IBM Storage Host Attachment Kit for Solaris
Version 2.6.0

Release Notes

First Edition (April 2016)

This document edition applies to version 2.6.0 of the IBM Storage Host Attachment Kit for Solaris 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® XIV® Host Attachment Kit (HAK) for Solaris is a software pack that simplifies the task of connecting an Oracle Solaris 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 XIV Host Attachment Kit software package at any time from the IBM Fix Central website (www.ibm.com/support/fixcentral).

Compatibility and requirements

The IBM Storage Host Attachment Kit for Solaris is compatible with different versions of the Solaris 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 2.6.0. 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 (ibm.com/support/knowledgecenter/STJTAG/hsg/hak_lifecycle.dita) details the HAK lifecycle with compatible storage system microcode versions and supported operating system releases.

Supported Solaris versions

Version 2.6.0 of the IBM Storage Host Attachment Kit for Solaris supports different Solaris versions or editions, as listed in the following table.

Operating system	Architecture	Compatibility note
Oracle Solaris 10	x64, SPARC	Requires Update 4 or later
Oracle Solaris 11	x64, SPARC	N/A

Supported storage systems

Version 2.6.0 of the IBM Storage Host Attachment Kit for Solaris supports different microcode versions of the IBM 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 Spectrum Accelerate™	11.5.x
IBM FlashSystem® A9000	12.0
IBM FlashSystem A9000R	12.0

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.

Supported HBAs

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

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

Important: For iSCSI connectivity, only iSCSI software initiators are supported. Hardware iSCSI HBAs are not supported.

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.

Supported multipath I/O solutions

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

- Native Device Mapper-Multipath (DM-MP).
- Veritas Dynamic Multipathing (DMP) 5.1, 6.x (including native support for XIV in Veritas Storage Foundation 5.1)

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

Change log

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

Version 2.6.0 (April 2016)

Version 2.6.0 adds 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.

Ticket ID	Description
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_iscasi_admin**, **xiv_fc_admin** or **xiv_attach** command execution.
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 and IBM Spectrum Accelerate 11.5.1.x. Additional change in version 2.5.0:

Ticket ID	Description
HA-261629*	**Change**: The **-L** option of the **xiv_iscsi_admin** and **xiv_fc_admin** commands 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 and IBM Spectrum Accelerate 11.5.0.b.

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.

Ticket ID	Description
HA-261361*	**Enhancement**: Added support for the XIV multi-tenancy feature, allowing host attachment to 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-91689	**Fixed**: A host cannot be attached over iSCSI if it is already attached over FC.
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.

Version 2.2.0 (November 2013)

Version 2.2.0 added support for version 11.4.0 of the XIV microcode and includes the following enhancement and fixes.

Ticket ID	Description
HA-204578*	**Enhancement**: Summary of the attached storage systems is now listed, using the **`xiv_syslist -L`** command.
HA-261142*	**Enhancement**: The Host Profiler utility (**`xiv_host_profiler`**) can now detect the microcode versions of the XIV systems to which the host is connected. In addition, users can use the **`--xiv-microcode`** option with the **`--analyze`** command argument in order to run the host profile analysis against a specific microcode version.
HA-255825	**Fixed**: Uploading the host profile to the XIV storage system over an iSCSI connection fails silently when the host HBA FC ports are zoned but not registered with the FC targets of that XIV system.
HA-261227	**Fixed**: Scheduled tasks that are set with **`xiv_host_profiler`** or **`xiv_attach`** for running the Host Profiler utility might fail if there are other scheduled tasks that are defined to occur exactly at midnight (00:00).

* Applies to all supported operating systems.

Version 2.1.0.1 (August 2013)

Version 2.1.0.1 included the following hotfix and change.

Ticket ID	Description
HA-261196	**Fixed**: In some cases, a general error (`type 'exceptions.AttributeError'`) might occur if **`xiv_devlist`**, **`xiv_attach`**, **`xiv_fc_admin`**, or **`xiv_iscsi_admin`** is used when the online volume migration (IBM Hyper-Scale Mobility feature) is in **Proxy** state.

Ticket ID	Description
HA-261181*	**Change**: In the **xiv_devlist** output, "OLVM State" was renamed to "Hyper-Scale Mobility".

* Applies to all supported operating systems.

Version 2.1.0 (June 2013)

Version 2.1.0 added support for version 11.3.0 of XIV microcode and for the IBM Hyper-Scale Mobility (online volume migration) feature.

Additional changes in version 2.1.0:

Ticket ID	Description
HA-231357*	**Enhancement**: The **--no-headers** argument can be used with the **xiv_devlist -t csv** and **xiv_syslist -t csv** commands to generate CSV output without column headers.
HA-253044*	**Enhancement**: An additional step in the **xiv_attach** procedure allows scheduling a task for running the Host Profiler utility on the host. For more information, refer to the user guide.
HA-256729*	**Fixed**: In some cases, the **xiv_host_profiler --analyze** command might generate notices that are unrelated to the host processor architecture.
HA-257071	**Fixed**: The **xiv_devlist** output is limited to 80 characters per line, ignoring any console-defined screen width.
HA-261114	**Fixed**: Instead of running once as scheduled, Host Profiler scheduled tasks run every minute within the specified hour. **Note:** Scheduled tasks that were created with version 2.0.0 should be removed and redefined with version 2.1.0.
HA-261126*	**Fixed**: **xiv_devlist** might exit with error messages when running on a host connected to a storage device other than the XIV storage system.
HA-8442*	**Fixed**: **xiv_host_profiler** and **xiv_syslist** might exit with error messages when running on a host connected to a storage device other than the XIV storage system.

* Applies to all supported operating systems.

Version 2.0.0 (March 2013)

Version 2.0.0 included the following enhancements.

Ticket ID	Description
HA-26055*	**Enhancement**: A new host diagnostics utility, Host Profiler (**`xiv_host_profiler`**), is now available. The utility collects comprehensive host configuration information, creates a profile based on this information, and allows detailed analysis of the collected information. For more information, refer to the Diagnostics chapter in the IBM XIV Host Attachment Guide. **Note:** The Host Profiler utility is compatible only with XIV microcode version 11.2 or later.
HA-251470	**Enhancement**: Reduced HAK package size, requiring less disk space.

* Applies to all supported operating systems.

Known issues

This section details the known issues in version 2.6.0 of the IBM Storage Host Attachment Kit for Solaris, along with possible solutions or workarounds (if available).

Ticket ID	Description
HA-27042	**`xiv_devlist`** does not list the LUN numbers. Currently there is no workaround or solution for this limitation.
HA-54557	**`xiv_devlist`** displays an erroneous number of XIV LUN paths when a volume is mapped to LUN0. To avoid this issue, do not map volumes to LUN0.
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 recommended.
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.
HA-164314	Host attachment fails when CHAP authentication is used over iSCSI, and no error message is displayed. Currently there is no workaround or solution for this limitation.

Ticket ID	Description
HA-164764	After unmapping volumes on SPARC-based hosts, **xiv_devlist** does not list these volumes as unreachable devices. Currently there is no workaround or solution for this limitation.

HA-168778	Native Solaris OS messages may appear when using the HAK tools.
	
	The following warning messages may be displayed by the Solaris OS:
	`Corrupt label: wrong magic number.`
	`Driver failed to attach.`
	
	These messages do not affect the HAK functionality and can be ignored.

HA-237757	Running **xiv_attach** on x64-based Solaris 11 with iSCSI connectivity might cause errors when trying to define the host on the XIV system. To avoid this issue, use the XIV management GUI or XCLI utility to define the host manually.
HA-244350	When VxDMP (Veritas dynamic multipathing) is in use on a SPARC-based Solaris 11 host, **xiv_devlist** lists both native MPxIO (multiplexed I/O) devices and VxDMP devices. This has no impact on the host multipathing functionality. Currently there is no workaround or solution for this limitation.
HA-258376	**xiv_devlist** might become unresponsive or slow when there are more than 10 volumes mapped to the host from the XIV storage system. Currently there is no workaround or solution for this limitation.
HA-261317	In some cases, when running **xiv_syslist** on a host that is connected over iSCSI to multiple XIV modules, only one of these modules may be listed on the **xiv_syslist** report. This may also cause the Host Profiler utility (**xiv_host_profiler**) to detect only a single connected XIV module. Currently there is no workaround or solution for this limitation.
HA-261532	Running the **xiv_devlist** from a host connected over iSCSI to a new storage system may take a long time if the host was previously connected to another storage system. This occurs when the LUN0 block device created for the previous storage system is still present in the Solaris database. Currently there is no workaround or solution for this limitation.

Ticket ID	Description
HA-261626	LUNs with IDs higher than 255 mapped to a host over iSCSI may result in an incorrect listing of the XIV volumes, using the **xiv_devlist** command. To avoid this issue, do not use LUN IDs higher than 255.
HA-261877	Error messages generated, when invalid LDAP credentials are supplied, may be overly general without specifying the exact reason for host attachment failure. To receive details on exact reason for the failure, check the log file.

Related information and publications

You can find additional information and publications related to the IBM Storage Host Attachment Kit for Solaris 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 Spectrum Accelerate on IBM Knowledge Center (ibm.com/support/knowledgecenter/STZSWD)
- IBM FlashSystem A9000 on IBM Knowledge Center (ibm.com/support/knowledgecenter/STJKMM)
- IBM FlashSystem A9000R on IBM Knowledge Center (ibm.com/support/knowledgecenter/STJKN5)
- Oracle Solaris Patching Documentation Center
- (www.oracle.com/technetwork/systems/patches/solaris/index.html)
- Oracle Solaris 11 Documentation (www.oracle.com/technetwork/documentation/solaris-11-192991.html)
- Oracle Solaris 10 Documentation (www.oracle.com/technetwork/documentation/solaris-10-192992.html)
- Oracle Solaris Online Forum (https://community.oracle.com/forums/category.jspa?categoryID=303)

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