

AIX Version 7.2

*Release Notes*

**IBM**



AIX Version 7.2

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**IBM**

**Note**

Before using this information and the product it supports, read the information in "Notices" on page 17.

**Fourth edition (October 2016)**

This edition applies to AIX Version 7.2 and to all subsequent release and modifications until otherwise indicated in new editions.

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## About this document

The Release Notes topics include late technical information that is not included in other topics, and they highlights new functions for the AIX® Version 7.2 licensed program.

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## Highlighting

The following highlighting conventions are used in this document:

<b>Bold</b>	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Bold highlighting also identifies graphical objects, such as buttons, labels, and icons that the you select.
<i>Italics</i>	Identifies parameters for actual names or values that you supply.
Monospace	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or text that you must type.

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## Case sensitivity in AIX

Everything in the AIX operating system is case sensitive, which means that it distinguishes between uppercase and lowercase letters. For example, you can use the **ls** command to list files. If you type **LS**, the system responds that the command is not found. Likewise, **FILEA**, **FiLea**, and **filea** are three distinct file names, even if they reside in the same directory. To avoid causing undesirable actions to be performed, always ensure that you use the correct case.

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## ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.





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## **What's new**

### **May 2016**

Added information about support for the Linux SHA-256 and SHA-512 password cryptographic algorithm. For more information, see the “Linux SHA-256 and SHA-512 password cryptographic algorithm” on page 15 section.

### **January 2016**

Added information about CIFS Client in the “CIFS Client fileset” on page 14 section.



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## Read before installing AIX Version 7.2

Before you use this software, you should go to the Fix Central website and install the latest available fixes that address security vulnerabilities and other critical issues.

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### Installation tips

The latest installation hints and tips are available at the IBM® Power® server bulletins website (<http://www14.software.ibm.com/webapp/set2/subscriptions/onvdq>).

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### AIX Live Update

The AIX operating system provides the AIX Live Update function that eliminates the workload downtime that is associated with AIX system restart that is required by previous AIX releases when fixes to the AIX kernel are deployed.

AIX Version 7.2 Service Pack 1 contains significant fixes for AIX Live Update. You can download AIX Version 7.2 Service Pack 1 at the Fix Central website.

You can use the NIM Alternate Disk Migration utility (**nimadm** command) to migrate to AIX Version 7.2. However, if you want to use AIX Live Update on the target system, you must run the migration as the root user or not use the disk caching option (-j flag) with the **nimadm** command.

If NIM is used to install multiple clients with the AIX Live Update, you must specify the **-a async=no** option. For example, to install multiple clients you would run the **nim -o cust -a live\_update=yes -a async=no** command.

AIX Live Update fails if there is not enough file system space available to install an iFix, even if the **-X** flag is used to automatically extend the file systems. To fix this issue, run the **emgr -p** command for the iFix and expand the file system that is indicated.

If you are running Java applications or IBM WebSphere Application Server and AIX Live Update fails, you can fix the failure by applying APAR IV78743.

For more information about AIX Live Update, view the Live Update topic.

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### Software License Agreements

There are instances where the Software License Agreements (SLA) might not be displayed correctly. In this event, the License Agreements can be viewed for all languages at the Software license agreements website (<http://www.ibm.com/software/sla/slab.nsf>).

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### Software Maintenance Agreement

In AIX Version 7.2, a separate Software Maintenance Agreement (SWMA) acceptance window displays during installation immediately after the license acceptance window. The response to the SWMA acceptance (accept or decline) is stored on the system, and either response allows the installation to proceed, unlike license acceptance, which requires an accept to proceed.

The SWMA acceptance window is displayed during a New Overwrite or Preservation installation from base CD media.

For base CD media New Overwrite or Preservation installations, if a non-prompted installation is wanted, the **ACCEPT\_SWMA** field in the control\_flow stanza of the **bosinst.data** file should be set to yes (to accept the SMWA terms) or no (to decline the SWMA terms). The **ACCEPT\_SWMA** field is set to blank by default.

For NIM installations, if licenses have been accepted either from the choices made when initializing the installation, or by using the **ACCEPT\_LICENSES** field in a customized **bosinst.data** file, then this will constitute SWMA acceptance.

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## Fixes and problem-solving databases

You can download AIX fixes and search technical databases (including "APARS" and "Tips for AIX administrators"), at the Fix Central website (<http://www.ibm.com/support/fixcentral>).

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## Security advisories

Security subscription services are available at My notifications website (<https://www.ibm.com/systems/support/myview/subscription/css.wss/folders?methodName=listMyFolders>).

After you subscribe to the AIX security advisories, you will receive the advisories by email as soon as they are published.

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## System requirements

Review the following information to determine the minimum and recommended system requirements that are needed to run AIX Version 7.2.

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### Required hardware

Only 64-bit Common Hardware Reference Platform (CHRP) machines that are running selected POWER7® and POWER8® processors that implement the Power Architecture® Platform Requirements (PAPR) are supported.

To see whether you have a supported machine, log in to the machine as the root user, and run the following command:

```
prtconf | grep 'Processor Type'
```

---

### Firmware

#### I/O devices IPL limitation

Because of a firmware memory size limitation, only I/O devices in the first 144 I/O slots that are assigned to a logical partition or single system image partition can be used as an IPL (boot) source.

You can use the HMC to identify which devices are in the first 144 I/O slots by doing the following:

1. Select **Partition Properties > Hardware > I/O**.
2. Click the Bus column to sort the I/O devices in ascending order.

The first 144 I/O devices in the sorted list are in the bootable adapter slots.

If you are using a partition or single-system image partition with more than 144 assigned I/O slots, the following scenarios and their results and resolutions are possible.

*Table 1. Scenarios for partitions with more than 144 assigned I/O slots*

Scenario	Result	Resolution
Attempting to boot from a device beyond the first 144 I/O slots for installation or diagnostic purposes.	The device is not selectable as a boot source from the SMS menus.	Use a device in the first 144 I/O slots.
Booting from a device in the first 144 I/O slots, and then attempt to select a target installation device in a slot beyond the first 144 I/O slots.	The boot will succeed to the installation menus, but devices beyond the first 144 I/O slots will not be listed as bootable installation targets in the AIX menus.	Select a device that is available and marked as bootable.
Using an MPIO configuration where one adapter is in the first 144 I/O slots and another adapter is in a slot beyond the first 144 I/O slots. Both adapters are present at boot time.	The boot will succeed to the installation menus, and the device will be listed as bootable in AIX installation menus. The installation will proceed, but it will fail with the <b>bootlist</b> command failure "unable to set bootpath for all paths."	Use a device in the first 144 I/O slots for all paths.
Using DLPAR to add an adapter in a slot beyond the first 144 I/O slots, and then attempting to run the <b>alt_disk_install</b> command for the newly added device.	The device will not be listed as bootable.	Use a device in the first 144 I/O slots.

Table 1. Scenarios for partitions with more than 144 assigned I/O slots (continued)

Scenario	Result	Resolution
Using DLPAR to add an adapter in a slot beyond the first 144 I/O slots, and using the <b>bootlist</b> command to add the device as a bootable device (for example, by dynamically adding a redundant path to a current boot device or setting up for a network boot). Then removing the original adapter and rebooting.	The <b>bootlist</b> command succeeds, but the boot fails from the specified device, and AIX will not receive control.	Use a device in the first 144 I/O slots.
Using DLPAR to add an adapter whose probe order will make it displace a current bootable device, and then rebooting.	The boot fails, and AIX will not receive control.	Move the boot device to one of the first 144 I/O slots or remove the previously added device.
Selecting a device in a slot beyond the first 144 I/O slots as a dump device for a firmware-assisted dump.	The <b>sysdumpdev</b> command does not allow devices in slots beyond the first 144 I/O slots to be selected as firmware-assisted dump storage devices. An error occurs during the firmware-assisted dump configuration, and a traditional AIX dump automatically becomes available.	Use a device in the first 144 I/O slots for firmware-assisted dumps.
Using DLPAR to add an adapter whose probe order will make it displace a currently valid firmware-assisted dump target device, and then rebooting after the dump.	The firmware-assisted dump process fails during the boot process and displays an error message. The traditional AIX dump still runs to retrieve the dump image.	Avoid displacing the selected firmware-assisted dump target device or reconfiguring the <b>sysdumpdev</b> command for the firmware-assisted dump target device selection, and specify a device within the first 144 I/O slots.
Using DLPAR to add an adapter whose probe order will make it displace a currently valid firmware-assisted dump target device, and then rebooting.	The <b>sysdumpdev</b> command does not allow devices in slots beyond the first 144 I/O slots to be selected as firmware-assisted dump storage devices. An error occurs during the firmware-assisted dump configuration, and a traditional AIX dump automatically becomes available.	Use a device in the first 144 I/O slots for firmware-assisted dumps.

## Memory requirements

AIX Version 7.2 minimum current memory requirements vary, based on the configuration.

A minimum current memory requirement for AIX Version 7.2 is 2 GB.

AIX Version 7.2 requires the minimum current memory requirement to increase as the maximum memory configuration or the number of devices scales upward, or both. Larger maximum memory configurations or extra devices scale up the minimum current memory requirement. If the minimum memory requirement is not increased along with the maximum memory configuration, the partition hangs during the initial program load (IPL).

## Host Ethernet Adapter memory requirements

Configurations containing a Host Ethernet Adapter (HEA) require more memory than the 2 GB minimum. Each logical HEA port that is configured requires an extra 102 MB of memory. The minimum memory requirement for configurations with one or more HEA ports that are configured, where n is the number of HEA ports, is 512MB + n\*102MB.

## Paging space requirements

AIX Version 7.2 creates a 512 MB paging space (in the /dev/hd6 directory) for all new and complete overwrite installations.

## Large page (16 MB/16 GB) zeroing enhancements

The content of large page (16MB/16GB) in shared memory regions are zeroed when the region is deleted. You can use the `pgz_mode` tunable that is available with the `vmo` command to reduce the time that is needed to zero the pages by zeroing the pages in a nonuniform memory access (NUMA) aware parallel manner by using multiple kernel threads. You can specify the following values for the `pgz_mode` tunable:

### Serial mode

The default option for previous release of the AIX operating system.

### Synchronous parallel mode

Pages are deleted in parallel and in context of the thread that initiated the deletion.

### Asynchronous parallel mode

The thread that initiated the deletion, offloads the work of zeroing the pages in parallel to a kernel process and continues with the deletion process.

## Large page (16 MB) pool creation and resizing enhancements

A 16 MB page pool is created and resized dynamically. This 16 MB pool is created by using the `lpgg_size` tunable and the `lpgg_regions` tunable that are part of the `vmo` command. You can use the `pgz_lpgrow` tunable that is available with the `vmo` command to reduce the time that is needed to create or resize the 16 MB page pool by zeroing the large pages in parallel and by using multiple kernel threads. You can specify the following values for the `pgz_lpgrow` tunable:

### Serial mode

The default option for previous release of the AIX operating system.

### Synchronous parallel mode

Pages are zeroed in parallel and in context of the `vmo` command.

### Asynchronous parallel mode

The `vmo` command offloads the work of zeroing the pages in parallel to a kernel process and continues to the next step in the pool creation or resizing process.

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## Disk requirements

AIX Version 7.2 requires a minimum of 20 GB of physical disk space for a default installation that includes all devices, the Graphics bundle, and the System Management Client bundle.

The following table provides information about disk usage when you install AIX Version 7.2.

Location	Allocated (Used)
/	352 MB (171 MB)
/usr	2016 MB (1806 MB)
/var	192 MB (24 MB)
/tmp	96 MB (1 MB)
/admin	128 MB (1 MB)
/opt	32 MB (16 MB)
/var/adm/ras/livedump	256 MB (1 MB)

### Note:

1. If the `/tmp` directory has less than 64 MB, it is increased to 64 MB during a migration installation so that the AIX Version 7.2 boot image is successfully created at the end of the migration.
2. The boot logical volume is required to be 24 MB. The pre-migration script in the `usr/lpp/bos` directory on your media or in your NIM Shared Product Object Tree (SPOT) check whether you have adequate room. During the migration, `hd5` is increased if necessary. The logical partitions must be contiguous and within the first 4 GB of the disk.

You must format the SCSI disk properly before you install AIX on it. The AIX operating system requires the disk to be formatted to a sector size supported by the attached SCSI controller. All AIX SCSI controllers support 512-byte sector SCSI disks. The 522-byte sector SCSI disks are only supported when they are attached to SCSI RAID controllers. If the disk has been formatted for SCSI RAID, but is not attached to a SCSI RAID controller, the disk might not configure. If the disk does configure, it might be unreadable in the AIX environment. In some instances, the certify function and the format function in AIX diagnostics can be used to reformat the disk for the attached SCSI controller.

If any existing file system has a mount point in the /opt directory, or a mount point of /opt itself, the new logical volume, and file system are not created.

The AIX\_fcarray driver is not supported in AIX Version 7.2. Before you migrate to AIX Version 7.2, you must use the **manage\_disk\_drivers** command to convert any FCP array disks from the AIX\_fcarray driver to the AIX\_AAPCM driver. The AIX\_AAPCM driver supports Multiple Path I/O (MPIO) devices.

---

## Disk capacity

SAS RAID controllers and Fibre Channel controllers support attached arrays and disks with capacities, which exceed 2 TB. The maximum supported capacity (beyond 2 TB) is limited by either the attached storage subsystem or the upper level logical storage management.

For additional information about SAS RAID controllers, see the SAS RAID controller for AIX topic.

For information about AIX capacity limitations for logical storage, see the Limitations for logical storage management topic.



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# Installation, migration, upgrade, and configuration information

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## Installation

This section contains information about installing AIX 7.2 that supplements the information that is contained in the Installation and Migration topic.

### Installing AIX Version 7.2

The following methods can be used to install AIX Version 7.2:

- Complete overwrite installation
- Preservation installation
- Migration installation

**Note:** After you install or migrate a system to AIX Version 7.2, you can install a lower level of AIX by restoring a system backup or by performing a new and complete overwrite with base media. Preservation installations from AIX Version 7.2 to a lower level of AIX are not supported.

**Note:** Using the update media is recommended for updates. If you use the base media to update, some ODM settings (such as SRC subsystems settings) might be lost.

The minimum size of the boot logical volume is 24 MB. If your current boot logical volume is 16 MB or less, the installation process tries to increase it. However, partitions in a boot logical volume must be contiguous, and within the first 4 GB on the disk. If your system does not have free space that meets these requirements, a message indicates that there is not enough space to expand **hd5** (the boot logical volume).

To install AIX Version 7.2, follow the instructions in the Installing the base operating system topic.

### NIM installations with updated LPP\_SOURCE

NIM installations by using an LPP\_SOURCE directory that contains base images from a prior release and that contains updates to the current release require that you use an image\_data resource during operating system installations.

When you use an LPP\_SOURCE directory that contains base images from a prior release and updates to the current release, create an image\_data resource to use for any operating system installations. The SPOT must be updated with the updates added to the LPP\_SOURCE directory, or a new SPOT must be created. In that SPOT, copy the image.template file that is found at `<SPOT_LOCATION>/lpp/bosinst/image.template` to a new location outside of the SPOT. Create a new NIM image\_data resource that points to that location. Use that NIM image\_data resource for all operating system installations.

Certain file systems have grown in size, and the default image.data file that is used during an operating system installation comes from the **bos** image in your LPP\_SOURCE directory, which is the prior release image.data file.

## Network Installation Management

Network Installation Management (NIM) includes a readme file that is installed with the NIM Master **bos.sysmgt.nim.master** file set. The path name of the file is `/usr/lpp/bos.sysmgt/nim/README`.

### IBM SDK and JRE for AIX, Java Technology Edition, Version 7 64-bit

Java™ Technology Edition, Version 7 64-bit is available on the AIX base media.

IBM software development kit (SDK) and Java Runtime Environment (JRE) for AIX, Java Technology Edition is released in Java $V.x$  file sets, where  $V$  represents the version of Java, such as Java 7, and  $x$  is the individual file set, such as Java7\_64.sdk.

To check whether a more recent service refresh is available for a version of Java, see the AIX Download and service information website.

**Note:** Java 5 is not available on the AIX Version 7.2 base media or AIX Version 7.2 Expansion Pack media. Other versions of Java are available on the AIX Version 7.2 Expansion Pack media.

## Fileset changes

To provide you with more control over the software that is installed on your system, the `bos.net.tcp.client` and `bos.net.tcp.server` filesets are split into 33 new filesets.

The core code for each original fileset is in the `bos.net.tcp.client_core` and `bos.net.tcp.server_core` filesets. Requisites for software that is shipped with the AIX operating system (the `bos.net.tcp.client` and `bos.net.tcp.server` filesets) are changed to the `bos.net.tcp.client_core` and `bos.net.tcp.server_core` filesets. Additional requisites are added to the other new fileset as needed.

The original filesets still exist to satisfy any requisites from other software. The original filesets have requisites to all the new filesets to ensure that all the requirements are met.

To remove any of the new filesets, you must first remove either the `bos.net.tcp.client` fileset or the `bos.net.tcp.server` fileset. To remove the `bos.net.tcp.client` fileset, the `bos.net.tcp.server` fileset, or a new fileset, run the `lspp -d fileset_name` command. If no other software has requisites to the fileset that you want to remove, the removal is possible.

During an operating system migration, code changes occur, so that all the system configuration and user configurable files, which were owned by the `bos.net.tcp.client` and `bos.net.tcp.server` filesets, are merged by the new filesets that now own the files.

The list of new filesets follow:

- `bos.net.tcp.client_core`
- `bos.net.tcp.server_core`
- `bos.net.tcp.bind`
- `bos.net.tcp.bind_utils`
- `bos.net.tcp.bootp`
- `bos.net.tcp.dfpd`
- `bos.net.tcp.dhcp`
- `bos.net.tcp.dhcpd`
- `bos.net.tcp.ftp`
- `bos.net.tcp.ftpd`
- `bos.net.tcp.gated`
- `bos.net.tcp.imapd`
- `bos.net.tcp.mail_utils`
- `bos.net.tcp.ntp`
- `bos.net.tcp.ntpd`
- `bos.net.tcp.pop3d`
- `bos.net.tcp.pxed`
- `bos.net.tcp.rcmd`
- `bos.net.tcp.rcmd_server`

- `bos.net.tcp.sendmail`
- `bos.net.tcp.slip`
- `bos.net.tcp.slp`
- `bos.net.tcp.snmp`
- `bos.net.tcp.snmpd`
- `bos.net.tcp.syslogd`
- `bos.net.tcp.tcpcdump`
- `bos.net.tcp.telnet`
- `bos.net.tcp.telnetd`
- `bos.net.tcp.tftp`
- `bos.net.tcp.tftpd`
- `bos.net.tcp.timed`
- `bos.net.tcp.traceroute`
- `bos.net.tcp.x500`

The encoded software in the `bos.net.uucp` fileset moved to the `bos.net.uucode` fileset.

---

## Migration

You can do an operating system migration to AIX Version 7.2 from any level of the AIX operating system, on a system that supports AIX 7.2 boot. Installing any new level of AIX requires more disk space than previous levels. Verify that you have enough free space in the file systems, or that you have free partitions in the rootvg. Migrating requires slightly more free space than a basic installation.

If you are using a NIM **lpp\_source** created with a prior level base media and later levels of updates added, you should initially create the **lpp\_source** with the base media at the same release date or later than the level of AIX 5.3, AIX 6.1, or AIX 7.1 that you are migrating from. The last 4 digits of the output of the **oslevel -s** command represent the year and week of the service pack currently installed (YYWW).

### Java Version 5 removed

By default, Java Version 5 software is removed when you migrate to AIX Version 7.2. However, you can keep Java 5 by changing the selection in the base operating system installation menus, or in the NIM **bosinst\_data** resource. After the migration is complete and Java 5 is removed, you must change the `PATH` variable to `java7_64` in the `/etc/environment` file.

**Note:** Java 5 is not available on the AIX Version 7.2 base media or Expansion Pack media. Other versions of Java are available on the AIX Expansion Pack media.

### IBM PowerSC Trusted Surveyor

IBM PowerSC™ Trusted Surveyor is not supported in AIX Version 7.2. If you are migrating to AIX Version 7.2, you must remove the `powersc.ts` fileset before you start the migration process. If you have WPARs that you are migrating, you must verify that the `powersc.ts` fileset is not installed on the WPARs.

### Reliable Scalable Cluster Technology (RSCT)

When you upgrade to AIX Version 7.2, RSCT Version 3.2.1.0 is installed and replaces the previous version of RSCT. For more information about RSCT, see the RSCT 3.2 Knowledge Center website.

When you migrate to AIX Version 7.2 the `rsct.core.utils 3.2.1.0` fileset is applied. RSCT Version 3.2.1.0 is not compatible with the `rsct.vsd` fileset and the `rsct.lapi.rte` fileset that might already be installed on your system. You must deinstall the `rsct.vsd` fileset and the `rsct.lapi.rte` before you migrate to AIX Version 7.2. After you remove the filesets, you must rename the `/opt/rsct` directory by

running the `mv /opt/rsct /opt/rsct.old` command. If you do not remove the filesets and rename the directory, the `rsct.core.utils 3.2.1.0` fileset and other prerequisite RSCT filesets are not installed.

The following error occurs during the installation `rsct.core.utils 3.2.1.0` fileset if you do not remove the `rsct.vsd` fileset, the `rsct.lapi.rte` fileset, and rename the `/opt/rsct` directory:

```
rmdir(/opt/rsct): Do not specify an existing file.  
sysck: 3001-017 Errors were detected validating the files  
for package rsct.core.utils.
```

0503-464 installp: The installation has FAILED for the "usr" part

To recover from a failed migration, after you remove the filesets and rename the directory, run the **smitty update\_all** command to install the missing RSCT filesets.

## DSM

The `dsm.core` ships a `/etc/ibm/sysmgt/dsm/overrides/dsm.properties` file, which allows the user to override SSH configuration. If this file was modified, the file needs to be backed up manually before an update or a migration, as it is overwritten.

## Thin Servers

If you migrate any previous version of the AIX Common Operating System Image (COSI) and associated AIX Thin Servers to the AIX Version 7.2, it is recommended that you delete any dump device that is associated with the migrated Thin Servers and re-create the Thin Servers.

Additionally, you must install the **devices.tmiscsw.rte** fileset on the NIM master for the AIX Version 7.2 Thin Server to create a dump device. The **devices.tmiscsw.rte** fileset is available in the AIX Expansion Pack.

## IBM Subsystem Device Driver

AIX Version 7.2 does not support the IBM Subsystem Device Driver (SDD) for IBM TotalStorage Enterprise Storage Server<sup>®</sup>, the IBM TotalStorage DS family, and the IBM System Storage<sup>®</sup> SAN Volume Controller. If you are using SDD, you must transition to Subsystem Device Driver Path Control Module (SDDPCM) or AIX Path Control Module (PCM) for the multipath support on AIX for IBM SAN storage. SDD to SDDPCM migration scripts are available to help you with the transition.

Contact IBM storage technical support to request access to the migration scripts.

For more information about the available multipath I/O solutions and supported AIX versions for IBM SAN storage products, see the IBM System Storage Interoperation Center (SSIC) ([www.ibm.com/systems/support/storage/ssic/interoperability.wss](http://www.ibm.com/systems/support/storage/ssic/interoperability.wss)) website.

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## Limitations and restrictions

This section lists restrictions and limitations that apply to AIX Version 7.2.

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### Upgrading IBM Security Directory Server

IBM Security Directory Server Version 6.4 is available on the AIX base media. To upgrade to Security Directory Server Version 6.4, you must upgrade from Security Directory Server Version 6.3. For instructions about upgrading to Security Directory Server Version 6.4, see the Upgrade an instance of IBM Security Directory Server topic.

You might have to manually accept the license terms when you install IBM Security Directory Server version 6.3.0.17, or later, with the AIX operating system. The installation process stops until the license terms are accepted, which prevents an unattended installation when the license is not already installed. For more information, see License acceptance required for Security Directory Server 6.3.0.17 (or later) (<http://www.ibm.com/support/docview.wss?uid=swg21612037>).

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### AIX 7.2 Enterprise Edition 1.1

Previous versions of AIX Enterprise Edition included IBM® Tivoli® Monitoring Version 6.2.3 and Version 6.3.0. However, AIX 7.2 Enterprise Edition 1.1 includes only Tivoli Monitoring Version 6.3.0. To use AIX 7.2 Enterprise Edition 1.1, you must upgrade to Tivoli Monitoring Version 6.3.0.

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### GSKit version requirement for NIST compliance

GSKit version 8.0.50.44 is provided on the AIX Version 7.2 Expansion Pack media.

You must use GSKit version 8.0.50.10, or later, when you use IP Security with Rivest-Shamir-Adleman (RSA) key lengths that are greater than 2048 bits. The minimum RSA key length of 2048 bits is a requirement for complying with the National Institute of Standards and Technology (NIST) standard as defined in Special Publication 800-131A.

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### nmon command changes

The behavior of the nmon recordings for the PCPU and SCPU sections are not recorded by default in AIX Version 7.2. To enable the recording of the PCPU and SCPU sections, run the nmon recording with the **-y PCPU=on,SCPU=on** options. When the PCPU and SCPU sections are enabled, the recorded format is the same as it was in previous versions of the AIX operating system. For more information about the **nmon** command, see the nmon command topic.

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### Perl

The previous version of Perl was upgraded to Perl Version 5.20.1 in AIX Version 7.2. Perl is a separate 3rd-party open source package that is not owned by IBM. The Perl package might not preserve full compatibility across all versions. If you are moving Perl scripts to version 5.20.1, you must complete an evaluation of the scripts to verify that they continue to work as expected. For more information about Perl, see the Perl Programming Documentation website (<http://perldoc.perl.org/>).

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## Code removed from AIX Version 7.2

The following code and functions were removed from AIX Version 7.2, or later:

- Fcarrayhead driver
- graPHIGS programming interface
- Network Data Administration Facility (NDAF)
- Network Information Services + (NIS+)

**Note:** NIS is still available.

- IBM Systems Director Console for AIX
- IP over Fibre Channel (FC) driver

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## Licensed programs not supported in AIX Version 7.2

The following licensed programs are not supported in AIX Version 7.2:

- AIX Fast Connect
- Performance Toolbox for AIX
- IBM PowerSC Trusted Surveyor
- AIX Profile Manager

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## CIFS Client fileset

The `bos.cifs_fs` software package has moved to the AIX Version 7.2 Expansion Pack media. The CIFS Client is provided as-is (without support).

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## Additional information

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### IBM AIX Version 7.2 Knowledge Center

To view the most current version of the AIX Version 7.2 information, see the AIX Knowledge Center website ([http://www.ibm.com/support/knowledgecenter/ssw\\_aix/welcome](http://www.ibm.com/support/knowledgecenter/ssw_aix/welcome)).

To order AIX Version 7.2 Knowledge Center on physical media, you can place an order for feature 2321 on product ID 5692-A6P on the Entitled Software Service website or in the eConfig tool.

You can also download the AIX Version 7.2 Knowledge Center as a **.zip** file from the Entitled Software Service website. After you download the **.zip** file, you must extract the **.zip** file and run the **setup.exe** file to install the AIX Version 7.2 Knowledge Center.

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### AIX Dynamic System Optimizer

The IBM AIX Dynamic System Optimizer (DSO) extends the features that are provided by the Active System Optimizer (ASO) to automatically adjust some system settings to maximize the efficiency of your system. This automates the difficult job of manually tuning those system settings to optimize eligible workloads. The additional features that are provided by DSO are large page optimization and data stream prefetch optimization.

DSO is no longer a stand-alone feature and is included in AIX Version 7.2 as part of ASO. For more information about DSO and ASO, see the AIX Dynamic System Optimizer topic.

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### Linux SHA-256 and SHA-512 password cryptographic algorithm

- | A Loadable Password Algorithm (LPA) model is available that supports the Linux SHA-256 and SHA-512 password cryptographic algorithm. The Linux SHA-256 and SHA-512 password cryptographic algorithm is supported by other operating systems and was published in the public domain by Ulrich Drepper (<https://www.akkadia.org/drepper/SHA-crypt.txt>).
- | The LPA model is included in the pwmod Licensed Program Product (LPP) package. You can get the pwmod package from the AIX Web Download Pack website.

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### DB2 migration

IBM DB2® Version 10.5 with FP5 is available on the AIX base media. You can upgrade your DB2 environment from DB2 Version 10.1, 9.8, or 9.7 to DB2 Version 10.5. For more information about upgrading to DB2 Version 10.5, see the Upgrade to DB2 Version 10.5 topic.

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### Server-side support for new Unicode locales

For information about server-side support for new Unicode locales, see the Supported languages and locales topic.





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