



IBM z/OS 3.2: A highly securable, scalable operating system for running mission-critical applications



IBM z15
Model T01



IBM z15
Model T02



IBM z16
Model A01



IBM z16
Model A02



IBM z16
AGZ rack mount



IBM z17
Model ME1

IBM z/OS® 3.2, the next release of its flagship operating system for IBM Z®, is designed for hybrid cloud and AI, including support for IBM z17®, new AI-infused capabilities, and enhancements to simplify IT management. With IBM z17, the next release of z/OS is intended to fuel innovation and growth, secure clients' most important data, and automate and improve operational efficiency.

AI Infused z/OS

Drive greater impact and deliver business growth with deep insights by using secure AI to unlock the potential of critical data.

- z/OS support for IBM Telum II™, IBM Z Integrated Accelerator for AI, and IBM Spyre™ AI Accelerator to enable AI capabilities for mission-critical transactions to accelerate insights with near-zero latency, while ensuring data privacy and system availability.
- A robust ecosystem of AI functionality including IBM AI Toolkit for IBM Z and IBM® LinuxONE and IBM Db2® Analytics Accelerator. Leverage AI Framework for z/OS to predict optimal packet batching times and reduce network latencies
- EzNoSQL Python APIs for sophisticated data analysis and predictive modeling for z/OS and core business applications, extracting value from critical data to derive predictive business insights.
- DFSMS® Object Access Methods (OAM) modernize access and management of unstructured data on z/OS, while allowing distributed environments simple access to core business data through industry standard REST APIs.

Transforming and Automating for Efficiency

Gain transparent, trustworthy insights, and leverage intelligent automation to efficiently manage z/OS and simplify technology infrastructures

- Significantly reduce technical complexity and skill requirements with guidance and recommendations through new Workload Manager (WLM) Policy Advisor functionality.
- Greatly simplify the management of PARMLIB by driving automatic and consistent syntax validation of many z/OS PARMLIB members using REST APIs, reducing risks of errors with little skill or effort needed.
- Enable the automation of software update installations with a new set of REST APIs added to the z/OSMF Software Update application, as well as implement a new application link that can instantly start a software update install process for an identified PTF from an external application.
- A new set of REST APIs and user interface for storage management to create a consistent and intuitive interface to perform z/OS storage management tasks, reducing manual steps, skills, and time needed for new users to be productive.

Cyber Resiliency

Protect mission critical data by leveraging quantum-safe cryptography, pervasive encryption, integrity scanning, and simplified security management to discover security posture insights.

- Granular data set encryption support for basic and large format data sets, along with support to move data without decrypting and uncompressing, to progress the quantum-safe, pervasive encryption journey.
- Ecosystem support for IBM Threat Detection for z/OS (TDz) to enable the use of data access-based threat detection AI, with RACF® quarantine functionality, to provide an additional mitigation option against potential cyberthreats.
- Stronger crypto in-flight updates on z/OS and provide RACF-centralized digital certificates with multiple altnames, to better serve emerging industry standards at scale.
- IBM z/OS Communications Server Sysplex Distributor technology to distribute work across multiple z/OS Container Extensions (zCX) instances, providing higher availability, scalability, and improved resilience to Linux® containers on z/OS.

Highlights

Exploits the latest

IBM z17 Server

- IBM Telum II processor integrates improved AI acceleration through an on-chip AI coprocessor
- New data processing unit on Telum II processor chip engineered to accelerate complex input/output protocols for networking and storage
- AI Framework for IBM z/OS is the core functionality that makes AI-infused capabilities possible on z/OS 3.2
- Simplified management infrastructure with modern browser-based interfaces that automate the management of z/OS
- Performance and ease of use enhancements to modernize applications across a hybrid cloud environment
- Enhanced cyber resiliency leveraging designated quantum-safe cryptographic algorithms, pervasive encryption, integrity scanning, and simplified security management

Overview

z/OS 3.2 enables clients to use AI with their critical data in a highly secure environment to drive greater impact and deliver business growth with deep insights. IBM z/OS 3.2 offers a robust ecosystem of AI functionality including open-source frameworks, libraries, and tooling. Clients can build on their existing transaction processing investments by unlocking the potential of their most important application data at the system of record through modern data access methods. Incorporating critical data in modern analytics and AI infrastructures while remaining on IBM Z helps to reduce decision latency, security risk, complexity, and cost.

z/OS 3.2 supports the IBM z17 Telum II processor, the IBM Z Integrated Accelerator for AI, and the IBM Z Spyre Accelerator¹ to enable AI capabilities for mission-critical transactions to accelerate insights with near-zero latency, while helping to ensure data privacy and system availability.

A z/OS application architect can be better equipped to deploy AI turnkey solutions with enhancements that improve the AI on z/OS such as the IBM Z Deep Neural Network Library (zDNN). IBM zDNN now supports the IBM Telum II processor on IBM z17 systems. zDNN is a standard IBM Z software interface to the IBM Z Integrated Accelerator for AI. This IBM-provided C library delivers a set of APIs that address requirements of the IBM Z Integrated Accelerator for AI like data transformation. zDNN is packaged with z/OS. It is also available on Linux on IBM Z, which provides a particular benefit, as it enables acceleration in frameworks for z/OS using z/OS Container Extensions (zCX). Some of these improvements can be used automatically by zDNN without changes to applications or frameworks. For best results, update any frameworks client applications use for compatibility with the latest zDNN library.

z/OS 3.2 embraces aspects of cloud-native management of z/OS based on industry standards and access to consistent and modern browser-based interfaces, enabling users to efficiently update and configure z/OS and related software. z/OS 3.2 continues to simplify and automate the management of the operating system to help guide the next generation of system programmers. z/OS 3.2 includes a range of additional and enhanced z/OS Management Facility (z/OSMF) functionalities designed to help system programmers more easily manage and administer z/OS day-to-day operations.

z/OSMF is the interface for systems management of z/OS. z/OS 3.2 offers numerous enhancements to z/OSMF to reduce the manual steps and skills required to perform management tasks such as software installations, operating system configuration, and data administration.

z/OS 3.2 introduces a z/OSMF Storage Management Plugin which ensures a uniform, consistent, and intuitive interface to help reduce complexity for z/OS storage administrators across the platform. Using the enhanced functionality of the storage management REST APIs (V2.5 and above) the Storage Management Plugin provides the display of Storage Management Subsystem (SMS) structures in the active configuration as well as non-active Control Data Sets (CDSs). The Storage Management Plugin is designed to allow z/OS storage management tasks to be performed by early tenure storage administrators with a shortened onboarding timeline by removing the steep learning curve of z/OS ISMF panels and making it easier to become proficient in performing storage management tasks.

IBM z/OS 3.2 continues to add support for modern hybrid cloud workloads through a hybrid-by-design approach. Capabilities have been added in support of both Linux and z/OS container-based applications, as well as enhancements for diverse language support and application interoperability, helping clients transition from rigid legacy application estates to more flexible designs.

z/OS 3.2 delivers z/OS Container Extensions 2.0 (zCX Standard) for running Linux-based container applications. This version of zCX is entitled for use with z/OS and no longer requires a separate usage entitlement through hardware feature code or Container Hosting Foundation program. zCX provides the ability to increase uptime for mission critical containerized applications running in production. z/OS 3.2 Communications Server Sysplex Distributor support for zCX extends network communication to allow for workload connection distribution among containers in targeted zCX instances within the z/OS sysplex. It extends the capabilities of dynamic virtual IP addresses (VIPAs) to enable distribution of incoming TCP connections to services running on zCX instances, replacing the need for an external load balancer. Additional enhancements to zCX have been made to allow logging and monitoring tools like ElasticSearch or OpenSearch to run in zCX.

z/OS 3.2 is designed to deliver the following functionality to protect mission critical data by leveraging designated quantum-safe cryptographic algorithms, pervasive encryption, integrity scanning, and simplified security management to uncover security posture insights.

The z/OS Authorized Code Scanner (zACS) and RACF have both been enhanced, in support of anti-malware detection and the new priced program [IBM Threat Detection for z/OS](#). zACS provides expanded capabilities for integrity scanning of AC(1) load modules loaded with batch processing, as well as when invoked from a TSO/E environment. In z/OS 3.2, the Security Server (RACF) delivers user ID containment functionality, an extension of user ID revocation processing, providing quarantine functionality.

Traditionally, when a user is revoked, any work already in progress (for example, active TSO sessions, submitted jobs, server subtasks, etc) continues to function. When a user is contained, however, SAF calls made on the user's behalf will now fail with a unique reason code, console message, and a SMF 80 Event Code 92 record to log the event.

Furthering a defense-in-depth security strategy, z/OS 3.2 provides multiple updates to strengthen authentication and authorization capabilities:

- RACF password envelope support allows installations to synchronize password and password phrase changes across the enterprise. RACF supports stronger quantum-safe signing and encryption algorithms for password envelopes.
- RACF provides functions for encrypting and decrypting passwords for external servers such as LDAP via the KEYSMSTR class. Enhancements in the RACF KEYSMSTR class functions present an option for quantum-safe cryptographic algorithm inclusion with support for the Advanced Encryption Standard (AES) encryption algorithm.
- A z/OS UNIX® callable service has been provided to allow applications to authenticate using user ID, password phrase, or a signed Identity Token against the security database. This service addresses the needs of the authentication methods being adopted by the industry.

IBM z/OS 3.2 leverages the IBM z17 capabilities

z/OS 3.2 offers support for and exploitation of the latest mainframe hardware, IBM z17, as well as functions and capabilities that enable a full stack ecosystem of applications.

With IBM z/OS 3.2 and the z17, there are additional opportunities to evolve how clients consume and use their z17 capacity. Available exclusively on z17 the new Tailored Fit Pricing for Hardware solution enables clients to:

- Unlock a pool of always-on subscription zIIP capacity for new workloads (AI inference, OpenShift, and zCX workloads).
- Leverage technology on z17 that enables optimized price-to-value for new workloads.
- Gain the flexibility of consumption-based pricing to meet the dynamic demands of new workloads.

Provided in z/OS 3.2 and available to all z/OS releases where z17 operates, the z/OS z17 Upgrade Workflow provides the z/OS positioning and upgrade actions necessary to run z/OS on IBM z17. Using the z/OS z17 Upgrade Workflow can help clients prepare their current z/OS system by understanding coexistence, service, and upgrade considerations. Any updates or fixes to the z/OS z17 Upgrade Workflow continue to be through the standard z/OS service process.

Continuing with this latest release of z/OS, the z/OS 3.2 Upgrade Workflow is provided on supported coexisting releases in the service stream. Using z/OSMF to understand the upgrade actions for z/OS 3.2 with programmatic assistance can help to smooth the upgrade path to z/OS 3.2.

The z17 platform represents a complete transformational change in I/O for both storage (FICON Express and FCP) and networking (OSA). IBM z17 introduces the Network Express feature which provides both the latest Enhanced QDIO (EQDIO) architecture for reliable high-speed ethernet transport and RoCEv2 support for optimized TCP connectivity using Remote Direct Memory Access (RDMA) technology with Shared Memory Communications (SMC-R). z/OS 3.2 Communications Server provides the networking support for this I/O transformation.

The IBM z17 server introduces the Coupling Express3 (CE3) LR adapter. The CE3 adapter provides a 25G option for higher bandwidth when connected to another CE3 LR adapter. When configured for the 25G option, the coupling link type is CL6. z/OS 3.2 provides support to use coupling link type CL6 when running on an IBM z17 server.

Along with the IBM z17, z/OS 3.2 makes sustainability more achievable and straightforward with the ability to monitor CEC and partition power consumption through new SMF metrics and related RMF™ reports, which report power consumption at the CEC level, partition level, as well as granular power consumption by service class and report class.

Security between z/OS Base Control Program internal interface (BCPii), Hardware Management Consoles (HMCs), and IBM z17 and above Support Elements (SEs), has been enhanced to support the use of signed JSON Web Tokens (JWTs). The JWTs map z/OS users to HMC users or templates, as defined on the Customize Console Services panel of the HMC. With JWTs, one can now use the BCPii HWIREST and the HWIREST2 support to directly target HMCs with HMC Web Services Application Programming Interface (WSAPI) requests.

z/OS BCPii in z/OS 3.2 is more proactive in reestablishing lost communication with a monitored CPC. In addition, a DISPLAY BCPii system command can be used to obtain the current communication status.

z/OS 3.2 provides a System Recovery Boost (SRB) capability when large hardware dynamic I/O changes are detected. Additional SRB improvements include:

- Improved SRB messages and SMF 90 subtype 40 record fields that document the z/OS procedure, step, and program names that are the subject of middleware startup boost activity.
- Improved SMF type 89 records documenting the total recovery process boost duration.
- Improved processing for transient boost zIIP processors when zIIPs are configured online during a boost and an API to support identification of any transient boost zIIPs.

The z/OS Integrated Cryptographic Services Facility (ICSF) exploits updates to CPACF in the z17 processor, including instructions for Hash-based Message Authentication Code (HMAC) processing and improved performance for Secure Hash Algorithm 3 (SHA-3) hashing. ICSF also provides support for the NIST standard algorithms ML-KEM and ML-DSA, updates to the TR-31 export service to allow the export of AES PINPROT type “B” keys, and the generation and use of 8192-bit RSA keys.

Coupling Facility (CF) structure sizing capability in z/OSMF Sysplex Management task is enhanced to support structure sizing for CF Level 26. The “Overflow (SCM) message capacity” field is no longer supported as of CF Level 26 since it no longer supports the use of Virtual Flash Memory or Storage Class Memory in CF images. If an installation uses Virtual Flash Memory as an “overflow” mechanism for MQ shared queue structures, clients must plan to use an alternative technique, such as larger Coupling Facility structures, IBM MQ® shared message data sets (SMDS), or an MQ method for offloading MQ message data to Db2.

Several performance-related improvements have been made within z/OS, including SRM Lock Contention Relief which is designed to reduce CPU consumption in the WLM service class period switching logic. This logic runs every millisecond and handles all service class period switches in the system. As it runs under the SRM lock, this change is intended to decrease SRM lock usage and thereby increase transaction throughput. Additionally, performance of I/O Path Validation for Peer-to-Peer Remote Copy (PPRC) secondary devices is changed to reduce the CPU overhead of HyperSwap® load processing and Offline Device Discovery. Finally, Real Storage Manager (RSM) reduced its usage of the quiescing Set Storage Key Extended (SSKE) instruction with a goal of improving performance for multiprocessing environments as well as cross-LPAR environments in some cases.

With the removal of support for constrained transactional execution on future IBM Z hardware, z17 and z/OS 3.2 updates help installations and software vendors prepare for a machine without constrained transactions. Updates to the Perform Locked Operation (PLO) instruction in z17 enable similar granularity of memory serialization as constrained transactions, is available for use as an alternate serialization mechanism when running on z17 hardware. Additionally, z/OS provides support for a new SLIP/PER trap-and-report function that can be used to identify the use of transactional execution.

Support for open standards

z/OS supports several languages to develop software. Language Environment is the prerequisite runtime environment for applications generated with the following IBM compiler products:

- XL C/C++
- Enterprise COBOL for z/OS
- Enterprise PL/I for z/OS
- Java
- Python
- Node.js
- Go

Some industry standards and protocols that are supported include, at minimum, full or partial implementations:

- Java™
- Unicode
- C/C++
- Eclipse
- Web services standards SOAP
- IPv4, IPv6 JIS
- JIS X 0201, JIS X 0208, and JIS X 0212 – EMVCo
- FIPS
- PKCS #11 #12 PCI DSS
- ISO Common Criteria IETF standards
- ANSI standards OASIS
- NIST
- Others

Compatibility

z/OS delivers compatibility and flexibility as you migrate systems in a multisystem configuration by enabling multiple releases of z/OS to coexist. This includes non-Parallel Sysplex® and Parallel Sysplex multisystem configurations. For example, see the following coexistence capabilities:

- z/OS 3.2 coexists with: z/OS 2.5, z/OS 3.1, z/OS 3.2

Upgrade

- IBM Health Checks for z/OS along with the z/OS Upgrade Workflow provide comprehensive technical material to simplify your z/OS release upgrade and your z17 upgrade. The IBM Health Checks for z/OS can help determine if an upgrade action was completed properly. These checks do not change the system but can be used to determine if the upgrade action is even applicable.
- Use the z/OS 3.2 Upgrade Workflow to manage your upgrade from z/OS release 3.1 or 2.5. The workflow includes system discovery functions to help provide an easier upgrade experience.
For more information, see https://www.ibm.com/docs/en/zos/3.2.0?topic=level-zos-upgrade-workflow#abstract_exports
- Although it is recommended that you use the workflow directly, this website includes static copies of the workflow (exported HTML files), which you might find to be useful for browsing or searching.



Support

z/OS 3.2 is supported on the following IBM Z servers:

- IBM z17 — All models, including ME1 (machine type 9175)
- IBM z16* — All models, including A01 (machine type 3931) and A02 (machine type 3932)
- IBM z15* — All models, including T01 (machine type 8561) and T02 (machine type 8562)

If you run z/OS 3.2 as a guest of IBM z/VM®, z/VM must be at a supported level.

General product availability

z/OS 3.2 is available as of September 30, 2025.

Product information, including an easy way to plan and order, prerequisites, additional products, and more will be available on or before general availability in [IBM Shopz](#) for the following program:

- z/OS 3.2 (5655-ZOS)

Why IBM?

As you transform your business by examining your business processes, technology, products and services, IBM remains your trusted business partner. IBM can help you with your transformation to support cloud, analytics and mobile workloads while preserving the needed qualities of service for your existing mission critical workloads.

IBM can help you drive revenue growth and reduce costs using proven technology solutions.

Our experts can help you configure, design and implement a z/OS solution optimized for the needs of your business.

IBM has the business and technical expertise in systems, software, delivery and financing to help you optimize your technology environment to meet the opportunities and challenges of the digital economy.

For more information

Please also refer to IBM z/OS 3.2 System-Level, Planning for Installation,
https://www.ibm.com/docs/en/SSLTBW_3.1.0/pdf/e0zb100_v3r2.pdf

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