Software Enhancements to IBM AS/400 V4R5

Overview

AS/400® and IBM @server iSeries 400 Web-enabled services support your e-business environment.

Some of the latest offerings are:

Management Central-Pervasive

Monitor performance on multiple AS/400s or iSeries 400 via a cellular phone or PDA with a wireless modem

AS/400 Internet Setup Wizard

Simplify connecting your AS/400 or iSeries 400 server to an ISP or directly to the Internet for Web and application serving

WebSphere™ Development Tools for AS/400 V4R5M1

Take advantage of the AS/400 or iSeries 400 server technical capabilities to create and port e-business applications

The V4R5M1 offering includes:

- VisualAge® for Java™ for AS/400
- WebSphere Studio for AS/400
- Cooperative Development Environment/400 (CODE/400)
- VisualAge RPG

Apache HTTP Server

Increase your ability to configure and expand your HTTP server

Planned Availability Date

Refer to individual products or functions.

At a Glance

Improved ways of doing business with IBM as you move toward your e-business goals

- Reduced price upgrade to Client Access from several products
- Updated Java support
- Enhanced Extreme Support Personalized (ESP) functions for iSeries 400 and AS/400 servers:
  - Remotely monitor system performance and status using Management Central-Pervasive
  - Enhanced PM/400e performance reporting capability
  - Faster and easier connectivity with Electronic Customer Support (ECS) over TCP/IP
  - Save time and improve accuracy of software upgrades utilizing the Software Inventory Utility

For ordering, contact:
Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL

Reference: AE001
AS/400 Developer Kit for Java Updates

In V4R5, options for Java 1.1.8 and Java2 Standard Edition (J2SE) 1.2.2 are shipped with the AS/400 Developer Kit for Java. Option 5 includes support for J2SE 1.3 and is added to OS/400® V4R5 and V4R4. You gain concurrent support for all three major versions of Java (1.1, 1.2, and 1.3) on these releases.

Additional performance improvements include an upgrade to the IBM Just in Time (JIT) compiler Version 3.6.

For additional Java support information, including service requirements, refer to the online publication AS/400 Developer Kit for Java from the following AS/400 Book Server at:

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

For availability and to receive the updated version of the Developer Kit for Java, visit:

http://www.ibm.com/iseries/java/

JTOpen 2.0 (AS/400 Toolbox for Java Beta)

The code for JTOpen 2.0 (AS/400 Toolbox for Java Beta version) and its availability can be found at:

http://www.ibm.com/as400/toolbox/

New and enhanced support allows you to build Java applications for the AS/400 or iSeries 400 servers.

Enhanced function includes:

• JDBC Standard Extension support
• Bidirectional CCSID support
• Additional SSL encryption and key support
• Graphical enhancements to the GUI builder, wizards, and help utilities

New function includes improved classes for handling lists of AS/400 objects (users, jobs) including list buffering, data faulting, and lazy data conversions

Performance improvements include:

• Command and program call optimizations
• Text conversion improvements
• Connection pooling
• Improved list handling of files in the integrated file system

JTOpen 2.0 (Toolbox) connects to AS/400 systems running OS/400 V4R3, or later, and iSeries 400 server running OS/400 V4R5.

AS/400 Client Access Family for Windows™ (5769-XW1)

Client Access upgrade options are expanded:

• From AS/400 Client Access Family (5769-XY1)

You can upgrade from 5769-XY1 to Client Access Family for Windows (5769-XW1). Client Access Family was withdrawn from marketing on February 25, 2000. If you own licenses of Client Access Family, you can receive a reduced-priced upgrade to Client Access Family for Windows (5769-XW1).

Client Access Family for Windows (5769-XW1) continues to have both user-based and processor-based pricing options. These upgrades apply to user-based pricing options. If you who want to convert from a user-based to a processor-based option, refer to Software Announcement 299-114, dated May 11, 1999.

Management Central-Pervasive:

Management Central-Pervasive allows network administrators to monitor the performance and status of their AS/400 or iSeries 400 servers while away from their workstation or office. Using a cellular phone or PDA with a wireless modem, the administrator can check on AS/400 or iSeries 400 server status and monitor performance metrics on these systems.

This function, which also runs from a Web browser running on PCs or Network Stations, is available now via PTFs. Refer to the following Web site for information on which PTFs are needed:

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

AS/400 Internet Setup Wizard:

Simplify the steps required to connect your AS/400 or iSeries 400 server to the Internet and use application and Web serving. The wizard allows you to connect your AS/400 or iSeries 400 server to an ISP over a dial-up connection or directly through a LAN connection. It can also connect your intranet AS/400 or iSeries 400 server to the Internet through a firewall or router and allow for Web and application serving by the AS/400 or iSeries 400 server over that connection.

The wizard is organized around three common scenarios:

• Connecting your AS/400 or iSeries 400 server as a Web and application server behind a firewall and allowing access to it from the Internet
• Connecting your AS/400 or iSeries 400 server as a Web and application server to a DMZ outside a firewall and allowing access to it from the Internet
• Directly connecting your AS/400 or iSeries 400 to the Internet through a dial-up connection

To use all of the wizard’s features, install the following options shipped with the operating system (5769-SS1):

• WebSphere 2.02 Standard Edition
• IBM HTTP Server

The following WebSphere 5733-AS3 product may also be used:

• WebSphere Standard Edition 3.02
• WebSphere Standard Edition 3.5

You are entitled to an upgrade price to 5769-XW1 for the quantity of user licenses of 5769-XY1. If you are licensed for a processor-based option for 5769-XY1 you are entitled to upgrade to 5769-XW1 user-based licenses for up to these quantities:

<table>
<thead>
<tr>
<th>Software Machine group</th>
<th>5769-XW1 user licenses can be acquired at an upgrade price</th>
</tr>
</thead>
<tbody>
<tr>
<td>P05</td>
<td>10 users</td>
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<td>P10</td>
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</table>

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Management Central-Pervasive:

Management Central-Pervasive allows network administrators to monitor the performance and status of their AS/400 or iSeries 400 servers while away from their workstation or office. Using a cellular phone or PDA with a wireless modem, the administrator can check on AS/400 or iSeries 400 server status and monitor performance metrics on these systems.

This function, which also runs from a Web browser running on PCs or Network Stations, is available now via PTFs. Refer to the following Web site for information on which PTFs are needed:

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

AS/400 Internet Setup Wizard:

Simplify the steps required to connect your AS/400 or iSeries 400 server to the Internet and use application and Web serving. The wizard allows you to connect your AS/400 or iSeries 400 server to an ISP over a dial-up connection or directly through a LAN connection. It can also connect your intranet AS/400 or iSeries 400 server to the Internet through a firewall or router and allow for Web and application serving by the AS/400 or iSeries 400 server over that connection.

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To use all of the wizard’s features, install the following options shipped with the operating system (5769-SS1):

• WebSphere 2.02 Standard Edition
• IBM HTTP Server

The following WebSphere 5733-AS3 product may also be used:

• WebSphere Standard Edition 3.02
• WebSphere Standard Edition 3.5
The wizard is available now for V4R4 or V4R5 via download at:


It will be available in a V4R5 Client Access Service Pack November 17, 2000.

Network Authentication Service

Network Authentication Service provides APIs to verify the identity of a user in a network. Application programs can use these APIs to authenticate a user and securely pass on his identity to other services on the network. Once a user is known, separate functions are needed to verify the user’s authorization to use the network resources.

Network Authentication Service is an implementation of:

• Kerberos Version 5 protocol as defined by RFC 1510
• Generic Security Service (GSS) API defined in RFCs 1509, 1964, and 2078
• Many of the de facto standard Kerberos protocol APIs prevalent in the industry today

The OS/400 implementation is designed for interoperability with authentication, delegation, and data confidentiality services compliant with these RFCs such as Microsoft’s Windows 2000 Security Service Provider Interface (SSPI) APIs.

The component is available now on V4R5 and is delivered via a series of PTFs. Refer to the following Web site for information on which PTFs are needed:

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

Extreme Support Personalized (ESP)

An important aspect of technology is technical support that helps make that technology work for us as people. In our increasingly Web-based world, you’re looking for easier access to total solutions.

IBM has expanded our ESP initiative to include more easy-to-use, proactive and personalized tools.

We’re featuring these functions for the iSeries and AS/400 servers:

Management Central-Pervasive: Network administrators now have more flexibility to access Management Central information and monitor the AS/400 and iSeries 400 servers they support. Management Central-Pervasive lets you remotely monitor system performance and status using a Web phone, a PDA with a wireless modem, or a Web browser on a PC or Network Station™.

After you set up a Web server on one of your systems to host Management Central information, you simply enter the Web site into your Web phone, PDA, or browser to check the availability of your AS/400 or iSeries 400 server. For example, you can check the availability of your systems to find out if a reboot completed or check if the system exceeded any thresholds for CPU or disk utilization during overnight job runs.

Refer to the following Web site for information on required PTFs:

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

Easier Access to IBM e(logo)server Technical Support Web Sites

• Interlinked Technical Support Web sites with other IBM Technical Support Sites. Easy access simplifies support. You get what you need, whenever you need it. Access:
  
  http://www.ibm.com/iseries/support/

• Web linkages include:
  
  - IBM installation planning for IBM servers. Plan the physical installation of your hardware to help ensure an easy installation.
  - Easy access to IBM education and training gives you links to applicable Learning Services Offerings. Browse, enroll in, and pay for the IBM education you need. You can even find out about certification programs and events.
  - Technical support for alerts, fixes, troubleshooting information, and more.
  - Collaboration sites like Services Network.
  - Web-based libraries of technical information.

  Access technical information sites from iSeries 400 Web sites. This gives you easy access to the most current versions of the information you need, regardless of the IBM platform.

IBM Electronic Services for iSeries 400 and AS/400: IBM Electronic Services for iSeries 400 and AS/400 now supports selected European and U.S. markets. It is an enhancement to existing IBM hardware and software support and provides a secure Web-based electronic interface, to help you proactively manage your AS/400 and iSeries 400 servers.

Comprehensive and customizable support includes:

• 24-hour proactive system monitoring
• Access to personalized problem status and management
• Electronic notification of required fixes, plus the actual fixes
• Performance management data
• Additional support information

Universal Connection

• The ability to run Electronic Customer Support (ECS) over TCP/IP is available December 29, 2000, using the integrated high-speed V.90 modem. This includes electronic fix retrieval and problem reporting. In addition, IBM remote support over a dial-up connection using the integrated high-speed V.90 modem is enabled. This includes making available CL commands for creating simple point-to-point configurations to aid in connecting to IBM Support and for customer use as well. The following Web site can be checked for the PTFs required to enable these functions:
  
  http://www.ibm.com/eserver/iseries
• The ability to run PM/400e and Service Agent over TCP/IP is available March 30, 2001, using the integrated high-speed V.90 modem. In addition, the ability to inventory multiple systems hardware and software information is enabled over this connection. The following URL can be checked for the PTFs required to enable these functions:

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

• PM400e Integrated with Workload Estimator:

PM/400e is a personalized tool shipped with OS/400 that gives you easy-to-use reports about the performance of your systems. Simply turn the tool on and access your reports on the Web.

These reports automate many of the functions associated with capacity planning and performance analysis. The personalized Web-based reports help identify potential resource constraints and as help you plan future growth.

Find out more about PM/400e at:

http://www.ibm.com/iseries/pm400/

The Workload Estimator currently helps you size system needs based on estimated workloads for specific workload types. The Workload Estimator and PM/400e now work with one another.

Through a Web-based application, the enhancements helps you size upgrades to your existing system based on PM/400e reported utilization, performance, and growth data. Plan your future system requirements based on existing utilization data.

Sizing for additional workload types supported by the Workload Estimator (for example, Domino™, WebSphere, Java, and others) can also be included in the sizing. With the flexibility to adjust growth rates and time horizons, the output will include an AS/400 and iSeries 400 summary level recommendation for your consideration. It includes a suggested upgrade for your processor, processor features, memory, disk arms and disk capacity. This support is planned to be available December 29, 2000, via the Internet. This application does not support an LPAR environment.

Physical Device Placement Assistant (PDPA): The new, Web-based PDPA can save time and increase accuracy of Customer Setup (CSU) feature installations. The tool helps AS/400 and iSeries 400 customers quickly identify where to install CSU features as they are added to the system. The PDPA tool works by retrieving information from your system via a secure Internet connection. It then analyzes this information to identify both open and occupied card slots and provides a description of all installed cards.

The PDPA tool is available for no additional charge. To access the tool, all you need to do is register and have Netscape V4.07, or later, or Internet Explorer V5.0, or higher. To learn more or register, visit:

http://www.ibm.com/iseries/cif

Software Inventory Utility (SIU): This AS/400 and iSeries 400 software upgrade tool can help IBM customers and Business Partner sales teams save time and improve the accuracy of their AS/400 and iSeries 400 software upgrades.

SIU also enables customers to easily manage their AS/400 and iSeries 400 installed software inventory. Features of SIU include:

- “Auto-sense” of release level
- Printed report of installed software
- Categorization of installed software to indicate how the software can be updated

SIU suggests software to be ordered based on your system and software. Responsibility for verifying entitlement of any customer installed software, for which a software upgrade (via software subscription) has been requested, remains with the marketing representative. The SIU is available only in English and can be downloaded from the Web site:

http://www.ibm.com/iseries/configure

Select “Software Inventory Utility”

Version 4 customers with an AS/400 Software Subscription contract can use IBM.com centers to order a SW upgrade within SW subscription. This new option is offered worldwide.

To use this new function:

1. Visit:


2. Choose “Submit a request for software upgrade via software subscription.” The following information will be requested:

- AS/400 machine type
- AS/400 model
- Current OS/400 Software Release (VRM)
- Machine serial number
- Which VRMs the customer wants to upgrade to
- Customer contact information

3. After you submit your request to upgrade, an appropriate IBM.com center will contact you directly (in the local language) to place your order. When the IBM.com center calls, you may be asked to verify entitlement for software you have ordered.

To simplify selected software upgrades, a Web-based utility allows eligible customers and business partners to order version/release upgrades directly based on software subscriptions.

This capability is planned to be available by December 29, 2000.

To be eligible to place direct orders you must be able to meet the following requirements:

- Ensure V4R1, or later, of the operating system is installed
- Ensure you have a current Software Subscription
- Be a registered user of IBM Electronic Services for iSeries 400 or AS/400
- Ensure AS/400 Service Director® and its associated Service Agent PTF is installed, or Electronic Service Agent for AS/400 and its latest PTF is installed
- Collect and send system information to IBM using AS/400 Service Director or Electronic Service Agent for AS/400

When activated, access will be through the IBM Electronic Services for iSeries 400 or AS/400 Web site at:

http://www.ibm.com/services/electronic/
Services Network: Sales channels and customers can quickly identify Business Partners and IBM groups (for example, IBM Global Services) who can provide a broad range of services for the AS/400 and iSeries. Find service providers at:

http://www.ibm.com/iseries/services

Select the general type of services you need. You will be presented with companies who can provide those services.

For companies who provide AS/400 and iSeries 400 services, the Network is a forum for promoting their services capabilities on the Web site and a method to collaborate with other Network members. The Network is planned to expand continually to reflect the worldwide reach of the iSeries 400 and AS/400 marketplace.

iSeries 400 and AS/400 University: IBM customers and Business Partners can access iSeries 400 and AS/400 education offerings available through a single new Web site. A variety of training methods are available to accommodate individual learning styles (such as classroom, online, shipped media, download and play, IBM Redbooks, and events). You can search by education segment (for example, e-business, Domino, Java). Visit:

http://www.ibm.com/services/learning/isweb/community/eserver/iseries/

Personalized Web Page: Assists in facilitating e-relationships between IBM or Business Partner representatives and AS/400 and iSeries customers.

The personalized page allows users to view information relevant to their needs and interests in a user-friendly format. Easy-to-view content abstracts and highlighted links provide a fast path to important information including:

- Offers and special promotions
- Recent news and events
- Product update information
- Industry information
- Key links to related sites

Refer to the following Web site for information:

http://www.ibm.com/services/myiseries

ESP: The IBM ESP initiative gives you the total server support you need for today’s e-business world.

You get great support — personalized and flexible — in the form you need. What counts is keeping your business running and helping you drive your business to the next level.

ESP is our total solutions focus for AS/400 and iSeries. It involves voice and Web-based technical support and support that’s integrated into the product. Emphasis is on a collaborative approach to technical support, ensuring a personal touch.

Here’s where you can find more information on ESP:

http://www.ibm.com/servers/support

Apache HTTP Server

HTTP Servers are the core foundation of technology at the heart of all e-business applications. They handle the communication with the client (typically browsers or XML-rendering devices such as palm pilots), providing the entry point into server resources. These resources can range from simple HTML and GIF files, to e-business and e-commerce applications, all the way to full-blown business-to-business, collaborative enterprises.

AS/400 HTTP support includes the Apache HTTP server. Apache, a freeware HTTP server, is open-source software that implements the industry-standard HTTP/1.1 protocol with a focus on being highly configurable and easily extensible. It is built and distributed under the Apache Software License by the Apache Software Foundation and is available at:

http://www.apache.org/

IBM HTTP Server for AS/400 incorporates Apache 2.0, an update comprised of several new enhancements, including the new Apache Portable Run-Time and the new multiprocessing modules.

In addition, the following enhancements are added to IBM’s AS/400 version:

- Full-function, task-oriented, Web-based user interface
- Authentication using LDAP, AS/400 user profiles and validation lists
- Full native SSL support, including client authentication and association between client certificates and validation lists or AS/400 user profiles
- Logging rollover and archiving
- Logging in DDS format
- NLS enablement
- Static and dynamic local file caching
- Denial of Service detection and prevention
- SNMP subagent
- CGI support for RPG, COBOL, REXX, CL, and Java
- Persistent CGI support
- Support for CGIs running in named activation groups
- Configuration, instance, and groupfile APIs
- Global server and instance parameters
- Webserver Search engine support
- Support for all AS/400 file systems
- Support configuration files stored in LDAP
- CGI code page conversion modes
- Support for TRCTCPAPP
- Additional serviceability and tracing

Support for Apache is added so that server instances built using the original AS/400 HTTP server can co-exist with Apache-based server instances.

Refer to the following Web site for information availability and on PTFs:

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

WebSphere Development Tools for AS/400 V4R5M1

Two of the components of WebSphere Development Tools, VisualAge RPG and CODE/400, are already offered as an AS/400 program (5769-CL3). Two new components are added, and the program is renamed WebSphere Development Tools for AS/400. The two new components, VisualAge for Java for AS/400 and WebSphere Studio for AS/400 are based on the latest V3.5 versions. WebSphere Application Server now provides Java 2 support.
The price for 5769-CL3 is reduced. If you already have VisualAge RPG and CODE/400 with software subscription, you are eligible for an upgrade to WebSphere Development Tools for AS/400 at no additional charge. A statement of direction that outlines the IBM strategic direction for AS/400 application development was made on June 12, 2000. Refer to Software Announcement 200-180, dated June 12, 2000.

WebSphere Development Tools for AS/400 V4R5M1 consists of the following workstation components.

VisualAge for Java for AS/400 IBM award-winning Java IDE, coupled with the wizards and Enterprise Toolkit for AS/400 (ET/400), provide easy access to AS/400 data, applications, and system capabilities. In VisualAge for Java for AS/400, the editor offers improved code formatting and easier/better exception handling. The editor now provides full file editing to ease the learning curve for 3 GL and C++ developers.

The enhanced browser filters by packages and classes and provides full file browse mode. The debugger now has more types of breakpoints, including conditional breakpoints and breakpoints for inner classes. You can now debug classes external to the IDE. JDK migration enhancements are added along with component-by-component migration guide.

Solution maps added to the IDE allow projects, packages, and classes to be swapped in and out of the IDE. The developer can focus at the task at hand by having a single set of projects, packages, and classes. IDE performance improves because there are fewer classes “hot” inside the IDE. Solution templates improve the usability of the product. Precoded Customer Relationship Management templates show how to build and customize solutions. These templates can be used to teach e-business application development.

The servlet builder is replaced with a new servlet wizard that generates tighter code and improved performance. The wizard generates HTML, servlet, and JSP prototypes for WebSphere Studio for AS/400. Improved integration is possible because both tools support the same JDK level. A WebSphere unit test environment (WebSphere Control Center) assists to rapidly test servlets and JSPs. By using this WebSphere control center, you can iteratively test your code without deploying it.

This WebSphere unit test environment is supported on Windows 98, Windows NT™, and Windows 2000.

VisualAge for Java is acknowledged as being the best Java IDE for creating Java applications for the AS/400 and iSeries. It has a powerful sophisticated Java Integrated Development environment with an advanced Visual Composition Editor (VCE) for assembling components/objects into an application.

In this release, the focus is on improved usability. More wizards and templates make it easier to generate code to access enterprise applications and enterprise data. The VCE can easily and quickly assemble these generated components into an application. Improved integration with WebSphere Studio makes it easy to create attractive Web sites for advanced e-business applications.

WebSphere Studio for AS/400: IBM Web development tool, based on WebSphere Studio V3.5 level, now includes AS/400 GUI elements for the browser, easy-to-use deployment tools, productivity-enhancing wizards, and templates. You can use any language to develop Web applications that access AS/400 data and applications easily. In WebSphere Studio V3.5, new built-in support for the creation, management, and deployment of content for pervasive computing devices, is added. There is new automatic generation of page-at-a-time navigation for large result sets. The visual JSP/HTML layout tool, Page Designer, has improved integration and ease-of-use content. Support to publish the Web Application structure of WebSphere Application Server is new in the V3.5 release.

WebSphere Studio for AS/400 is still the only product with a complete and easy-to-use Visual Page Designer for JSP, HTML, and DHTML that includes round-trip raw edit ability.

The market-leading site management workbench provides easy, powerful, team-enabled, site creation and management capabilities. WebSphere Studio for AS/400 is a complete tools solution with integrated support for visual applet creation, GIF animation, and image creation.

CODE/400: is the preferred development environment for developing host/server applications for AS/400 and iSeries. The edit, compile, and debug capabilities support RPG, COBOL, C, C++, CL, DDS, and Java. CODE Designer is a WYSIWYG DDS tool for creating workstation, printer, and database files for AS/400. Enhanced debug capabilities allow you to debug multithread e-business applications.

VisualAge RPG: This Visual Development Environment allows you to build client RPG applications with Windows GUI and transparent access to AS/400 resources. You edit, compile, debug, and execute RPG on the client. The VisualAge RPG compiler is the same code base as the host ILE RPG compiler so you can easily move logic between the client and server. You can now generate Java applications and Java applets from the VisualAge RPG source so that RPG becomes an e-business language.

Refer to the Ordering Information section for a description on how to order the update.

Product Preview

LINUX®: IBM continues to invest in supporting Linux across all IBM servers. IBM plans to provide Linux for selected models of the iSeries 400 platform by providing native support of the Linux kernel running in a secondary logical partition of the operating system. This will enable Linux applications to run on such iSeries 400 systems with very few or no changes required. The Linux kernel will enable a new stream of e-business applications for the iSeries 400 platform that complements its strength as an integrated core business solution. Linux applications will benefit from the iSeries 400 platform’s ability to provide resource flexibility, reliability, and connectivity to other applications on a single server.

Altered Program Objects: Some application providers and customers alter their program objects. IBM recommends against this practice because altered programs may bypass checks made by OS/400 that help ensure system integrity and security.

Today you cannot recreate a program object without source code on an iSeries 400 or AS/400 server if observable information, which includes program creation data, has been removed. A future enhancement to OS/400 will retain program creation data when observable information is removed, allowing the program to be recreated at the customer’s option. Recreating a program helps ensure its integrity and allows you to take advantage of new hardware or enhancements in translator technology. However, when a program is recreated, alterations made to the program object are not observable information is removed, allowing the program to be recreated at the customer’s option. Recreating a program helps ensure its integrity and allows you to take advantage of new hardware or enhancements in translator technology. However, when a program is recreated, alterations made to the program object are not observable.
retained. Programs that depend on alterations may fail or behave in an unexpected manner should the customer choose to recreate them. Customers should consult their application providers regarding potential impacts of program recreation.

**Year 2000**

The service end date for this Year 2000 ready product is July 31, 2002.

**Product Positioning**

*WebSphere Development Tools for AS/400 V4R5M1*

This strategic package of tools aids in developing e-business applications. This AS/400 and iSeries 400 product is based on the Application Framework for e-business architecture.

**Reference Information**


**Trademarks**

e(logo)server, iSeries 400, WebSphere, and Network Station are trademarks of International Business Machines Corporation in the United States or other countries or both. AS/400, VisualAge, OS/400, Service Director, and MQSeries are registered trademarks of International Business Machines Corporation in the United States or other countries or both. Windows and Windows NT are trademarks of Microsoft Corporation. Java is a trademark of Sun Microsystems, Inc. Domino is a trademark of Lotus Development Corporation. LINUX is a registered trademark of Linus Torvalds. Other company, product, and service names may be trademarks or service marks of others.
Customer Financing

IBM Global Financing offers attractive financing to credit-qualified commercial and government customers and Business Partners in more than 40 countries around the world. IBM Global Financing is provided by the IBM Credit Corporation in the United States. Offerings, rates, terms, and availability may vary by country. Contact your local IBM Global Financing organization. Country organizations are listed on the Web at:

http://www.financing.ibm.com

WebSphere Development Tools for AS/400 (5769-CL3): Using the configurator, after the availability date below, select a refresh for V4R3, V4R4, or V4R5 of 5769-CL3. Feature number 2658 will be placed on an MES to the 5755-ASS SPO. A Software Subscription is required for you to be eligible to receive this refresh. New orders or version/release upgrades to 5769-CL3 after October 20, 2000, will automatically include the refreshed program.

Upgrade to Client Access Family for Windows (5769-XW1): If you have Client Access Family (5769-XY1), you may pay a reduced price to acquire Client Access Family for Windows (5769-XW1). The reduced price applies to the number of user licenses of Client Access Family (5769-XY1) you have purchased.

The upgrade is from Client Access Family 5769-XY1 to 5769-XW1 (#0268) is not covered under AS/400 Software Subscription.

Terms and Conditions

Terms and conditions are not changed by this announcement.

Prices

For local prices, contact your IBM representative.

<table>
<thead>
<tr>
<th>Description</th>
<th>Machine Type/Model</th>
<th>Feature Number</th>
<th>IBM List Price¹</th>
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<td>Upgrade to Client Access Family for Windows (from 5769XY1)</td>
<td>5769-XW1</td>
<td>0268</td>
<td>$55</td>
</tr>
</tbody>
</table>

¹ IBM price; does not include tax or shipping and is subject to change without notice. Reseller prices may vary.

Order Now

Use Priority/Reference Code: AE001

Phone: 800-IBM-CALL
Fax: 800-2IBM-FAX
Internet: ibm_direct@us.ibm.com
Mail: IBM Atlanta Sales Center
Dept. AE001
P.O. Box 2690
Atlanta, GA 30301-2690

You can also contact your local IBM Business Partner or IBM representative. To identify them, call 800-IBM-4YOU.

Note: Shipments will begin after the planned availability date.

Trademarks

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