



IBM i5/OS V5R3 – the next generation of OS/400

Overview

Next generation of operating system

IBM @server i5/OS V5R3, is the next generation of OS/400®.

You are familiar with OS/400. i5/OS is a different name for the same operating system. It is a premier integrated operating system that builds upon and extends the capabilities of OS/400. It runs on IBM @server iSeries™ servers and AS/400® Models 720, 730, 740, 170, SB2, SB3, 250, 270, 800, 810, 825, 870, 890, and IBM @server i5 Models 520 and 570.

To enjoy the advantages, you can upgrade to i5/OS V5R3 from OS/400 V5R2 and V5R1.

Terms and conditions changes for V5R3

- Proof of Entitlement is via an electronic Proof of Entitlement (ePoE).
- Software License Manager/400 counts the number of processor licenses and compares that with the number of entitlements provided with the OS/400 license key.
- Chargeable program options of OS/400 cannot be transferred outside your enterprise.

OS/400 continues to increase Web ease of use

The HTTP Server for iSeries supports WebSphere® Base application server, WebSphere Portal server, and Kerberos authentication.

Business Solutions provide Web applications with setup wizards to help reduce the complexity and increase the availability of the applications:

- Telephone directory
- Survey creator
- Welcome page

OS/400 integration

Linux and the Integrated IBM @server xSeries® Server support larger virtual disk drives. Linux can be started and stopped via iSeries Navigator. DB2 Universal Database® (UDB) provides database access from client interfaces such as Linux partitions and Microsoft™ Windows™ systems.

Key prerequisites

One of the following iSeries Models: 170, 250, 270, SB2, SB3, 7xx, and 8xx. Also i5 Models 520 and 570

Planned availability date

June 11, 2004

At a glance

- Enhancements to IBM Performance Management for iSeries (PM iSeries) enable automated collection and analysis of utilization data gathered from multiple partitions and OS types
- Operations Console includes the following functions:
 - Improved recovery and debug of problems
 - Direct connect remote Control Panel directly to secondary partitions
 - Automatic recovery of a failed console
 - Ability to view which PC has console control or take over control from another PC
 - Support via a USB adapter for limited environments
- Support in iSeries Windows Integration for larger virtual disk drives and increased access to Enterprise Identity Mapping
- Support for a Key Distribution Center via the IBM @server pSeries® Network Authentication Service product running in the PASE environment
- A new component, IBM Business Solutions V1, a series of three Web-based business solutions
- iSeries Navigator enhanced
- Updates to IBM HTTP Server for iSeries
- Increased support for the Plasmon G-Series for OS/400 optical libraries
- Enhancements to DB2® UDB for iSeries:
 - Promote globalization and portability
 - Improve performance
 - Enable server consolidation and enterprise growth

For ordering, contact:

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Reference: AE001

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Description

Cross-partition, multi-OS support with PM iSeries

IBM Performance Management for iSeries (PM iSeries) is an integrated OS/400 capability that helps to ensure your iSeries server is available when needed without disruption.

An automated OS/400 systems management function, PM iSeries is enhanced with V5R3 to help you more easily manage your iSeries in a dynamic, multi-OS, multipartition, capacity on demand processing environment.

PM iSeries triggers collection services to gather non-proprietary performance and capacity data from your iSeries server and then, at your option, sends that data to IBM for analysis. In return, summary reporting and future system sizing capabilities are provided to you. Previously, PM iSeries ran at a partition level only and supported only the OS/400 operating system. To receive any kind of a "cross-partition view," the user had to activate PM iSeries in all partitions and manually assimilate the results.

Now, in combination with the availability of the IBM Director Multipatform Server option of the Virtualization Engine™, PM iSeries support for a multipartition, multi-OS type (including OS/400, Linux and AIX® 5L) is available with V5R3. PM iSeries provides summary reporting on your total system CPU utilization versus allocated, configured, and reserved Capacity Upgrade on Demand processors. Additionally, your summary multipartition, multi-OS type data can be passed easily to the IBM eServer® workload Estimator to help you assess any subsequent system needs. Refer to the Preview: IBM Virtualization Engine Systems Services for Multipatform Overview for additional information Software Announcement 204-158, dated April 28, 2004.

Availability/requirements for this support:

The availability of the new PM iSeries cross-partition and multiple-OS reports is planned for second half 2004.

For additional information, visit

<http://www.ibm.com/eserver/iseries/pm>

Also, you can access an IBM Virtualization Engine Information Center article, "Collecting performance data across partitions" at

<http://publib.boulder.ibm.com/iseries/v5r3/ic2924/info/rzahx/rzahxcollectdata.html>

Also, visit the IBM eServer Workload Estimator at

<http://www.ibm.com/eserver/iseries/support/estimator>

Providing a cross-partition view of CPU utilization helps you and IBM or your IBM Business Partner more easily optimize your IT investment.

Operations console

- A new function consisting of control panel functions 65 and 21 aids in the recovery or debug of Operations Console problems. The user can:
 - Change the console mode value (between twinax, direct-attach Operations Console, LAN-attach Operations Console, and HMC).
 - Clear the LAN adapter's associated data used for Operations Console or the service tools server.

- Deactivate and reactivate the LAN adapter associated data used for Operations Console or the service tools server.
- Dump all the flight recorders commonly associated with Operations Console. This includes the ability to dump information from other partitions for use by the primary partition console.

All of the above functions can also be done on an SST screen via native macro.

Remote Control Panel (RCP) can now be connected directly to secondary partition (previously, it had to connect through the primary). However, the RCP cannot be used to power on a partition from a powered-off state when used in this way.

Operations Console enhancements:

- If Operations Console fails (that is, temporary network error), the console is activated with no action required by the administrator.
- An administrator can identify which PC currently controls the console.
- The administrator can take away control of the console from another PC.
- The console type is always enforced (if choosing LAN, only LAN is used for console).
- If console type is not set, the user is prompted to set it.
- Restrict console adapters to specific slots to control which PC will be the console
- Option to do Ops Console server configuration through SST (not just through DST).
- LAN connected RCP has an SRC history option so that past SRCs can be viewed through the RCP.

The use of Universal Serial Bus (USB)-to-serial adapter support is added to the Operations Console. The adapter can be placed between the console's serial cable, at the PC end, and the PC's USB port, instead of the console cable going to a serial port. For restrictions, refer to the InfoCenter articles on Operations Console.

iSeries Linux integration

Support for larger virtual disk drives and graphical server management is provided.

The virtual disk drive support is enhanced to increase the maximum size of a single virtual disk drive from 64 GB to 1,000 GB. The maximum total amount of disk capacity that can be allocated to a Linux server has increased from 4 TB to 64 TB.

The Windows Administration function in iSeries Navigator can now be used to start and shut down Linux servers. The Windows Administration function can also be used to create, delete, link, and unlink virtual disk drives for Linux servers.

For the latest information on iSeries Linux support, refer to

<http://www.ibm.com/servers/eserver/iseries/linux>

iSeries Windows integration

The iSeries Integrated xSeries Server and Integrated xSeries Adapter offerings support larger virtual disk drives and allow users who are enrolled from OS/400 to Windows to take advantage of Enterprise Identity Mapping (EIM).

The virtual disk drive support is enhanced to increase the maximum size of a single virtual disk drive from 64 GB to 1,000 GB. This allows Windows servers to have disk volumes over 64 GB without creating volume sets that span multiple disk drives. The maximum total amount of disk capacity that can be allocated to a non-clustered Windows server has increased from 2 TB to 32 TB. For a server that uses Microsoft Clustering Service, the maximum disk capacity has increased from 3 TB to 48 TB.

Users enrolled to the Windows environment from OS/400 can now take advantage of EIM. User enrollment support for EIM allows easier setup for Windows single sign-on and allows enrolled OS/400 user profiles to be different than Windows users profiles. In addition, enrolled users can now manage their Windows passwords in Windows. These enhancements allow more flexibility in managing user accounts enrolled from OS/400 to Windows.

For the latest information on iSeries Windows integration, refer to

<http://www.ibm.com/servers/eserver/iseries/windowsintegration/>

Network Authentication Service Server

The previous support for Network Authentication Services (NAS) on iSeries consists of the GSS API suite and Kerberos Version 5 APIs. The iSeries NAS support (originally delivered in V5R1) enables iSeries applications and services to request and validate Kerberos tickets created by a Key Distribution Center in the network.

In this release, support for a Key Distribution Center is delivered on iSeries via the pSeries NAS product running in the PASE environment. This program is delivered on iSeries via the 5722-AC3 (Crypto Access Provider) program. The Key Distribution Center support provides the ability to create and manage tickets in your network.

IBM Business Solutions V1

IBM Business Solutions is a set of enterprise Web applications available for iSeries servers. Each application is an integrated solution to a common business need that works in conjunction with your existing applications, server components, and enterprise data. They help demonstrate the value of integrated e-business solutions, increase worker productivity, provide services that virtually any business may find useful, and are easy to understand and use.

Enterprise Web applications must be deployed into an application server before they can be used. Deployment of such applications may be tricky, which is why deployment wizards for the applications provided by IBM Business Solutions are added to the new Web Administration GUI provided by IBM HTTP Server (powered by Apache). The new Web Administration GUI now includes setup and deployment wizards that make the enterprise Web applications provided by IBM Business Solutions ready to use immediately, with WebSphere applications servers you may have already, or with new WebSphere application servers.

IBM Telephone Directory V5R2: At its core, IBM Telephone Directory V5R2 is a Web-based business application with an online telephone directory (or "white pages"). It can search, view, and manage information in a directory. Personnel information is managed securely by the OS/400's lightweight directory access protocol (LDAP) server. Another suggested use for the IBM Telephone Directory, particularly for customers with very few employees, is to manage lists of vendors, suppliers, and partners all accessible via Internet, extranet, or intranet.

IBM Telephone Directory may be used with a directory you may have already set up for your existing applications, a new directory set up by the new Web Administration GUI (described previously), or the IBM Welcome Page application (described below).

V5R2 of the IBM Telephone Directory application now includes integration with Lotus® Sametime® servers and Enterprise Identity Mapping domain servers.

You can:

- Search by name, job responsibilities, e-mail address, telephone number, department, and division
- View organizational structure (report-to chart, department listings)
- Store personalized information (picture)
- Initiate chat sessions with colleagues using Lotus Sametime technology
- Add entries to Lotus Sametime contact lists (or Notes® "buddy lists")
- View and self-manage EIM registries

IBM Survey Creator V1: IBM Survey Creator V1 is a Web-based business application that can be deployed into a WebSphere Application Server for iSeries. This browser-based application is ready to use for creating, configuring, and managing surveys.

Web user authentication related information is managed securely by the OS/400 LDAP server.

The survey application offers multiple question and answer formats to choose from for configuring the content of a survey.

Information relating to the configuration of a survey, and its subsequent results from users who take the survey, are stored in an IBM DB2 Universal Database on the iSeries.

You can:

- Define a list of people in your company allowed to conduct online surveys
- Create and edit surveys
- Conduct online anonymous surveys
- Conduct online surveys where survey takers are required to identify themselves (using LDAP authentication)
- View survey results

IBM Welcome Page V1.1: IBM Welcome Page V1.1 is a Web-based business application with a two-fold purpose.

First, it provides a starting point for non-administrators with links to the other business applications provided by IBM Business Solutions — a simple welcome page specifically for business applications.

Second, it provides administrative interfaces used to set up and configure other business applications.

Administrative interfaces, called “Administrator Pages,” offer a GUI for setup of new or existing LDAP directories as well as management of directories (LDAP), SSL communication, Sametime, and EIM configuration properties to be used by the other business applications. It offers links to administrative interfaces provided specifically by the other business applications.

Non-administrative interfaces simply include a welcome page with links to the other business applications.

The following Administrative interfaces are provided:

- Set up new or existing LDAP directories for business application data
- Manage directory LDAP, SSL, Sametime, and EIM configuration properties for all business applications
- Link to administrator pages provided specifically by the other business applications (if any)

Non-administrative interfaces:

- View a menu of available business applications — Links are shown only for application installed and online/active.

iSeries Navigator

Tasks from the Web

- Access core systems management tasks from your browser
- Access multiple systems through one iSeries from a Web browser
- Embed these tasks into your Web applications

Management central

- Management Central has made significant enhancements that enable you to manage many more endpoints simultaneously from a V5R3 central management server. Improvements in scale can be seen with pre-V5R3 endpoints talking to a V5R3 management server. Although, you will see the best results when running V5R3 on both the server and the endpoint systems. Greatest improvements in scale can be seen where large amounts of data are transferred, such as inventory collection or fix distribution.
- Management Central servers can now be made highly available in V5R3. For customers working with a High Availability Business Partner, Management Central data, and objects on the central server can be managed for high availability along with other cluster proven data and solutions.
- Synchronize functions
 - Key functions, such as EIM and Kerberos, can be synchronized across a group of endpoint systems.

- Collection Services categories
 - Two categories were added to the Data to Collect dialog: one for cross-partition data and another one for data port services data.
- New System Monitor properties fields
 - Fields related to multipath disk units and remotely mirrored independent auxiliary storage pools are added to these System Monitor metrics: Disk Arm Utilization (Average), Disk Arm Utilization (Maximum), Disk Storage (Average), and Disk Storage (Maximum).
 - New method for calculating CPU utilization in partitions
- Electronic Service Agent™ is integrated into the base OS/400 operating system

Network: Windows Administration

- Support to start and shut down for Linux servers in logical partitions
- Support to create, delete, link, and unlink disk drives for Linux servers in logical partitions
- Additional properties for integrated Windows servers
- View information for Windows disk drive volumes
- Support Windows and Linux disk drive maximum size of 1,000 GB
- Allow enrolled OS/400 users to have a different name on Windows than on OS/400

Directory Service

- Administer the directory server from one common Web GUI
- The Performance property page allows you to specify cache settings for the server
- New Password property page security enhancements
- The Connect to Directory Server Kerberos authentication
- Search property page allows you to control sorted/paged search results, restricts access to ACL attributes on entries

SNTP

- Configure an SNTP server to use your iSeries for time synchronization across your network

iSeries NetServer

- The General > Next Start property page allows you to select both encrypted passwords and Kerberos V5 as the authentication method

Enterprise Identity Mapping (EIM)

- Work with digital certificates as a type of user identity
- EIM now has mapping policy support for defining many-to-one mappings through policy associations
- EIM now enables you to test your EIM mappings

Configuration and service

- Additional system values
 - Auditing, Date and Time, Jobs, Performance, Security, Save and Restore

- Time Management
 - From the Time Management function, you can manage time zones and adjust system time
- Disk Management
 - Configure and manage geographic mirroring for independent disk pools.
 - Print the Graphical View for records and reference.
 - Optimize parity sets for availability.
 - Retrieve disk unit logs to gather information about specific disk units.
 - View multipath disk unit connections from several input/output processors on an iSeries server to a single disk unit in the Enterprise Storage Server™.

Databases

- Enhanced usability through restructured views — objects are now organized by container for convenient access
- Table reorganization is enhanced to allow suspending and resuming a table reorganization as well as viewing the progress of the reorganization
- Management of check pending constraints is improved with the ability to directly repair object in check pending status from iSeries Navigator
- Manage the relational database directory of remote databases
- Run SQL Scripts allows launch of the iSeries Graphical Debugger to debug stored procedures and allow font selection while editing
- Visually explain customization for SQL Query Engine (SQE)
- GUI support is added for the new DB2 UDB for iSeries function, including items such as creation of Partitioned tables and Sequence Objects

Integrated file system

- New security page
 - Sets scanning settings for objects created in files and folders. Also specifies auditing value, change options, user ID, and primary group ID.
- Ability to make objects savable
- Ability to set objects created in a folder to be scanned
- Restrict rename and unlink
- User Defined File Systems (UDFS) enhancements
 - Setting objects to be scanned
 - Restricting rename and unlink
 - Specify a default file format for UDFS
 - User and group ID settings can now be changed on a mounted UDFS

Intelligent agents: Intelligent Agents provide system administrators with an easy way to manage many Agent Building and Learning Environment (ABLE) agents running on different systems. This includes:

- An agent framework for building agents that enable autonomic computing
- A standards-based, scalable agent platform with security and other agent services

- An administrative console for managing deployed agents

AFP™ Manager: Extended capabilities

- Intelligent routing lets you specify any combination of stream file, spooled file, or e-mail for the PDF output files.
- Respool the input file (or a segment of the input file) as AFP for print or fax.
- Specify a PDF administrator to receive e-mailed failure messages with the PDF file attached for simplified reprocessing.
- Encryption options for the e-mailed PDF.
- PDF mapping objects let you access functions that require a mapping program without having to write a program.

Backup and BRMS

- Restore printer output and archive objects
- Perform a fully automated backup in BRMS
- New Global Policy Properties for maintenance, retrieval, and network options
- Manage your BRMS devices — any stand-alone devices, media libraries, and Tivoli® Storage Manager (TSM) servers used by BRMS
- A new Reclaim wizard enables you to reclaim old fragmented tape volumes and make them usable again
- View or save selected BRMS reports in HTML
- Backup policy now allows omits of folders, libraries, and library objects
- Enhanced search of backup history

Advanced Job Scheduler

- Advanced Job Scheduler for Wireless — Work with Advanced Job Scheduler using a wireless device such as a PDA
- Automatically notify a specified recipient via e-mail and attach printer output in PDF format to e-mail messages
- New job properties
 - Local data area
 - Command step
 - Create and work with job documentation
- New Advanced Job Scheduler properties
 - Fiscal calendar
 - Data libraries
 - Skip count feature
 - Multiple scheduling environments
 - Skip dependency
 - Monitor jobs not started within time limit
 - Report distribution

Usability enhancements

- Choose to automatically open task results window when starting a task.
- Connection status dialog for connecting to the central system.
- Ability to edit IP address of endpoint system.
- Auto reset your file and message monitors after a command is run.

- Exporting inventory to a new format type to support Unicode.
- Performance advisor designed to help determine why you're experiencing slow performance.
- More complete search results when searching for users across systems.
- Copy from Media enhancement allowing concurrent copying from different systems.
- Printer Output and Messages folder now include many usability enhancements.
- TCP/IP Enhancements
 - Enhancements to SNMP and SMTP server support
 - Addition of CIMOM server support
 - Addition of significant new Quality of Service (QoS) function
 - eCare connectivity enhancements (for setting up connection to IBM support)

HTTP Server for iSeries

The Web Administration GUI included in the IBM HTTP Server for iSeries adds support for:

- **WebSphere Application Server Base Edition** — the same level of function provided for WebSphere Application Server — Express via browser-based administration with easy-to-use wizards for creating HTTP and application server instances, deploying J2EE applications, and management of HTTP and application servers and their applications.
- **WebSphere Portal-Express** — an easy-to-use interface to set up a WebSphere Portal via a wizard that walks the user through the necessary steps to create and configure all the necessary servers, deploy the Portal EAR files, and perform other setup necessary to get Portal up and running.
- **The retrieval and display of HTTP server statistical information via the user's Web browser** — used to track cached and non-cached data sent and received to a particular HTTP server. Statistical subsets indicate whether the data has been handled by the IBM HTTP server (powered by Apache), a CGI program, an application server, or a user module.

The IBM HTTP Server for iSeries adds support for:

- An update to IBM HTTP Server (powered by Apache) to a new release of the Apache 2.0 HTTP Server.
- CGI enhancements for running an initialization URL at startup and ability to set CGI jobs' library list.
- Kerberos authentication. This enhancement offers Windows clients using Active Directory and Kerberos login a single sign-on between a Windows desktop and Microsoft Internet Explorer accessing HTTP Server on iSeries. Enterprise Identity Mapping (EIM) can be used in this environment.

OS/400 support for Plasmon G-Series

OS/400 V5R3 enhances support of Plasmon G-Series for OS/400 optical libraries. The maximum number of drives supported increases from six to 12 and the bulk media loader and bar code features are enabled. These enhancements build off V5R1 and V5R2 support for Plasmon optical libraries with 14x (9.1 GB) Magneto-Optical drives ranging from 104 slots to 638 slots providing storage capacities from 946 GB to 5.8 TB.

DB2 UDB for iSeries

In an on demand world, standards and globalization are important for integration and openness. Application portability through standards and the flexibility to access the database via numerous client interfaces from Linux partitions and Windows systems allows the application provider and the customer with the most flexibility possible.

DB2 UDB for iSeries embodies that flexibility through the support of its traditional database interface along with enhancing the SQL-based database required by today's Enterprise Application Systems. Enhancements to the RPG SQL Pre-compiler help customers and ISVs to more easily make use of both interfaces.

Enhancements that promote globalization and portability through adherence to standards:

- UTF-8 and UTF-16 support within the database.
- SEQUENCE Object support enabled DB2 to handle key value (e.g., order ID) generation on behalf of your application.
- EXCEPT/INTERSECT SQL set operators.
- New BINARY/VARBINARY data type support.
- More robust error handling with GET DIAGNOSTICS SQL statement.
- Encryption capabilities enhanced with DB2 Family Column Encryption functions.
- Native Microsoft .NET provider.
- CLI Column-wise binding.
- Materialized Query Tables (MQTs) are available as a technology preview with the ability to create and refresh MQTs.
- Additional SQL enhancements that satisfy ISO and ANSI standards.

Performance improvements to DB2 UDB for iSeries include the following:

- Parallel Concurrent table reorganize
- SQL Query Engine enhancements with performance improvements on a variety of customer queries, typically longer complex queries with attributes such as subqueries, views, common table expressions, and derived tables
- Star Join enhancements
- Faster SQL Deletes
- Faster Stored Procedure Call Processing as a result of enhanced job level caching
- OnDemand Stats Generation

Server consolidation and enterprise growth are improved by increasing limits on the system and providing additional Migration Toolkits for moving data and queries from other databases. Examples of increased limits:

- 1.7 TB Tables
- Partitioned Table support
- Larger decimal precision
- 256 tables (members) in a view

iSeries Web technical support

iSeries Web technical support features assist you in the maintenance of your iSeries system.

Proactive fix notification — Now you can be notified when a cumulative or group PTF becomes available. A new proactive fix notification tool sends you an e-mail to inform you of new fixes to help keep your iSeries system up to date. You can subscribe to all of the V5R1, V5R2, and V5R3 PTF groups, cumulative PTF packages, High Impact/Pervasive PTFs (HIPER) as well as any PTFs marked defective. Your preferences are maintained using your IBM Web registration ID.

Improved Web-based fix ordering — Fix information and ordering is available from one convenient place for OS/400, AIX, Linux, cluster software, xSeries, zSeries®, TotalStorage®, and other products. Features include fix description search and immediate viewing of detailed fix information (size, for example) for most products.

Customized cumulative PTFs — Now you can limit cumulative PTF orders to the fixes you need to bring your system up to a selected package level using your system inventory. Your order will be sent to an FTP server ready for you to download at a convenient time.

Improved online software problem reporting — Software Service Request provides an improved method reporting and managing software problems on the Web. You can now use one Web application to report problems with IBM-supported software running on iSeries and pSeries. You can create problems with user-defined names, view and update problems, and generate reports.

Communications trace analyzer tool — The Intelligent Communications Trace Analyzer can diagnose many common connection, performance, and security problems from an iSeries TCP/IP or Trace Connection (TRCCNN) trace. You can download the tool from the Web.

Web site navigation improvements — The Web site navigation is organized by product and task to more quickly locate the relevant information. Now if you are trying to plan, upgrade, or solve a problem with your hardware or software, you are presented with information relating to those tasks.

Refer to

<http://www-1.ibm.com/servers/eserver/support/iseries/>

Select the iSeries support news archive link for more information.

Print Services Facility™ For OS/400

Print Services Facility for OS/400 (PSF/400) is the integrated AFP (Advanced Function Presentation™) system manager and IPDS™ (Intelligent Printer Data Stream™) printer driver for iSeries. V5R3 enhancements include continued Unicode implementation, support for TrueType and OpenType fonts, capabilities to import network standard image and graphic formats directly into eServer iSeries documents, and enhanced support for full color. Both OS/400 and PSF/400 are enhanced to add these functions. The result is an output architecture that supports a much broader range of document content and function.

PSF/400 V5R3 also supports new iSeries printers.

Print Services Facility implements phase II of Unicode. Unicode is the emerging text encoding standard that uses an expanded 16-bit data address to represent nearly all of the characters in all of the world's languages in one

interface. Phase II of the Unicode comprises most of the world's languages except those that require complex text support. With Unicode, applications that require multiple languages are greatly simplified.

With V5R3, TrueType and OpenType fonts can be specified directly in eServer iSeries output. These fonts can be cataloged in the Integrated File System and referenced with the FONTNAME keyword. The Infoprint® Fonts product (5648-E77) has a font installer program that enables simple installation of TrueType and OpenType fonts. AFP, TrueType, and OpenType fonts can be intermixed on the same page.

The ability to use TrueType and OpenType fonts greatly expands the universe of fonts available for eServer iSeries applications while providing for flexibility and consistency among various organization documents.

Full color and image capabilities are extended with V5R3. Full process color debuted in V5R2 with the implementation of high-resolution, highly-compressed AFP color (called IOCA Function Set 45, or FS45, of the AFP image object architecture). With V5R3, PSF/400 supports the new OS/400 capabilities to import network or Web standard graphics objects directly into eServer iSeries documents. These graphic or image object types reside on the Integrated File System and are referenced with the AFPRSC keyword.

The ASCII formats supported are:

- JFIF (JPEG File Image Format, commonly referred to as jpeg)
- TIFF (Tag Image File Format)
- EPS (Encapsulated Postscript)
- EPSTR (EPS with transparency)
- PDFSPL (PDF single page)
- PDFSPOTR (PDF single page with transparency)
- PCLPO (PCL page object)

The AFP objects types that can be imported directly from the Integrated File System are:

- BCOCA (AFP barcode object)
- GOCA (AFP graphics object)
- IOCA (AFP image object)

These object types are stored in a new structure within the AFP data stream called an object container. Object containers support a mixture of EBCDIC and ASCII-encoded data within the same document or report.

Document content within object containers also integrates with the PDF services support in Infoprint Server for eServer iSeries (5722-IP1). For example, a full color logo can be pulled directly from an Integrated File System directory into an eServer iSeries document then passed to Infoprint Server and converted into PDF for distribution.

Support for the following iSeries printers (as IPDS printers) is added with PSF/400 V5R3:

- IBM Infoprint 1312 Printer
- IBM Infoprint 1332L Printer
- IBM Infoprint 1354 Printer
- IBM Infoprint 1354L Printer
- IBM Infoprint 1372 Printer
- IBM Infoprint Color 1354L Printer
- IBM Infoprint 2060ES Printer
- IBM Infoprint 2075ES Printer
- IBM Infoprint 2090ES Printer
- IBM Infoprint 2105ES Printer
- IBM 4247 IPDS

Business continuity

Output queues in independent disk pools

Clustering is enhanced in V5R3 to provide support for output queues in independent disk pools. This provides data resilience for spooled output and gives you more flexibility in adapting your application environment for use with independent disk pools.

Cross-site mirroring (XSM)

Independent disk pools can now be used in a XSM environment. XSM, combined with a new geographic mirroring function, enables you to generate a mirror copy of an independent disk pool on a system (optionally) geographically distant from the originating site. As data is written to the production copy of an independent disk pool, the operating system mirrors that data to a second copy of the independent disk pool through another system. This process keeps multiple identical copies of the data.

The geographically mirrored independent disk pool maintains all of the benefits of an independent disk pool, while providing more flexible cluster configuration options and protection against local disasters or other failures of the original copy of the data. If a failover or switchover should occur, the backup server can seamlessly take on the role of the primary server and will then own the production copy of the independent disk pool.

Geographic mirroring is a subfunction of XSM, which is part of OS/400® Option 41, HA Switchable Resources.

Enhanced disk protection options

If you use device parity protection with a V5R2 input/output adapter (IOA) and OS/400 V5R2 or later, you can choose if you want your parity sets to be optimized for performance, capacity, or a more balanced configuration. At V5R3, a parity set can now also be optimized for availability. Optimizing for availability offers a greater level of protection by allowing a parity set to remain functional in the event of a SCSI bus failure.

Multipath support for TotalStorage Enterprise Storage Server (ESS)

At V5R3, up to eight connections can be defined from multiple input/output processors on an iSeries server to a single logical unit number (LUN) in the TotalStorage ESS. Each connection for a multipath disk unit functions independently. Multiple connections can provide uninterrupted access to the disks in an ESS even if a single path fails.

Save-while-active enhancements

At V5R3, for applications that use commitment control, the save-while-active function supports a new option that allows you to complete a save operation without waiting for transaction boundaries. Previously, if you tried to save all objects at transaction boundaries and the applications did not reach commitment boundaries within a specified time, the save operation would fail. The new option allows the save-while-active function to be used to eliminate the save-outage where the volume or duration of the transactions may have previously caused the save operation to fail while waiting to reach commitment boundaries.

Recovering a file saved with partial transactions uses your journaled changes to complete or rollback partial transactions in order to reach commit boundaries and bring the restored file to a consistent state. It is recommended that you use Backup, Recovery, and Media Services (BRMS) (5722-BR1) to automate your backup and recovery operations. BRMS automatically applies changes to objects with partial transactions and restores them to a usable state.

Integrated file system save/restore enhancements

- Performance improvements for SAV and RST operations
- Name pattern (PATTERN) parameter to make it easier to include or omit a subset of objects
- Scan objects (SCAN) parameter for use with virus protection program

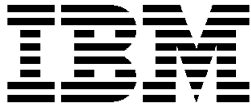
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IBM US Announcement Supplemental Information

May 4, 2004

Planning information

Planning statements provide insight into IBM's plans and directions. This information represents current goals and objectives and is subject to change or withdrawal without notice.

OS/400® support of selected AS/400® models

IBM plans for OS/400 V5R3 to be the final release supported on AS/400 Models 170, 250, 720, 730, and 740.

Support of SPD I/O

IBM plans for OS/400 V5R3 to be the final release to support the attachment of SPD towers or SPD Migration towers. Customers must complete the migration or conversion of I/O attached to their iSeries™ Model 820, 830 or 840 via SPD towers or Migration towers before upgrading beyond V5R3 OS/400. Any SPD I/O cards in these towers or older I/O devices which can only be attached to SPD cards must be replaced by newer I/O. SPD-attached PCI I/O towers #5065 or #5066 must be converted to the HSL-attached #5074 or #5079 PCI Expansion Towers or replaced with newer generation PCI-X towers such as #5094 or #5294. The PCI-X towers offer a higher speed HSL connection and the ability to support 15k rpm disk drives. For additional information see the hardware section of Future Releases on:

<http://www.ibm.com/servers/eserver/series/support/planning/nav.html>

OS/400 Language Feature — English Uppercase

IBM plans for V5R3 to be the last release to support the English Uppercase language features (#2950 and #5550) for OS/400 (5722-SS1).

Additional information may be found on the iSeries Planning Information Web site. This site contains information such as Product Previews, Statements of Direction, and products no longer supported on a release, with mitigation plans, as available.

<http://www-1.ibm.com/servers/eserver/series/support/planning/nav.html>

Ordering information

Upgrades from V5R2 to V5R3: An upgrade from a program on V5R2 to the V5R3 release is ordered with the applicable program number (for example, 5722-xxx) and the appropriate media and language feature numbers. No billing feature number is required on the order. This upgrade is no-charge, but it is only available if you have Software Subscription or Software Maintenance.

Software preload specify codes (5372-IS5)

Each Software Preload Specify Code represents:

- 5722-xxx product
- 5769-xxx product
- 5733-xxx product
- Options for one of these products

Each order for the 5372-IS5 Software Preload Order must include specify code #1000 indicating 5722-SS1 (OS/400).

Additional specify codes contained in the list below can be included on the 5372-IS5 Preload Software Order. Each specify code is allowed once on the order with a quantity of one. When ordering an optional part of a product, the product base must also be included on the order.

Software product preload specify codes (5372-IS5)

Description	Feature number
Model 170 Routing Code	0170
Model 250 Routing Code	0250
Model 270 Routing Code	0270
Model 520 Routing Code ¹	0520
Model 570 Routing Code ¹	0570
Model 720 Routing Code	0720
Model 730 Routing Code	0730
Model 740 Routing Code	0740
Model 800 Routing Code	0800
Model 810 Routing Code	0810
Model 820 Routing Code	0820
Model 825 Routing Code	0825
Model 830 Routing Code	0830
Model 840 Routing Code	0840
Model SB2 Routing Code	0842
Model SB3 Routing Code	0843
Model 870 Routing Code	0870
Model 890 Routing Code	0890
OS/400 (5722-SS1)	1000
AFP™ Util (5722-AF1)	1001
BRMS (5722-BR1)	1002
Comm Util (5722-CM1)	1003
DB2® UDE (5722-DE1)	1004
Infoprint® (5722-IP1)	1006
Job Sched (5722-JS1)	1007
Perf Tools (5722-PT1)	1008
Query (5722-QU1)	1009
OnDemand (5722-RD1)	1010
DB2 Qry (5722-ST1)	1011
XW1 Client Processor (5722-XW1)	1012
XW1 Client User (5722-XW1)	1013
APSU (5722-AP1)	1014
WebSph Dev (5722-WDS)	1015
Crypto 128b (5722-AC3)	1017
Cl Enc 128b (5722-CE3)	1019
Cryp Supp (5722-CR1)	1020
S38 Util (5722-DB1)	1021
CICS® (5722-DFH)	1025

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: <http://www.ibm.com>.

Description	Feature number
BGU (5722-DS1)	1027
Manage SS (5722-MG1)	1030
APD (5722-PD1)	1031
Sys Manage (5722-SM1)	1032
VisAge Gen (5769-VG1)	1033
DataProp (5722-DP4)	1035
M&S Ext (5722-SS1)	1500
PSF/400 1-45 (5722-SS1)	1501
PSF/400 1-100 (5722-SS1)	1502
PSF/400 AnySpeed (5722-SS1)	1503
HA Switch (5722-SS1)	1505
Network (5722-BR1)	1506
Advance (5722-BR1)	1507
Manager (5722-PT1)	1508
Agent (5722-PT1)	1509
IPDS™ (5722-AP1)	1514
OptiConnect (5722-SS1)	1515
DB2 Symm (5722-SS1)	1517
DB2 Multsys (5722-SS1)	1518
Sonoran Serif (5769-FNT)	1520
Sonoran Serif Head (5769-FNT)	1521
Sonoran San Serif (5769-FNT)	1522
Son San Serif Head (5769-FNT)	1523
Son San Serif Cond (5769-FNT)	1524
Son San Serif Expand (5769-FNT)	1525
Mono Garamond (5769-FNT)	1526
Century Schoolbook (5769-FNT)	1527
Pi and Specials (5769-FNT)	1528
ITC Souvenir (5769-FNT)	1529
ITC Avant Garde Gothi (5769-FNT)	1530
Math and Science (5769-FNT)	1531
DATA1 (5769-FNT)	1532
APL2® (5769-FNT)	1533
OCRA and OCRB (5769-FNT)	1534
Japanese (5769-FN1)	1535
Korean (5769-FN1)	1536
Trad Chinese (5769-FN1)	1537
Simp Chinese (5769-FN1)	1538
Thai (5769-FN1)	1539
HA Journal Perf (5722-SS1)	1545
PS to AFP Transform (5722-IP1) ¹	1546
InfoPrint Designer (5733-ID1)	6003
WebSphere® Express 5.0 (5722-IWE portion of 5733-WE1) ¹	6007

Manufacturing Specify Codes

Version 5 Release 3.0 ¹	3530
Preload	5000
Number of Startup/Standby processors ¹	5050

¹ New for V5R3

Each new iSeries system order includes the following software.

- * 5722 SS1 V5R3M0 OS/400
- * Option 1 OS/400 — Extended Base Support
- * Option 2 OS/400 — Online Information
- * Option 3 OS/400 — Extended Base Directory Support
- Option 5 OS/400 — System/36™ Environment
- Option 6 OS/400 — System/38™ Environment
- Option 7 OS/400 — Example Tools Library
- Option 8 OS/400 — AFP Compatibility Fonts
- Option 9 OS/400 — *PRV CL Compiler Support
- Option 12 OS/400 — Host Servers
- Option 13 OS/400 — System Openness Includes
- Option 14 OS/400 — GDDM®
- Option 18 OS/400 — Media and Storage Extensions
- Option 21 OS/400 — Extended NLS Support
- Option 22 OS/400 — ObjectConnect
- Option 23 OS/400 — OptiConnect
- Option 25 OS/400 — NetWare Enhanced Integration
- Option 26 OS/400 — DB2 Symmetric Multiprocessing
- Option 27 OS/400 — DB2 Multisystem
- * Option 30 OS/400 — Qshell
- * Option 31 OS/400 — Domain Name System
- * Option 33 OS/400 — Portable Application Solutions Environment
- * Option 34 OS/400 — Digital Certificate Manager
- Option 35 OS/400 — CCA Crypto Service Provider
- Option 36 OS/400 — PSF/400 1-45 IPM Printer Support
- Option 37 OS/400 — PSF/400 1-100 IPM Printer Support
- Option 38 OS/400 — PSF/400 Any Speed Printer Support
- Option 39 OS/400 — International Components for Unicode
- Option 41 OS/400 — HA Switchable Resources
- Option 42 OS/400 — HA Journal Performance
- Option 43 OS/400 — Additional Fonts

The following are included with all OS/400 shipments:

- * Business Solutions
- * HTTP Server
 - * Option 1 Triggered Cache Manager
- Software Integration Assistant for iSeries
- * Toolbox for Java™
- * Developer Kit for Java
 - * Option 5 Java Developer Kit 1.3
 - Option 6 Java Developer Kit 1.4
- * Tivoli® Management Agent
- * TCP/IP Utilities
- * Integration for Windows™ Server
 - * Option 2 Integration for Windows 2000 and 2003
- * iSeries Access for Windows
- iSeries Access for Wireless

All of the above listed Software will be included in the software order. Those program and options identified with an * will be preloaded on all new system orders. LPAR systems are not preloaded.

IBM Operating System/400® (5722-SS1)

Charge features

Initial order

	Per Start-up Processor	Per Stand-by Processor
5722-SS1		
Model 520	1499	
Model 570	1516	1508

Upgrade order: To better utilize your investment in Model 830 4/8-Way CUoD processors permanently activated, you can choose during an MES upgrade to a Model 570 purchase an OS/400 processor license for each of the permanently activated processors at a reduced price. This option is available only during the upgrade and must be ordered with the MES upgrade.

Four reduced price options are available ranging from a modest reduction to a very significant reduction in price. These four prices relate to the number of CUoD processors you have permanently activated. If you have activated all four standby processors on your 830 4/8-Way, you can purchase one OS/400 processor license at the lowest price (level 4). If you have activated only one of the standby processors on your 4/8-Way, you can purchase one OS/400 license at the modestly reduced price (level 1).

Upgrade From:	To: IBM Operating System/400 (5722-SS1) Per Processor Model 570	
Model 800, 810, 825, 870, 890		1515
Model 820, 830, 840, 890		
Standby Conversions		
Level 1		1511
Level 2		1512
Level 3		1513
Level 4		1514

Additional primary languages for keyed products only: More than one primary language can be selected for your system. A different primary language can be used in separate partitions. The following chargeable primary languages are available for your use.

Description	Feature number
Additional primary language features (V5R2)	
Dutch Keyed V5R2	8023
English U/L SBCS Keyed V5R2	8024
Danish Keyed V5R2	8026
French Keyed V5R2	8028
German Keyed V5R2	8029
Spanish Keyed V5R2	8031
Italian Keyed V5R2	8032
Swedish Keyed V5R2	8037
English U/C DBCS Keyed V5R2	8038
German MNCS Keyed V5R2	8039
Japanese Keyed V5R2	8062
English U/L DBCS Keyed V5R2	8084
Korean Keyed V5R2	8086
Traditional Chinese Keyed V5R2	8087
Additional primary language features (V5R3)	
Dutch Keyed V5R3	8123
English U/L SBCS Keyed V5R3	8124
Danish Keyed V5R3	8126
French Keyed V5R3	8128
German Keyed V5R3	8129
Spanish Keyed V5R3	8131
Italian Keyed V5R3	8132
Swedish Keyed V5R3	8137
English U/C DBCS Keyed V5R3	8138
German MNCS Keyed V5R3	8139
Japanese Keyed V5R3	8162
English U/L DBCS Keyed V5R3	8184
Korean Keyed V5R3	8186
Traditional Chinese Keyed V5R3	8187

Description	Feature number
Secondary language features	
German MNCS V5R2	5639
Language features	
Portuguese V5R3	5722
Dutch V5R3	5723
English U/L SBCS V5R3	5724
Finnish V5R3	5725
Danish V5R3	5726
French V5R3	5728
German V5R3	5729
Spanish Secondary V5R3	5731
Italian V5R3	5732
Norwegian V5R3	5733
Swedish V5R3	5737
English U/C DBCS V5R3	5738
German MNCS V5R3	5739
Japanese DBCS V5R3	5762
Belgian Dutch V5R3	5763
Belgian French V5R3	5766
Canadian French V5R3	5781
English U/L DBCS V5R3	5784
Korean DBCS V5R3	5786
Trad Chinese DBCS V5R3	5787
Simp Chinese DBCS V5R3	5789
Publication features	
V5R3 Setup and Operations CD	7020
V5R3 Keyed Media Backup	8003
V5R3 SW Install & Bckup/Rec Pubs	8004
Supply features	
V5R3 OS/400	5829
ePoE Customer Notice Supply ²	5899
V5R3 HA Journal	5920
V5R3 M&S Extend	5921
V5R3 OptiConnect	5922
V5R3 DB2 Symm Multi	5923
V5R3 DB2 Multisystem	5924
V5R3 PSF 1-45 IPM	5926
V5R3 PSF 1-100 IPM	5927
V5R3 PSF AnySpeed	5928
V5R3 HA Switchable	5929

Publication features

V5R3 Setup and Operations CD	7020
V5R3 Keyed Media Backup	8003
V5R3 SW Install & Bckup/Rec Pubs	8004

Supply features

V5R3 OS/400	5829
ePoE Customer Notice Supply ²	5899
V5R3 HA Journal	5920
V5R3 M&S Extend	5921
V5R3 OptiConnect	5922
V5R3 DB2 Symm Multi	5923
V5R3 DB2 Multisystem	5924
V5R3 PSF 1-45 IPM	5926
V5R3 PSF 1-100 IPM	5927
V5R3 PSF AnySpeed	5928
V5R3 HA Switchable	5929

² When ordering additional products on V5R2, this feature ships a customer notice that gives information about obtaining the ePoE.

Other features: To register the ePoE, these no-charge features will be put on the individual product orders when an upgrade is performed from V5R1 to V5R2 or V5R3, or from V5R2 to V5R3. For the processor-based products, the appropriate processor group feature will be put on the order. For one-time charge products, feature number 2001 will be on the order. In these upgrade situations, the appropriate registration feature will automatically be placed on the orders by the configurator.

Description	Feature number	Description	Feature number
ePoE V5R3 Reg		Per Processor PoE Registration — 15	6015
OTC	2001	Per Processor PoE Registration — 16	6016
P05	2005	Per Processor PoE Registration — 17	6017
P10	2010	Per Processor PoE Registration — 18	6018
P20	2020	Per Processor PoE Registration — 19	6019
P30	2030	Per Processor PoE Registration — 20	6020
P40	2040	Per Processor PoE Registration — 21	6021
P50	2050	Per Processor PoE Registration — 22	6022
P60	2060	Per Processor PoE Registration — 23	6023
Media & Storage Extensions option	2101	Per Processor PoE Registration — 24	6024
PSF 1-45 IPM option	2201	Per Processor PoE Registration — 25	6025
PSF 1-100 IPM option	2301	Per Processor PoE Registration — 26	6026
PSF AnySpeed option	2401	Per Processor PoE Registration — 27	6027
DB2 Multisystem option	2501	Per Processor PoE Registration — 28	6028
Feature P05 HA Switchable option	2105	Per Processor PoE Registration — 29	6029
Feature P10 HA Switchable option	2110	Per Processor PoE Registration — 30	6030
Feature P20 HA Switchable option	2120	Per Processor PoE Registration — 31	6031
Feature P30 HA Switchable option	2130	Per Processor PoE Registration — 32	6032
Feature P40 HA Switchable option	2140	Per Processor PoE Registration — 33	6033
Feature P50 HA Switchable option	2150	Per Processor PoE Registration — 34	6034
Feature P60 HA Switchable option	2160	Per Processor PoE Registration — 35	6035
		Per Processor PoE Registration — 36	6036
Feature P05 HA Journal option	2205	Per Processor PoE Registration — 37	6037
Feature P10 HA Journal option	2210	Per Processor PoE Registration — 38	6038
Feature P20 HA Journal option	2220	Per Processor PoE Registration — 39	6039
Feature P30 HA Journal option	2230	Per Processor PoE Registration — 40	6040
Feature P40 HA Journal option	2240	Per Processor PoE Registration — 41	6041
Feature P50 HA Journal option	2250	Per Processor PoE Registration — 42	6042
Feature P60 HA Journal option	2260	Per Processor PoE Registration — 43	6043
		Per Processor PoE Registration — 44	6044
Feature P05 DB2 SM option	2305	Per Processor PoE Registration — 45	6045
Feature P10 DB2 SM option	2310	Per Processor PoE Registration — 46	6046
Feature P20 DB2 SM option	2320	Per Processor PoE Registration — 47	6047
Feature P30 DB2 SM option	2330	Per Processor PoE Registration — 48	6048
Feature P40 DB2 SM option	2340	Per Processor PoE Registration — 49	6049
Feature P50 DB2 SM option	2350	Per Processor PoE Registration — 50	6050
Feature P60 DB2 SM option	2360	Per Processor PoE Registration — 51	6051
		Per Processor PoE Registration — 52	6052
Feature P05 Opticonnect option	2405	Per Processor PoE Registration — 53	6053
Feature P10 Opticonnect option	2410	Per Processor PoE Registration — 54	6054
Feature P20 Opticonnect option	2420	Per Processor PoE Registration — 55	6055
Feature P30 Opticonnect option	2430	Per Processor PoE Registration — 56	6056
Feature P40 Opticonnect option	2440	Per Processor PoE Registration — 57	6057
Feature P50 Opticonnect option	2450	Per Processor PoE Registration — 58	6058
Feature P60 Opticonnect option	2460	Per Processor PoE Registration — 59	6059
		Per Processor PoE Registration — 60	6060
		Per Processor PoE Registration — 61	6061
		Per Processor PoE Registration — 62	6062
		Per Processor PoE Registration — 63	6063
		Per Processor PoE Registration — 64	6064

When ordering models 520 or 570, the appropriate no-charge 60XX feature will be put on the order. The XX represents the number of OS/400 licenses ordered. The feature will be automatically put on the order by the configurator.

Description	Feature number
Per Processor PoE Registration — 1	6001
Per Processor PoE Registration — 1	6001
Per Processor PoE Registration — 2	6002
Per Processor PoE Registration — 3	6003
Per Processor PoE Registration — 4	6004
Per Processor PoE Registration — 5	6005
Per Processor PoE Registration — 6	6006
Per Processor PoE Registration — 7	6007
Per Processor PoE Registration — 8	6008
Per Processor PoE Registration — 9	6009
Per Processor PoE Registration — 10	6010
Per Processor PoE Registration — 11	6011
Per Processor PoE Registration — 12	6012
Per Processor PoE Registration — 13	6013
Per Processor PoE Registration — 14	6014

Key Removal (5733-NKY)

Description	Feature number
SS1 Base	2501
Infoprint Server for iSeries	2601
When upgrading from an iSeries Model 800, 810, 825, 870 or 890 to an i5 Models 520 or 570 a 5733-NKY order is created with the no-charge feature number 2501 to remove the key information from the installed system. The 5733-NKY order is automatically created by the configurator.	

Terms and conditions

Electronic Proof of Entitlement (ePoE): Effective June 11, 2004, the following list of products will have an ePoE record created.

- Operating System/400
 - 5722-SS1 — Operating system
- Optional features for operating system
 - Media and Storage Extensions (5722-SS1)
 - OptiConnect (5722-SS1)
 - Print 1-45 Impressions/Minute (5722-SS1)
 - Print 1-100 Impressions/Minute (5722-SS1)
 - Print Any Speed Impressions/Minute (5722-SS1)
 - DB2 Symmetric Multiprocessing (5722-SS1)
 - DB2 Multisystem (5722-SS1)
 - HA Journal Performance (5722-SS1)
 - HA Switchable Resource (5722-SS1)

The ePoE record will replace the printed Proof of Entitlement (PoE) document in use for these products.

An ePoE will be created for new software orders for which entitlement is purchased for Version 5, Release 1, 2, or 3. Examples of such iSeries orders for entitlement record creation are:

1. Initial software program purchase
2. Additional user or processor purchase
3. The move to a higher level processor tier

Customers who want to access their software ePoE data records must first register with IBM at

<http://www.ibm.com/account/registration/selfreg>

After a Web ID is obtained via IBM registration, customers can then access their software ePoE data records at

<http://www.ibm.com/software/lms>

ePoE record data can be accessed to view or print for local use, transfer to another system within the Enterprise, or update customer information such as hardware serial number on which the entitlement is installed. All V5R3 entitlement records will be via ePoE only.

Note that for V5R1 or V5R2 programs purchased prior to June 11, 2004, the capability to transfer those programs outside the enterprise will continue to require a hard copy PoE, and for those purchased after June 11, 2004, only an ePoE will be available. To Transfer an ePoE program outside the Enterprise, the Software Key Center will have to be contacted at the phone number provided at

<http://www.ibm.com/software/lms>

If Web access is not available, the Software Key Center can be contacted at kmsweb@dk.ibm.com.

OS/400 terms and conditions: These terms and conditions apply to iSeries Models 800, 810, 825, 870, and 890³ and i5 Models 520 and 570

These terms and conditions provide flexibility for server consolidations and cost effective licensing of operating systems for fewer than the maximum number of processors on the server. For these models, OS/400 license entitlement for the start-up processors is included in the Edition for each model. License entitlements for OS/400 for reserve processors are available for an additional charge. Activating reserve processors

requires you to acquire a license for OS/400 if you want to run OS/400 on the activated reserve processor. You will need enough OS/400 processor license entitlements to cover the total number of processors running OS/400 rounded up to the next whole number. For example, if OS/400 is running on a total of 4.2 processors, you need five OS/400 license entitlements. If you activate a reserve processor that will run only the AIX® or Linux operating systems, you may not need to acquire an OS/400 license entitlement for that processor. Specific licensing requirements follow.

³ These terms do not apply to Model 890 machines with 0197, 0198, 2487, or 2488 feature processor cards.

License entitlement requirements: OS/400 license entitlement is for a number of processors used on the specific machine serial number on which OS/400 is installed.

For non-partitioned machines running OS/400, a license entitlement is required for each active processor of that machine.

For machines running V5R3 of OS/400 on Models 520, and 570, logical partitions can be:

- Dedicated
- In a shared pool as
 - Capped
 - Uncapped

For each partition, customers define the size of the partition in processing units, for example, 0.1, 1.0, or 2.3 processor units. Customers also define the number of virtual processors for each partition, which equals the number of processors that can share workload in that partition.

For dedicated and capped partitions, the maximum size of the partition is the processing units configured. The size of uncapped partitions can vary dynamically depending on how busy other partitions are, and the maximum potential size of the partition is the number of virtual processors configured.

The quantity of OS/400 license entitlements required is based on how the processing units and the virtual processors are configured. A change in LPAR configuration for these values may require additional license entitlements, for example, going from 3.8 to 4.2 processor units.

For partitioned machines, processor quantities are first summed across partitions (as explained below) and any remaining fraction of a processor must be rounded up to the next highest whole number to determine the total license entitlements required.

More specifically, for partitioned machines, customers must have OS/400 license entitlements for the sum of processing units for dedicated and capped partitions plus the sum of virtual processor quantities for uncapped partitions which are using OS/400. In some cases, if large virtual processor quantities are configured for uncapped partitions, the sum of the processor quantities across partitions of a shared pool may exceed the total size of the pool. In these cases, for partitions within the shared pool using OS/400, IBM does not require licensing for an amount larger than the number of processors in a shared pool.

The LPAR Validation Tool is available to assist customers in determining licensing requirements for various LPAR configuration alternatives.

License management: Software License Manager/400 (SLM/400) assists in license compliance by counting the number of processors using OS/400, based on the counting rules outlined above. A change to the LPAR configuration will not validate license entitlement. In addition to the OS/400 SW License Key for OS/400, which has been required in the past and has the machine serial number and the version/release/mod (VRM) of OS/400, a new license key will be shipped with orders of V5R3 of OS/400. This additional key will contain the number of processor license entitlements for the machine. If this quantity is exceeded, the machine operator will receive messages notifying them of this. The customer can choose to:

1. Change the machine configuration so that the processor quantity of the key is no longer exceeded
2. Contact IBM or their IBM sales point to acquire additional license entitlements for OS/400

The customer does not have an option of changing the processor quantity of the key to avoid these SLM messages without placing an order for additional license entitlements. Both Software License Keys are preloaded by IBM on new iSeries hardware purchases.

OS/400 license transferability and HW upgrades: OS/400 license entitlements for either start-up or reserve processors remain transferable only with the specific machine to which it was originally licensed and installed. OS/400 license entitlements are not transferable from one machine to another even within the same customer enterprise.

OS/400 license entitlements are for a number of processors on the specific machine on which OS/400 was originally installed. A hardware upgrade to a different model or processor may change the quantity of OS/400 license entitlements. The terms and conditions of OS/400 on the new model determine the quantity of processor license entitlements for that machine (refer below).

If you upgrade from an AS/400 or iSeries machine which had OS/400 licensed per machine to an iSeries model which supports per processor OS/400 licensing, for example, 570, 810, 825, 870, or 890 (without 0197, 0198, 2487, or 2488 feature processor cards), the server's Edition contains OS/400 license entitlement for the start-up processors of the new machine ("to" machine).

If you upgrade from an iSeries or AS/400 model which was sold with OS/400 licensed per processor to one of the new 520 or 570 models, the new server's Edition contains OS/400 license entitlements for the start-up processors. The "from" machine OS/400 start-up processor license entitlements are not required and no longer apply to the "to" machine. If you had acquired the optional OS/400 license entitlements for stand-by processors on the "from" machine, these license entitlements move to the "to" machine.

As in the past, upgrades within the same generation of HW (for example, Model 825 to 870) may require both reserve HW activations and purchases of OS/400 license entitlements on the "from" machine prior to the HW upgrade.

Also consistent with past terms and conditions, if a software version or release upgrade of OS/400 is needed to support the HW upgrade, you must have a current Software Subscription or Software Maintenance for iSeries agreement for the machine or pay the After License fee and then acquire software maintenance for the machine or purchase a new license.

Program support: Twelve months' notice will be provided prior to termination of support.

V5R3 term and conditions for other iSeries HW models: For the following AS/400 and iSeries models, OS/400 terms are unchanged from the past, and OS/400 is licensed for the full purchased capacity of the machine: SB2, SB3, 170, 250, 270, 720, 730, 740, 820, 830, 840, and 890 (with a 0197, 0198, 2487, or 2488 feature processor card).

Transferability

To improve consistency in terms and conditions for IBM SW programs, new terms and conditions regarding program transferability apply to the following list of products:

- 5722-SS1 OS/400 — DB2 Multisystem
- 5722-SS1 OS/400 — Media and Storage Extensions
- 5722-SS1 OS/400 — OptiConnect
- 5722-SS1 OS/400 — DB2 Symmetric Multiprocessing
- 5722-SS1 OS/400 — HA Switchable Resources
- 5722-SS1 OS/400 — HA Journal Performance
- 5722-SS1 OS/400 — PSF/400 1-45 IPM Printer Support
- 5722-SS1 OS/400 — PSF/400 1-100 IPM Printer Support
- 5722-SS1 OS/400 — PSF/400 Any Speed Printer Support

Specifically, V5R3 of these programs is not transferable outside of your enterprise. An enterprise is any legal entity (including, without limitation, an individual, a partnership or a corporation) and its subsidiaries. A subsidiary is any legal entity, during the time that more than 50% of its voting stock, or if no voting stock, decision-making power, is owned or controlled, directly or indirectly, by the enterprise.

You may still move these programs to another machine within your enterprise. Moving a program to another machine does not change your license entitlement but may result in additional charges if additional license entitlements (such as users, processors, or tier) are needed. For example, if a program which you have license entitlement at the P10 level is moved to a machine in the P20 SW tier, then a P10 to P20 upgrade entitlement must be acquired.

If any of these programs are installed on a machine that is sold to another party, they must be removed from the machine.

Prices

For local charges, contact your IBM representative.

Operating System/400 (5722-SS1)

Charge features

Initial order

5722-SS1	Start-up Processor feature number	Stand-by Processor feature number	Price
Model 520	1499		\$ 0
Model 570	1516		0
		1508	45,000

Upgrade order

	To IBM Operating System/400 (5722-SS1) Model 570: feature number	Price
Upgrade from:		
Model 800, 810 825, 870, 890	1515	\$ 0
Model 820, 830, 840, 890		
Standby Conversions		
Level 1	1511	38,750
Level 2	1512	27,500
Level 3	1513	16,250
Level 4	1514	5,000

Additional primary languages

Languages	Feature number	Price
Version 5.2		
Dutch Primary	8023	\$100
English U/L SBCS Primary	8024	100
Danish Primary	8026	100
French Primary	8028	100
German Primary	8029	100
Spanish Primary	8031	100
Italian Primary	8032	100
Swedish Primary	8037	100
English U/C DBCS Primary	8038	100
German MNCS Primary	8039	100
Japanese Primary	8062	100
English U/L DBCS Primary	8084	100
Korean Primary	8086	100
Trad Chinese Primary	8087	100
Version 5.3		
Dutch MultiPrimary	8123	100
English U/L SBCS Primary	8124	100
Danish Primary	8126	100
French Primary	8128	100
German Primary	8129	100
Spanish Primary	8131	100
Italian Primary	8132	100
Swedish Primary	8137	100
English U/C DBCS Primary	8138	100
German MNCS Primary	8139	100
Japanese Primary	8162	100
English U/L DBCS Primary	8184	100
Korean Primary	8186	100
Traditional Chinese Primary	8187	100

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