

IBM Storage Host Attachment Kit for Windows
Version 2.7.0

Release Notes

IBM

First Edition (April 2016)

This document edition applies to version 2.7.0 of the IBM Storage Host Attachment Kit for Windows 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 Windows is a software pack that simplifies the task of connecting a Microsoft Windows Server 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).

Compatibility and requirements

The IBM Storage Host Attachment Kit for Windows is compatible with different versions of the Windows Server operating system and the 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 2.7.0. 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 Windows Server versions

Version 2.7.0 of the IBM Storage Host Attachment Kit for Windows supports different Windows Server versions, service packs, or editions, as listed in the following table.

Operating system	Service Pack	Architecture
Microsoft Windows Server 2008	SP1, SP2	x86, x64
Microsoft Windows Server 2008 R2	None, SP1	x64
Microsoft Windows Server 2012	None	x64
Microsoft Windows Server 2012 R2	None	x64
Microsoft Windows Server 2016	None	x64

Note: See “Required software on the host” on page 2 for information about required OS updates.

Supported storage systems

Version 2.7.0 of the IBM Storage Host Attachment Kit for Windows 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.x
IBM FlashSystem A9000R	12.0.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](http://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 Windows 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).

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.

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

Supported multipath I/O solutions

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

- Native multipath I/O (MPIO) and Microsoft DSM (MSDSM); installed from the Server Manager.
- Veritas Dynamic Multipathing (DMP) 5.1.

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 Windows and depending on the installed Windows Server version, specific operating system updates must be installed on the host.

These updates are required for error-free functionality. The following table lists the required and automatically installed hotfixes in each case.

Important:

- The following table contains information that is known at the time of the General Availability (GA) date. Newer or additional hotfixes may be required in distinct cases or in particular production environments. Contact IBM Support if you encounter errors or difficulties.
- Although the Host Attachment Kit automatically installs certain Microsoft hotfixes for Windows Server, you should always ensure that the most updated and relevant hotfixes are installed manually in addition to the bundled hotfixes. You can find any relevant hotfix and download it from the Microsoft Support website (support.microsoft.com).
- Always refer to the Microsoft documentation (KB article) of any hotfix or set of hotfixes that your system requires.

Operating system	Service pack	Required components that must be installed manually	Automatically installed
Windows Server 2008	Service Pack 1 or later	<ul style="list-style-type: none"> • Microsoft Multipath I/O Framework (enable from the Server Manager applet). • Microsoft Hotfix set* KB957311 (support.microsoft.com/kb/957311) if Windows Clustering is used. 	<ul style="list-style-type: none"> • Microsoft Hotfix KB979743 (support.microsoft.com/kb/979743) • Microsoft Hotfix KB981379 (support.microsoft.com/kb/981379) • Microsoft Hotfix KB983554 (support.microsoft.com/kb/983554) • Microsoft Hotfix KB2522766 (support.microsoft.com/kb/2522766)
Windows Server 2008 R2	None	<ul style="list-style-type: none"> • Microsoft Multipath I/O Framework (enable from the Server Manager applet). • Microsoft Hotfix set* KB980054 (support.microsoft.com/kb/980054) if Windows Clustering is used. 	<ul style="list-style-type: none"> • Microsoft Hotfix KB979711 (support.microsoft.com/kb/979711) • Microsoft Hotfix KB981208 (support.microsoft.com/kb/981208) • Microsoft Hotfix KB2460971 (support.microsoft.com/kb/2460971) • Microsoft Hotfix KB2522766 (support.microsoft.com/kb/2522766)
	Service Pack 1	<ul style="list-style-type: none"> • Microsoft Hotfix set* KB2468345 (support.microsoft.com/kb/2468345) • Microsoft Hotfix set* KB2545685 (support.microsoft.com/kb/2545685) if Windows Clustering is used. 	<ul style="list-style-type: none"> • Microsoft Hotfix KB2460971 (support.microsoft.com/kb/2460971) • Microsoft Hotfix KB2522766 (support.microsoft.com/kb/2522766)
Windows Server 2012	None	<ul style="list-style-type: none"> • Microsoft Hotfix KB2898774 (support.microsoft.com/kb/2898774) if Windows Clustering is used. 	None
Windows Server 2012 R2	None	None	None
* Includes more than one hotfix. Refer to the Microsoft KB article on the provided link.			

Note: Refer to “Known issues” on page 8 for information about any additional Microsoft Hotfix that you may need to install in order to solve any specific issue that you might encounter.

Change log

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

Version 2.7.0 (December 2016)

Version 2.7.0 improves security by adding ability to set passwords for hosts, accessing storage systems. Also, it introduces support for Windows Server 2016. Additional changes in version 2.7.0:

Ticket ID	Description
HA-62994*	Fixed: The xiv_devlist command output displays the current HAK version with uppercase -V.
HA-261877*	Fixed: Error messages generated, when invalid LDAP credentials are supplied, may be overly general without specifying the exact reason for host attachment failure.
HA-261954*	Fixed: XIV, Spectrum Accelerate and FlashSystem A9000/A9000R storage systems appear as unknown devices.

* 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_iscsi_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. Additional enhancement in version 2.4.0:

Ticket ID	Description
HA-261509	Enhancement: This new feature allows the host administrator to automatically discover and connect to new, already-attached iSCSI ports. For more information, refer to the user guide.

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-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-248145	Fixed: On Windows Server 2012, Pythonwin.exe (bundled in the HAK package for Windows) may record Side-by-Side events in the event log. These events have no effect on system functionality.
HA-253089	Fixed: After upgrading from HAK version 1.5.x to version 1.10.0 or later, the newer xiv_attach utility might fail in the 'Verifying XIV MPI0 Load Balancing' configuration task.

Ticket ID	Description
HA-261223	Fixed: A general error message appears when running <code>xiv_attach</code> , <code>xiv_fc_admin</code> , or <code>xiv_iscsi_admin</code> 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 for Windows Server 2012 R2.

Version 2.2.0 also included the following enhancement and fixes.

Ticket ID	Description
HA-204578*	Enhancement: Summary of the attached storage systems is now listed, using the <code>xiv_syslist -L</code> command.
HA-261142*	Enhancement: The Host Profiler utility (<code>xiv_host_profiler</code>) can now detect the microcode versions of the XIV systems to which the host is connected. In addition, users can use the <code>--xiv-microcode</code> option with the <code>--analyze</code> command argument in order to run the host profile analysis against a specific microcode version.
HA-253188	Fixed: <code>xiv_diag</code> might fail to gather cluster reports on non-English Windows Server cluster nodes.
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-261160	Fixed: During the installation and configuration of the Windows MPIO feature, if the host is shut down or restarted in an unordered manner, <code>xiv_attach</code> , <code>xiv_fc_admin</code> , and <code>xiv_iscsi_admin</code> later fail and exit with an error message.

* 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 <code>xiv_devlist</code> , <code>xiv_attach</code> , <code>xiv_fc_admin</code> , or <code>xiv_iscsi_admin</code> is used when the online volume migration (IBM Hyper-Scale Mobility feature) is in Proxy state.
HA-261181*	Change: In the <code>xiv_devlist</code> 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-258614	Fixed: In some cases, xiv_syslist might exit with the error message: HBA API Library found no adapters.
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 and fixes.

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-242098	Fixed: In some rare cases, HAK utilities might crash with a <code>pywintypes.error</code> error message.
HA-249721	Fixed: xiv_syslist might not detect all FC connections to an XIV system if the default FC initiator port number has been modified on that XIV system.
HA-250135	Fixed: xiv_diag might fail when collecting the list of all installed Windows hotfixes if a large number of Windows updates are installed on the host.

Ticket ID	Description
* Applies to all supported operating systems.	

Known issues

This section details the known issues in version 2.7.0 of the IBM Storage Host Attachment Kit for Windows, along with possible solutions or workarounds (if available).

Ticket ID	Description
HA-6459	<p>When using the VMware Raw Device Mapping (RDM), xiv_devlist and the multipath management agent erroneously report that Windows has only one path to the disk.</p> <p>Currently there is no workaround or solution for this limitation.</p>
HA-100800	<p>Mapping the LUN0 volume causes errors.</p> <p>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.</p> <p>Accordingly, mapping the LUN0 volume is not recommended.</p>
HA-100946	<p>When running xiv_attach, xiv_fc_admin, or xiv_iscsi_admin for the first and second time (during the initial host configuration) on x64-based Windows Server 2008, two reboots are required.</p> <p>This occurs due to the automatic installation of two Microsoft hotfixes.</p> <p>Currently there is no workaround or solution for this limitation.</p>
HA-163121	<p>An error occurs when using the \h (help) argument with the HAK installation command in the Windows command prompt.</p> <p>Currently there is no workaround or solution for this limitation.</p>
HA-213964	<p>When using the HAK from Windows PowerShell, the -o command argument (used with xiv_devlist and xiv_syslist) does not work with more than one parameter.</p> <p>To avoid this issue, use single quotes to enclose all the parameter names. For example: <code>xiv_devlist -o 'device,size'</code></p>

Ticket ID	Description
HA-235121	<p>When xiv_devlist is run immediately after xiv_fc_admin -R or xiv_iscsi_admin -R, the devices list might report "N/A" as the size of some devices. This occurs due to a delay limitation in Windows Server.</p> <p>To resolve this issue, wait a few seconds before running xiv_devlist.</p>
HA-254647	<p>If version 1.0.2.1 of the IBM Storage Enabler for Windows Failover Clustering is installed on the host, the Host Profiler utility (xiv_host_profiler) returns a value of 0.0.0 as the version number.</p> <p>Note: This does not affect the functionality of the IBM Storage Enabler for Windows Failover Clustering, and no other erroneous information is returned by the Host Profiler utility.</p> <p>Currently there is no workaround or solution for this issue.</p>
HA-261228	<p>xiv_devlist does not show a volume that is mapped to LUN 255.</p> <p>To avoid this issue, do not map any volume to LUN 255.</p>
HA-261447	<p>If you upgrade the software from version 2.1.0.1 to any later version, a duplicate entry is left in the "Program and Features" list in the Windows Control Panel. This behavior does not affect the HAK functionality.</p> <p>Workaround: After upgrading from version 2.1.0.1 and determining that the new version is functioning correctly, uninstall version 2.1.0.1.</p>
HA-261626	<p>LUNs with IDs higher than 255 mapped to a host over iSCSI may result in an incorrect listing of the storage volumes, using the xiv_devlist command.</p> <p>To avoid this issue, do not use LUN IDs higher than 255.</p>
HA-261854	<p>In Windows Server 2008 SP2, the installation wizard may not display the image of IBM storage system.</p> <p>Currently there is no workaround or solution for this issue.</p>
HA-261875	<p>In Windows Server 2012 and 2012 R2, mapped volumes appear as unknown devices in Device Manager after they are mounted. This does not affect the system operation, and the multipathing works properly.</p> <p>Currently there is no workaround or solution for this issue.</p>
HA-261922	<p>Windows Server 2016 appears as unsupported, when running the xiv_host_profiler command.</p> <p>Currently there is no workaround or solution for this issue.</p>

Ticket ID	Description
HA-261930	<p>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.</p> <p>Currently there is no workaround for this issue.</p>

Related information and publications

You can find additional information and publications related to the IBM XIV Host Attachment Kit for Windows 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)
- IBM Flash Storage and Solutions marketing website (ibm.com/systems/storage/flash)
- Microsoft TechNet website for Windows Server (technet.microsoft.com/en-us/windowsserver)
- Microsoft Windows Server TechCenter (technet.microsoft.com/en-us/library/bb625087.aspx)
- Microsoft TechNet overview page for Multipath I/O (MPIO) (technet.microsoft.com/en-us/library/cc725907.aspx)

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- 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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