

# IBM delivers enhanced capabilities with IBM AIX 7.3 Standard Edition

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## Overview

The IBM<sup>®</sup> AIX<sup>®</sup> operating system is an open standards-based UNIX<sup>®</sup> operating system that has been the foundation of mission-critical workloads and databases for tens of thousands of clients over the last 35 years. AIX provides an enterprise-class IT infrastructure that delivers the reliability, availability, performance, and security that is required for businesses to be successful in a global economy.

In today's era of hybrid cloud, there is an increased demand for flexible infrastructure, continuous availability, scalable and sustainable compute, enhanced security and data protection, and increased integration with open technologies. As businesses navigate these dynamic market conditions and IT infrastructure demands, they require an operating system they can rely on that can be optimized to adapt to these changing business needs.

With the introduction of IBM AIX 7.3 Standard Edition, IBM addresses these needs while also continuing its tradition of providing new functions that can help dramatically improve system availability, scalability, performance, and flexibility while maintaining binary compatibility to ensure a quick and seamless transition to the new release. Combined with Power10, AIX 7.3 enables clients to modernize with a frictionless hybrid cloud experience to respond faster to business demands, protect data from core to cloud, and streamline insights and automation. AIX 7.3, coupled with IBM POWER8<sup>®</sup>, and later, technology-based systems, delivers a computing platform designed for hybrid cloud that is optimized, secure, and adapts to evolving business demands.

I/O adapter updates:

- The InfiniBand adapter feature 5283 and feature 5285 (PCIe2 dual-port 4X InfiniBand QDR adapter) will not be supported in AIX 7.3.
- The CAPI adapter feature EJ17 and feature EJ18 (PCIe3 CAPI Fibre Channel (FC) Flash Accelerator adapters) will not be supported in AIX 7.3.

## Key requirements

An IBM Power8, IBM Power9, IBM Power10, or later, technology-based server.

POWER8 Nutanix (CS821 and CS822) does not support AIX 7.3.

AIX support for vPMEM requires a POWER9<sup>™</sup>, or later, technology-based server.

## Planned availability date

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December 10, 2021

Availability within a country is subject to local legal requirements.

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## Description

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### **AIX 7.3 Standard Edition**

AIX 7.3 is enhanced to help clients achieve better performance in several key areas.

#### ***Respond faster to business demands***

- Adds python version 3.9.6. The new command to invoke python is `/usr/bin/python3`. The python shipped in AIX 7.3 works with Ansible<sup>(R)</sup> solutions.
- Extends the scalability of AIX, supporting a maximum of 240 cores (1920 hardware threads) in a single Power10 logical partition (LPAR).
- JFS2 filesystem size and file size limits are increased beyond 32 TB and 16 TB, respectively. See the AIX 7.3 release notes for the new supported limits.
- Supports the use of the on-chip NX GZIP accelerator in Power9 and Power10 servers. The `pigz` (parallel gzip) open source command and the AIX `zlibNX` library are included in the AIX 7.3 default installation. Both the `pigz` command and the `zlibNX` library transparently use the NX GZIP compression accelerator.
- Provides up to twice the Asynchronous IO (AIO) on Peripheral Component Interconnect<sup>(R)</sup> Express (PCIe) nonvolatile memory express (NVMe) scaling capabilities.
- The `create_ova` command now uses Power<sup>(R)</sup> HW GZIP compression acceleration to speed up Open Virtualization Format Archive (OVA) creation and transfers on Power9 and Power10.
- TCP protocol stack now supports CUBIC congestion algorithm, providing improved network performance in high-latency environments.
- Includes a new command `mksysb_iso` to enable the creation a single bootable ISO image larger than 4 GB.
- Adds bash version 5.1.4 that is ported from open source bash and provides similar functionality. This is another shell supported on AIX, along with existing shells `ksh`, `ksh93`, `csh`, and `bsh`.

#### ***Maximize availability and reliability***

- Reduces the amount of time required to dynamically add processor and memory resources to a running LPAR.
- Reduces initial program load (IPL) times for multiterabyte memory LPARs.
- Live kernel update supports the changing of select boot time parameters without requiring a reboot.
- Adds support for virtual Persistent Memory (vPMEM), where each vPMEM device is configured as an `hdisk`. A vPMEM `hdisk` has better potential performance than local NVMe disks. The contents of a vPMEM `hdisk` are preserved on an LPAR reboot, provided the server is not rebooted. These AIX vPMEM `hdisks` can be applied for the following uses:
  - Raw disk I/O access
  - Logical Volume Manager (LVM) and Journaled File System (JFS2) support
  - Paging device
  - Flash caching device
- Provides Geographical Logical Volume Manager (GLVM) enhancements, such as:
  - Support for freeze and resume of I/Os on secondary site. This enables you to perform storage-based backup functions, such as disk snapshots.
  - Support of multiple network sessions to better handle large network latencies between sites.

- Adds the following Server Block Message (SMB) 3.0 features:
  - Case-insensitive file/directory name support
  - Unicode UTF-8 support
  - System Management Interface Tool (SMIT) support and automating /etc/ filesystems update
  - SMB 3.0.2 support for Live Kernel Update (LKU)

### ***Protect data from core to cloud***

- Adds IP Security (IPsec) enhancements as follows:
  - IPsec support for IKE fragmentation with Internet Key Exchange version 2 (IKEv2)
  - IPsec support for Network Address Translation-Traversal (NAT-T) with IKEv2
- Provides enhanced support for logical volume (LV) encryption to include encryption for LV support in rootvg and dump device.
- Sendmail includes support for Simple Authentication and Security Layer (SASL).
- Trace facility use is now limited by default to the root user.
- Uses SHA256 as the new default password algorithm with support for up to 255-character passwords.
- Uses more secure default password policy.
- In support of creating stronger security policies, several AIX networking filesets, such as bos.net.tcp.ftp and bos.net.tcp.telnet, are no longer installed by default.
- Includes support for the new PCIe3 Cryptographic Coprocessor Gen3 4769.
- OpenSSL 1.1.1j is available for download on the [AIX web download](#) site.
- Includes AIX Network Install Manager (NIM), adding the additional NFSv4 option (nfs\_vers) to provide a convenient way for accessing NIM resources. This enables users to specify the NFS protocol version required for clients to access the export location of a NIM resource during operation.
- Network Time Protocol (NTP) version 4 is included as a part of base AIX installation.

### ***Streamline insights and automation***

- AIX 7.3 provides the capability to leverage Matrix Math Accelerator (MMA) instructions through support of Power10 processor compatibility mode.
- IBM Open XL C/C++ for AIX is a standards-based high-performance compiler that facilitates the creation and maintenance of applications written in C and C++ for IBM Power solutions. It generates code that can take advantage of the capabilities of the latest Power10 architecture and optimize your hardware utilization. A number of new built-in functions are delivered in this release to unlock Power10 architecture MMA instructions. For more information, see Software Announcement [221-321](#), dated September 8, 2021.
- IBM Engineering and Scientific Subroutine Library (ESSL) 7.1 on AIX 7.3 supports MMA AI Accelerator instructions for BLAS1, BLAS2, BLAS3, and several LAPACK routines. For more information, see Software Announcement [221-221](#), dated September 8, 2021.
- Several open source packages, such as numpy, have been tested on AIX and can be used for AI use cases, which enables inferencing at the point of data
- Applications on AIX can callout to Red Hat<sup>(R)</sup> Enterprise Linux<sup>(R)</sup> (RHEL) or Red Hat OpenShift<sup>(R)</sup> "side-cars" to leverage MMA-accelerated AI capability for inferencing
- RHEL or OpenShift "side-cars" for Enterprise AI can also use relational databases on AIX to feed models or store predictions from inferencing
- IBM Lab Services offerings are available that provide capabilities to leverage Enterprise AI use cases on AIX 7.3. (For more information, consult your IBM representative or IBM Business Partner.)

### ***Other enhancements***

- ksh93u+2012-08-01 available as a tech preview
- Updates libpcap to version 1.9.1
- Improved globalization enablement to support additional national characters in different languages and locales:
  - Ships the latest ICU4C (open source) library. The new feature enables AIX independent software vendors (ISV) and clients to easily port their non-AIX applications to AIX platforms.
  - Supports Unicode 13.0. The new feature enables AIX libc APIs to support 143,859 characters for a total of 154 scripts.
  - Rebuilt all 172 Common Locale Data Repository (CLDR) locales. The new feature enables users to easily get the same locale environment on other platforms.

### Recent [AIX Toolbox for Linux Applications](#) updates

The following new packages were added within the last six to twelve months. Packages can be downloaded from the toolbox or can be installed directly through Dandified YUM (DNF):

etcd, fswatch, ipmitool, libevent, libgit2, libtomcrypt, libtommath, libuv, mod\_auth\_gssapi, mod\_auth\_kerb, mosh, python3-Cython, python3-pycryptodomex, rkhunter, sudo\_noldap, swig, and tmux.

The following packages were updated:

ansible, autoconf, bash, bind, ca, curl, db, expect, file, freetype2, gcc8, gdbm, gdk, ghostscript, git, glib2, gnupg2, gnutls, golang, gtk2, httpd, ImageMagick, jansson, jansson, krb5, lapack, lftp, libgcrypt, libgpg, libpcap, libtiff, libunistring, libxml2, libXrender, logrotate, lua, lynx, m4, make, mariadb, mc, nagios, nagios, nagios, ncftp, nspr, nss, oniguruma, openblas, openldap, p11, pcre, perl, php, postgresql, python, python3, readline, salt, samba, sed, snappy, sqlite, squid, sshpass, subversion, sudo, tar, tcl, tcllib, tcpdump, tcping, texinfo, tk, unixODBC, wget, and zeromq.

The introduction of new packages, updates to existing packages, and notifications of security updates are announced in the [AIX Open Source discussion](#) forum. There, users can also interact with the IBM open source team and with other users to post questions about packages.

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## Program number

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Program number	VRM	Program name		
5765-G98	7.3.0	IBM AIX 7 Standard Edition		
5765-AMT	7.3.0	IBM AIX 7 Monthly Term Offering		
5765-2B1	7.3.0	IBM AIX 7 Standard Edition Subscription		
Program number	Maintenance 1-year Program number	Maintenance 3-year Program number	Maintenance ALC Program number	
5765-G98	5771-SWM	5773-SM3	5771-ALC	
Program number	Maintenance 1-year Program number	Maintenance 3-year Program number		
5765-2B1	5771-2B1	5773-2B1		
Program number	Maintenance 3-month Program number	Maintenance 6-month Program number	Maintenance 1-year Program number	Maintenance 3-year Program number
5765-AMT	5771-AMT	5772-AMT	5773-AMT	5774-AMT

**Note:** All the programs are already announced.

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## Offering Information

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

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## Publications

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None

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## Services

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### Software Services

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IBM Software Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of the lab-based software services team and the business consulting, project management, and infrastructure expertise of the IBM Global Services team. Also, IBM extends the reach of IBM Software Services through IBM Business Partners to provide an extensive portfolio of capabilities. IBM provides the global reach, intellectual capital, industry insight, and technology leadership to support a wide range of critical business needs.

To learn more about IBM Software Services, contact your Lab Services Sales or Delivery Leader.

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## Technical information

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### Specified operating environment

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#### Hardware requirements

A Power8, Power9, Power10, or later, technology-based server.

Power8 Nutanix (CS821 and CS822) does not support AIX 7.3.

AIX support for vPMEM requires a Power9, or later, technology-based server.

#### Software requirements

Not applicable

#### 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. Learn and stay informed about the transformation of IBM Support, including new tools, new processes, and new capabilities, by going to the [IBM Support Insider](#).

### Planning information

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#### Packaging

##### Packaging information

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.

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## Ordering information

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Consult your IBM representative or IBM Business Partner.

### IBM Configurator for e-business (e-config)

Program number	Feature description	Process Option Feature number
5765-G98	AIX 7.2 Specify Code	2508
5765-G98	AIX 7.3 Specify Code	2377
Program number	Feature description	Process Option Feature number
5765-2B1	AIX 7.2 Subs Specify Code	2508
5765-2B1	AIX 7.3 Subs Specify Code	2377

### Charge metric

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The charge metrics for these licensed products can be found in the following License Information documents:

Program number	License Information document title	License Information document number
5765-G98	IBM AIX 7 Standard Edition	<a href="#">L-SJAH-C56AKV</a>
5765-AMT	IBM AIX 7 Monthly Term Offering	<a href="#">L-SJAH-C56AKV</a>
5765-2B1	IBM AIX 7 Standard Edition Subscription	<a href="#">L-SJAH-C56AKV</a>

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.

### System Program Order (SPO)

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An order for SPO 5692-A6P is mandatory for shipments of program distribution, electronic, and preload. The individual licensed program orders are for registration and billing purposes only. No shipment occurs under those orders.

To receive shipment of machine-readable materials the order needs to include SPO 5692-A6P and program feature:

SPO Program number	Program name	Supply Feature number
5692-A6P	AIX 7.3 Base	2375
5692-A6P	AIX 7.3 Expansion Pack	2376
5692-A6P	AIX 7.3 Specify Code	2377

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This software license includes Software Subscription and Support (also referred to as Software Maintenance).

### **Software Maintenance**

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### **License Information number**

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Not applicable

### **Limited warranty applies**

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Yes

### **Limited warranty**

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

### **Money-back guarantee**

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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)**

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Yes. Contact your IBM representative.

### **Passport Advantage applies**

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No

## **Software Subscription and Support applies**

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

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance by telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year. For additional details, go to the [IBM Support Handbooks](#) page.

Software Subscription and Support does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under this agreement.

## **System i Software Maintenance applies**

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No

## **Variable charges apply**

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Yes

## **Educational allowance available**

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

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## **Statement of good security practices**

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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.

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## **Prices**

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

**Variable charges:** The applicable processor-based one-time charge will be based on the group of the designated machine on which the program is licensed for use. If the program is designated to a processor in a group for which no charge is listed,

the charge of the next higher group listed applies. For movement to a machine in a higher group, an upgrade charge equal to the difference in the then-current charges between the two groups will apply. For movement to a machine in a lower group, there will be no adjustment or refund of charges paid.

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## **Regional availability**

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

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