IBM i 7.1 Technology Refresh 7 offers performance, usability, and integration enhancements

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At a glance

IBM® i 7.1 Technology Refresh 7 offers new capabilities to help you exploit the latest technology:

- Extensions to IBM Integrated Web Application Server enable you to use the Java™ web server runtime engine.
- Improvements to IBM DB2® for IBM i help you deal better with big data.
- Enhancements to I/O devices for the IBM Power Systems™ product line help you exploit the solid-state drive (SSD) flash technology evolution.

Overview

IBM i 7.1 Technology Refresh 7 provides significant new capability for clients to take advantage of the latest technology, with significant new enhancements in RPG IV and DB2 for i, and with extended I/O hardware support.

The RPG IV programming language is enhanced to include additional free format coding support, helping to increase productivity and modernizing the RPG language. New extensions to the database will include new and advanced capabilities allowing the use of SQL to do a broad range of tasks. The new lighter weight, easy-to-use WebSphere® Liberty Application Server has become an option that clients can select when working with the IBM i Integrated Application Server. Hardware I/O support has been extended to include a variety of new devices and enhanced capabilities of existing devices.

- Integrated Web Application Server is extended to include WebSphere Liberty Application Server.
- The following DB2 database enhancements are included:
  - VLDB: IBM i gets bigger and better.
  - Modernization: It is now easier to move from DDS to SQL DDL.
  - DB2 for i systems management catalogs offer a new breed of data.
  - DB2 for i as a solutions platform.
- Scheduling flexibility enhancements have been made to IBM Application Runtime Expert.
- New Java V7.1 is included in the IBM i Java Runtime.
- The Free Format RPG IV language to help improve productivity for RPG Coders.

- New I/O hardware enhancements can help increase client choices for technology to more closely match their requirements:
  - PCIe2 1.8 GB Cache RAID SAS Adapter.
  - New small form factor 387 GB and 775 GB solid-state drives (SSD).
  - 1.2 TB/1.1 TB 10k RPM Disk Drive.
  - PCIe 2-port Async EIA-232 Adapter now supports Async PPP protocol.

Note: In this announcement letter, the term *Technology Refresh 7* refers to the set of PTFs required to support new hardware functionality. The term *Technology Update* refers to the multiple PTFs or PTF groups that will provide additional functionality in IBM i and related products. The term *Technology Refresh* is widely used to group both of these together. Availability of IBM i 7.1 TR7, IBM i 6.1.1 and related products are available November 15, 2013.

Key prerequisites

Refer to the Technical information section for specific hardware and software prerequisites.

Planned availability date

October 7, 2013

Description

IBM i

Integrated Web Application Server

The Integrated Web Application Server has been extended to leverage a new runtime engine based on the new WebSphere Liberty Application Server. Users of the Integrated Application Server will now have a choice between the older LWI-based support or the new Liberty support. This support will be automatically installed as part of the latest HTTP PTF Group, allowing clients to take advantage of this new small footprint to use the Java web server runtime engine.

There are several benefits to this new Liberty base:

- Faster startup and deployment due to dynamic configuration update
- Latest standards, including the Java EE web profile, which includes: servlet 3.0, JSF 2.0, JSP 2.2, JSTL 1.2, EJB Lite 3.1, and JPA 2.0
- Improved performance
- Easily portable from system to system

For additional details, visit the Integrated Web Application Server product page

http://www-03.ibm.com/systems/i/software/ias/

DB2 for IBM i

In the tradition of previous Technology Refreshes, DB2 for IBM i is again being extended to provide new capabilities, including built-in improvements for dealing with big data. The unique position IBM i has as the solution platform for business is being enriched through the delivery of new SQL capabilities for advanced SQL scripting, improved RPG language support for Embedded SQL, and a new breed of database catalogs. Improvements are also being provided to make it easier to modernize databases from DDS to SQL DDL.

Moving up to the suggested DB2 PTF Group will result in a database that provides significant new capabilities and that runs better, faster, and smarter.

- VLDB: IBM i gets bigger and better:
  - SQL Indexes can grow to 1.7 TB in size.
  - Automatic tracking and trending for growth rates of DB2 tables and indexes.
  - Live movement of DB2 tables and indexes to SSD.
- Modernization: Making it easier to move from DDS to SQL DDL:
  - Field reference detail maintained over CREATE TABLE AS
  - Improved SQL Generate DDL support for Keyed DDS files
- DB2 for i systems management catalogs -- a new breed of data:
  - System values and their settings
  - User profile information and user storage consumption
  - Function Usage IDs and their settings
  - Configured privileges broken apart by type of SQL object
  - Authorization lists added to Privilege catalogs
  - Using SQL to mine the audit journal and IFS journals
- DB2 for i as a solutions platform:
  - Additional Free Format RPG with embedded SQL
  - Advanced SQL scripting with the Dynamic Compound statement

Visit the IBM i Technology Updates wiki on developerWorks® to learn more about these and other DB2 for IBM i enhancements

http://www.ibm.com/developerworks/ibmi/techupdates/db2

To see the DB2 for IBM i PTF Group details, visit

http://www.ibm.com/developerworks/ibmi/techupdates/db2/groupptf

Program products

Application Runtime Expert

The Application Runtime Expert product (5733-ARE) has been enhanced to include the ability to schedule verifications based on a timeframe that fits your needs. From the Application Runtime Expert GUI interface, it is possible to schedule a verification to run at a specific time against a list of chosen systems. This provides additional flexibility and usability to help extend the usefulness of the product. This new support will be delivered in the latest HTTP PTF Group and will require that the 5733-ARE product is already installed. These new enhancements are available for both IBM i 6.1 and IBM i 7.1.

For details on Application Runtime Expert, refer to this site in developerWorks

http://www-03.ibm.com/systems/power/software/i/are/index.html

Java

IBM has announced a new version of the Java Runtime Engine (Java 7). The new version, Java V7.1, will be delivered as part of the Java product (5761-JV1). It is being delivered in both a 32-bit and 64-bit implementation. The new Java V7.1 is being delivered as a "addendum" to the existing Java 7 product options.

```
5761 JV1 Option 14  Java 7 32bit and Java 7.1 32bit
          /QOpenSys/QIBM/ProdData/JavaVM/jdk70/32bit
          /QOpenSys/QIBM/ProdData/JavaVM/jdk71/32bit

5761 JV1 Option 15  Java 7 64bit and Java 7.1 64bit
          /QOpenSys/QIBM/ProdData/JavaVM/jdk70/64bit
```

```
/QOpenSys/QIBM/ProdData/JavaVM/jdk71/64bit
```

For details on the Java V7.1 support for IBM i, visit the following web page in IBM developerWorks

https://www.ibm.com/developerworks/ibmi/techupdates/java

Free Format RPG IV

IBM Rational® has announced a significant update to the RPG IV language delivered in 5770-WDS. In the continuing effort to ensure RPG as a modern business language, RPG IV will support free-form Control, File, Definition, and Procedure specifications. RPG coders will now have the option to code programs with no regard to columns. Developers trained in other languages will more easily pick up the RPG language for writing modern applications. These new enhancements will be delivered through new PTFs and can be applied to RPG IV V7.1. These new enhancements will be documented in the RPG Cafe in developerWorks at

https://www.ibm.com/developerworks/mydeveloperworks/wikis/communitywiki?communityUuid=b 542d3ac-0785-4b6f-8e53-f72051460822

Hardware enhancements

IBM has introduced several I/O enhancements for the Power Systems product line, especially featuring options for higher-performance SAS/SSD configurations for those clients looking to leverage flash technology with IBM i. Additional enhancements provide expanded options for spinning disk and for async PPP protocol. Among the highlights are:

- Refreshed PCIe2 1.8 GB Cache RAID SAS adapter with lower energy requirements
- Higher capacity SSD features up to 775 GB
- Higher capacity 10K RPM disk drives up to 1.2 TB
- Improved write performance for IBM i configurations with VIOS that use PCIe2 1.8 GB Cache RAID SAS adapters
- Lower-cost async adapter option for IBM i applications using the Asynchronous Point-to-Point Protocol (PPP)

For more details on these I/O enhancements, refer to Hardware Announcement ZG13-0293, dated October 07, 2013 .

For an IBM i related description of these I/O enhancements, refer to

https://www.ibm.com/developerworks/ibmi/techupdates/hw

Statement of direction

IBM plans to provide support for IBM Power® Virtualization Center (PowerVC) to manage systems running the IBM i operating system and for IBM SmartCloud® Entry for Power to provision images to IBM i.

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Program number

```
Program                   Program
number        VRM         name

5770-SS1      V7.1        IBM i V7
5761-SS1      V6.1        IBM i5/OS
```

Product identification number

```
                          Maintenance        Maintenance
Program PID number        1-year PID number  3-year PID number

5770-SS1                  N/A                N/A
5761-SS1                  N/A                N/A


                          Maintenance
Program PID number        90-Day PID number

5733-WQE                  5665-WQE
5733-WQS                  5665-WQS
```

Offering Information

Product information is available via the Offering Information website

http://www.ibm.com/common/ssi

Publications

No publications are shipped with these programs.

Technical information

Specified operating environment

Hardware requirements

For specific hardware requirements, see the IBM i Technology Updates wiki on developerWorks at

http://www.ibm.com/developerworks/ibmi/techupdates/hw

Software requirements

IBM i 7.1 TR 7 and IBM i 6.1.1 enhancements will be available on November 15, 2013, as PTF updates. Refer to the link in the Description section for more details.

For more details on software requirements, visit

http://www.ibm.com/developerworks/ibmi/techupdates

The program's specifications and specified operating environment information may be found in documentation accompanying the program, if available, such as a readme file, or other information published by IBM , such as an announcement letter. Documentation and other program content may be supplied only in the English language.

Companion products

The MSP Utility Pricing Offer is a program that leverages channel-led discounting for Managed Service providers who purchase a Cloud Hosting Infrastructure built with IBM hardware and software.

IBM Electronic Support

The IBM Support Portal is your gateway to technical support. This includes IBM Electronic Support tools and resources, for software and hardware, to help save time and simplify support. The Electronic Support tools can help you find answers to questions, download fixes, troubleshoot, automate data collection, submit and track problems through the Service Request online tool, and build skills. All these tools are made available through your IBM support agreement, at no additional charge.

- Read about the Electronic Support portfolio of tools

    http://ibm.com/electronicsupport
- Access the IBM Support Portal

    http://ibm.com/support
- Access the online Service Request tool

    http://ibm.com/support/servicerequest

Planning information

- The next generation of servers following POWER7 / POWER7+ is not planned to support IBM i 6.1 and will require IBM i 7.1, or later.
- The release after IBM i 7.1 will run on POWER6 and newer hardware. No POWER5 technology-based systems are supported.
- Partitions with the release after IBM i 7.1 cannot own any HSL/RIO or IOP hardware, but they can be virtual clients. (This support statement was already true for POWER7 and later. This planning statement specifically applies to POWER6 technology-based systems running the release after IBM i 7.1.)
- Language Translation Support: Starting with the release after 7.1, the 5770-SS1 IBM i operating system and subsequent products will no longer be translated into Croatian and Romanian. The national language version feature codes for Croatian (#2912) and Romanian (#2992) will remain, but the text will now be delivered in English. The system multicultural support for these languages will not be affected.

Security, auditability, and control

These programs use the security and auditability features of the host hardware or software. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Global Technology Services®

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings for the efficient installation, implementation, or integration of this product.

Ordering information

Consult your IBM representative.

```
IBM i 7.1 (5770-SS1)
                               No-charge
                               feature
IBM i 7.1 (5770-SS1)           number

Registration features for
```

```
PureFlex^TM Systems

   PureFlex User qty 5          6495

IBM i 6.1.1 (5761-SS1)

                              No-charge
                              feature
IBM i 6.1.1 (5761-SS1)        number

Registration features for
 PureFlex Systems

PureFlex User qty 5           6495
```

The following will be added to all upgrade orders for DB2 Web Query Express® (5733WQE) or Standard (5733WQS). These are 90 day, no-charge products and are used by IBM to properly transfer software maintenance from the current customer DB2 Web Query version (5733-QU2 or 5733-WQE) to the upgraded DB2 Web Query version. Customers receiving this no-charge product will be entitled to software maintenance on the upgraded DB2 Web Query version for 90 days after the upgrade order or for the duration of their existing software maintenance, whichever is longer.

```
                              No-charge
IBM Web Query for System i®    Per Processor Core
SWMA 90 day Transfer Reg/Ren  feature
(5665-WQS)

 Per Processor Core 90D Reg      S1AGK3
Per Processor Core 90D Ren       S1AGGH

                              No-charge
IBM Web Query for System i    Per Processor Core
SWMA 90 day Transfer Reg/Ren  feature
(5665-WQE)

 Per Processor Core 90D Reg      S1AFK3
Per Processor Core 90D Ren       S1AFGH

Special delivery features

 Program PID number

5665-WQE  5665-WQS
Serial Number Only            RGST
```

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License Information form number

The program's License Information will be available for review on the IBM Software License Agreement website

  http://www.ibm.com/software/sla/sladb.nsf

Limited warranty applies

Yes

Limited warranty

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Money-back guarantee

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Volume orders (IVO)

Yes. Contact your IBM representative.

Passport Advantage applies

No

Software Subscription and Support applies

Yes. All distributed software licenses include Software Subscription and Support (also referred to as Software Maintenance) for a period of 12 months from the date of acquisition, providing a streamlined way to acquire IBM software and assure technical support coverage for all licenses. Extending coverage for a total of three years from date of acquisition may be elected.

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

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System i Software Maintenance applies

Yes

Variable charges apply

No

Educational allowance available

Yes. When ordering through the program number process, a 15% education allowance applies to qualified education institution customers.

Education Software Allowance Program applies when ordering through the program number process.

ESAP available

Yes, to qualified customers.

Statement of good security practices

IT system security involves protecting systems and information through prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective. IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.

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Now integrated into the base operating system of AIX® 5.3, AIX 6.1, and AIX 7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM , which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool also can be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type "smitty esa_main", and select "Configure Electronic Service Agent ." In addition, ESA now includes a powerful Web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent , refer to

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

The IBM Electronic Support portal is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled customers to track system inventory and find pertinent fixes.

Benefits

Increased uptime: The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the "symptoms," diagnosing the error, and manually calling IBM Support to open a problem record. Its 24x7 monitoring and reporting mean no more dependence on human intervention or off-hours customer personnel when errors are encountered in the middle of the night.

Security: The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM . The Electronic Service Agent tool securely transmits either via the Internet (HTTPS or VPN) or modem, and can be configured to communicate securely through gateways to provide customers a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a customer's system. System inventory information is stored in a secure database, which is protected behind IBM firewalls. It is viewable only by the customer and IBM . The customer's business applications or business data is never transmitted to IBM .

More accurate reporting: Since system information and error logs are automatically uploaded to the IBM Support center in conjunction with the service request, customers are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM , problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

Customized support: Using the IBM ID entered during activation, customers can view system and support information in the "My Systems" and "Premium Search" sections of the Electronic Support website at

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

My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent . Reports are available for any system associated with the customer's IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium Search and the Electronic Service Agent information that has been collected from your system, customers are able to see search results that apply specifically to their systems.

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Corrections

(Corrected on November 12, 2013)

The Planning information section was revised.