IBM XIV Host Attachment Kit for Solaris

Version 1.6.0

Release Notes

First Edition (May 2011)

This document edition applies to Version 1.6.0 of the IBM XIV Host Attachment Kit for Solaris software package. Newer document editions may be issued for the same product version in order to add missing information or amend typographical errors. The edition is reset to 'First Edition' for every new product 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 XIV Storage System. The HAK provides a set of CLI-based tools that automatically detect any physically connected XIV storage system (single system or an array), define the host on the XIV storage system, and apply best-practice native Solaris multipath configuration.

After the connection is established, XIV-based storage volumes can be mapped to the host without any additional manual configuration, and can be accessed and used from the host for a range of storage operations.

Compatibility and requirements

The IBM XIV Host Attachment Kit for Solaris is compatible with different versions of the Solaris operating system and the XIV storage system, 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 1.6.0. For information about the compatibility and requirements of a previous Host Attachment Kit version, refer to its relevant release notes.

Supported Solaris versions

The IBM XIV Host Attachment Kit for Solaris supports different Solaris versions or editions, as listed in the following table.

Operating system	Architecture	Compatibility note
Oracle Solaris 9	SPARC	iSCSI connectivity is not supported.
Oracle Solaris 10	x86, x64, SPARC	

Supported XIV storage systems

The IBM XIV Host Attachment Kit for Solaris supports different microcode versions of the IBM XIV Storage System, as listed in the following table.

Storage system	Microcode version	Compatibility note
IBM XIV Storage System	10.1.0	N/A
	10.2.0 and 10.2.2	N/A
	10.2.4 and 10.2.4a	N/A

Supported HBAs

The IBM XIV 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 Interoperability Center at the following web address:

http://www-03.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.

Supported multipath and I/O solutions

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

- Native multipath I/O (MPxIO)

- Veritas Dynamic Multipathing (DMP) 5.0 or 5.1 (with the required patches only; see *Required software on the host*)

Required software on the host

Prior to installing the IBM XIV Host Attachment Kit for Solaris and depending on the installed Solaris version, specific software updates and patches must be installed on the host as detailed in the following table.

Operating system	Required updates or patches
Solaris 9 SPARC	- The latest version of Sun's SAN Foundation package (SUNWsan) - The 118462-03, 116482-04, and 112233-12 patches.
Solaris 10	Update 4 or later.

Important:
- For proper Active/Active multipathing using Veritas Dynamic Multipathing 5.0, install the Symantec Array Support Library for IBM XIV, which can be downloaded from the following web address:
http://www.symantec.com/business/support/index?page=content&id=TECH77828

Change log

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

Version 1.6.0 (May 2011)

Version 1.6.0 includes the following enhancements and fixes:

HA-18616*	**Enhancement:** `xiv_diag` now provides the HAK version number when used with the `--version` argument.
HA-22130*	**Enhancement:** More information is collected with the `xiv_diag` command.
HA-24970*	**Enhancement:** `xiv_devlist` can display LUN sizes in different capacity units, by using the `-u` or `--size-unit` argument.
	Usage: `-u SIZE_UNIT, --size-unit=SIZE_UNIT` Valid `SIZE_UNIT` values: MB, GB, TB, MiB, GiB, TiB
HA-26338*	**Enhancement:** The `xiv_devlist` output can be saved to a file in CSV or XML format, by adding the `-f` or `--file` argument.
	Usage: `-f OUTFILE, --file=OUTFILE` Valid `OUTFILE` values: CSV, XML
HA-18046*	**Fixed:** Erroneous text message prompted by the `xiv_attach` command.
HA-18378	**Fixed:** The Symantec XIV ASL library is not always detected.
HA-21456*	**Fixed:** Redirecting the `xiv_devlist` output results in a broken pipe error.
HA-21805	**Fixed:** `xiv_attach` fails when STMS already installed.
HA-22470*	**Fixed:** In some cases, the `xiv_devlist` output shows "N/A" in the Size field instead of the actual LUN size.
HA-23250*	**Fixed:** `xiv_attach` crashes when a user who is not defined as a storage admin (user type) tries to define a host.
HA-25094	**Fixed:** In some cases, `xiv_diag` causes a reboot.
HA-26776	**Fixed:** `xiv_attach` fails on Solaris 9 SPARC Update 8.
HA-54464	**Fixed:** Authorized users cannot perform host attachment after a read-only user attempts to perform host attachment.
HA-60068	**Fixed:** `xiv_devlist` fails on Solaris 9 after mapping volumes.
HA-62079	**Fixed:** `xiv_fc_admin -D` does not work.
HA-62263*	**Fixed:** Entering an invalid username or password results in a wrong error message.

* Applies to all supported operating systems.

Version 1.5.2 (April 2010)

Version 1.5.2 included the following changes and fixes:

HA-9356	**Change:** `xiv_devlist` now sorts the output by device name.
HA-13536	**Fixed:** Not all LUNs are discovered when rescanning.
HA-13493	**Fixed:** The host configuration may fails with a timeout.
HA-13430	**Fixed:** Failure to mount a Boot-from-SAN device.
HA-13069	**Fixed:** The admin utilities require multiple reboots.

Version 1.5.1 (December 2009)

Version 1.5.1 included the following changes and fixes:

HA-12104	**Change:** `xiv_diag` now uses compressed TAR archives.
	Because ZIP files do not support empty directories, symbolic links, and so on, `xiv_diag` now uses compressed TAR archives to support these exceptions.
HA-6844	**Fixed:** `xiv_devlist` casues a SCSI error on Solaris 10.
HA-11732	**Fixed:** The installer fails when using the UTF-8 locale.
HA-12155	**Fixed:** The `sgen` driver does not load automatically upon reboot.
HA-12335	**Fixed:** The `configure` and `verify` commands fail when the module name is missing in the `modinfo` command output.
HA-12382	**Fixed:** Repeated reboots are required because the MPxIO status is incorrectly detected.

Version 1.5.0 (November 2009)

Version 1.5.0 included the following enhancements, changes, and fixes:

HA-9993	**Enhancement:** Added support for Veritas Dynamic Multipathing (DMP).
HA-3965*	**Enhancement:** Automatic host definition on undefined XIV systems.
	The `xiv_attach` and `admin` commands automatically detect undefined XIV storage systems and define the host on those systems.
HA-6151*	**Enhancement:** Added the `--version` command argument.
	The `--version` command argument was added to the `xiv_fc_admin` and `xiv_iscsi_admin` commands.
	In addition, `xiv_attach` displays the HAK version in the Welcome banner.

HA-6565*	**Enhancement:** Support for iSCSI connectivity with CHAP authentication.
	The Host Attachment Kit supports attaching hosts for XIV systems using iSCSI with CHAP authentication.
	The `xiv_iscsi_admin` and `xiv_attach` commands are CHAP-aware.
HA-6708*	**Enhancement:** Colored output for host attachment binaries.
	Colored output added to the following commands:
	• `xiv_attach`
	• `xiv_iscsi_admin`
	• `xiv_fc_admin`
	• `xiv_devlist`
	• `xiv_diag`
HA-9877*	**Enhancement:** Listing attached XIV systems.
	The `xiv_attach`, `xiv_iscsi_admin` and `xiv_fc_admin` commands display the attached XIV systems along with basic connectivity information.
HA-9887*	**Enhancement:** Additions and changes to the `xiv_devlist` command.
	• Added command-line arguments:
	`-t xml` provides a new XML output format
	`--hex` changes the machine ID from decimal to hexadecimal base
	`-o all` adds all available fields to the table
	`--xiv-only` lists only the XIV devices
	`-d` writes debugging information to a file
	• Wide-terminal-aware table output:
	▪ If the terminal width is long enough, each row in the table is printed on a single line.
	▪ If the terminal width is shorter than needed, the columns are wrapped where necessary.
	• Changed the machine ID format to decimal base.
	• Added verification that the user is running with root/administrator permissions.
HA-6956*	**Change:** Restructured host attachment tree.
	The host attachment tree was restructured so that it will be consistent across all operating systems.
HA-9989	**Fixed:** An error message appears after uninstallation.

HA-9990	**Fixed:** Rescanned LUN devices are not listed on Solaris 9.
HA-9991	**Fixed:** The `configure` command fails on Solaris 9 during the Boot from SAN configuration step.
HA-9995	**Fixed:** The Host Attachment Kit package name does not match the Solaris package naming conventions.
HA-10183	**Fixed:** The Host Attachment Kit does not run on Solaris 10 SPARC that is earlier than Update 6.
HA-10200	**Fixed:** `xiv_devlist` displays unlabeled disks as bad devices.
HA-10327	**Fixed:** An error message stating "XPyV: command not found" appears in a first-time installation.
HA-10331	**Fixed:** The HAK installation fails if another installed package was detected as conflicting with Python.
HA-10854	**Fixed:** The rescan operation may not remove all unmapped devices.

* Applies to all supported operating systems.

Known limitations

This section details the known limitations in Version 1.6.0, along with possible workarounds (if workarounds are available).

HA-100800	Mapping the `LUN0` volume causes errors.
	Due to the distinctive properties of the XIV-based `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-19873	When using `xiv_devlist`, a volume that is reserved by another host appears as an unreachable device.
	Currently there is no workaround for this limitation (HA-19873).
HA-27042	`xiv_devlist` does not list the LUN numbers.
	Currently there is no workaround for this limitation (HA-27042).
HA-43329	The Host Attachment Kit installer relies on the user-defined `$PATH`.
	Workaround: use `/usr/sbin` in the path.

HA-53672	`xiv_attach` may fail when used over iSCSI and the host is not connected to all the IP addresses reported by the `ipinterface_list` XCLI command.
	To avoid this issue, make sure that the host is connected to and can access all the reported IP addresses.
HA-54557	`xiv_devlist` displays a wrong number of paths when using `LUN0`.
	Currently there is no workaround for this limitation (HA-54557).
HA-59261	The iSCSI and FC admin commands on Solaris 9 are not functional without the SUNWsan package.
	To avoid this issue, make sure that the SUNWsan package is installed.
HA-62042	`xiv_iscsi_admin -r` hangs after a host is deleted from the XIV storage system.
	Currently there is no workaround for this limitation (HA-62042).
HA-65405	`xiv_attach` shows 'Unknown type' for the Hitachi HBA driver.
	Currently there is no workaround for this limitation (HA-65405).
HA-91422	On x86-based Solaris 10, a kernel panic occurs when running `xiv_attach` over an iSCSI connection to an XIV storage system that runs microcode version 10.2.2.
	To avoid this issue, upgrade the XIV microcode to version 10.2.4a.
HA-91689	A host cannot be attached over iSCSI if it is already attached over FC.
	Currently there is no workaround for this limitation (HA-91689).

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Related publications

You can find additional information and publications related to the IBM XIV Host Attachment Kit for Solaris on the following web addresses.

- IBM XIV Host Attachment Kit for Solaris – User Guide, available under Publications on the IBM XIV Storage System Information Center:

  http://publib.boulder.ibm.com/infocenter/ibmxiv/r2

- IBM XIV Storage System – Product Overview, Planning Guide, available under Publications on the IBM XIV Storage System Information Center (see the previous web address).

- Oracle Solaris Patching Documentation Center:

    http://www.oracle.com/technetwork/systems/patches/solaris/index.html

- Oracle Solaris 10 Documentation:

    http://www.oracle.com/technetwork/documentation/solaris-10-192992.html

- Oracle Solaris Online Forum:

    http://www.oracle.com/us/products/servers-storage/solaris

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