

IBM adds new capabilities and enhancements with IBM i 7.5 Technology Refresh 2

Table of contents

1 Overview	11 Technical information
2 Key requirements	12 Ordering information
3 Planned availability date	12 Terms and conditions
3 Description	14 Prices
10 Program number	14 Order now
10 Publications	15 Regional availability

Overview

IBM^(R) i, one of the three operating systems that run on IBM Power^(R) servers, is a platform designed to adapt to the needs of business computing, with the expectation that both business and computing will change over time.

As the overall computing industry moves to provide businesses with various licensing models, IBM offers new subscription licensing for more IBM i Licensed Program Products (LPPs). Subscription terms offer various durations that enable you to pick the time frame that suits your business needs. Additionally, subscription terms provide flexibility at the end of the term to renew or resize.

With IBM i 7.5 Technology Refresh 2 (TR2), IBM adds new capabilities to some parts of the portfolio and enhancements to others, all designed to deliver greater performance, improved ease-of-use, and increased efficiency to every user.

IBM i operating system

There are many enhancements to the base IBM i 7.5 operating system, including the following components:

- The integrated REST API engine contained within the IBM i Integrated Web Services Server (IWS) is adding new features to the REST and SOAP API support contained within IWS. Additionally, the IBM i Remote System Explorer API (RSE API) is a new interface that enables clients to work with various components on the IBM i host system.
- IBM Navigator for i contains new features that enable both users and system administrators to access, manage, and monitor the IBM i environments.
- Previously, system administrators could remove configured Fibre Channel (FC) disk units from auxiliary storage pools (ASPs) in an active logical partition (LPAR). However, they could not completely remove those logical disk units from the LPAR without performing an initial program load (IPL). This technology refresh provides a mechanism to enable the complete removal of the non-configured logical disk units without an IPL.
- IBM i exploits selected offerings from IBM Power to ensure you have the hardware and virtualization capabilities you need to run your business.

IBM Db2^(R) for i

Db2 for i, the integrated database for IBM i, includes new and enhanced capabilities for Structured Query Language (SQL) application developers, database engineers,

and anyone interested in modern, advanced systems and security management techniques.

IBM i Services

IBM i Services, the SQL alternative to APIs and CL commands, continue to be a focal point for enhancements, providing increased productivity and insight to all IBM i users. SQL continues the journey from being the language of the database to becoming the language of data on IBM i.

IBM Portable Application Solutions Environment for i (PASE for i) and open source

There are enhancements to open-source application development tools and improved compression support for PASE. There is increased focus on providing open-source alternatives to the IBM WebSphere[®] Application Server for providing application serving requirements.

Licensed Program Products (LPPs)

IBM PowerHA[®] SystemMirror[®] for i 7.5 (5770-HAS)

IBM PowerHA SystemMirror for i 7.5 continues to deliver several enhancements to the PowerHA portfolio, focused on simplification and increased agility and adaptability. Additionally, PowerHA for i is providing the ability to replicate up to six nodes.

IBM Backup, Recovery and Media Services for i (BRMS) (5770-BR1)

BRMS adds new functions, such as save and restore enhancements and networking capabilities.

IBM Db2 Mirror for i (5770-DBM)

In this technology refresh, IBM Db2 Mirror for i (Db2 Mirror) adds a variety of enhancements to improve the overall user experience.

IBM Rational[®] Development Studio for i (5770-WDS)

IBM Rational Development Studio for i adds new features to both the RPG and COBOL compilers, including enhancements to %split and string manipulation using %Left and %right as well as some new command partners on CRTBNDRPG and CRTRPG MOD commands to allow the record length of temporary files.

IBM i Access Client Solutions (ACS 1.1.9.2)

ACS 1.1.9.2 adds new useability enhancements for running SQL scripts for system management operations.

IBM i Modernization Engine for Lifecycle Integration (Merlin)

In addition to the recently announced subscription option for acquiring Merlin, additional capabilities have been added to Merlin in this technology refresh. For more information about the subscription offering, see Software Announcement [223-045](#), dated February 14, 2023.

Direct attach to 8 GB tape backup products

IBM i running on Power10 platforms adds a new method to directly connect to a variety of 8 Gbps Fibre Channel tape products without the costs and complexity of a SAN switch.

Key requirements

IBM i 7.5 TR2 is supported on selected IBM Power servers with IBM Power10 and IBM Power9^(R) technology-based processors.

Clients using servers with previous-generation processors need to move to newer systems to take advantage of the features in IBM i 7.5.

For up-to-date information on all types of code levels needed for support of a particular feature, see the [IBM Power Systems Prerequisites](#) website.

See the [Technical Information section](#) for specific hardware and software prerequisites.

Planned availability date

- May 5, 2023, except for PowerHA SystemMirror for i (5770-HAS)
- PowerHA SystemMirror for i (5770-HAS) is June 23, 2023

Availability within a country is subject to local legal requirements.

Description

The IBM i 7.5 TR2 offers many new capabilities and enhancements to the portfolio.

For technical details for IBM i enhancements delivered with IBM i 7.5 TR2, see the [IBM i Technology Updates](#) wiki.

To make it easy to find specific IBM i 7.5 TR2-specific enhancements, see the aggregated list of enhancements on the [IBM i 7.5 TR2](#) wiki landing page.

IBM i operating system

The base IBM i operating system has several new capabilities.

IWS

The IWS support within IBM i provides an industry-standard and secure platform for creating and hosting REST and SOAP APIs and being able to call REST and SOAP APIs from native ILE applications.

IWS server: Create and host REST or SOAP APIs

The IWS server provides a robust and easy-to-use REST-based or SOAP-based API to create a hosting environment for IBM i. It offers a simpler way to expose key ILE programs and service programs as REST APIs. Additionally, you can wrapper well-formed SQL with a REST API call, no longer needing to have the ODBC or JDBC connections open externally. This integrated REST API engine continues to adopt the latest in industry standards and functions to provide REST capabilities that meet the many diverse needs of IBM i applications:

- Ability to specify PATCH as an HTTP method for an API. Now users can specify the following supported HTTP methods:
 - POST
 - PUT
 - GET
 - DELETE
 - PATCH
- Ability to specify "inputoutput" web service parameters for ILE programs and service programs for REST APIs. Previously, users had to choose between input or output.

- Support for the boolean data type.
- Improved web administration GUI for managing web services, including filtering of web services.

IWS client: Call REST or SOAP APIs from native ILE applications

The IWS client for ILE provides an easy way to call SOAP or REST APIs from native ILE applications. The latest updates include:

- Support for binary payloads using the transport API. Previously, the transport API only allowed the sending and receiving of textual data.
- Ability to set connect and I/O timeout values with millisecond granularity. Previously, the timeout value had to be specified in seconds.

The latest updates and enhancements for IWS can be found at [the IWS Technologies Update](#) page.

RSE API

The RSE API is a REST-based interface for calling and accessing information on IBM i. Connecting systems, ecosystems, and applications continues to be done through REST APIs. REST is an industry standard for providing connections between entities in a safe, secure, and easily understood methodology. The RSE API is a new interface being included as part of the IBM i operating system. This support is a collection of REST APIs that enables clients to work with various components on the IBM i host system, including SQL tables, integrated file system files, CL commands, jobs, and more. The REST APIs run in an HTTP admin5 server job and require authentication and Transport Layer Security (TLS) to be configured before this new interface can be used.

The latest updates and enhancements for RSE API can be found at [the IWS Technologies Update](#) page.

IBM Navigator for i

New tasks and features for administrators include the following:

- General navigator updates:
 - Customized table filtering
 - Formatting and color coding of SQL when displayed
 - QSYSOPR multisystem view and respond
- Networking:
 - DNS server configuration and management support
 - Support for new debug server and service
 - DDM server configurations
 - Net server configurations
- Integrated file system:
 - File upload
 - File download
 - New table tab for displaying a directory node
 - Improved object properties
- Server:
 - System status - printable property page
 - Additional properties included
- Work management:
 - Enhanced pre-start job support
- Security:

- Cryptographic services support
- Advanced job scheduler:
 - Additional features added

Db2 for i

SQL enhancements

As with previous technology refreshes, Db2 for i continues the theme of enhancing SQL, the language of the database, as follows:

- The popular SQL HTTP RESTful services functions, found in QSYS2, are enhanced yet again. The original support uses character large object (CLOB) as the data type for the request and response messages. Now, there is an alternative for those who prefer to use binary large object (BLOB) instead. HTTP_DELETE_BLOB, HTTP_GET_BLOB, HTTP_PATCH_BLOB, HTTP_POST_BLOB, and HTTP_PUT_BLOB are added to QSYS2, along with verbose versions of these functions.
- A new set of built-in functions are added to the SQL language in the form of ADD_DAYS, ADD_HOURS, ADD_MINUTES, ADD_SECONDS, and ADD_YEARS, making it possible to incorporate business logic into SQL.
- RESTRICT ON DROP support is extended beyond database files to include procedures and functions. The RESTRICT ON DROP attribute prevents accidental or malicious attempts to delete mission-critical procedures and functions.
- The SQL Query Engine (SQE) takes advantage of hardware acceleration available on Power10 processors to automatically compress cached query plans larger than 256 KB. The compression will enable more efficient use of temporary storage and may reduce cache churn associated with query re-optimization.
- For information on additional enhancements, see the [IBM i Technology Updates](#) wiki.

Db2 for i Services

Db2 for i Services are SQL procedures, functions, or views that enable the clients to have advanced techniques for managing the database.

New or enhanced Db2 for i Services include:

- SYSFILES, the SQL alternative to the Display File Description (DSPFD) CL command, is enhanced to return more detail. For logical files, a new column will return information about the files that the logical file is based upon in JSON format.
- RDB_ENTRY_INFO is a new view that provides detail about relational database (RDB) directory entries. The view is an alternative to using the Display RDB Directory Entries (DSPRDBDIRE) CL command.
- For information on additional enhancements, see the [IBM i Technology Updates](#) wiki.

IBM i Services

IBM i Services, the strategic method for gaining access to IBM i objects, system information, and more, continues to grow. Leveraging the power of SQL and the Db2 for i SQE, application developers, database engineers, and system managers have an easy pathway to explore IBM i objects and data in ways that were not possible with previous technologies.

New or enhanced IBM i Services include:

- DNS_LOOKUP_IP is a new scalar function that accepts an Internet Protocol (IP) version 4 (v4) or IPv6 formatted IP address and returns the corresponding host name.
- NETWORK_ATTRIBUTE_INFO is a view that returns a single row containing information about the network attributes of the system. The information returned is similar to the detail available through the Display Network Attributes

(DSPNETA) CL command and the Retrieve Network Attributes (RTVNETA) CL command.

- The SAVE_FILE_INFO view, SAVE_FILE_OBJECTS table function, and SAVE_FILE_OBJECTS view all return information about save files. The information returned is similar to the detail available through the Display Save File (DSPSAVF) CL command.
- PTF_INFO, the original SQL service, is enhanced to have an additional column to enable the product option to be returned.
- For information on additional enhancements, see the [IBM i Technology Updates](#) wiki.

SYSTOOLS

The SYSTOOLS schema contains examples and tools for several topics. In many cases, the master SQL source can be extracted, enabling you to discover the SQL programming technique used to implement the tools. In all cases, the tools provide easy-to-use techniques to accomplish important tasks on IBM i.

Enhancements to SYSTOOLS include:

- DEFECTIVE_PTF_CURRENCY is a new view that interacts with an IBM-provided web page that lists all defective PTFs for a specific IBM i operating system release, as well as the corrective PTF identifier. The new view makes it easy to effectively understand this critical systems management topic.
- New AUDIT_JOURNAL_XX helper functions and many new table functions are added to SYSTOOLS for specific audit journal entry types, making it easy to understand the archive of security enforcement using SQL or through Navigator for i.
- For information on additional enhancements, see the [IBM i Technology Updates](#) wiki.

PASE for i and open source

Visual Studio Code (VS Code) extensions

Various enhancements have been made to IBM i extensions for VS Code, both by IBM and the community. Some examples include:

- New method of uploading files to server in a faster manner
- Ability to launch debugging from VS Code for ILE programs
- Support for connecting to IBM i environments securely without user authentication
- Support for .env files in local projects that are used when running actions
- New API documentation in the form of TypeScript type definitions for extension authors to use the IBM i APIs
- CL language support inside of VS Code, including content assist, outline view, and more

For more information about IBM i extensions, see the [IBM i Development Pack](#) download page.

Application serving

IBM i continues to enable several open-source Java™ application servers on IBM i. Some examples include WildFly, Eclipse Jetty, and Apache Tomcat. WildFly is an open-source version of JBoss®. It is actively developed by Red Hat®. It offers a simple upgrade path to Red Hat JBoss Enterprise Application Platform (JBoss EAP), if needed. Apache Tomcat is one of the most popular application servers on IBM i and has been in use for well over a decade. Eclipse Jetty is a lightweight web server that brings both scalability and ease of use. For more information about these options, see [Open Source Java Application Servers](#) page.

Support is offered as part of IBM's open-source support offering. For more information, see [Open Source Support for IBM i](#).

Licensed Program Products

IBM PowerHA SystemMirror for i 7.5 (5770-HAS)

IBM PowerHA SystemMirror for i 7.5 TR2 brings a new set of enhancements centered around geographic mirroring and the modern web interface.

Geographic mirroring

PowerHA geographic mirroring replicates independent auxiliary storage pool (IASP) through IBM i networking. As the system writes data from main memory to disk, the same data is sent over TCP/IP to the target system to be written to disk, ensuring identical data between both systems. As a result, geographic mirroring provides the same simplicity as SAN-based replication, with the flexibility to work with any storage (internal or external), and is highly efficient.

The following enhancements extend PowerHA's geographic mirroring by providing greater flexibility and improved availability:

- Multi-target geographic mirroring
 - Previously, geographic mirroring was limited to two nodes: source and target. While many clients combine geographic mirroring with other technologies, including LUN-level switching and FlashCopy^(R), those technologies require SAN-based storage.
 - Geographic mirroring now supports replication of up to six cluster nodes while keeping the same management simplicity as environments with only two nodes. These enhancements enable the following:
 - Greater flexibility for additional geographic mirroring replication topologies, including on-premises, hybrid cloud, and cloud environments. For example, clients can have production and high availability (HA) systems on-premises and a disaster recovery (DR) system in the cloud.
 - With added flexibility for additional copies of the IASP, it is now possible to use Db2 Mirror with PowerHA and internal storage where the environment has a Db2 mirror pair at the production site and a Db2 mirror pair at the DR site.
 - Simplified hardware upgrades with reduced impact to the production workload. Previously, hardware upgrades in a geographic mirroring environment required varying off the production copy of the IASP when deconfiguring or reconfiguring replication. With this enhancement, the production copy of the IASP can remain online during CFGGEOMIR operations of additional copies of the IASP, significantly reducing the impact on production workloads for hardware migrations.
 - With the ability to replicate data between more than two nodes, it is now possible to protect the Recovery Point Objective (RPO) during save operations by using an additional node for offline save operations while the HA or DR systems continue to receive changes from the production system.
- Reduced impact on production for changing geographic mirroring parameters
 - This enhancement enables changing parameters, such as synchronous or asynchronous communication, without needing to vary off the production copy of the IASP. This significantly increases the ability for a geographic mirroring configuration to change and adapt without impacting the production workload. The following parameters can now be changed using the Change ASP Session (CHGASPSSN) command while the production copy is online: transmission delivery, transmission compression, synchronization priority, and suspend timeout.
- Simplified recoverability with the ability to detach suspended copies of the IASP
 - In a geographic mirroring environment, when replication is suspended, it is possible to failover to a usable back-level copy. This enhancement improves the usability in these environments by allowing a Change ASP Session

(CHGASPSSN) with option *DETACH on a suspended copy of the IASP. This enables operations, including easy verification of the back-level copy of the IASP or the ability to perform a save operation from the target, even when replication is suspended without needing to perform a failover.

PowerHA modern web interface enhancements

The PowerHA web interface was made available in December 2022. The enhancements in this TR extend the web interface with additional monitoring capabilities, including the ability to see more information on monitored resources in the administrative domain.

Additional PowerHA enhancements

There are several other enhancements to PowerHA. For more information on these enhancements and to get started, see the [IBM PowerHA SystemMirror for i wiki](#) page.

The PowerHA enhancements will be available June 23, 2023.

IBM Backup, Recovery and Media Services for i (BRMS) (5770-BR1)

BRMS is enhanced and includes the following:

- The network setup process allows setting of two values "local receives history" and "remote receives history" when adding a new system into the BRMS network. This setting identifies whether history information is shared with other systems in the BRMS network.
- The SAVBRM command adds support for the parameter OBJDTL(*YES) or OBJDTL(*NO) to specify whether object detail is kept in the BRMS database for IFS backups. The parameter default value is OBJDTL(*YES).
- The BRMS PTF exit program processing installs the BRMS SQL Services when a BRMS PTF is applied.
- BRMS SQL service enhancements are added for BRMS Networking, Maintenance Policy functions, and copy control group support. These new services give users SQL procedures to set up a BRMS network, control maintenance options run by control groups, and procedures to copy control groups.
- BRMS recovery report includes attention-block instructions to maintain the authority of customized output queues in library QUSRSYS during a disaster recovery.
- The SETUSRBRM command implementation has been enhanced to provide additional authority for the supplied USER() parameter to allow remote operations from a previous release for the specified USER parameter.

The BRMS 7.5 program temporary fix (PTF) that deliver these enhancements is IBM i 7.5 - SI82234.

For more detail on these and other BRMS enhancements, see [Enhancements to BRMS](#) wiki page.

IBM Db2 Mirror for i (5770-DBM)

Db2 Mirror has added extensive improvements to the overall product quality, security, and ease-of-use. Additionally, improvements to the GUI enable administrators to be more productive. These enhancements include:

- Using the new Health Center monitor, system administrators will find the tasks of administering and managing the Db2 Mirror environment simpler and easier to execute.
- The main GUI for Db2 Mirror has updated some topic interfaces, again increasing the ease-of-use.
- Performance improvements when working with data queues.

For more information, see the [IBM i 7.5 TR2](#) wiki.

Rational Development Studio for i (5770-WDS)

Rational Development Studio for i continues to respond to the requirements from the user community to meet the needs of RPG and COBOL applications. The following new features have been added:

For RPG:

- %SPLIT is enhanced to enable a special parameter *ALLSEP, indicating that a value should be returned for every separator.
- New string built-in functions %LEFT and %RIGHT enable users to return the leftmost or rightmost characters from a string.
- New built-in functions %PASSED and %OMITTED enable users to test whether a parameter was passed.
- SELECT is enhanced to allow an operand. New operation codes WHEN-IS and WHEN-IN specify the value to compare to or a range or list of values to compare to within the SELECT operand.
- New command parameter PPMINOUTLN for CRTBNDRPG and CRTRPGMOD is added to control the record length of the temporary file used by CRTSQLRPGI when the RPGPOPT parameter is *LVL1 or *LVL2. This parameter is specified by using the COMPILEOPT parameter of CRTSQLRPGI.

For COBOL:

- The COPY REPLACING statement and the REPLACE statement are enhanced with the addition of LEADING and TRAILING phrases, which enables users to replace only the leading or trailing occurrence of a character or string in a record.
- New command parameter TGTCCSID for CRTBNDCBL and CRTCBMOD specifies the CCSID used by the compiler to allow compiling from Unicode source in IFS.

For RPG and COBOL:

- Users can add the boolean attribute for indicator parameters when generating Program Call Markup Language (PCML).

ACS 1.1.9.2

ACS has been updated to provide significant value for the database engineer as well as the general user that is leveraging SQL for their daily use. For example, the enhancements to Run SQL Scripts include: prompting for statement variables and other general improvements that includes selection behavior and copying formatted SQL to the clipboard.

IBM i Merlin

Merlin, an ecosystem for developing IBM i applications with modern tools and methodologies, continues to react to the needs of the IBM i application developer. IBM delivers additional enhancements to the base integrated development environment (IDE) and adds infrastructure updates.

Specifically, improved CL parsing has been added to the IDE.

Hardware support enhancements

Concurrent removal of FC devices

System administrators occasionally change their external storage configuration to add additional storage (larger logical disks units) or to migrate to a new storage box. Previously, existing disk units could be removed from an ASP while the partition was running; however, although the units were non-configured, they could not be completely removed from the LPAR without an IPL. This technology refresh enables system administrators to use the Hardware Service Manager service tool and interfaces on the external storage system to remove FC logical disk units from an ASP, delete the storage on the external storage system, and then completely

remove and delete the logical disk units from the LPAR without requiring a partition IPL.

IBM i on Power10 now supports direct attach to 8 Gb tape backup products

IBM i 7.5 TR2 introduces a new method to directly connect to a variety of 8 Gbps FC tape products without the costs and complexity of a SAN switch. Using the 2-port 32 Gbps adapters (#EN1J or #EN1K), a directly attached tape device can now be connected using Fibre Channel Arbitrated Loop (FC-AL). The tape device negotiates the connection at 8 Gbps.

See [IBM i Removable Media: Power10 tape and optical](#) for a list of supported tape products and configuration information.

IBM i clients benefit from Power offerings

IBM i exploits selected offerings from Power to ensure you have the hardware and virtualization capabilities you need to run your business. Those offerings include:

- #ESR0: NED24 NVMe Expansion Drawer
- #EN2N and #EN2P: PCIe4 64 Gb 2-port Optical Fibre Channel Adapter
- #EN2L and #EN2M: PCIe4 32 Gb 4-port Optical Fibre Channel Adapter
- #EJ2B and #EJ2C: PCIe3 12 Gb x8 SAS Tape HBA Adapter
- #EN2W and #EN2X: PCIe3 4-port 10 GbE BaseT RJ45 Adapter -- adds IBM i direct attach

Reference information

For information on:

- IBM i 7.4 TR8, see Software Announcement [223-079](#), dated April 11, 2023.
- Virtualization enhancements, see Software Announcement [223-083](#), dated April 11, 2023.
- IBM Power enhancements, see Hardware Announcement [123-031](#), dated April 11, 2023.

Program number

Program number	VRM	Program name
5770-SS1	7.5	IBM i 7.5 TR2

Offering Information

Product information is available on the [IBM Offering Information](#) website.

Publications

None

Services

IBM Technology Lifecycle Services (TLS)

IBM TLS helps organizations protect their IT investment with support and services for their hybrid cloud and enterprise IT data centers across the product lifecycle. Deep expertise in IBM Systems, enterprise networking and third-party vendors, streamlined processes and advanced technologies such as AI, enable organizations

to consistently maintain high availability for mission-critical workloads across the product lifecycle. Consultants have deep technical expertise, valuable tools, and successful methodologies which help organizations to solve business challenges, gain new skills, and apply best practices. For more information about the IBM infrastructure support and services, see the [IBM Technology Lifecycle Services](#) web page.

IBM Technology Expert Labs

Technology Expert Labs can help clients accelerate their projects and optimize value by leveraging their deep technical skills and knowledge. With more than 20 years of industry experience, these specialists know how to overcome the biggest challenges to deliver business results that can have an immediate impact.

Technology Expert Labs' deep alignment with IBM product development allows for a strategic advantage as they are often the first in line to get access to new products, features, and early visibility into roadmaps. This connection with the development enables them to deliver First of a Kind implementations to address unique needs or expand a client's business with a flexible approach that works best for their organization.

For additional information, see the [IBM Expert Labs](#) website.

IBM Security^(R) Expert Labs

With extensive consultative expertise on IBM Security software solutions, Security Expert Labs helps clients and partners modernize the security of their applications, data, and workforce. With an extensive portfolio of consulting and learning services, Security Expert Labs provides project-based and premier support service subscriptions.

These services can help clients deploy and integrate IBM Security software, extend their team resources, and help guide and accelerate successful hybrid cloud solutions, including critical strategies such as zero trust. Remote and on-premises software deployment assistance is available for IBM Cloud Pak^(R) for Security, IBM Security QRadar^(R)/QRoC, IBM Security QRadar SOAR, IBM Security Verify, IBM Security Guardium^(R), and IBM Security MaaS360^(R).

For more information, contact Security Expert Labs at sel@us.ibm.com.

For additional information, see the [IBM Security Expert Labs](#) website.

Technical information

Specified operating environment

Hardware requirements

IBM i 7.5 TR2 is supported on selected Power servers with Power9 or Power10 processors.

For up-to-date information on all types of code levels needed for support of a particular feature, see the [IBM Power Systems Prerequisites](#) website.

For additional information, see the [System to IBM i mapping](#) website.

Software requirements

To find the supporting technical details and software requirements for IBM i 7.5, see the [TR2 enhancements](#) website.

IBM Support

[IBM Support](#) is your gateway to technical support tools and resources that are designed to help you save time and simplify support. IBM Support can help you

find answers to questions, download fixes, troubleshoot, submit and track problem cases, and build skills.

Additional IBM support

IBM Client Engineering for Systems

Client Engineering for Systems is a framework for accelerating digital transformation. It helps you generate innovative ideas and equips you with the practices, technologies, and expertise to turn those ideas into business value in weeks. When you work with Client Engineering for Systems, you bring pain points into focus. You empower your team to take manageable risks, adopt leading technologies, speed up solution development, and measure the value of everything you do. Client Engineering for Systems has experts and services to address a broad array of use cases, including capabilities for business transformation, hybrid cloud, analytics and AI, infrastructure systems, security, and more. Contact Client Engineering for Systems at sysgarage@ibm.com.

Planning information

Packaging

This program, when downloaded from a website, contains the applicable IBM license agreement and License Information, if appropriate, which will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.

Ordering information

Consult your IBM representative or IBM Business Partner.

Charge metric

Select your language of choice and scroll down to the Charge Metrics section. Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for more information.

Terms and conditions

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage^(R) Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

Licensing

IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

Software Maintenance

The IBM Agreement for Acquisition of Software Maintenance (Z125-6011) applies for Subscription and Support (also referred to as Software Maintenance) and does not require client signatures.

Licenses under the IBM International Program License Agreement (IPLA) provide for support with ongoing access to releases and versions of the program. IBM includes one year of Software Subscription and Support with the initial license acquisition of

each program acquired. The initial period of Software Subscription and Support can be extended by the purchase of a renewal option, if available. Two charges apply: a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours), as well as access to updates, releases, and versions of the program as long as support is in effect.

License Information number

Follow-on releases, if any, may have updated terms. See the [License Information documents](#) website for more information.

Limited warranty applies

Yes

Limited warranty

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information on known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, see the [IBM Support Guide](#).

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

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

For operating system software, the revised IBM Technology Lifecycle Services - SoftwareXcel Enterprise Edition offering provides usage and how-to support for those operating systems and associated products that are not available with the Software Subscription and Support (Software Maintenance) offering.

This can ensure total support coverage for your enterprise needs, including IBM and selected non-IBM products. For complete lists of products supported under both the current and revised offering, see the [Supported Product List website](#).

System i Software Maintenance applies

No

Variable charges apply

No

Educational allowance available

Yes. A 15% education allowance applies to qualified education institution clients.

Statement of good security practices

IT system security involves protecting systems and information through intrusion 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 regulatory compliant, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective.

Important: IBM does not warrant that any systems, products, or services are immune from, or will make your enterprise immune from, the malicious or illegal conduct of any party.

Prices

For additional information and current prices, contact your local IBM representative or IBM Business Partner.

IBM Global Financing

IBM Global Financing offers competitive financing to credit-qualified clients to assist them in acquiring IT solutions. Offerings include financing for IT acquisition, including hardware, software, and services, from both IBM and other manufacturers or vendors. Offerings (for all client segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or go to the [IBM Financing](#) website for more information.

IBM Global Financing offerings are provided through IBM Credit LLC in the United States, and other IBM subsidiaries and divisions worldwide to qualified commercial and government clients. Rates are based on a client's credit rating, financing terms, offering type, equipment type, and options, and may vary by country. Other restrictions may apply. Rates and offerings are subject to change, extension, or withdrawal without notice.

Order now

To order, contact the IBM Digital Sales Center, your local IBM representative, or your IBM Business Partner. To identify your local IBM representative or IBM Business Partner, call 800-IBM-4YOU (426-4968). For more information, contact the IBM Digital Sales Center.

Phone: 800-IBM-4YOU (426-4968)

Fax: 800-2IBM-FAX (242-6329)

For IBM representative: askibm@ca.ibm.com

For IBM Business Partner: pwcs@us.ibm.com

IBM Digital Sales Offices
1177 S Belt Line Rd
Coppell, TX 75019-4642, US

The IBM Digital Sales Center, our national direct marketing organization, can add your name to the mailing list for catalogs of IBM products.

Note: Shipments will begin after the planned availability date.

Regional availability

American Samoa, Guam, Marshall Islands, Federated States of Micronesia, Northern Mariana Islands, Palau, Puerto Rico, United States, and US Virgin Islands

Trademarks

IBM, Power, Db2, WebSphere, PowerHA, SystemMirror, Rational, Power9, Passport Advantage, FlashCopy, IBM Security, IBM Cloud Pak, QRadar, Guardium, MaaS360 and IBM Z are registered trademarks of IBM Corporation in the United States, other countries, or both.

Oracle and Java are trademarks of Oracle and/or its affiliates in the United States, other countries, or both.

JBoss and Red Hat are registered trademarks of Red Hat Inc. in the U.S. and other countries.

Other company, product, and service names may be trademarks or service marks of others.

Terms of use

IBM products and services which are announced and available in your country can be ordered under the applicable standard agreements, terms, conditions, and prices in effect at the time. IBM reserves the right to modify or withdraw this announcement at any time without notice. This announcement is provided for your information only. Additional terms of use are located at

[Terms of use](#)

For the most current information regarding IBM products, consult your IBM representative or reseller, or go to the IBM worldwide contacts page

[IBM United States](#)