 illustrates the Year 2000 readiness of the system hardware and software.

In short, you must be running on an AS/400 capable system other than Model Y10 to be Year 2000 *hardware* ready. IBM does not consider the System/36 to be Year 2000 ready and encourages movement to a Year 2000 ready platform.

Table 4. Year 2000 Readiness of System/36 Models and AS/400 Advanced 36

System and Model	SSP Release	Year 2000 Ready
System/36 Models 5360, 5362, 5363, 5364	1.0 -5.0	No
System/36 Model 5360	5.1	No
System/36 Model 5362	5.1	No
System/36 Model 5363	5.1 - 6.0	No
System/36 Model 5364	5.1	No
AS/400 9402 Model Y10	6.0	No*
AS/400 Advanced 36 9402 Model 236	7.1	Yes
AS/400 Advanced 36 9402 Model 436	7.5	Yes**
AS/400 RISC Models 4XX, 5XX, 6XX, 150, 170, 50S, 53S	7.5	Yes
* System unit hardware is Year 2000 ready, but SSP is not. ** Licensed Internal Code (LIC) level V3R7 is required.		

4.1.1 Finding Your System Type

If you are not sure of your system's type or model, refer to Table 5 on page 41.

Table 5. How to Determine Your System Type

System/36 or Advanced 36 System Type	System Unit Color	System Unit Size and Shape	Other Identifying Features
5360	Off-white	Roughly the size and shape of a desk, only taller.	Top-loading, single 8-inch diskette drive or diskette magazine loader.
5362	Off-white	About the size and shape of a 2-drawer filing cabinet.	Single 8-inch diskette drive in front, flip-up side door for feature cards.
5363	Off-white	About two thirds as wide as a 5362.	5.25-inch diskette drive or tape in front.
5364	Off-white	IBM PC/AT-sized, table-top unit.	Uses 5.25-inch diskettes and attaches to a PC/AT.
9402 Y10	Off-white	Slightly larger than a 5363. Identical in size to AS/400 9402 "white box".	Has an AS/400 badge on the front. Has a 5.25-inch diskette drive or cartridge tape drive in front.
Advanced 36 9402 236 or 436	Charcoal	Slightly smaller than a 5363. Slightly wider with expansion unit.	Front loading tape drive on 236. Also, a CD drive on 436. 5.25-inch or 8-inch diskette drives are optional external boxes.
AS/400 running OS/400 + SSP 7.5	Charcoal	64-bit RISC AS/400 systems in a variety of shapes and sizes.	New e-Models have a red or purple band on front. 4XX and 5XX Models do not.

4.2 System/36 Software Readiness

As in the previous chapters, software consists of operating system software, licensed program products, and the application programs that actually run the business. This section deals with the System/36 operating system software, known as SSP. It should be noted that if the SSP is Year 2000 ready, all the licensed program products shipped with the same release are also Year 2000 ready.

4.2.1 System/36 SSP Readiness and Support

Table 6 shows the eight supported system configurations that include the installation of SSP. Note the following points:

- The first configuration pertains only to the AS/400 Advanced 36 Model 236.
- The second and third configurations pertain only to the AS/400 Advanced 36 Model 436.
- All, *except the second configuration*, are Year 2000 ready. This is because LIC 360 is not Year 2000 ready.
- The second configuration can be upgraded to the third configuration by ordering and installing a no-charge PRPQ—P84314 (5799-LIC), along with the latest V3R7 cumulative PTF package. See the Web site at:
<http://www.as400.ibm.com/developer/year2000/y2a36lic.html>
- Version 4 Licensed Internal Code releases are only available with OS/400 orders.

Table 6. SSP Year 2000 Readiness and End of Service Dates

	SSP VRM	OS/400 VRM	LIC VRM	Year 2000 Ready	SSP Service Ends	OS/400 Service Ends	LIC Service Ends
1	7.1	Not Installed	307	Yes	11/30/97	N/A	11/30/97
2	7.5	Not Installed	360	No	05/31/00	N/A	10/31/98
3	7.5	Not Installed	370	Yes	05/31/00	N/A	06/30/99
4	7.5	370	370	Yes	05/31/00	06/30/99	06/30/99
5	7.5	410	410	Yes	05/31/00	05/31/00	05/31/00
6	7.5	420	420	Yes	05/31/00	05/31/00	05/31/00
7	7.5	430	430	Yes	05/31/00	01/31/01	01/31/01
8	7.5	440	440	Yes	05/31/00	05/31/01	05/31/01

There may be a time during the migration to OS/400 when the AS/400 Advanced 36 Model 436 system can have an SSP 7.5 installed with a Version 4 LIC Release without OS/400. This system configuration is only supported as a migration step, and not as a final configuration.

4.2.2 Finding Your SSP Release

To find your SSP release, from the command line, type `D S` and press **Enter**. This displays the system status.

The display says "System Information" at the top left. When you press the Page Down button (or, Roll Up) three times, the display appears as shown in Figure 15.

```
System Information          SESSION STATUS - W1          W1

System release level . 07      Available disk size . . . 543 MB
Modification level . . 05      Number of disk spindles . 1
Main storage size . . 8192K    Job Queue . . . . . Y
System area . . . . . 128K     Print Spooling . . . . . Y
User area size . . . . . 8064K Auto response level . . . 0
System date . . . . . 03/26/98 System printer . . . . . P1
System date format . . MM/DD/YY

Cmd7-End   Cmd8-Help   Cmd15-Update   Cmd16-Restart   Roll-Page
-----
                          SYSENV
                          Define system environment

1. System configuration
2. Control job queue
3. Control printing
4. Set automatic response level
Ready for option number or command
-
```

Figure 15. Status System (D S) to Find Your SSP Release

A system release level of .07 and a modifications level of .05 indicate that SSP 7.5 is installed on this system.

4.2.3 The Advanced 36 Models 236 and 436

To find if you have a Model 236 or a 436, type `DSPSYS` on the command line and press **Enter**.

Note: This works if you are using an Advanced 36 model or if you have the DSPSYS feature of the Value Added Software Package (VASP) installed on your System/36.

You should see the Display System Status screen shown in Figure 16 on page 44. The system model appears at the top left of the screen,

Explicit Disclaimer

These PTFs *do not* make a System/36 totally Year 2000 ready. Some System/36 Licensed Program Products, such as DisplayWrite/36 and Personal Services/36, have Year 2000 limitations. System/36 applications may use ambiguous dates in calculations, comparisons, and sorts. Be sure to inventory and examine the applications as soon as possible to determine the impacts (if any).

4.2.4 Determining Your Machine Type on a System/36 with VASP

If you have a System/36 with VASP and need to find your machine type, enter `DSPSYS` on the command line and press **Enter**.

Note: The display that follows is shown if you have the Value Added Software Package (VASP) installed on your System/36.

You should see the DSPSYS PROCEDURE Display System Status screen as shown in Figure 17 on page 46.

The system model appears near the top left of the display, next to the *Model* heading.


```

                                DISPLAY SYSTEM STATUS                9/18/98 12:59 W3

Model      CPU Serial      Release  PTF      Disk Capacity
436 /2104  SN/101DAFA          370     C6295    543 MB 212173 BLOCKS
GUEST     009
Main Storage      Task Work Area      Disk Use
 96 MB TOTAL      6553 TOTAL BLOCKS      3 OPERATIONS
63612 KB AVAILABLE 4 PERCENT USED        3 BY W3122635
 128 KB NUCLEUS   1 EXTENTS              3 IMMEDIATE
                                      3 BY W3122635

                                Critical System Resources Locked
DEDICATE SCHEDULE VTOC FORMAT-5 SPOOL MESSAGES PROCNAME JOBQUEUE HISTORY
--      --      --      --      --      --      --      --      --      --

Processor Utilization      Percentage within 10 second interval
                                1  2  3  4  5  6  7  8  9 10
                                ....0....0....0....0....0....0....0....0....0....0

MSP Emulation
System Tasks
W3122635
0019 - Err Recov
0009 - Cmd Proc

```

Figure 18. Using DSPSYS to Find Your LIC (Licensed Internal Code) Level

4.3 Testing and Backups

The considerations and procedures for testing the SSP operating system on the AS/400 system are the same as for the OS/400. It is easier to set up a test environment on a Model 236 or 436 since the SSP is a "guest" operating system. Therefore, the "test" area can be set up separately to the production SSP and OS/400.

Once testing is completed, it is simply a case of deleting the test SSP. There is no scratch involved.

All of the SSP libraries are backed up when an entire system save is done (for example, by selecting option 21 from the GO SAVE menu).

Chapter 5. A Year 2000 Readiness Plan for PCs

This chapter gives you an overview of the areas to consider in getting your PCs Year 2000 ready. You recognize the need to ensure your PC environment is ready for Year 2000. But where do you start? The following steps for ensuring PC readiness give you a starting point. They are based on our experience of working with customers like you who use PCs in either standalone or networked environments. Follow this process:

1. Investigate how the Year 2000 issue affects your existing business and technology plans.
2. Take an inventory of your PC system components, including hardware, system software, applications, and data files.
3. Assess the Year 2000 readiness of your PC components to determine which components are ready and which must be fixed or replaced.
4. Fix or replace components that require it.
5. Test fixed and replaced components and systems.

Each of these steps is described in greater detail in the following sections.

5.1 Investigating the Year 2000 Issue

It is important to consider your business and technology plans when preparing to make your PCs ready for Year 2000. If you are part of an organization that uses PCs in a network environment, there are additional issues you need to consider. To see possible Year 2000 network effects, you may want to see a Web site such as:
<http://www.orgnet.com/y2k.html>

You need to inventory not only PCs, but every hardware and software component on the network for Year 2000 readiness. Aside from your internal network, if you connect with external resources, you must also audit key economic partners, and all interconnected systems in your supply chain. In the networked economy, if they have a problem, you have a problem! Business contingency planning should not be ignored. Once you determine which components are not ready, another issue to address is whether to fix what you have or replace

your existing hardware and software. Most organizations find the best solution is a combination of both approaches.

5.2 Taking Inventory of Your PC System Components

Cataloging the components of a PC can be the most challenging step in making your system Year 2000 ready. Check the following information:

- **Hardware**—The model and machine type and BIOS (Basic Input/Output System) level of the PC.
- **System Software**—The releases, versions, and service packs already installed.
- **Applications**—The releases and versions for all off-the-shelf or vendor-supplied applications (including those obtained with your PC), plus a catalogue of any custom-developed software.
- **Data files**—Identification of two-digit and four-digit date fields, and the use of these fields by all applications.

Reviewing this information is critical. This is particularly true for larger network environments where one component or data file that is not Year 2000 ready can affect the entire network, and your business operations. You also need to inventory network components such as routers, Domain Name Servers (DNS), and other date-sensitive devices.

5.3 Assessing the Year 2000 Readiness of PC Components

After you inventory the hardware and software parts of your PC environment, you need to assess each item for Year 2000 readiness. This section addresses hardware first.

5.3.1 Assessing PC Hardware

See the roadmap (Figure 19 on page 54) to see what steps are involved in the process of getting your PC hardware Year 2000 ready. First, we examine the steps for IBM PCs. Later, we address non-IBM machines.

IBM provides two means to assess whether your IBM PC is Year 2000 ready. Whether you have an older IBM PC or a more recent model,

you can obtain the readiness status by going to the IBM PC Product Readiness Database at: <http://www.pc.ibm.com/year2000/ready.html>

You need to know your machine type and model number to get this information. The other way to check for readiness is by using an IBM PC program called the PC Evaluation Tool. This software tool quickly evaluates PC hardware, one system at a time, to assess how the hardware clock and a PC BIOS will respond to the Year 2000 transition. The IBM PC Year 2000 Evaluation Tool functions *only* by booting to the diskette that is made.

5.3.1.1 More about Your PC Clock and BIOS

All IBM machines, since the AT model, contain a digital clock in the hardware. The clock battery maintains the date even when the machine is powered "off". The hardware clock automatically updates the last two digits (the "99" of 1999) of the date with each passing year. Consistent with PC industry standards, the task of updating the first two digits (the "19" of 1999), called the *century digits*, is left to the system BIOS.

5.3.1.2 Older Model PCs

For most IBM PC models introduced before 1996, the BIOS did not include the ability to update the century digits of the hardware clock for the millennium change. Therefore, the hardware clock's century digits may be incorrect after the Year 2000 occurs (for example, 1900 instead of 2000). When these PC models are later restarted, the operating system may set its own date incorrectly. As a result, software programs may make mistakes when performing date-dependent tasks.

IBM has three categories of readiness for PCs:

- Those that are Year 2000 ready
- Those that are Year 2000 ready after a BIOS update
- Those that cannot be made Year 2000 ready or have no BIOS update

For this latter category of PCs, you must manually change the date to update the century digits in the BIOS.

We recommend that users take the simple step of resetting the system date on their older (AT and later) IBM PC on or after January 1, 2000. This resets the hardware clock for the new century. Once reset, the hardware clock is capable of keeping the correct date when

restarted. For details on how to reset the date, see "PC Year 2000 Tools and Strategies" at:
<http://www.pc.ibm.com/year2000/year2000c.html>

5.3.1.3 Later Model PCs

On many Year 2000-ready PC models, the BIOS can automatically update the century digits of the hardware clock correctly if the machine is powered "on" during the century transition. However, some operating systems de-activate the BIOS timer service after starting the system, which prevents this automatic BIOS function from working. We recommend that users take a simple step, on or after January 1, 2000, to enable their Year 2000 ready IBM PC hardware clock to reset for the new century. Simply turn the system off and then back on again, or restart the operating system.

For details on how to manually reset the system date for your PC operating system, refer to:
<http://www.pc.ibm.com/year2000/year2000c.html>

For an explanation on how your PC hardware clock works with dates, refer to the link: <http://www.pc.ibm.com/year2000/year2000b.html>

For technical details on your PC BIOS and the real-time clock, see the technical paper *Year 2000 Technical Overview*, which is available in the Adobe Acrobat format (PDF) from the site:
<ftp://ftp.pc.ibm.com/pub/special/haze/techy2k.pdf>

5.3.1.4 Updating the BIOS on Your PC

To update the BIOS on your PC, use the PC Evaluation tool or IBM PC Product Readiness Database to discover whether your PC hardware is Year 2000 ready. This is mentioned in 5.3.1, "Assessing PC Hardware" on page 50. If you found that your PC is *hardware* ready, proceed to check the PC software. See the PC Software Readiness flowchart shown in Figure 20 on page 56.

If your PC is *not* hardware Year 2000 ready, the report from the IBM PC Product Readiness Database tells you if a BIOS update is available. Download and install the update corresponding to your PC type and model. This enables your PC to *automatically* recognize the year 2000. For OEM machines, you need to contact the PC vendor's Web site to see if there is a BIOS update available. According to the PC Hardware Readiness chart shown in Figure 19 on page 54, you should apply the update and proceed to test the software.

5.3.1.5 Replacing PC Hardware

If a BOIS update is not available for your PC, you must manually reset the date on or after January 1, 2000. You may consider replacing the PC if it will be running during the century date rollover or if the applications you run are critical. For a list of IBM PC hardware replacement options for your business, go to the Web site: <http://www.pc.ibm.com/us/businesspcs/index.html>

You can find a link to PC Resellers from this Web page: <http://www.ibm.com/ibm/year2000/pcs/fixreplhard.html>

If you find it necessary to replace hardware, you may want to start at the other end of the spectrum, your *applications*. Are *they* Year 2000 ready? If your applications must be replaced, find a Year 2000 ready application that contains the *critical* functions you need. Then, decide which operating system is best suited for the application. Finally, choose the PC hardware that supports the operating system. In any case, you need to verify that the applications, operating system, and hardware are all compatible.

5.3.1.6 OEM PCs

The approach to checking non-IBM PCs is similar to the approach discussed earlier in this chapter. The difference is that you must reference the specific vendor Web site to determine whether the PC hardware is Year 2000 ready. OEM vendors may have BIOS updates that you can apply to your machine.

There are also a variety of tools on the Internet that you can download to check the Year 2000 readiness of your PC BIOS. NSTL (formerly known as National Software Testing Labs; see the site: <http://www.nstl.com/>) created a program called YMARK2000 that runs tests on the PC BIOS and a real time clock. Check with your hardware vendor first to see what they recommend.

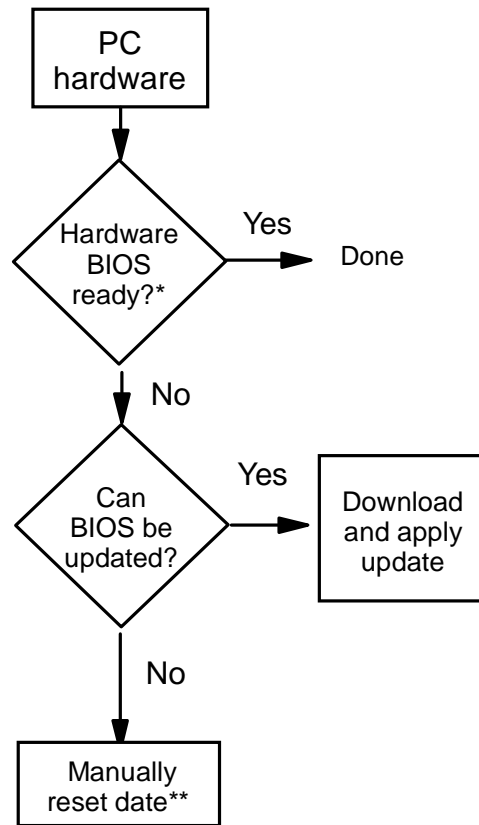


Figure 19. PC Hardware Readiness

Notes:

* Use the IBM PC Readiness Database at:
<http://www.pc.ibm.com/year2000/ready.html>

Or, download the IBM PC Evaluation tool from Web site:
<http://www.pc.ibm.com/year2000/evaluation.html>

** Detailed information on how to reset the date is found at:
<http://www.pc.ibm.com/year2000/year2000c>

5.3.2 Assessing PC Software—Your Operating System

The information covered in this section parallels the flowchart in Figure 20 on page 56. There are two broad categories of PC software:

- Operating system software such as IBM PC DOS, IBM OS/2 Warp, Microsoft Windows 3.1, and Microsoft Windows 95
- Application software, which includes word processors, spread sheets, and database programs, from vendors such as IBM and Microsoft, as well as custom-developed applications

The first step in assessing PC software is to determine if the operating system is Year 2000 ready. PC operating systems include the following: MS DOS, IBM PC DOS, IBM OS/2, IBM OS2 Warp, Windows 3.1, Windows for Workgroups 3.11, Windows 95, Windows 98, and Windows NT. You can usually determine what operating system you are running by typing the version command (VER) at a command prompt. The Windows 3.1 and Windows for Workgroups operating systems can run on top of either MS DOS or IBM PC DOS. In this case, you are actually running two operating systems. Once you ascertain your operating system, see the vendor's Web site for Year 2000 ready information. IBM's Web site for IBM PC DOS and IBM OS/2 Warp is: <http://www.software.ibm.com/year2000/faq2.html>

Microsoft manufactures MS DOS, and all Windows operating systems. Their Web site is at:
<http://www.microsoft.com/technet/year2k/product/product.htm>

Under the Products heading, scroll down to *Operating Systems*.

The vendor's Web site includes information about what fix paks are available for your situation. A fix pak contains added code to correct some or all of the date-sensitive information. You must research each case to find out how the fix is added to your PC.

If the operating system cannot be updated to Year 2000 readiness, you must replace it. Again, check with the software vendor for the status of your operating system.

IBM's PC operating systems are IBM PC DOS and IBM OS/2 Warp. There is an update for IBM PC DOS 7 in the form of a fix pak. For a general description, see the IBM PC DOS and OS/2 Web site at:
<http://www.software.ibm.com/year2000/faq2.html>

The following link points to the IBM fix pak list: DOS7Y2K:
<http://service5.boulder.ibm.com/psfixpk.nsf>

Choose **All Fix Packages - By Product**. On the next screen, select **PC DOS V700**. Then, scroll down to DOS7Y2K.

Another option is to move to IBM PC DOS 2000. Further information on this product is available from this site:
<http://www.software.ibm.com/os/dos/dos2000/index.html>

The latest information on IBM OS/2 is on the Internet at:
<http://www.software.ibm.com/os/warp/solutions/and/y2000/year2000.html>

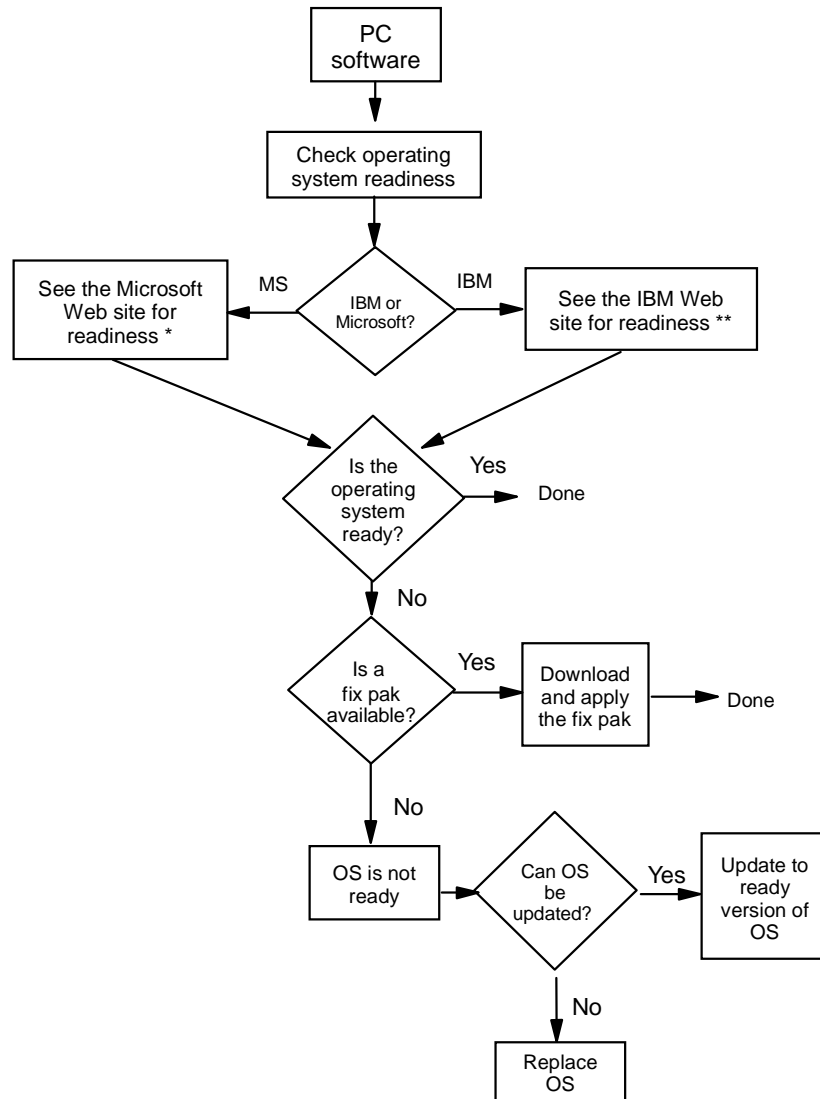


Figure 20. PC Software Readiness

5.3.3 Assessing PC Software—PC Applications

Each of your PC Applications must be individually assessed for Year 2000 readiness. Please note that the designation of an IBM PC as *ready* does not indicate that any system software or application software included with the system is ready. Please contact software vendors directly for information about their products.

Year 2000 information for programs that are pre-installed on IBM PCs can be located at the following Web site:

<http://www.pc.ibm.com/year2000/software.html>

A list of PC resellers is available at:

<http://www3.software.ibm.com/cgi-bin/d2w/reseller/resell/input>

There are numerous other Web sites that include Year 2000 readiness information, such as: <http://www.vendor2000.com> and <http://zdnet.com/enterprise/zdy2k/compliance>

If the application is not Year 2000 ready, an updated version may be available. If not, replace the application with one that has similar PC system requirements and meets your needs.

This list offers links to some helpful information in date-related applications:

- Year 2000 Issues in PC Database Packages:
<http://www.sysmod.com/y2kxbase.htm>
- The Year 2000 and Spreadsheets:
<http://www.blouberg.co.za/y2k/spreadsheets.html>
- Tips and Traps for Date Handling in Popular PC Spreadsheets:
<http://www.sysmod.com/y2ksprds.htm>

5.3.4 Identifying Dates in Data Files

Review the areas for which you use two-digit and four-digit date fields as input into your applications. Also check reports that you routinely run weekly, monthly, quarterly and so on. You may want to consider these questions:

- Is the date in a two-digit or four-digit format?
- What date representation is in use, for example, mm/dd/yyyy?
- What applications use this format?

- Do all applications use the same date format?
- What input is done interactively and what is stored in files?
- Where else are dates stored that provide input to other programs?

Refer to B.6, “IBM Service Offerings” on page 87, for information on IBM offerings that can assist you in these tasks.

5.3.5 Analyzing and Testing

It is imperative that you backup your PC software before attempting to test. Do not change the date while running your current operating system, such as Windows 95 or OS/2. Many of the testing programs require you to create a bootable diskette and boot from the floppy. This way, you run the test under the diskette’s operating system, and *not* under the operating system stored on your hard drive.

There are several good backup tools such as IBM’s ADSM, which provides a complete backup of many PCs to a server, midrange computer, or an enterprise system. You can use this tool to back up selected databases or to restore a complete hard drive. For information on this IBM offering, see the Web site:
<http://www.storage.ibm.com/storage/software/adsm/ads0fam.htm>

Before running any tests, first, check the integrity of your backup by verifying that your system will operate adequately after you restore the backup. This works the best when tried on a non-production (test) PC. In other words, on your *test* PC, you may backup your hard drive to tape. Then, format your hard drive and restore the tape to the disk. Do all vital programs run successfully after the restore?

Remember that with operating systems such as Windows 95, Windows 98, and Windows NT, it is not sufficient to just back up folders (directories). The Windows registry must be backed up as well. Be sure to use a tool that takes into account characteristics of the operating system when doing a backup. See the operating system vendor for suggestions. In the above examples, refer to the Microsoft Web site at: <http://www.microsoft.com>

For OS/2 or IBM PC DOS, refer to the IBM Web site at:
<http://www.pc.ibm.com>

Testing must be comprehensive. It is best if you perform all tests on a stand-alone PC that is *not* in a production environment. The testing should include hardware, operating system, application software, and sample data. Beware of generalizing test results to other PCs that

have dissimilar hardware or software configurations. IBM Global Services can offer assistance in the area of testing. You can contact them through the Web at: <http://www.as.ibm.com>

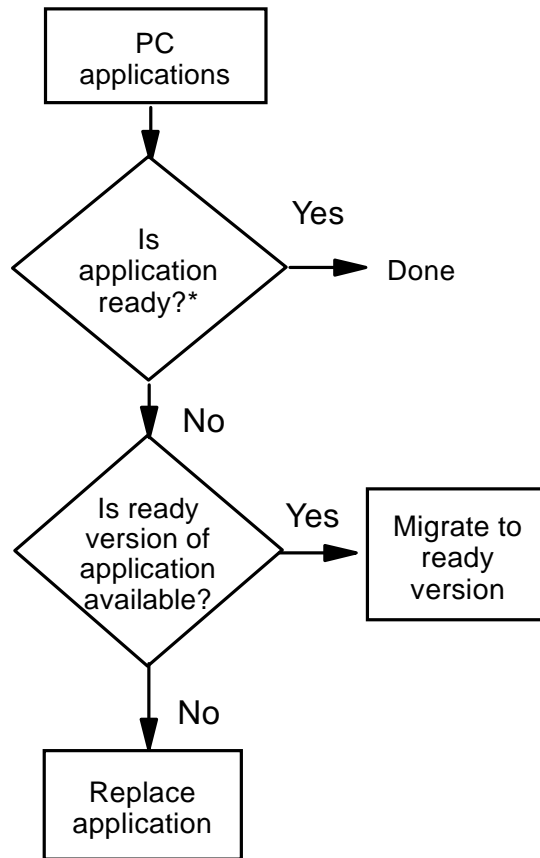


Figure 21. PC Application Readiness

Chapter 6. Client Access/400 Concerns

This chapter tells you how Client Access is packaged, the reason for multiple licensed program products, and why Client Access releases do not always match the OS/400 release. It also addresses what releases of Client Access are Year 2000 ready. The end of support dates for each Client access release, and how to move to a Year 2000 ready *and* supported release.

6.1 How Client Access is Packaged

The AS/400 Client Access Products are packaged into two "families":

- The **AS/400 Client Access for Windows Family** product focuses on client solutions, which run on Microsoft Windows operating systems. Since the majority of our customers use Microsoft Windows operating systems on their desktops, we have placed the clients for which we are providing product enhancements into a separate family.
- The **AS/400 Client Access Family** product contains the clients previously delivered, excluding the Windows 95/NT client. This family is no longer being enhanced. This family should be recommended to customers who need OS/2 or DOS desktop connectivity. It is also recommended for customers who are currently using the RUMBA/400 emulator on Windows 3.1 desktops and do not foresee needing any Windows 3.1 product enhancements provided in the Client Access for Windows Family.

6.2 Client Access Releases Compared to OS/400 Releases

A common point of confusion is the release naming convention. In version 3, the Client Access product was refreshed independently of OS/400 releases. For example, the releases of Client Access still start with Version 3 (V3RxMx), even though the OS/400 release is already Version 4 (V4RxMx). The V3RxMx reflects the earliest OS/400 release to which the clients can connect. For example, Client Access does not support the connection of PCs to AS/400 systems running OS/400 Version 2 or V3R0M5. You may also note that the latest refresh of the Windows 95/NT client has a VRM of V3R2M0. This indicates that this client is supported for connectivity back to OS/400 V3R2 (and not V3R1). As we refresh the individual clients, we keep the same version and release number, but increment the

modification number. For example, V3R1M0 becomes V3R1M1, and so on.

An exception to this rule is the Client Access Express client, which has a VRM of V4R4M0. This program will run under V4R2M0 and V4R3M0, as well as V4R4M0.

6.3 Client Access Parts—License Component and Program Product

The Client Access Product requires two parts to function. The first part is a user license component such as 5763XA1, 5763XY1 or 5763XW1. This portion determines the maximum number of PC users allowed to connect, based on your usage subscription. Each user counts as one license. The second part contains the program code and national language code to run the product, such as 5763-XE1, which is the Client Access Express Product. No matter what PC platform you use, you must have both a license component and a program (code) product installed on the AS/400 system to successfully update your PCs from the AS400 and run licensed features on them. Refer to A.3, “Client Access/400 Questions and Answers” on page 79, for details regarding Client Access Packaging.

The last three digits of the seven-character program ID identify what PC operating system you run. For example, to run Client Access/400 for Windows 95/NT on OS/400 version 4.3 (V4R3M0), you must have the code portion, 5763-XD1, and the licensed portion, 5769-XW1. Further information on usage-based licenses is available at:
<http://www.as400.ibm.com/clientaccess/qnapack.htm>

Check the Client Access Ordering Web page for information on upgrading and Client Access packaging and ordering questions and answers. This site is located at:
<http://www.as400.ibm.com/clientaccess/caorder.htm>

6.4 Moving to a Year 2000 Ready and Supported Release

When moving to Year 2000 ready and supported releases, you must know:

- Your OS/400 release
- The license component number of Client Access (57nn-XW1, 57nn-XY1, or 57nn-XA1; where nn=16 for RISC releases such as V3R6M0 or V3R7M0, nn=63 for CISC releases V3R1M0 or V3R2M0, and nn=69 for Version 4 releases)
- The program ID (which PC client you run)

If you have this information, proceed directly to step 4. If not, follow the first three steps described here:

1. Find the release of OS/400 on your AS/400 system. To do this, type `DSPPTF` on the command line and press **Enter**. A VRM (Version Release Modification) appears at the top of the screen. Make a note of this number (V4R1M0 is an example). This is your OS/400 VRM.
2. To find the license component number, enter the command `GO LICPGM` and select **option 10** (Display installed licensed programs). This shows you both of the installed licensed programs on your system. The first four digits of the program ID match the OS/400 level of your system. 5763 is for Version 3 CISC processors, 5716 for Version 3 RISC processors, and 5769 is for Version 4 RISC processors. If you are running multiple PC operating systems, you may have both XY1 and XW1. This is your Client Access/400 *license* component ID.
3. The program ID (code portion) of Client Access begins with 5763. Scroll down several screens until you see the 5763X...s near the end. If you are running multiple clients such as Windows 3.1 and Windows 95, you may have several program IDs. This is your Client Access/400 *product* ID.
4. If your Client Access/400 license component is XW1, use Table 7 on page 64. If the License ID is XY1, use Table 8 on page 64. If it is XA1, go to Table 9 on page 65. Use the End of Service Date in the table to ascertain how long your product is supported. These tables show the ending date of service for your Client Access Product.
5. Now use Table 10 on page 66 to check the Year 2000 readiness of the same product.

The following tables illustrate the Client Access packaging.

Note: These tables are subject to change without notice. For the latest information, please consult the following Web site:
<http://www.as400.ibm.com/clientaccess/cay2k.htm#calinks>

Table 7. Client Access/400 for Windows Family Product Descriptions—XW1

OS/400 Release	Product ID	Product VRM	Product Description	End of Service Date
V4R1,V4R2 V4R3	5769-XW1	V4R1M0	IBM AS400 Client Access for Windows Family	N/A
V4R4	5769-XW1	V4R4M0		N/A
V3R2	5763-XW1	V3R1M0	Upgrade From 5763-XA1 V3R2	N/A
V3R7	5716-XW1	V3R6M0	Upgrade From 5763-XA1 V3R2	N/A
Clients Included	5763-XD1	V3R2M0 V3R1M3	Client Access for Windows 95/NT	N/A 05/31/2000
	5763-XE1	V4R4M0	Client Access Express for Windows (1)	N/A
	5763-XK1	V3R1M0	Client Access Enhanced for Windows 3.1	05/31/2000
1. Only available on OS/400 V4R2, V4R3, and V4R4. For details and ordering information, refer to the Web site: http://www.as400.ibm.com/clientaccess/caorder.htm				

Table 8. Client Access/400 Family Product Descriptions—XY1

OS/400 Release	Product ID	Product VRM	Product Description	End of Service Date
V4R1,V4R2,V4R3,V4R4	5769-XY1	V4R1M0	IBM AS400 Client Access Family	N/A
	5749XY1	V4R1M0	Client Access Family for 9401 Model 150	N/A
V3R2	5763-XY1	V3R1M0	Upgrade From 5763-XA1 V3R2	N/A
V3R7	5716-XY1	V3R6M0	Upgrade From 5716-XA1 V3R7	N/A

OS/400 Release	Product ID	Product VRM	Product Description	End of Service Date
Clients Included	5763-XB1	V3R1M1	Client Access for DOS with Extended Memory	05/31/2000
	5763-XC1	V3R1M1	Client Access for Windows 3.1	05/31/2000
	5763-XF1	V3R1M0	Client Access for OS/2	05/31/2000
	5763-XG1	V3R1M1	Client Access Optimized for OS/2	05/31/2000
	5763-XL1	V3R1M0	Client Access for DOS	05/31/2000

Table 9. Previous Client Access/400 Family Product Descriptions—XA1

OS/400 Release	Product ID	Product VRM	Product Description	End of Service Date
V3R1(1) V3R2	5763-XA1	V3R1M0	IBM AS400 Client Access Family (Replaced by XW1 and XY1)	N/A
V3R6(1) V3R7	5716-XA1	V3R6M0		N/A
Clients Included	5763-XB1	V3R1M1 V3R1M0	Client Access for DOS with Extended Memory	06/30/1999 10/31/1998
	5763-XC1	V3R1M1 V3R1M0	Client Access for Windows 3.1	06/30/1999 10/31/1998
	5763-XD1	V3R1M2 V3R1M1 V3R1M0	Client Access for Windows 95/NT	06/30/1999 06/30/1999 10/31/1998
	5763-XF1	V3R1M0	Client Access for OS/2	06/30/1999
	5763-XG1	V3R1M1 V3R1M0	Client Access Optimized for OS/2	06/30/1999 10/31/1998
	5763-XL1	V3R1M0	Client Access for DOS	06/30/1999
1. Service is not available on OS/400 V3R1 and V3R6.				

6.5 Year 2000 Readiness of Client Access Products

Table 10 illustrates the readiness of each client of the Client Access/400 Family. Use this table in conjunction with those in the previous section to plan a successful migration path. Check this Web site for the latest information because it changes frequently:
<http://www.as400.ibm.com/clientaccess/cay2k.htm>

Table 10. Client Access Year 2000 Readiness for All Clients

Product ID	Readiness of Each Version/Release/Mod Level (VRM)				
	Year 2000 Ready			Not Ready (1)	
5763-XB1	V3R1M1	-----	-----	V3R0M5	V3R1M0
5763-XC1	V3R1M1	-----	-----	V3R1M0	-----
5763-XD1	V3R1M2(2)	V3R1M3(2)	V3R2M0(2)	V3R1M0	V3R1M1
5763-XE1	V4R4M0(2)	-----	-----	-----	-----
5763-XF1	V3R1M0	-----	-----	V3R0M5	-----
5763-XG1	V3R1M1	-----	-----	V3R1M0	-----
5763-XK1	V3R1M0	-----	-----	-----	-----
5763-XL1	V3R1M0	-----	-----	-----	-----

1. IBM considers a product *not* Year 2000 ready if we know that it does not meet the definition of Year 2000 ready or if it has not been tested. There are no plans to make products in this category ready. For more information on Year 2000 ready definitions, see the Product Readiness Database at Web site: <http://www.yr2k/raleigh.ibm.com>

2. See Informational APAR II11730 for additional Year 2000 readiness details for this release.

Please review Informational APAR II08902 for the latest information on Group PTFs and Year 2000 issues in the database area.

6.6 Getting Ready—Migration Examples

This section contains two sample customer scenarios for migrating to a Year 2000 ready and supported environment.

6.6.1 Case 1—A CISC Example

Question: My AS/400 system is on OS/400 V3R1M0. I am running 5763-XA1 License Component with DOS Extended (5763-XB1) and Windows 3.1 (5763-XC1). How do I update my system?

Answer:

1. Migrate your AS/400 system to a Year 2000 ready and supported VRM. As mentioned in Chapter 2, "Getting Your AS/400 System Year 2000 Ready" on page 7, note that V3R1M0 is *not supported*. You must migrate your OS/400 operating system to V3R2M0. To order this release, contact IBM Marketing in your country. In the US, call IBM directly at 1-800-426-4968.
2. Decide which Client Access License Components you need and the number of users. When you order this release of OS/400, you must decide how many user licenses of Client Access to purchase. Check Table 5 on page 41 for the XA1 Program Product. XA1 service ends June 30, 1999. Therefore, you need to order 5716-XY1, which includes the same PC clients you require, but is supported until May 31, 2000. This component contains licenses for both the original DOS Extended client, 5763-XB1, which must be installed, and the Windows 3.1 client, 5763-XC1. This information is found in Table 8 on page 64.
3. PC code is updated automatically when PCs connect to the new OS/400, as long as you allow automatic update to occur as the default.

6.6.2 Case 2—A RISC Example

Question: I have OS/400 V3R6M0 installed and I am running 5716-XA1 for the licensed component of Client Access and 5763-XC1 V3R1M1, which is the original Windows 3.1 client. I also use 5763-XD1 V3R1M0, which is Client Access for Windows 95 and NT. How do I make my system Year 2000 ready?

Answer:

1. Migrate your AS/400 system to a Year 2000-ready and supported VRM. As mentioned in Chapter 2, "Getting Your AS/400 System Year 2000 Ready" on page 7, V3R6M0 is *not supported*. You must migrate your OS/400 Operating System to a Version 4 release. Version 4 is the best choice to maintain support and achieve Year 2000 readiness because V3R7 can no longer be ordered.
2. As in Case 1, support for the XA1 license component ends on June 30, 1999. Therefore, you need to move to XY1. In addition to the 5769-XA1, you must order the licensed component 5769-XW1 for your Windows 95/NT clients. You must also order the corresponding program products for each of these clients: 5763-XC1 for Windows 3.1 and 5763-XD1 for Windows 95/NT.
3. PC code is updated automatically for Windows 3.1 PCs. For Windows 95/NT, you should run Check Version, if it is disabled, to update the PC code. Before you migrate to the Windows 95 PC side, order and apply the latest service pack. You can find this information from the Client Access home page at:
<http://www.as400.ibm.com/clientaccess>

Also check with your local IBM Support Center for the most recent information. In summary, move to the latest OS/400 release that is possible with current hardware or else upgrade your hardware. Once your OS/400 is at a Year 2000 ready release, the included Client Access/400 products shipped with these releases are supported until May 31, 2000, and are Year 2000 ready.

As discussed earlier, your AS/400 system must be at a minimum level of V3R2M0 if you have a CISC processor, or V3R7M0 if it is a RISC processor. Note that you can no longer migrate to V3R7M0, but you must move to V4RxMx to upgrade. If you are running OS/400 V3R7M0, you can no longer order updated Client Access code for the Windows 95 and NT clients.

When you receive PC media, be sure to differentiate the PC CD-ROM from the AS/400 CD-ROM. The AS/400 media is shipped in a jewel case, and the CD-ROM is either white or gold. The PC CD-ROM is blue in color and comes in a cardboard case. You will get an error reading the CD-ROM if you insert the wrong media. If you hear music that continues for some time, you may have an audio CD in your PC. Check the label again for an IBM program ID. If it exists, contact your IBM marketing representative for a replacement CD-ROM.

Chapter 7. System/34 and System/38 Concerns

This chapter presents an overview of the System/34 and System/38 hardware in terms of Year 2000 readiness. It focuses on the hardware timer in each system and how it reacts to the rollover from 1999 to 2000. Note that neither of these systems is considered Year 2000 ready.

7.1 IBM System/34

The IBM System/34, which was available in 1978 and was replaced in 1983 by the System/36, has a hardware timer that was set at IPL time. It did not carry over the date and time between power off and the next power on. This required the user to set the date and time during each IPL.

There has been no testing on the System/34 regarding the results of the hardware timer when the system is powered on and the year changes from 1999 to 2000. Nor has testing been performed with the system powered off in 1999 and not powered back on until 2000. IBM also has not tested to verify if the System/34 will allow a "00" to be entered as a valid year. There are no plans to do any Year 2000 testing on the System/34. You should consider this system as *not Year 2000 ready*.

7.2 IBM System/38

The IBM System/38, which was first available in 1979, has a hardware timer that must be initialized at IPL. The data and time are not carried over between power off and subsequent power on for each IPL. At each IPL, the data and time must be re-entered.

The system timer will roll over the system date correctly from 1999 to 2000. However, there are unpredictable operating system results that can occur. This system has not been tested for Year 2000 readiness, and there are no plans to perform any testing. You should consider this system as *not Year 2000 ready*.

Appendix A. Frequently Asked Questions

This appendix offers a few examples of frequently asked questions. They are split into two sections. The first deals with OS/400 and SSP. The second section addresses PC and Client Access/400 concerns.

A.1 OS/400 and SSP Operating System

- **Question:** What does VASP do?

Answer: VASP supports a 100 year window of 1940 to 2039 to handle file expiration dates and date-differentiated files. It does not fix aspects such as how DisplayWrite/36 sorts document dates in a folder list and how PS/36 sorts mail log dates. Most system displays and printed reports only show a two-digit year. No methods were provided to obtain the four-digit century in an application program or procedure. However, a PTF is available to add additional date support. On releases 7.1 and 7.5 only, OCL procedure ?longdate? supplies the full eight-digit date. SUBR39 gets the current date as eight digits, plus converts them between formats (month-day-year to year-month-day, and so on). COBOL programs can use CBLDAT, which is a subroutine that performs the same function as SUBR39. The Advanced 36 Models 236 and 436 need to be on the latest PTF Cumulative Package numbers.

Table 11. Models 236 and 436 Required PTF Levels for Additional Date Support

Model	PTF Cumulative Package
236	C6164071
436	C6135075 (If SSP Version 7.5 only is installed)
436	C6135360 (*If SSP Version 7.5 and AS/400 V3R6 are installed)

For the 5360, 5362, 5363, 5364, and AS/400 Entry System (Y10), this support is available as a PTF.

Table 12. System/36 Models 536x and AS/400 Y10 Additional Date Support PTFs

PTF Number	SSP Level
U670551 (8" diskette)	5727SS1 Release 5.1
U765053 (5.25" diskette)	5727SS6 Release 5.1
U755054 (5.25" diskette)	5727SS5 Release 6.0

Note: A Support Line contract is required for ordering.

For the S/36 CBLDAT Environment on the AS/400 system, the following PTFs add SUBR39 and ?longdate?:

- **V3R2**—SF37153, SF37942
- **V3R7**—SF37815, SF41135

- **Question:** How can I tell if the VASP is installed?

Answer: Perform one of the following actions:

- Verify that you have the Value-Added Software Package (VASP) installed by entering any command. Then, use press the **F9** (CMD 9) key to attempt to retrieve it. If the command was retrieved successfully, VASP *is* installed since this F9 support was added as part of the VASP.
- Using POP (programmer and operator productivity aid) or another means, see if SUBR39 is in your #RPGLIB. SUBR39 is an external subroutine that converts and validates dates.
- Write a simple OCL procedure that uses the replacement expression ?longdate? and verify that it gives the year as four digits.

- **Question:** Can I do any Year 2000 work on OS/400 V3R1?

Answer: OS/400, the operating system for the AS/400 system, was certified as being Year 2000 ready starting with V3R2 for CISC processor systems and its counterpart, V3R7 for RISC processors. Although earlier versions of the operating system are not certified as being Year 2000 ready, several of the “enablers” (programming aids and system features) that make it easier for application programmers to write Year 2000 compliant programs have been PTFed back to V3R1 and V3R6. This way, customers can begin designing and writing programs *now* on V3R1 or V3R6 that use these new features, and postpone the upgrade to a Year 2000 ready operating system a little longer.

The enablers (functions) from V3R2 that can be placed on a V3R1 system with a PTF are listed in Table 13 on page 73.

Table 13. Enabler PTFs and Their Functions

PTF Number	Function
SF35288, SF35204	Add QCENTURY system value
SF35619, SF35529	API and Job enhancements
SF35610, SF35717, SF35721	API QSYSINC, four-digit dates on commands
SF35727, SF35619	CVTDAT command enhancements

These numbers will be different for a V3R6 system, and possibly for national languages other than 2924. Your local branch office can help you find the correct numbers.

- **Question:** What about the two key technologies for AS/400 systems: CISC and RISC? Are either or both Year 2000 ready?

Answer: AS/400 V3R2, which runs on the CISC systems, is Year 2000 ready. AS/400 V3R7, which runs on RISC systems, is also Year 2000 ready. Any of the Version 4 releases of OS/400 are Year 2000 ready. You need to move to these releases to ensure that your systems can handle the Year 2000 properly.
- **Question:** Where can I find detailed Year 2000 information related to the AS/400 and System/36?

Answer: You can refer to the AS/400 Roadmap for Year 2000 Transition Efforts and System/36: Roadmap to the Year 2000. These are located on the Web at:
<http://www.as400.ibm.com/developer/year2000/s36y2k.html>
- **Question:** Is it true that SSP will not go into Year 2000? I heard that individuals with an Advanced 36 model running SSP have to convert to OS/400 and buy additional disk space since OS/400 will take about half of the 1GB DASD on the 9402 Model.

Answer: No, the Advanced 36 Models 236 and 436 are Year 2000 ready, within the limitations mentioned for the VASP. VASP was made available in 1992, and included the base SSP for the Advanced 36 models 236 and 436. It included a 100 year window of 1940 to 2039 to handle file expiration dates and date-differentiated files. However, it does not fix such items as how DisplayWrite/36 sorts document dates in a folder list and how PS/36 sorts mail log dates.

- **Question:** We have an S/38 with a CPF operating system. I need to know if this hardware and operating system will work in the Year 2000.

Answer: The hardware timer in your S/38 will roll over the system date correctly from 1999 to 2000, but there are unpredictable operating system results that can occur. This system has not been tested for Year 2000 readiness, and there are no plans to test it.

The best source for information about your application software is the vendor who supplied it. If your software is or can easily be made ready for the Year 2000, you may consider upgrading to an AS/400 system. Your code can run unchanged in the S/38 environment of the AS/400 system. Plus, the AS/400 operating system is just an extension of the S/38 CPF so the concepts and commands will be quite familiar to you. Release V3R2 of OS/400 (for CISC-based processors) and V3R7, plus all of the Version 4 releases (for RISC processors), are certified as Year 2000 ready.

- **Question:** What versions of the System/36 will be Year 2000 compliant?

Answer:

1. 5360, 5362, 5363, 5364, and AS/400 Entry System (Y10) are not considered Year 2000 ready. They are no longer supported or orderable.
 - Hardware timer was not tested (except Y10) for rollover to Year 2000. Although not officially tested by IBM, several customers have reported that it works correctly. However, you should verify this for yourself.
 - SSP Releases 5.1 and 6.0 are not Year 2000 compliant. However, a no-charge software enhancement, called VASP*, was available to provide limited Year 2000 support.
2. Advanced 36 Models 236 and 436 are Year 2000 ready, within the limitations mentioned for the VASP.
 - Hardware timer works correctly.
 - VASP is included in the base SSP.
 - Additional date support for ?longdate? and SUBR39/CBLDAT external subroutines was added to obtain a four-digit year in OCL Procedures, RPG, and COBOL programs.

- **Question:** I recently read that the VASP Year 2000 portions of the S/36 PTFs will be available for downloading sometime. Is this true?

Answer: SSP releases prior to 7.1 are no longer supported or orderable. IBM's official recommendation is that S/36 users migrate to the Advanced 36 or AS/400 system, since even the VASP did not provide enablers like external subroutines or APIs and this made Year 2000 ready applications difficult to write. If your software package is Year 2000 ready, the operating system may continue to work after the Year 2000, but has not been tested by IBM. Problems can occur if you use date-differentiated files. Expiration dates on tapes and diskettes may not work as expected, and some of the system utilities produce usability problems, such as DisplayWrite/36 document dates showing the Year 2000 before 1999 when you request a range of dates.

Although the VASP is no longer orderable, it was not licensed to a single CPU and can be freely copied from other S/36 sites. Some branch offices have also kept copies of the original diskettes on hand. Check with your local IBM office and other S/36 users in your area.

- **Question:** Will IBM make software available, for purchase, to take care of the Year 2000 challenge for users with Advanced 36 models?

Answer: The Advanced 36 hardware will accommodate dates into and past the Year 2000. The Advanced 36 operating system is ready to handle the Year 2000.

You must still evaluate the applications running on your system to make sure they are Year 2000 compliant. If you are using packaged software, the vendor from whom it was purchased is the best source of information. If your software was written in-house, it has to be thoroughly tested and enhanced to properly handle dates past 1999.

- **Question:** Please advise what, if any, procedure I can use to confirm that the SSP on my Advanced 36 is Year 2000 ready.

Answer: Using POP or another means, see if SUBR39 is in your #RPGLIB. SUBR39 is an external subroutine that converts and validates dates.

Then, write a simple OCL procedure that uses the replacement expression ?longdate? and verify that it gives the year as four digits.

- **Question:** For the Advanced 236 users that need Year 2000 support beyond 2039, is there an upgrade to get them to a Model 436?

Answer: Yes, today you can upgrade a 236 to a 436, with additional memory, DASD, processor card, CD drive, and OS/400, with a new release of SSP at 7.5, versus SSP 7.1 on the 236. Currently, we implement a fixed window from 1940 to 2039. For full Year 2000 readiness, a 236 customer must upgrade to a 436, as described above, migrate (or buy new) applications to run in the S/36 environment on OS/400, and modify applications depending on how Year 2000 support was implemented on the Model 236 (for example, fixed 100-year window).

- **Question:** What about the System/36 and the Year 2000?

Answer: The Value-Added Software Package for SSP 7.1, which applies to both real S/36s and Model 236, allows the S/36 to handle year dates in the range from 2000 through 2039. This support is documented in Chapter 15, "Year 2000 Support" of *AS/400 Advanced 36 Using Value-Added Software Package*, SC21-8368. There are some operational limitations in regard to Fortran, Basic, Personal Services/36, DisplayWrite/36, Query/36, and X.25 which are documented there as well. The Advanced 36 Model 436 (an AS/400 machine) also has this level of support. The S/36 machine support on the AS/400 system was announced in February 1996. The S/36 provides Year 2000 extensions (APIs) in the area of access to system date century and setting of S/36 job dates to a discrete four-digit year. AS/400 system V3R2 with Year 2000 support, the S/36 machine with Year 2000 support, and selected Year 2000 enablement pieces to be PTFed back to V3R1 and V3R6 were announced June 1996. Later in 1996, the 436 had Year 2000 API support added so that S/36 applications could access the system and job date century, which was set on the OS/400 side.

Note: With VASP, there is no century indication, just an assumption that years in the range 00 to 39 inclusively are prefixed by "20".

This new century support will not be available on 236 or real S/36s. The S/36 operational limitations currently documented in *AS/400 Advanced 36 Using Value-Added Software Package*, SC21-8368, will continue to exist in the 436 for the foreseeable future.

- **Question:** I used the CHGJOB command to change a job's date. The results I received were quite unexpected. I changed the date for my interactive job using the CHGJOB DATE(xxxx) command. However, when I created the test controllers and test user IDs, the created date still matched today's date and did not match the value that I specified when I tried to change my job's date. As an additional note, when I execute the DSPJOB command, the date is still today's date and not the date I specified on the CHGJOB command. Any ideas on why this happens or how I can fool the current job to think it is a different date without having to change the system value and IPL the system?

Answer: System commands use the system date and time when they create objects. The only way around this is to re-IPL with a different date or change the system QDATE value. However, the DSPJOB command should show the date used in the CHGJOB command. Did you use option 2, Display job definition attributes, to check this? Option 1 shows the time your job entered the system, that is, the time you signed on. This will be the *system date* because you cannot change the job date until you sign on and execute the command.

- **Question:** Is there a Year 2000 product or tool on the AS/400 system that allows you to fake the system date without actually changing it? When you retrieve the system date, it would not retrieve the real system date, but intercept and pull out the fake date. Is such a tool available?

Answer: The easiest way to accomplish this is by changing the job date using the CHGJOB DATE() command. This tells each program running in that session to use the date you specified, instead of the actual system date, and can be different for each signon. Therefore, different applications being tested can have a different date. You can change it as often as you like. For more details, type the Change Job (CHGJOB) command on any AS/400 command line. Press **F4** to prompt, and then **F10** for additional parameters. Page down to the date parameter and press **F1** (Help).

Some date interceptor tools are available on the market. You can find them listed on the AS/400 Year 2000 Project Tool page at: <http://www.as400.ibm.com/developer/year2000/y2ktol.html>

Testing tools are the same as all other tools. They must be properly matched to the environment with which they are used. If the program issues date requests that are not "intercepted" by the interceptors, the test may be invalid. If the test tools do not

exercise all logic paths in the set of programs, exposures may exist when the logic path is taken for real data. Researching to find the right tools is a good investment.

A.2 PC Questions

- **Question:** I know how to enable my IBM Personal System to update the century correctly. Is there anything else I need to be concerned about?

Answer: Even though PC hardware can be enabled to transition successfully and function properly in the Year 2000, it is important to realize that the hardware is not the sole component of a system. A personal system has several layers, such as hardware, BIOS, operating system software, and application software that resides in a diverse integrated environment.

The risk is, if any one of these layers is not using the correct date, it can supply a corrupted date to the rest of the desktop. Some of the adverse effects can be lost or incorrect data, revoked log-on privileges, and inventory or billing errors. In addition, data may not be replicated or backed up properly.

Therefore, it is critical that all components of your system be assessed—your software as well as hardware—to determine if the entire desktop will function properly into the Year 2000.

- **Question:** Which release of IBM PC DOS is Year 2000 ready?

Answer: PC DOS 7 is Year 2000 ready with service. PC DOS 7 customers concerned about displaying or processing date information after 1999 should install IBM's *Year 2000 Fix Pak for PC DOS 7* or upgrade to IBM's *PC DOS 2000* product.

This fix pak contains updates to PC DOS 7 for handling Year 2000 data in many PCs. However, it is your responsibility to ensure that all products used with PC DOS properly exchange accurate date information with it.

This fix pak includes new support for the European Monetary Union's (EMU) euro currency symbol. See the Readme file for additional information. The referenced Readme file can be located through the offering detail located at:

<http://www.ibm.com/IBM/year2000/mkt/des/pcdos7.html>

The Readme file is also available with the fix pak obtainable through Boulder Service at:

<http://service5.boulder.ibm.com/pspfixpk.nsf>

Visit the Year 2000 Readiness of OS/2 and PC DOS site for additional IBM PC DOS information at:

<http://www.software.ibm.com/year2000/faq2.html>

- **Question:** What OS/2 operating system is Year 2000 ready?

Answer: OS/2 Warp Connect 3 and Warp 4 are Year 2000 ready with service. Visit the site "Year 2000 Readiness of OS/2 and PC DOS" for specifics or order a fix pak CD. The support page details a process for understanding what revision of OS/2 and its components are installed. The Web address is:

<http://www.software.ibm.com/os/warp/solutions/and/y2000/year2000.html>

- **Question:** Does IBM offer any tools to assess the system software and applications?

Answer: IBM has entered into an agreement with PinPoint Software, Inc. to distribute their product, ClickNet Y2K. More information about this product is available at:

<http://www.clicknet.com>

- **Question:** How can I find Year 2000 information about the software shipped with my IBM PC?

Answer: Visit the software section of the IBM PC Web site for addresses and information of many developers that supply software on your IBM PC. The Web address is:

<http://www.pc.ibm.com/year2000/software.html>

A.3 Client Access/400 Questions and Answers

- **Question:** Why is the version (VRM) of the clients still at Version 3, when OS/400 is at Version 4?

Answer: All of the clients in the two Client Access families use "V3RxMx" as their version/release identifier. As we refresh the individual clients, we keep the same version/release number, but increment the modification number (for example, V3R1M0 becomes V3R1M1, and so on). The V3RxMx reflects the earliest OS/400 release to which the clients can connect. For example, Client Access does not support the connection of PCs to AS/400 systems running OS/400 Version 2 or V3R0.5. You will also note

that the latest refresh of the Windows 95/NT client now has a VRM of V3R2M0. This indicates that this client is supported for connectivity back to OS/400 V3R2 (and not V3R1).

- **Question:** What happened to the original AS/400 Client Access family (XA1)?

Answer: The original AS/400 Client Access product (5716-XA1 for V3R6/V3R7, 5763-XA1 for V3R1/V3R2) was withdrawn from marketing on December 12, 1997. This product contained the following client code:

- AS/400 Client Access for Windows 95/NT (5763-XD1) - V3R1M2
- AS/400 Client Access Optimized for OS/2 (5763-XG1) - V3R1M1
- AS/400 Client Access for OS/2 (16-bit) (5763-XF1) - V3R1M0
- AS/400 Client Access for Windows 3.1 (5763-XC1) - V3R1M1
- AS/400 Client Access for DOS Extended (5763-XB1) - V3R1M1
- AS/400 Client Access for DOS (5763-XL1) - V3R1M0

- **Question:** What replaced the original Client Access family (XA1)?

Answer:

- AS/400 Client Access for Windows family (program numbers 5769-XW1 for V4, 5763-XW1 for V3R2). This family contains the following client code:

- AS/400 Client Access for Windows 95/NT (5763-XD1) - V3R2M0
- AS/400 Client Access Enhanced for Windows 3.1 (5763-XK1) - V3R1M0

Note: 5716-XW1 for V3R7 was withdrawn on November 30, 1998, and is no longer available.

- AS/400 Client Access family (program numbers 5769-XY1 for V4, 5763-XY1 for V3R2). This family contains the following clients:

- AS/400 Client Access for Windows 3.1 (5763-XC1) - V3R1M1
- AS/400 Client Access for DOS Extended (5763-XB1) - V3R1M1
- AS/400 Client Access Optimized for OS/2 (5763-XG1) - V3R1M1

- AS/400 Client Access for OS/2 (16-bit) (5763-XF1) - V3R1M0
- AS/400 Client Access for DOS (5763-XL1) - V3R1M0

Note: 5716-XY1 for V3R7 was withdrawn on November 30, 1998, and is no longer available.

- **Question:** What options are available to XA1 customers who are currently at OS/400 Version 3 and are now planning to upgrade their OS/400 to V3R2 or V3R7?

Answer: Customers must convert their XA1 licenses to the new AS/400 Client Access families when ordering their new OS/400 release. This is necessary because the original Client Access XA1 product is no longer orderable.

Note: OS/400 V3R7 was withdrawn from marketing November 30, 1998. OS/400 V3R6 customers now must update to OS/400 V4. The V3R2M0 refresh, which was available September 1998, is not available on V3R7 orders.

- **Question:** Is there an upgrade path between XW1 and XY1?

Answer: No. The reasons are that:

- Upgrades from XY1 to XW1 are not supported.
- Upgrades from XW1 to XY1 are not supported.

- **Question:** Where can I find more details about Client Access packaging and ordering?

Answer: See the Client Access Packaging Frequently Asked Questions link at this site:

<http://www.as400.ibm.com/clientaccess/qnapack.htm>

This site also addresses license usage and ordering information, as well as packaging questions.

- **Question:** Where can I find the latest information about Client Access/400 and Year 2000 readiness?

Answer: Reference the Web site:

<http://www.as400.ibm.com/clientaccess/cay2k.htm>

- **Question:** I am running Client Access/400 for Windows 95/NT - 5763XD1 on my PCs. What do I need to install on the AS/400 system? Do I need the license component 5769XW1, the program 5763XD1, or both?

Answer: For the Client Access for Windows 95/NT Program Product (5763XD1) or the Client Access Express for Windows

(5769XE1) product, the Program Product is never required to be on the AS/400 system in order to connect. However, if you wish to *install or update* your PCs from the AS/400 system, you must install this product on the AS/400 system.

For the two products 5763XD1 and 5763XE1, the *license* component (57xxXA1 or 57xxXW1) is only required to be installed on the AS/400 system, if licensed Client Access functions such as PC5250 Emulation, Data Transfer, and SNA support (NS Router) are being used.

Appendix B. Useful Year 2000 Related Links and Resources

This appendix serves as a convenient resource for IBM and non-IBM links, books, and service offerings regarding Year 2000 information.

B.1 General Year 2000 Sites

- Year 2000 site (has links to several other Y2K sites):
<http://www.year2000.com/>
- Timebomb 2000 and the Y2K Problem:
<http://www.yourdon.com/books/fallback/fallbackhome.html>
- Ed Yourdon's Articles, Essays, Stories, Books:
<http://www.yourdon.com/articles/articlessummary.html>
- The Year 2000 Problem: The Year the Earth Stands Still:
<http://www.garynorth.com/>
- Year 2000: A Business Issue:
<http://www.ibm.com/ibm/year2000/news/yr2prob.htm>
- Gartner Group Year 2000 Readiness Report
<http://gartner4.gartnerweb.com/public/static/y2k/y2k.html>
- Year 2000 National Education Taskforce Y2KNET:
<http://www.y2knet.com/>
- Y2K for Women: <http://www.y2kwomen.com/>

B.2 General IBM Web Sites

- IBM Corporation home page: <http://www.ibm.com/>
- IBM Year 2000 home page: <http://www.ibm.com/ibm/year2000/>
- IBM Year 2000 Product Readiness Database:
<http://www.yr2k.raleigh.ibm.com/>
- Your geographic IBM Year 2000 center:
<http://www.ibm.com/as400/developer/year2000/0210news.html>
- IBM Business Partners: <http://www.ibm.com/partners/>

B.3 AS/400 System Web Sites

The following group of Internet Web sites contain AS/400 system-related information. There are also links to online books and some Year 2000 hardcopy publications.

B.3.1 AS/400 System General Information

- AS/400e home page: <http://www.as400.ibm.com/>
- AS/400 Year 2000 home page that can take you to most any site that you need: <http://www.as400.ibm.com/year2000/y2khome.htm>
- AS/400 operating system Version 4 Release 4:
http://www.as400.ibm.com/SFTSOL/v4r4_1.htm
- AS/400 Partners In Development Year 2000 home page for more than just a Solution Developer site. This site is the "home page" of the technical information side of the Y2K problem and solution:
<http://www.ibm.com/as400/developer/year2000/>
- AS/400 books:
<http://as400bks.rochester.ibm.com/cgi-bin/bookmgr/bookmgr.cmd/Shelves>
- Home of the AS/400 ITSO redbooks and redpieces (of which this publication is one): <http://www.ibm.com/redbooks>

B.3.2 AS/400 Technical Support Databases

- AS/400 World Wide Technical Support:
<http://as400service.rochester.ibm.com/as400/service.html>
- Technical Information Databases:
http://as400service.rochester.ibm.com/as400/techinfodb_g.html
- Support Line Knowledge Base:
http://as400service.rochester.ibm.com/s_dir/slkbases.nsf/slkbases
- AS/400 Authorized Problem Analysis Reports APARs:
http://as400service.rochester.ibm.com/n_dir/nas4apar.nsf/nas4aparhome

B.3.3 AS/400 System Year 2000 Books

Table 14. AS/400 Year 2000 Related Publications

Manual #	Title	Description
SG24-2156	<i>AS/400 Applications: IBM Year 2000 Tools, Tips, & Techniques</i>	A guide to testing your applications and the tools available: ANZUSROBJ, SEARCH2000, and BYPASS200
SG24-2156-01	<i>AS/400 Applications: IBM Year 2000 Tools Tips & Techniques</i>	Redpiece which updates information in the manual above.
SG24-4829	<i>AS/400 Applications: Year 2000 Enablement & Services Considerations</i>	A guide for service providers in helping them assemble a service offering to assist customers in Year 2000 enablement.
GC28-1251	<i>The Year 2000 and 2-Digit Dates: A Guide for Planning and Implementation</i>	Help in analyzing the affect of two-digit dates in applications and how to plan for migration to a Year 2000 ready environment.
G325-6338	<i>AS/400 Roadmap to the Year 2000</i>	A planning guide to get your AS/400 system and applications Year 2000 ready.

B.4 System/36 Resources

The following group of Internet Web sites contain System/36 related information. We also include a table of System/36 hardcopy publications.

B.4.1 System/36 Links

- System/36: Roadmap to the Year 2000. This is the primary link for all succeeding links that follow:
<http://www.as400.ibm.com/developer/year2000/s36y2k.html>
- Advanced 36 Model 436 free upgrade (PRPQ) to Year 2000 Ready LIC code:
<http://www.as400.ibm.com/developer/year2000/y2a36lic.html>
- General Information: System/36 and Advanced 36 Year 2000 Support:
<http://www.as400.ibm.com/developer/year2000/y2k36ptf.html>
- System/36 Information:
<http://www.as400.ibm.com/developer/year2000/y2s36ptf.html>
- Advanced 36 Information:
<http://www.as400.ibm.com/developer/year2000/y2a36ptf.html>

- Determining Your System/36 Type:
<http://www.as400.ibm.com/developer/year2000/y2s36ptf.html#mach>
- Using CNFIGSSP to See which Program Products Are Installed:
<http://www.as400.ibm.com/developer/year2000/y2k36ptf.html#cnfigssp>
- Determining what System/36 Product IDs You Have:
<http://www.as400.ibm.com/developer/year2000/y2k36ptf.html#prodid>

B.4.2 System/36 Manuals

Table 15. System/36 Manuals for S/36 SSP, AS/400, and OS/400

Manual #	Title	Description
SC21-8368	<i>AS/400 Advanced 36 Using Value-Added Software Package</i>	Information on the IBM AS/400 Advanced 36 Value-Added Software Package (VASP) and instructions for configuring.
SC21-8377	<i>Getting SSP and OS/400 Installed and Running</i>	Installation, configuration, and run instructions for the dual operating systems (OS/400 and SSP) on a Model 436 or RISC processor model AS/400 system with SSP.
SC21-8384	<i>AS/400 Advanced Operator Tasks--Multiple Operating Systems</i>	System operator tasks for someone operating a Model 436 or AS/400 system with both OS/400 and SSP installed.
SC21-8386	<i>Advanced 36 Coexistence User's Guide</i>	Steps necessary for configuring and using PC Support/36 Coexistence in an SSP operating environment.
SG24-4559	<i>AS/400 Advanced 36 SSP 7.5 and OS/400 V3R6: Coexistence Examples</i>	Examples of configuring and using both SSP and OS/400 on a 436 or AS/400 in various environments (redbook).
SC21-8299	<i>AS/400 Advanced 36 General Information for SSP Operating System</i>	Information about function and programming enhancements that are not documented in existing System/36 manuals.

B.5 Client Access/400 Links

- Client Access home page: <http://www.as400.ibm.com/clientaccess>
- Client Access usage-based license information:
<http://www.as400.ibm.com/clientaccess/qnapack.htm>
- Client Access Ordering web page:
<http://www.as400.ibm.com/clientaccess/caorder.htm>
- Client Access Packaging:
<http://www.as400.ibm.com/clientaccess/cay2k.htm#calinks>
- Client Access Packaging and Ordering Questions and Answers:
<http://www.as400.ibm.com/clientaccess/qnapack.htm>

B.6 IBM Service Offerings

- AS/400 Year 2000 Service Offerings and tools:
<http://www.ibm.com/ibm/year2000/mkt/as400matrix.html>
- Year 2000 Readiness of Client Access Products:
<http://www.as400.ibm.com/clientaccess/cay2k.htm>
- IBM Business Partners Database (non-IBM Year 2000 Ready Tools and Applications):
<http://www2.software.ibm.com/solutions/ISV/Year2000.nsf>
- Business Recovery Services (BRS): <http://www.brs.ibm.com>
- e-Jump: <http://www.as400.ibm.com/SFTSOL/ejump.htm>
- LPAR and how to set it up:
<http://www.as400.ibm.com/lpar/index.htm>
- IBM Global Services: <http://www.as.ibm.com>
- IBM Global Services - list of offerings:
<http://www.as.ibm.com/asww/offerings/oww16sE.html>
- Key concerns for testing certain products such as BRMS, SNADS, ANYNET and so on:
<http://www.as400.ibm.com/developer/year2000/y2sysdat.html>
- IBM Visual Age 2000: <http://www.software.ibm.com/ad/va2000/>
- IBM's ADSM:
<http://www.storage.ibm.com/storage/software/adsm/ads0fam.htm>

B.7 PC Information

This section contains links to PC information. These categories include IBM PC links, as well as non-IBM (OEM) Web sites. This section also includes a list of OEM Year 2000 sites and vendors.

B.7.1 IBM PC Related Sites

- IBM PC home page: <http://www.pc.ibm.com>
- IBM PC Year 2000 home page: <http://www.pc.ibm.com/year2000/>
- IBM PC Hardware Product Readiness Database:
<http://www.pc.ibm.com/year2000/ready.html>
- PC Year 2000 Frequently Asked Questions:
<http://www.pc.ibm.com/year2000/faq.html>
- PC Year 2000 Tools and Strategies:
<http://www.pc.ibm.com/year2000/year2000c.html>
- Manually resetting the system dates for your PC operating system:
<http://www.pc.ibm.com/year2000/year2000c.html>
- IBM PC Evaluation tool:
<http://www.pc.ibm.com/year2000/evaluation.html>
- IBM PC hardware replacement options for your business:
<http://www.pc.ibm.com/us/businesspcs/index.html>
- Link to PC Resellers from this site:
<http://www.ibm.com/ibm/year2000/pcs/fixreplhard.htm>

B.7.2 IBM PC Operating Systems

- IBM PC DOS: <http://www.software.ibm.com/os/dos/>
- PC DOS 2000:
<http://www.software.ibm.com/os/dos/dos2000/index.html>
- PC DOS 2000 verses MS-DOS 6.22:
<http://www.software.ibm.com/os/dos/psm952a.html>
- IBM PC DOS7 fixpak information:
<http://www.software.ibm.com/year2000/faq2.htm>
- IBM PC DOS7 fixpak download. The following link points to the IBM fixpack list: <http://service5.boulder.ibm.com/pspfixpk.nsf>
Choose **All Fix Packages - By Product**. On the next screen, select **PC DOS V700**. Then, scroll down to DOS7Y2K.

- Year 2000 Readiness of OS/2:
<http://www.software.ibm.com/os/warp/solutions/and/y2000/year2000.html>
- IBM PC DOS and OS/2:
<http://www.software.ibm.com/year2000/faq2.html>

B.7.3 OEM PC Vendor Sites

- Apple Computer Year 2000 Web site:
<http://www.apple.com/about/year2000/index.html>
- Acer Inc. Year 2000 Compliance site:
<http://www.acer.com.tw/service/y2k/>
- Compaq Computer Year 2000 Compliance Program:
<http://www.compaq.com/year2000/year2000-tables.html>
- Dell Computer Year 2000 System Compliance Database:
<http://support.dell.com/filelib/year2000.asp>
- Gateway Computer Year 2000 statement and FAQ:
<http://www.gateway.com/frameset2.asp?s=corp&p=support&a=&url=/corp/y2k/y2k/default.html>
- Hewlett-Packard Year 2000 product compliance directory:
<http://www.hp.com/year2000/allproducts.html>
- IBM PC Year 2000 Web site: <http://www.pc.ibm.com/year2000/>
- Micron Electronics Year 2000 product information:
<http://www.micronpc.com/find/search/index.html?errorurl=/about/year2000/index.html>
- Microsoft Year 2000 site:
<http://www.microsoft.com/technet/year2k/product/product.htm>
- Packard-Bell Year 2000 Web site:
<http://support.packardbell.com/year2000/>
- Other PC vendor information:
<http://zdnet.com/enterprise/zdy2k/compliance>
- PC Vendors' Compliance site: <http://www.vendor2000.com>

B.7.4 PC Application Related Year 2000 Information

- Programs that are pre-installed on IBM PCs:
<http://www.pc.ibm.com/year2000/software.html>
- Year 2000 issues in PC Database packages:
<http://www.sysmod.com/y2kxbase.htm>

- The year 2000 and spreadsheets:
<http://www.blouberg.co.za/y2k/spreadsheets.html>
- Tips and Traps for date handling in popular PC spreadsheets:
<http://www.sysmod.com/y2ksprds.htm>

Appendix C. Special Notices

This publication is intended to help IBM customers who use AS/400 systems or System 36 and are about to embark on their Year 2000 Readiness project. References in this publication to IBM products, programs or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent program that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program or service.

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RS/6000	S/390
SP	System/36
System/38	System/390
XT	400

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Appendix D. Related Publications

The publications listed in this section are considered particularly suitable for a more detailed discussion of the topics covered in this redbook.

D.1 International Technical Support Organization Publications

For information on ordering these ITSO publications, see "How to Get ITSO Redbooks" on page 97.

- *AS/400 Applications: IBM Year 2000 Tools, Tips, & Techniques*, SG24-2156
- *System Administrators Companion to Availability & Recovery*, SG24-2161
- *AS/400 Applications: Year 2000 Enablement & Services Considerations*, SG24-4829
- *AS/400 Advanced 36 SSP 7.5 and OS/400 V3R6: Coexistence Examples*, SG24-4559

D.2 Redbooks on CD-ROMs

Redbooks are also available on the following CD-ROMs:

CD-ROM Title	Collection Kit Number
System/390 Redbooks Collection	SK2T-2177
Networking and Systems Management Redbooks Collection	SK2T-6022
Transaction Processing and Data Management Redbook	SK2T-8038
Lotus Redbooks Collection	SK2T-8039
Tivoli Redbooks Collection	SK2T-8044
AS/400 Redbooks Collection	SK2T-2849
RS/6000 Redbooks Collection (HTML, BkMgr)	SK2T-8040
RS/6000 Redbooks Collection (PostScript)	SK2T-8041
RS/6000 Redbooks Collection (PDF Format)	SK2T-8043
Application Development Redbooks Collection	SK2T-8037

D.3 Other Publications

These publications are also relevant as further information sources:

- *The Year 2000 and 2-Digit Dates: A Guide for Planning and Implementation*, GC28-1251
- *AS/400 Roadmap to the Year 2000*, G325-6338
- *AS/400 Advanced 36 Using Value-Added Software Package*, SC21-8368
- *Getting SSP and OS/400 Installed and Running*, SC21-8377
- *AS/400 Advanced 36 Operator Tasks — Multiple Operating Systems*, SC21-8384
- *AS/400 Advanced 36 Coexistence User's Guide*, SC21-8386
- *AS/400 Advanced 36 General Information for SSP Operating System*, SC21-8299
- *System Startup and Problem Handling*, SC41-3206
- *AS/400 Software Installation*, SC41-5120

How to Get ITSO Redbooks

This section explains how both customers and IBM employees can find out about ITSO redbooks, redpieces, and CD-ROMs. A form for ordering books and CD-ROMs by fax or e-mail is also provided.

- **Redbooks Web Site** <http://www.redbooks.ibm.com/>

Search for, view, download or order hardcopy/CD-ROM redbooks from the redbooks web site. Also read redpieces and download additional materials (code samples or diskette/CD-ROM images) from this redbooks site.

Redpieces are redbooks in progress; not all redbooks become redpieces and sometimes just a few chapters will be published this way. The intent is to get the information out much quicker than the formal publishing process allows.

- **E-mail Orders**

Send orders via e-mail including information from the redbooks fax order form to:

	e-mail address
In United States	usib6fpl@ibmmail.com
Outside North America	Contact information is in the "How to Order" section at this site: http://www.elink.ibm.link.ibm.com/pbl/pbl/

- **Telephone Orders**

United States (toll free)	1-800-879-2755
Canada (toll free)	1-800-IBM-4YOU
Outside North America	Country coordinator phone number is in the "How to Order" section at this site: http://www.elink.ibm.link.ibm.com/pbl/pbl/

- **Fax Orders**

United States (toll free)	1-800-445-9269
Canada	1-403-267-4455
Outside North America	Fax phone number is in the "How to Order" section at this site: http://www.elink.ibm.link.ibm.com/pbl/pbl/

This information was current at the time of publication, but is continually subject to change. The latest information for customer may be found at <http://www.redbooks.ibm.com/> and for IBM employees at <http://w3.itso.ibm.com/>.

IBM Intranet for Employees

IBM employees may register for information on workshops, residencies, and redbooks by accessing the IBM Intranet Web site at <http://w3.itso.ibm.com/> and clicking the ITSO Mailing List button. Look in the Materials repository for workshops, presentations, papers, and Web pages developed and written by the ITSO technical professionals; click the Additional Materials button. Employees may also view redbook, residency, and workshop announcements at <http://inews.ibm.com/>.

Index

Symbols

(IOPs 3
?longdate? 71, 75

Numerics

236 39
436 39

A

ADSM 58
Advanced 36 39, 43, 71
ASKY2K 17

B

BRS (Business Recovery Services) 4
Business Partners Database 3
Business Recovery Services (BRS) 4

C

changing PC date 58
CHGJOB DAT 77
CISC 9
ClickNet 79
Client Access Express 62

D

Display Hardware Resources 18
Display Software Resource 11
DOS 2000 56
DOS 7 55
DSPHDWRSC command 18
DSPSFWRSC command 11

E

e-Jump 10
e-mail report 11, 16
euro currency symbol 78

F

faking system date 77
family product, Client Access 61
Family, Client Access 80
Fast Forward 24

Feature Unique Licensed Internal Code (FULIC) 34
FULIC (Feature Unique Licensed Internal Code) 34

G

generating a software report, Product Readiness Database 14
Global Services 31, 59
GO RESTORE 36
GO SAVE 27, 36
Group PTFs 8, 9, 66

H

high-risk dates 22
Hints links, Product Readiness Database 11

I

IBM PC DOS 55
IBM Product Readiness Database 11
IMPI 34
implicit date 19, 26
interceptor tools, date 77
invalid date 22, 25

K

key dates 22

L

LIC 46
license component 62
 Client Access 63
Long Sleep 24
LPAR 23

M

machine type, System/36 45
Microsoft 58
Model Unique Licensed Internal Code (MULIC) 34
Model Y10 39
MS DOS 55
MULIC (Model Unique Licensed Internal Code) 34

O

OEM update, BIOS 53
OS/2 55

P

packaging, Client Access 61, 81
PC
 BIOS 51
 hardware clock 51, 52
PC CD-ROM
 versus AS/400 CD-ROM 68
PC Evaluation Tool 51
PC Resellers 57
Preventative Service Planning (PSP) 9, 10
product IDs 11, 15
Product Readiness Database 8
program ID, Client Access 63
PSP (Preventative Service Planning) 9, 10
PTFs, VASP 75

Q

QCENTURY 19, 25, 26
QDATE 25, 26, 77
QTIME 26
Quick Search
 option on Product Readiness Database 13
 report on Product Readiness Database 13

R

readiness, Client Access 66
recording changes, password 23
report, DSPSFWRSC 12
resetting date on PCs 52
RISC 10

S

S/38 74
Set Disk Clean 9
SETDSKCLN 9
Software Readiness Report 16
SSP 41
SUBR39 71, 75
System/36 39

T

tape drives 28
Time Machine 24
type of entries, DSPSFWRSC report 12

U

updating BIOS 52
Upgrade Kit (CISC to RISC) 10
URL for PCs, Product Readiness Database 51

V

VASP 44, 71, 73
 System/36 44

W

Warp 55
Windows family, Client Access 61
WRKHDWRSC 7

Y

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