



IBM i 7.2 TR 2 and IBM i 7.1 TR 10 offer performance, usability, and integration enhancements

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At a glance

IBM^(R) i 7.2 Technology Refresh 2 (IBM i 7.2 TR2) and IBM i 7.1 Technology Refresh 10 (IBM i 7.1 TR10) deliver new features and capabilities for small, midsized, and large companies:

- IBM DB2^(R) for i adds new SQL capabilities to allow application developers and database engineers to efficiently react to changes in business computing requirements.
- New SQL-based IBM i services interfaces enable users to access, transform, order, and subset the information without needing to code to a system API.
- SNMP enhancements allow the simplification of application and firewall configuration .
- Open Source LPO 5733-OPS enhancements include support for the Python language among other improvements.
- REST based support provided in the Integrated Web Services Server support is improved to support returning user-defined media types and improved processing for the output data.
- The IBM i Software Development Kit for JavaTM has been enhanced to support Java 8.
- IBM i Access Client Solutions has been enhanced to significantly improve the 5250 emulator experience and adds other new features.
- IBM i Access Mobile, delivered with the IBM i Access for Web product (5770-XH2), has reached general availability. IBM i Access Mobile provides a mobile-centric solution for managing and accessing an IBM i system from mobile devices.
- The Application Runtime Expert interface now provides the ability to easily distribute PTFs across an IBM i enterprise.
- New IBM i Backup, Recovery, and Media Services (BRMS) functions extend its ease of use to validate proper network setup, allow centralized media movement, and allow saving of "Q" user libraries in an IASP.
- The RPG IV programming language is enhanced to include additional PCML support, helping to increase productivity and modernize the RPG language.
- SAN multipath support for tape drives reduces configuration complexity and allows path redundancy (IBM i 7.2 only).
- IBM i has dramatically reduced the recovery time for some PCIe3 SAS adapter and disk error maintenance scenarios.
- Support for the latest Power^(R) hardware and I/O devices.

Overview

IBM i integrates a trusted combination of relational database, security, web services, networking, and storage management capabilities. It delivers a broad and highly stable database and middleware foundation for efficiently deploying business applications.

With IBM i 7.2 TR2 and IBM i 7.1 TR10, DB2 for i, which is incorporated into the operating system, continues to focus on new and advanced SQL capabilities, database engineer productivity, SQL Query Engine (SQE) performance, and the ability to use SQL to access IBM i operating system detail. By moving up to the latest DB2 PTF group, clients will have a database that provides significant new capabilities for a wide range of users.

IBM continues to deliver new SQL-based services in IBM i 7.2 TR2 and 7.1 TR10. Several new IBM i services are provided, extending the ability to use SQL to efficiently access, transform, order, and subset IBM i operating system details.

Recent networking enhancements to SNMP for IBM i 7.2 and 7.1 allow application and firewall configuration simplification. SNMP will now send responses via UDP port 161 instead of a random ephemeral port, simplifying firewall configuration. SNMP also now supports GetBulk requests, which provide an easier method for an application to retrieve a large amount of data. The ability to configure storage pool and disk unit block sizes will enable an SNMP manager to calculate an accurate size for large storage pools and disk units.

IBM i continues to enhance the open source ecosystems on IBM i. The Open Source LPO 5733-OPS is enhanced to include support for Python (Option 2) and other improvements for the Node.js support provided in Option 1 for IBM i 7.2 TR2 and i 7.1 TR10.

The recently released REST based support provided in the Integrated Web Services Server support is further improved to support returning user-defined media types and improved processing for the output data.

The IBM Developer Kit for Java for both IBM i 7.1 and 7.2 (5760-JV1 and 5770-JV1) has been enhanced to support Java 8.

IBM i Access Client Solutions, the strategic interface for accessing an IBM i system, has been enhanced to significantly improve the 5250 emulator experience and includes many new features.

This mobile capability, shipped with the IBM i Access for Web product (5770-XH2), is now generally available. Many new mobile-centric features have been included as well as Secure Telnet.

The Application Runtime Expert interface (5733-ARE) has been enhanced to provide the ability to easily distribute PTFs across an IBM i enterprise.

IBM i BRMS delivers periodic sets of enhancements through its PTF group. The most recent new functions extend its ease of use to validate proper network setup, allow centralized media movement, and allow saving of "Q" user libraries in an IASP.

Power Systems™ with POWER8™ technology have additional configuration options, including the support to attach the PCIe Gen3 I/O expansion drawer to selected models of the Power S814 and S824 systems, add additional PCIe Gen3 I/O expansion drawers to the Power E870 and E880 systems, and add additional System Node drawers to the Power E880 Enterprise systems. These options allow even more workloads to be consolidated onto the existing Power Systems with POWER8 technology.

The breadth of I/O options has also been increased with native, native SRIOV, and VIOS support of a new 10Gb Ethernet card. In addition, for IBM i 7.2 TR 2, IBM i supports native and VIOS NPIV attachment to the powerful Flash Systems 900,

which is leading edge for high-speed disk storage. These announcements deliver support for the latest technologies that complement the growing workload needs on the Power Systems with POWER8 technology to meet the demands for higher capacity and smaller footprint than were previously possible.

Configuring IBM i with tape libraries and stand-alone tape drives in a SAN configuration that has redundant paths has been complex. With IBM i 7.2 TR 2, both native and VIOS NPIV tape configurations with up to eight redundant paths may be configured, and a preferred path may be specified.

Some types of SAS adapter and disk errors and concurrent maintenance operations in SAS dual adapter configurations have resulted in slower performance on busy systems while automatic error recovery is occurring. IBM i 7.2 TR 2 and IBM i 7.1 TR 10 drastically reduce the recovery time for some of those scenarios.

For additional information, refer to the IBM i Technology Updates wiki, located in developerWorks^(R)

<http://www.ibm.com/developerworks/ibmi/techupdates/i72-TR2>

and

<http://www.ibm.com/developerworks/ibmi/techupdates/i71-TR10>

Key prerequisites

IBM i 7.2 TR2 and IBM i 7.1 TR10 are supported on IBM Power Systems servers with POWER8 processors; IBM Power Systems servers and blades and IBM Flex systems with POWER7^(R) or POWER7+TM processors; IBM Power Systems servers and blades with IBM POWER6^(R) or POWER6+TM processors; and IBM System i^(R) servers with POWER6 processors. IBM i 7.1 TR10 also supports the older IBM System i servers with POWER5 or POWER5+ processors.

Refer to the [Technical information](#) section for specific hardware and software prerequisites.

Planned availability date

May 29, 2015

Description

DB2 for i

DB2 for i enhancements

DB2 for i continues to focus on new and advanced SQL capabilities, database engineer productivity, SQL Query Engine (SQE) performance, and the ability to use SQL to access IBM i operating system detail. By moving up to the suggested DB2 PTF Group, clients will have a database that provides significant new capabilities for a wide range of users.

Database application developers have new capabilities for constructing advanced SQL solutions:

- DB2 for i continues its investment in User Defined Table Function (UDTF) language support by extending the maximum number of parameters for SQL UDTFs from 90 to 1024. This additional programming capacity will complement the industry trend of UDTF adoption as a dynamic programmatic alternative to static views.
- SQE is enhanced to assess, cost, and choose an index implementation where both ordering and selection are being used against a large data set when

only a small subset of the result rows need to be consumed. This and other enhancements within SQE mean that some queries can simply run faster.

- Queries can use new built-in functions for interacting with Universal Unique Identifiers (UUIDs). The new VARBINARY_FORMAT (convert character data into binary) and VARCHAR_FORMAT_BINARY (convert binary data into character) built-in functions make it easier to incorporate SQL when managing distributed systems.
- Other SQL enhancements are described in developerWorks.

Database engineers have improved capabilities for managing the evolution of data models within DB2 for i:

- DB2 for i delivers the first DB2 Family support for CREATE OR REPLACE TABLE, easing the burden of managing change within the database. When a table is replaced, DB2 for i will construct and execute the necessary ALTER TABLE statements required to transform the existing table to match the user-specified definition. Database engineers can save time and effort by focusing on maintaining the master source for tables and let DB2 for i handle the rest.
- DB2 for i includes a very limited number of chargeable options. The DB2 Symmetric Multiprocessing (SMP) option allows database clients to leverage the simultaneous multithreading capability of Power hardware. IBM i clients who purchase and enable SMP will see improved behavior and administrator control of parallel index builds. For information about the DB2 SMP option, visit <http://www-03.ibm.com/systems/power/software/i/db2/products/smp.html>
- JSON (JavaScript™ Object Notation) is a language-independent data format that has grown in popularity as a simpler alternative to XML. DB2 for i is providing a JSON Store - Technology Preview. Java applications will be able to use the DB2 JSON API to store and retrieve JSON as BLOB data from DB2 for i tables. Having the JSON data reside within DB2 for i provides ideal reliability of service.

These and many other enhancements are delivered with the DB2 PTF Group SF99701 and SF99702. 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>

IBM i Services

In the tradition of recent database enhancements, IBM continues to add new IBM i Services. These services provide useful alternatives to IBM i commands and APIs:

- The ACTIVE_JOB_INFO() UDTF can be used to retrieve information about active jobs on the system. This function returns information shown by the Work Active Jobs (WRKACTJOB) command. The UDTF includes the ability to establish a statistical point in time and return elapsed time performance-based metrics.
- The SCHEDULED_JOB_INFO view returns information that can also be seen through the Work with Job Schedule Entries (WRKJOBSCDE) command interface. Each job schedule entry contains the information to automatically submit a batch job once or at regularly scheduled intervals.
- The JVM_INFO catalog provides the SQL user with access to active Java Virtual Machine (JVM) job information. This programmatic interface can be used to deploy advanced systems management capabilities related to Java based application suites.

Other IBM i services as described in developerWorks

<http://www.ibm.com/developerworks/ibmi/services/>

IBM i

Application Development for IBM i

Integrated Web Services Server

The Integrated Web Services (IWS) Server support has been enhanced to provide the following features:

- During the deployment of an ILE program or service program, it is now possible to indicate whether IWS support should search for "size" fields, which are fields indicating the length of a character field or an array. Size fields help improve the performance of the processing of output fields due to the following:
 - For character fields, the right-most trimming of blanks degrades performance for large character fields. Specifying a size will eliminate the need to search byte by byte for the first nonblank character.
 - For arrays, there currently is a way to indicate the number of elements in an output array if the array is an output parameter. However, for nested arrays, there currently is no way to do this, and so there may be unnecessary empty array elements returned in the response. Specifying a size field will result in returning the actual number of elements in the array.
- RESTful web services can now return user-defined media types. In the past, only XML and JSON media types could be returned.

For additional details, visit the Integrated Web Services for IBM i product page

<http://www.ibm.com/systems/power/software/i/iws/>

IBM i Open Source

IBM i continues to focus on enhancing the IBM i open source ecosystem. The Open Source LPO (5733-OPS), announced with IBM i 7.1 TR9 and IBM i 7.2 TR1 in October 2014, has been enhanced as follows:

- Python: The Python language is a multipurpose high-level programming language that is very popular across many communities. Option 2 of 5733-OPS includes the Python language and a simplified set of interfaces for allowing easy access to the IBM i native ILE objects and DB2 for i access.
- Node.js: This popular language has been updated to the latest version. Additionally, a FastCGI interface has been added to allow easy and robust connections between the IBM i HTTP server and the Node.js environment. These updates are delivered as PTFs that are added to Option 1 of 5733-OPS.

For additional information, see the Open Source page on IBM i developerWorks

<http://www.ibm.com/developerworks/ibmi/techupdates/opensource>

Java 8

The IBM i Software Development Kit (SDK) for Java (5760-JV1 and 5770-JV1) has been enhanced to include support for Java 8, the latest version of Java. The SDK is updated to include support for a 32-bit and 64-bit version of Java 8. This newest version of Java provides compatibility with the new Java SE 8 (JSR 337) and improved performance for workload-optimized run times and updates to leverage the latest IBM hardware.

IBM i 7.1

- 5760-JV1 Option 16 - IBM Technology for Java 8 32 bit
- 5760-JV1 Option 17 - IBM Technology for Java 8 64 bit

IBM i 7.2

- 5770-JV1 Option 16 - IBM Technology for Java 8 32 bit

- 5770-JV1 Option 17 - IBM Technology for Java 8 64 bit

For the latest information see the Java page on the IBM i zone of developerWorks

<http://www.ibm.com/developerworks/ibmi/techupdates/java>

Networking for IBM i

SNMP enhancements

Sending responses via Port 161

In the past, IBM i would receive SNMP requests via UDP port 161 and then send a response via a random ephemeral port. This made it difficult to configure firewalls and still allow SNMP traffic to flow between an IBM i SNMP agent and an SNMP-based system or network management application running remotely. The SNMP agent has been changed so that responses to SNMP requests will now be sent via UDP port 161. Traps that originate on an IBM i partition will now also be sent via port 161.

Configuring storage pool and disk unit block sizes

As system storage sizes, with regard to both storage pools and individual disk units, have increased, the limits of the original SNMP design have been reached and sometimes exceeded. The size that SNMP returns for an 8 TB storage pool on an IBM i partition could show up as a negative number in some system management application, or it could be flagged as invalid. The latest enhancements to SNMP now allow the configuration of large block sizes that are used for returning storage size information for both storage pools and disk units. Configuring a larger block size with the Change SNMP Attributes (CHGSNMPA) command will now eliminate negative storage size values and prevent disk units being flagged by system management applications.

SNMP GetBulk request

Simple Network Management Protocol (SNMP) provides a system or network management application with the ability to gather information about network devices and to monitor them. To accomplish this, SNMP defines a set of operations for retrieving and setting data, as well as monitoring for conditions being reported by the devices. One of these operations, GetBulk, provides an application with the ability to easily retrieve a large amount of data with a single request. This can be particularly useful when retrieving information from one of the standard SNMP tables.

SNMP enhancements details:

Visit general IBM i Operating System Technology Updates for more details

<https://www.ibm.com/developerworks/ibmi/techupdates/os>

IBM i Licensed Program Products

IBM i Access Client Solutions (5733-XJ1)

IBM i Access Client Solutions, the strategic interface for accessing an IBM i system, has been improved significantly with the release of version 1 release 1 modification 4. Many enhancements have been made, including an improved 5250 emulator, improved setup and install for Mac and Linux™, and an exciting new feature for system administrators that provides an easier way to access a system console through an HMC.

5250 Emulator enhancements:

- Tabbed sessions that share a common presentation space
- Ability to save a view of multiple sessions for easy restart of multiple sessions
- Watermark customizations, including image support

- Ability to add user-provided fonts
- Migration wizard for .ws profiles
- Support for host code pages 1130, 1132, 1164, and 1377
- Optional input character validation based on host code page
- Print emulation enhancements
- Additional mouse wheel customizations
- Cursor customization when doing a paste
- Additional keyboard mapping options: Character Backspace, Character Advance, and APL screen attributes
- Maximum sessions allowed has been increased to 100 (available in May 2015)

Mac and Linux users will find deployment and setup to be much simpler by using an easy-to-follow quick start guide

ftp://ftp.software.ibm.com/as400/products/clientaccess/solutions/QuickStartGuide_en.htm

The HMC Probe Utility is a new feature that has been added to the ACS support to simplify the systems administrator's work. The new HMC probe allows the specifying of the address and user/password for an HMC. The probe will then show all the currently configured systems and give easy access to each console. Console sessions can be easily saved for an individual system or all systems defined on that HMC at once.

For more details and to get access to the version 1 release 1 modification 4 updates, visit

<http://www-03.ibm.com/systems/power/software/i/access/solutions.html>

Mobile Access for IBM i (5770-XH2)

In 2014, IBM introduced a technical preview for accessing and managing an IBM i from a mobile device through the IBM i Access for Web Product (5770-XH2). This support is now generally available. Based on valuable input from many users, enhancements have been made to improve the experience for mobile users:

- New mobile-centric design and layout.
- Dynamic filter option added to every list.
- Dynamic action menus.
- 5250 secure telnet connections, which allows the use of SSL for the 5250 telnet connection and SSL for the entire interface. For details, see the service tech note

<http://www-01.ibm.com/support/docview.wss?uid=nas8N1020432>

The IBM i Access Mobile interface is delivered through the IBM i Access for Web product. To access these latest mobile enhancements, it will be necessary to have the 7.2 version of the IBM i Access for Web product installed on the system. The 7.2 version of IBM i Access for Web (5770-XH2) is backwards compatible and will install on IBM i 6.1 and 7.1 systems.

Details can be found at

<http://www-03.ibm.com/systems/power/software/i/access/mobile.html>

Application Runtime Expert (5733-ARE)

The Application Runtime Expert interface (5733-ARE) has been enhanced to provide the ability to easily distribute PTFs across multiple IBM i workstations in an enterprise. Other key enhancements:

- Ability to compare a system's fix levels with the latest list of PTF groups released from IBM
- Email notification once a scheduled system compare has completed and a discrepancy has been identified

Details can be found at

<http://www-03.ibm.com/systems/power/software/i/are/>

Backup, Recovery, and Media Services (5770-BR1)

IBM i Backup, Recovery, and Media Services (BRMS) is an IBM i licensed program designed to provide choices for backup, recovery, and media management. BRMS delivers enhancements periodically through PTF groups. The most recent enhancements to IBM i 7.1 and 7.2 include the following:

- The network setup and communications can be checked by using the INZBRM command.
- BRMS can use a remote command to eject media that is owned by another system, even if its tape library is not configured on the system trying to move it. This allows centralization of media movement on a single IBM i partition with BRMS and provides the capability to generate a single media movement report.
- "*"IBM" control group entries have been expanded to include the capability to specify independent auxiliary storage pools (IASPs). This allows "Q" user libraries residing in an IASP to be saved.
- BRMS has added Location and Container parameters to CHGMEDBRM, allowing movement of individual volumes. This allows a greater granularity in the options for movement of volumes and is in a command-line interface for those who might want to use this function in a CL program.

For more information about these and other BRMS enhancements, visit

<http://www.ibm.com/developerworks/ibmi/techupdates/brms>

RPG IV

IBM is announcing enhancements to the RPG IV language delivered in 5770-WDS. In the continuing effort to increase the power of RPG as a modern business language, RPG IV will support generating mixed-case PCML and the ability to select which exported procedures should have PCML generated.

These new enhancements are available with PTFs for the RPG IV compiler:

- PTF SI55340 for release 7.1, TGTRLS(*CURRENT)
- PTF SI55442 for release 7.2, TGTRLS(*CURRENT)
- PTF SI55531 for release 7.2, TGTRLS(V7R1M0)

Full documentation for these enhancements will be found starting from the What's New section of the ILE RPG Reference in Knowledge Center 7.2. Knowledge Center 7.1 will not be updated, but the information about these enhancements is the same for both 7.1 and 7.2.

Information will also be available in the RPG Cafe at

<https://www.ibm.com/developerworks/ibmi/rpg/welcome>

Hardware enhancements

IBM is announcing additional configuration options for POWER8 systems. There are additional options for attaching additional I/O devices.

The following new support options are available:

- Support to attach the PCIe Gen3 I/O expansion drawer to the Power S814 and S824 servers
- Support for additional system node drawers to attach to the Power E880 Enterprise Systems
- Support for additional PCIe Gen3 I/O expansion drawers to attach to the Power E870 and E880 Enterprise Systems

These options allow even more workloads to be consolidated onto the existing Power Systems with POWER8 technology. The breadth of I/O options has also been increased with native, native SR-IOV, and VIOS support of a new 10Gb Ethernet card. In addition, for IBM i 7.2 TR 2, IBM i supports native and VIOS NPIV attachment to the powerful Flash Systems 900, which is leading edge for high-speed disk storage. These announcements deliver support for the latest technologies that complement the growing workload needs on the Power Systems with POWER8 technology to meet the demands for higher capacity and smaller footprint than were previously possible.

Additional hardware-related enhancements include:

- IBM i native direct attach configurations with 16Gb Fibre Channel are now supported, allowing for simpler and less costly configurations because the need for a switch is eliminated.
- Native SR-IOV support for Power Systems with POWER8 technology to allow sharing of Network Interface Controller (NIC) adapters without VIOS.
- 10K SFF SAS disk up to 1.8 TB in size and with 4K block size.

Besides the hardware announcements that are supported by IBM i, the IBM i operating system itself has included some enhancements for existing hardware features and offerings:

SAN Multipath support for Tape Drives (IBM i 7.2 TR2 only)

Configuring IBM i with tape libraries and tape drives in a SAN configuration that has multiple paths has been complex. LUN masking and other techniques must be used, and recovering a path failure has required a reconfiguration of the SAN.

With IBM i 7.2 TR2, IBM i support of multiple path tape configurations has been simplified. An operational path is selected at Vary On time. The partition will use only one path at a time and will attempt to use the preferred path when the configuration is activated.

An IBM i multipath tape configuration allows up to eight paths. The attachment may be native to the IBM i partition or via a VIOS NPIV configuration or a mix. The tape drives in the configuration may be in a tape library or stand-alone. Supported tape drives are:

- LTO5 (3580-005) and LTO6 (3580-006) drives in tape libraries or a 7226 enclosure
- Device type 592-E07 and 3592-E08 drives in tape libraries
- ProtecTier level 3.3.5.1

SAS adapter availability enhancement

Customers with SAS dual adapter configurations that use system-level mirroring and encounter some types of adapter and disk failures may experience temporary performance degradations. Customers with RAID-protected dual adapter configurations encounter similar temporary performance degradations if they encounter some types of adapter errors or perform adapter concurrent maintenance operations.

Innovative improvements have been made in IBM i 7.2 TR 2 and IBM i 7.1 TR 10 to drastically reduce the recovery time for some of those scenarios. The breadth of impact for some of the scenarios has been greatly reduced also, to not affect the operation of active paths. These improvements apply to the following adapters and controllers:

- PCIe3 12 GB Cache RAID SAS Adapter (#EJ0L)
- PCIe3 RAID SAS Adapter with Zero Write Cache (#EJ0J, #EJ0M)
- PCIe3 integrated SAS controller (#EJ0N, #EJ0P) in Power S814 and S824 servers

For details for hardware enhancements, refer to

Product positioning

IBM i 7.2 is the latest version of the IBM i operating environment. It runs on a Power Systems server and offers a highly scalable and virus-resistant architecture with a proven reputation for exceptional business resiliency. Companies that run applications on IBM i running on a Power server are able to focus on innovation and delivering new value to their business, not on managing their data center operations.

IBM i delivers a fully integrated and trusted combination of relational database, security, web services, networking, and storage management capabilities that are required to run business applications. For example, IBM installs and integrates the SQL standards-based DB2 database for IBM i with advanced database management utilities, plus additional middleware components such as multiple file system options, directory capability, an HTTP web server that is powered by Apache, a web application server, and a web services environment.

IBM develops, fully tests, and preloads these core middleware components of IBM i together. The preintegration and testing of IBM i is a key factor in enabling companies to realize lower operations costs by deploying applications faster and maintaining them with less staff.

Virtualization and workload management are also built into the IBM i operating environment to enable businesses to consolidate and run multiple applications and components together on the same system, helping to drive up system usage and delivering a better return on IT investments. This broad and highly stable database and middleware foundation is ideal for efficiently deploying business processing applications.

Architecture for simplicity, stability, and security

Another important advantage for IBM i is the underlying architecture of the operating system, which enables simplicity, stability, and security. These are not add-on features, but inherent aspects of the operating system. Here are a few examples:

Simplicity

The relational database in IBM i is an integrated component that is built on a set of integrated storage management unique to IBM i and its predecessors. This storage management is based on the single-level storage architecture that treats all of the storage managed by IBM i as one long stream of memory that encompasses the system memory and the storage on disks. This architecture makes it critical for the operating system to decide where to store any given piece of data, which removes the user from having to manage data placement. This method makes management of storage and the database objects contained in that storage significantly simpler.

Stability

IBM i architecturally separates the address spaces of user applications and the operating system, so it is difficult for poorly written or malicious software to intrude upon the underlying operating system support. This is one of several attributes that can help keep IBM i running for days, weeks, and months without unexpected restarting of the operating system.

Several architectural attributes of IBM i have contributed to the stability of the system over the years. First, applications compiled on IBM i are compiled to a set of intermediate code instructions defined as the Technology Independent Machine Interface (TIMI). This enables IBM i to fundamentally change the implementation of underlying hardware, firmware, and virtualization features, without requiring rewriting, changing, or even recompiling the applications written by users. This sort of forward compatibility is a tremendous business advantage and it allows

the movement of software developed and compiled several years to even decades before to run on later generations of the IBM i operating system.

Security

IBM i and its predecessors have an object-based architecture. Each entity on the system is an object, which has a set of prescribed operations that can be performed on it and connections from the object to those other objects that are allowed to perform various operations. An object that does not have a legal edit operation cannot be edited. It cannot be renamed to another kind of object. If the object does have an edit operation, known as *change* for most objects, it only has a defined set of attributes that can be edited, and then only by users who have authority to do that editing.

Objects can easily be hidden from other users by use of the library list objects, and security enhanced by the object-based security associated with all objects. And users who all have a similar role on the system can be grouped for role-based security, again as part of the base architecture of the system.

While the IBM i operating system supports Java, PHP, web services, and other open source programming methods, the underlying architecture offers a level of integration, stability, simplicity, and security that makes it significantly different from comparable operating systems. These aspects deliver excellent business value to its users.

Program number

Program number	VRM	Program name
5770-SS1	7.2	IBM i 7.2 TR 2
5770-SS1	7.1	IBM i 7.1 TR 10

Product identification number

Program PID number	Maintenance 1-year PID number	Maintenance 3-year PID number
5770-SS1	N/A	N/A

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

A supported IBM Power or IBM Flex or IBM System i server or blade with POWER8, POWER7+, POWER7, POWER6+, or POWER6 processor is required to run IBM i 7.2 TR2.

A supported IBM Power or IBM Flex or IBM System i server or blade with POWER8, POWER7+, POWER7, POWER6+, POWER6, POWER5+, or POWER5 processor is required to run IBM i 7.1 TR10.

For up-to-date information on all types of code levels needed for support of a particular feature, refer to the IBM Prerequisite website at

https://www-912.ibm.com/e_dir/eServerPrereq.nsf

Software requirements

For specific software requirements, refer to the IBM i Technology Updates wiki on developerWorks at

<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.

User Group requirements

A strong and passionate worldwide user community focuses on all aspects of IBM i running on Power servers. The community includes online groups and face-to-face community gatherings. The COMMON organization has branches around the world, including COMMON North America, iSUC in Japan, COMMON Europe, and Interaction in Australia/New Zealand.

IBM continues to recognize key community leaders through the IBM champion program. The 14 current IBM i Champions have been recognized for their work in the betterment of user groups, social media, and the Academic Initiative. To learn about the IBM Champions program, visit

https://www.ibm.com/developerworks/community/profiles/html/advancedSearch.do?profileTag s=power_systems&profileType=champion&lang=en

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.

Ordering information

Charge metric

Not applicable.

Terms and conditions

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License Information number

GC52-0885

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Yes

Limited warranty

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System i Software Maintenance applies

Yes

Variable charges apply

No

Educational allowance available

Not applicable.

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