IBM Storage Host Attachment Kit for AIX
Version 2.8.0

Release Notes

First Edition (June 2017)

This edition applies to version 2.8.0 of the IBM Storage Host Attachment Kit for AIX software package. Newer document editions may be issued for the same version in order to add missing information, update information, or amend typographical errors. The edition is reset to "First Edition" for every newly released version.

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Overview

The IBM® Storage Host Attachment Kit (HAK) for AIX® is a software pack that simplifies the task of connecting an IBM AIX host to the IBM storage systems.

The HAK provides a set of command-line interface (CLI) tools that help host administrators perform different host-side tasks, such as: detect any physically connected storage system (single system or multiple systems), detect storage volumes, define the host on the storage system, run diagnostics, and apply best practice native multipath connectivity configuration on the host.

You can download the IBM Storage Host Attachment Kit software package at any time from the IBM Fix Central website(www.ibm.com/support/fixcentral).

What's new in version 2.8.0

Version 2.8.0 adds integration with IBM HyperSwap solution, as introduced by the FlashSystem A9000 and A9000R storage systems (version 12.1).

General availability date: 9 June 2017

IBM HyperSwap

HyperSwap high availability is based on active-active pairing of storage systems per volume or per consistency group. Each volume or consistency group pair uses synchronous replication to keep both systems updated at all times. When certain conditions apply, an automatic and completely transparent failover is performed, so that the applications experience no downtime. As soon as the actual failure is recovered, the pair is automatically resynchronized.

As in other high availability solutions, HyperSwap requires a quorum witness component, to avoid split-brain situations. The IBM Spectrum Accelerate Family HyperSwap Quorum Witness is constantly monitoring the status of the related storage systems, and, if necessary, acts as a tiebreaker for conflict resolution.

The HyperSwap solution relies on Asymmetrical Logical Unit Access (ALUA) support to inform the host about the optimized paths to the storage system, and minimize I/O latency. HyperSwap does not require an external solution that provides an active-active solution, and no separate licensing.

Full description of the IBM HyperSwap® solution appears in the Product Overview of the IBM FlashSystem® A9000 and A9000R storage systems.

Compatibility and requirements

The IBM Storage Host Attachment Kit for AIX is compatible with different versions of the AIX operating system and the IBM storage systems, as well as with different HBAs and multipath solutions.

Certain software packages, patches, or drivers must be installed on the host, as detailed in the following subsections.

Note: This section applies to version 2.8.0. For information about the compatibility and requirements of a previous Host Attachment Kit version, refer to its relevant release notes. In addition, the HAK lifecycle and support matrix (www.ibm.com/support/knowledgecenter/SSEPRF/landing/css_lifecycle_support_matrix_hak.html) details the HAK lifecycle with compatible storage system microcode versions and supported operating system releases.

Supported AIX versions

Version 2.8.0 of the IBM Storage Host Attachment Kit for AIX is compatible with the following AIX versions and editions. All listed AIX releases support IBM HyperSwap solution.

Operating system	Edition	Architecture	Compatibility note
AIX 6.1	TL00, TL01, TL02, TL03, TL04, TL05, TL06, TL07, TL08, TL09	IBM System p, IBM Power Systems™	• TL04 requires one of the following: – Provided eFix* – Service Pack 2 • The latest AIX service packs resolve all limited functionality issues. For more information, see HA-101673 and HA-261107 in “Known issues” on page 6.
AIX 7.1	TL00, TL01, TL02, TL03, TL04	IBM System p, IBM Power Systems	• The latest AIX service packs resolve all limited functionality issues. For more information, see HA-101673 and HA-261107 in “Known issues” on page 6.
AIX 7.2	TL00, TL01	IBM System p, IBM Power Systems	
* You can download all AIX eFixes from the following FTP address: ftp://ftp.software.ibm.com/aix/efixes			

Note: AIX 5.1 is no longer supported.

Supported storage systems

Version 2.8.0 of the IBM Storage Host Attachment Kit for AIX supports different microcode versions of the storage systems, as listed in the following table.

Storage system	Microcode version
IBM XIV® Storage System	10.2.4.x 11.1.x, 11.2.x, 11.3.x, 11.4.x, 11.5.x, 11.6.x
IBM FlashSystem A9000	12.0.x, 12.1.x

Storage system	Microcode version
IBM FlashSystem A9000R	12.0.x, 12.1.x

Note:

- Newer microcode versions may also be compatible. When a newer microcode version becomes available, refer to the latest storage system release notes to check whether the new microcode version is also supported. In addition, the HAK lifecycle and support matrix (ibm.com/support/knowledgecenter/STJTAG/hsg/hak_lifecycle.dita) details the HAK lifecycle with compatible storage system microcode versions and supported operating system releases.
- Version 2.8.0 adds support for IBM HyperSwap solution, as introduced by version 12.1 of the FlashSystem A9000 and A9000R storage systems. If HyperSwap support is required, use HAK version 2.8.0 or later.

Supported HBAs

The IBM Storage Host Attachment Kit for AIX supports different host bus adapter (HBA) brands and types.

For the latest support information and compatibility matrix, refer to the IBM System Storage® Interoperation Center website (ibm.com/systems/support/storage/config/ssic).

Note: For best performance, install the latest firmware and drivers for the HBAs that are in use. The HBA vendor should provide the latest firmware and drivers.

Attention: The IBM Storage Host Attachment Kit for AIX does not support iSCSI connectivity. Only Fibre Channel (FC) is supported.

Supported multipath I/O solutions

The IBM Storage Host Attachment Kit for AIX supports the following multipath solutions:

- Native multipath I/O (MPIO)
- IBM Virtual I/O Server (VIOS)
- Veritas Dynamic Multipathing (DMP)

For the details of the supported versions, refer to the IBM System Storage Interoperation Center.

Important: Using more than one multipath I/O framework on the same host is not supported.

Required software on the host

Prior to installing the IBM Storage Host Attachment Kit for AIX, the `bos.adt.libm` package must be installed on the host.

For more information, refer to the IBM Fileset information website (ibm.com/support/docview.wss?uid=isg1fileset-1318926131).

Change log

This section summarizes the changes made in different version releases of the IBM Storage Host Attachment Kit for AIX.

Version 2.8.0 (June 2017)

Version 2.8.0 adds integration with IBM HyperSwap solution, as introduced by the FlashSystem A9000 and A9000R storage systems (version 12.1). Additional changes in version 2.8.0:

Ticket ID	Description
HA-261979*	**Enhancement**: The **xiv_devlist** command output indicates the HyperSwap mode of the volume (stretched or regular).
HA-261987*	**Enhancement**: The **xiv_devlist** command output displays the name of the remote storage system in the IBM HyperSwap solution.
HA-261965*	**Fixed**: The **xiv_host_profiler** command with the `--set-password` and `--storage` arguments fails due to discrepancy between the `--storage` value and the system serial number of the storage system itself. **This update requires resetting the current password.**

* Applies to all supported operating systems.

Version 2.7.0 (December 2016)

Version 2.7.0 improved security by adding ability to set passwords for hosts, accessing storage systems. Additional change in version 2.7.0:

Ticket ID	Description
HA-62994*	**Fixed**: The **xiv_devlist** command output displays the current HAK version with uppercase `-V`.

* Applies to all supported operating systems.

Version 2.6.0 (April 2016)

Version 2.6.0 added support for IBM FlashSystem A9000 and IBM FlashSystem A9000R storage systems with microcode 12.0. Additional changes in version 2.6.0:

Ticket ID	Description
HA-261809*	**Change**: The **xiv_syslist** command output displays all supported storage system types.
HA-261811*	**Change**: The **xiv_devlist** command output displays all supported storage system types.
HA-261816*	**Fixed**: When running the **xiv_attach** command, scanning for FC-connected storage systems is performed, even if the user chooses not to complete it.
HA-261859*	**Fixed**: A general exception may occur during the **xiv_fc_admin** or **xiv_attach** command execution.

Ticket ID	Description
HA-261869*	**Fixed**: If during new iSCSI target discovery an IP address is unreachable on a single storage systems, the error message appears for all connected devices.

* Applies to all supported operating systems.

Version 2.5.0 (September 2015)

Version 2.5.0 added support for XIV microcode version 11.6.x. Additional change in version 2.5.0:

Ticket ID	Description
HA-261629*	**Change**: The **-L** option of the **xiv_fc_admin** command is deprecated. Only the **xiv_syslist -L** command can be used for listing the attached storage systems, as detailed in HA-204578. For more information, refer to the user guide.

* Applies to all supported operating systems.

Version 2.4.0 (March 2015)

Version 2.4.0 added support for XIV microcode version 11.5.1.

Version 2.3.0 (August 2014)

Version 2.3.0 added support for XIV microcode version 11.5 and includes the following enhancements and fixes.

Ticket ID	Description
HA-250756*	**Enhancement**: The **--list** (**-L**) command option can be used with **xiv_diag** to display information that is to be gathered by the utility. For more information, refer to the user guide.
HA-261277	**Enhancement**: The **--clean** command option can be used with **xiv_fc_admin --rescan** to remove unreachable devices from the host. For more information, refer to the user guide.
HA-261361*	**Enhancement**: Added support for the XIV multi-tenancy feature, allowing work with different and separate storage domains that are defined on the same XIV storage system. This enhancement applies only to XIV microcode version 11.5 or later. For more information, refer to the user guide.
HA-261223*	**Fixed**: A general error message appears when running **xiv_attach**, **xiv_fc_admin**, or **xiv_iscsi_admin** if non-English characters are used in the XIV credentials.

* Applies to all supported operating systems.

Known issues

This section details the known issues in version 2.8.0 of the IBM Storage Host Attachment Kit for AIX, along with possible solutions or workarounds (if available).

Ticket ID	Description
HA-17383	AIX with native XIV ODM does not support SCSI-persistent reservations. Upgrading to a release of AIX that has native ODM results in SCSI reservation problems in clusters. To resolve this issue, add the correct ODM entries into the native AIX ODM. For AIX 6.1, AIX 7.1, and VIOS users, to completely resolve this issue, install the latest AIX service pack that matches your HAK-supported AIX version and TL. You can obtain the latest service pack from the IBM Fix Central website (ibm.com/support/fixcentral).
HA-19873	When using **`xiv_devlist`**, a volume that is reserved by another host appears as an unreachable device. Currently there is no workaround or solution for this limitation.
HA-28242	The **`cfgmgr`** and **`rescan`** options may display a message stating that the `devices.fcp` array package is not found. If you receive this message, map the LUN0 volume and then retry the command. Return to the working volumes afterwards.
HA-100800	Mapping the LUN0 volume causes errors. Due to the distinctive properties of the XIV LUN0 volume (on any storage pool), mapping it to the host causes numerous errors or performance problems. Accordingly, mapping the LUN0 volume is not supported.
HA-101034	After a volume is remapped to a different logical unit number (LUN), **`xiv_devlist`** erroneously displays double the amount of available paths for the volume. Currently there is no workaround or solution for this limitation.

Ticket ID	Description
HA-101673	Non-updated AIX versions do not recognize the LUN0 controller on the XIV storage system, resulting in the following functionality limitations: • **xiv_attach** configures the host locally, without defining the host on the XIV storage system. • **xiv_syslist -L** returns an empty list. • **xiv_syslist** returns the message: `No LUN0 XIV devices were detected.` To completely resolve this issue, install the latest AIX service pack that matches your HAK-supported AIX version and TL. You can obtain the latest service pack from the IBM Fix Central website(ibm.com/support/fixcentral).
HA-209680	When using the Veritas multipathing framework, **xiv_devlist** displays the native device names of newly mapped volumes. To resolve this issue, run the Veritas device rescan command: **vxdctl enable**
HA-230326	If the OS boots from SAN and volumes are mapped to the host, running **xiv_devlist** after an FC target (WWPN) or its initiator is removed from the FC zoning causes the host to hang. Currently there is no workaround or solution for this limitation.
HA-247046	On AIX 7.1, the HAK installation takes more than 2 minutes to complete. Currently there is no workaround or solution for this limitation.
HA-255321	After running **xiv_fc_admin -R** or **xiv_iscsi_admin -R**, LUN0 devices that are no longer connected to the host still appear registered in the operating system. Currently there is no workaround or solution for this limitation.

HA-261107	The AIX operating system might hang due to incorrect SCSI information.
	
	Workaround: To avoid this problem, make sure that the APAR is installed according to the AIX operating system version.
	`AIX 7.1 TL1 - IZ99643`
	`AIX 7.1 - IV06055`
	`AIX 6.1 TL7 - IZ99455`
	`AIX 6.1 TL6 - IV04977`
	`AIX 6.1 TL5 - IV05271`
	`AIX 6.1 TL4 - IV05645`
	
	For more information about APAR, see the APAR Explained technote page (ibm.com/support/docview.wss?uid=swg21424131).

Ticket ID	Description
HA-261134	Upgrading to a minor HAK version (for example, 2.x.x.x), the installation fails silently without any indication. To avoid this problem, uninstall the existing version before installing the minor version.
HA-261175	In some cases, the Host Profiler report displays detected HBA models in a format that is different than the format used in the IBM System Storage Interoperation Center (SSIC) website (ibm.com/systems/support/storage/config/ssic). This may result in incorrect host analysis results. In such a case, consult with an IBM Support representative regarding the erroneous host analysis. Currently there is no workaround or solution for this issue.
HA-261643	On AIX host in NPIV/Pureflex environment , **xiv_host_profiler** may cause temporary network disruption. To avoid this issue, update the Pureflex switch firmware to version v7.3.1b and higher. If the Pureflex firmware cannot be upgraded, refrain from running the **xiv_host_profiler** command either manually or by defining a Linux cron job.
HA-261676	On AIX 7.1, running the **xiv_devlist** command after renaming mapped volumes may result in an exception. To avoid this issue, keep original volume names.
HA-261763	On AIX 6.1, running the **xiv_devlist** command after performing the Hyper-Scale Mobility procedure may result in an exception. To resolve this issue, run the **rmdev -dl hdisk<unreachable_mpio_device>** to remove an unreachable MPIO device.
HA-261886	A host attached to FlashSystem A9000 or A9000R over Fibre Channel may lose its connectivity during hot upgrade of the storage system. When the FC connectivity is re-established, the normal operation is restored, but some applications may fail during the upgrade with possible data loss. To prevent a potential data loss: • Shut down all critical applications on these hosts, or set the affected hosts to maintenance mode. • Back up the host data before the storage system upgrade is carried out.

Ticket ID	Description
HA-261930	When running the **xiv_devlist** command on volumes during the Hyper-Scale Mobility process, the storage system serial number indicates either a source or a destination system. This may be confusing, when this command is used several times in a row, and each time a different storage system serial number is displayed. To resolve this issue, use XIV GUI or Hyper-Scale Manger to determine the Hyper-Scale Mobility state and correct serial numbers of the storage systems.

Related information and publications

You can find additional information and publications related to the IBM Storage Host Attachment Kit for AIX on the following websites.

- IBM Knowledge Center (ibm.com/support/knowledgecenter)
- IBM XIV Storage System on IBM Knowledge Center (ibm.com/support/knowledgecenter/STJTAG)
- IBM FlashSystem A9000 on IBM Knowledge Center (ibm.com/support/knowledgecenter/STJKMM)
- IBM FlashSystem A9000R on IBM Knowledge Center (ibm.com/support/knowledgecenter/STJKN5)
- IBM Power Systems software website for AIX (www.ibm.com/systems/power/software/aix)
- IBM System p website (www.ibm.com/systems/p)

Getting information, help, and service

If you need help, service, technical assistance, or want more information about IBM products, you can find various sources to assist you. You can view the following websites to get information about IBM products and services and to find the latest technical information and support.

- IBM website (ibm.com®)
- IBM Support Portal website (ibm.com/support/entry/portal/support?brandind=Hardware~System_Storage)
- IBM Directory of Worldwide Contacts website (ibm.com/planetwide)

  Use the Directory of Worldwide Contacts to find the appropriate phone number for initiating voice call support. Select the Software option, when using voice response system.

  When asked, provide your Internal Customer Number (ICN) and/or the serial number of the storage system that requires support. Your call will then be routed to the relevant support team, to whom you can provide the specifics of your problem.

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