Compaq SANworks

Release Notes
Secure Path Version 3.1A for Microsoft Windows

This document summarizes the features and characteristics of SANworks Secure Path Version 3.1A for Microsoft Windows, a High-Availability software solution for use with StorageWorks RA7000, ESA10000, RA8000/ESA12000 and MA8000/EMA12000 RAID Storage Systems.

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These *Release Notes* provide information for the release of SANworks Secure Path Version 3.1A not available elsewhere in the product documentation, and take precedent over all other sources. Individuals responsible for configuring, installing, and using this software should use this document.

To obtain the latest information and upgrades, please visit our website at:

http://www.compaq.com/products/sanworks and http://www.compaq.com/storageworks

IMPORTANT: Read this entire document before upgrading the software.

These Release Notes include the following sections:

Secure Path 3.1A Availability

Secure Path 3.1A for Microsoft Windows is available in two ways:

1. Secure Path 3.1A is a revised kit and replaces Secure path 3.1.
2. If there is an existing version of Secure Path 3.0 or 3.1 on your system, download Secure Path 3.1A from our website at:
http://www.compaq.com/products/sanworks/secure-path

Notes and Warnings

- Secure Path Version 3.1A is not supported with and should not be installed on systems using Enterprise Volume Manager (EVM). Continue to use Secure Path V3.1 with EVM.
- In a Microsoft Cluster configuration, use Selective Storage Presentation (SSP) to present LUNs through only one port per controller (two ports per LUN maximum). All four controller ports may be used as long as any single LUN is accessible through two ports. For example, LUN A is presented through port 1 of both controllers while LUN B is presented through port 2 of both controllers. **This restriction applies to ACS version 8.5 only.**
- If you are using Microsoft Cluster Server Software please go to site http://search.support.microsoft.com/kb/c.asp and do a search for the "specific article ID number" on the following Technical Bulletins:

  Q247065 - Microsoft Cluster Server with Service Pack 6A

  Q258750 – Recommended Private "Heartbeat" Configuration on a Cluster Server
- To insure that No-Single-Point-of-Failure (NSPOF) is maintained throughout your Secure Path Storage System, only redundant RAID types should be configured. Those include RAID 0 + 1, 1, and 3/5.
- The Secure Path Agent Configuration utility will occasionally append a period to the end of the client's name as shown in the Client box. This will prevent client connections to the agent. If this occurs, first select the client name with the period from the Client box and choose Delete Client. Then re-enter the name without the period in the Selected Client box and choose Add Client.

Secure Path Guidelines

- The controller CLI command *restart<this/other>* is not supported on operational RA8000/ESA12000 and MA8000/EMA12000 storage systems running with ACSv8.5 only.

- Load distribution is not supported and is automatically disabled in Microsoft Cluster Service (MSCS).
- The use of FTDISK functions such as host based RAID and stripesets is not supported with Secure Path protected devices.
- After uninstalling Secure Path Version 3.1A, the server must be rebooted.
- There is no support for Windows 2000 dynamic disks
- All controller-based partitions built on a single storageset must be assigned to the same controller and the same host.
- Standalone and clustered hosts may not be assigned to the same SPM profile.
- SPM **CANNOT** be launched from StorageWorks Command Console (SWCC).

  If you double-click the SPM window icon in the Secure Path folder of SWCC, the following message appears:

  > AppletManager: Failed to create object. Make sure the object is entered in the system registry.

- Replacement of a controller requires that all cluster servers sharing the affected storage system be rebooted to re-synchronize the Secure Path databases
- SPM passwords for all hosts in a profile must be the same.
- Changing the Agent's list of authorized clients or passwords requires that the Agent be manually stopped and restarted.
- Modifications to device volume labels made with Windows NT Disk Administrator require that the Agent be manually stopped and restarted before they become visible in SPM.

Secure Path Installation

Secure Path for Windows V3.1A is provided in two ways:

- Maintenance Release for customers with a valid Secure Path license. The Maintenance Release installation kit is accessible through Compaq's Web site.
- A full licensed kit available for purchase by new Secure Path customers.

The following sections provide installation procedures appropriate for each of the two kits.

Prerequisite Drivers

StorageWorks RAID systems are generally installed with a "platform" kit such as the Fibre Channel Installation kit contained on the Secure Path for Windows V3.1 CD. These kits install or refresh certain drivers necessary for using StorageWorks products with Windows. Please check to see that the following drivers are installed and at the indicated revision level as shown below:

Table 1: Driver Revision Levels

Driver Type	Windows NT V4	Windows 2000
HszDisk	v4.4.09	N/A
Hs_Service	v3.1.0.1	v3.1.0.1
CPQKGPSA	N/A	5-4.41A7 or 5-4.52A8
LP6NDS335	4-4.41A7 or 4.-4.52A8	N/A

Refer to the Compaq website to obtain updates for HszDisk and Hs_Service Upgrade Utility Version 1.4 at:

www.compaq.com/sanworks

Refer to the Compaq website to acquire updates to the HBA adapter drivers at:

www.compaq.com/products

Maintenance Release Procedures

Prior to installing Secure Path V3.1A Maintenance Release, you should check to insure that prerequisite driver(s) are installed and at correct revision levels, as shown in Table 1.

Secure Path for Windows V3.1A can be applied only to a previously installed version of 3.0 or version 3.1 of Secure Path for Windows with or without previously released Software Updates 1, 2 or 3 (for DRM environments only). Secure Path for Windows V3.1A incorporates all the features and enhancements of those Update packages.

The following sequences provide supplemental procedures for the most common installation scenarios.

Updating Stand-alone Server

- Stop all applications that access Secure Path storage.
- Backup data on Secure Path Storage.
- Install the Secure Path Server software.
- Install the Secure Path Client software on desired systems.
- Shutdown the server.
- Reboot the server.

Updating Cluster Servers

- Stop any non-cluster aware applications on one of the servers to be updated.
- Backup data on Secure Path Storage
- Using Cluster Administrator, move all Secure Path storage groups from the server to be upgraded.
- Install Secure Path for Windows V3.1A Server (or Server and Client) software.
- Shutdown and reboot the updated server.
- Using Cluster Administrator, move all Secure Path storage groups to the updated server.
- Install Secure Path for Windows V3.1A Server (or Server and Client) software.
- Shutdown and reboot this server.
- Using Cluster Administrator, restore Secure Path storage groups to the original configuration.

CD Kit Installation Procedures

Windows 2000 Secure Path New Install

- Configure the RAID array for multiple-bus failover mode.
- Configure storage sets.
- Install hardware (but do not connect HBA cables).
- Install platform kit and driver upgrades.
- Install the Secure Path Server software.
- Install the Secure Path Client software.
- Shutdown the server and connect the HBA cables.
- Reboot the server.

Upgrading Windows NT 4.0 to Windows 2000

- Uninstall the existing Secure Path software.
- Disconnect storage from host(s).
- Perform the operating system upgrade.
- Install platform kit and driver upgrades.
- Install the Secure Path Server software.
- Install the Secure Path Client software.
- Shutdown the server and connect the HBA cables.
- Reboot the server

Windows NT 4.0 Secure Path New Install

- Configure the RAID array for multiple-bus failover mode.
- Configure storage sets.
- Install hardware (but do not connect HBA cables).
- Install platform kit and driver upgrades.
- Install the Secure Path Server software.
- Install the Secure Path Client software.
- Shutdown the server and connect the HBA cables.
- Reboot the server.

Upgrading from Transparent Mode to Multiple-bus Mode

- Uninstall the Fibre Channel software.
- Configure the RAID array for multiple-bus failover mode.
- Install additional hardware (but do not connect HBA cables).
- Install platform kit and driver upgrades.
- Install the Secure Path Server software.
- Install the Secure Path Client software.
- Shutdown the server and connect the HBA cables.
- Reboot the server.

Secure Path Operational Features

Secure Path Manager Refresh

SPM automatically refreshes the display every 90 seconds. If you wish to update the displayed information sooner use the F5 key. (Please see KNOWN PROBLEMS IN THIS RELEASE.)

Secure Path Manager Controller Designations

In the SPM display, the controller designations are based on manufacturing designated serial numbers assigned to physical controllers in your RAID Array cabinet. This does not necessarily correlate to the physical position (upper and lower) of the controllers within the cabinet. Always reference the controller serial numbers if you need to associate information in the SPM display with the controllers.

Controller Hot-Swap

If it becomes necessary to hot-swap one of the RAID Array controllers in a storage system, schedule a reboot of each cluster server sharing that system as soon as possible to re-synchronize the Secure Path databases. If only one of the servers is rebooted, SPM management capability is compromised.

Configuration Information

Operating System Compatibility

Secure Path Version 3.1A is supported on platforms running the following operating systems:

- Windows NT Enterprise Edition or Server Version 4.0, Service Pack 5 or Service Pack 6A.
- Windows 2000 Standard Server, Advanced Server, or Datacenter with/without Service Pack 1

Microsoft Cluster Server (MSCS) may be optionally installed.

Supported Storage System Types

- Fibre Channel RA8000/ESA12000 RAID or MA8000/EMA12000 Arrays with StorageWorks HSG80 controller and ACS version 8.5.
- SCSI RA7000/ESA10000 RAID Arrays with StorageWorks HSZ70 controller and HSOF version 7.7

Secure Path Supported Configurations

The following list defines operational configuration limits for Secure Path Version 3.1A. The effective limit may be less due to Windows storage constraints, storage system type, or interconnect requirements. Refer to the appropriate Application Notes included with the install kit (also available from the www.compaq.comwebsite) for details.

- Maximum 8 storage systems shared by a set of hosts (per profile)
- Maximum 8 hosts per set of shared storage systems (per profile)
- Maximum 64 LUNs per target – (LUN numbers must be in the range 0 – 63)
- Maximum 8 paths per LUN
- Maximum 24 storagesets per subsystem for parallel SCSI configurations
- Maximum 64 storagesets per subsystem for Fibre Channel configurations

Fibre Channel Configurations

NOTE: Please check the www.compaq.com/support/storage Compaq web site for the latest HBA device drivers.

Fibre Channel configurations are supported with the StorageWorks KGPSA HBA for Windows NT 4.0 and Windows 2000. The following revision levels are required:

- KGPSA device driver for Windows 2000 – CPQKGPSA.SYS, version 5-4.41a7 or 5.4.52A8
- KGPSA device driver for Windows NT 4.0 – LP6NDS35.SYS, version 4-4.41a7 or 4-4.52A8
- KGPSA Firmware SF3.81 a1

During installation, all parameters required by Secure Path for the HBA driver are set automatically. It is required that you follow cabling instructions included in the appropriate Application Notes to facilitate maintenance and path correlation to the SPM display.

Parallel SCSI Configurations

Parallel SCSI Adapter Setup

Parallel SCSI configurations are supported with the Adaptec AHA2944-UW HBA for Windows. The following revision levels are required:

- Adaptec device driver AIC78xx.sys, version 1.25c for Windows NT 4.0 SP6A
- Adaptec device driver version 5.0.2144.1 for Windows 2000

Use SCSI Select to implement the following BIOS settings for each HBA:

- Adapter SCSI ID assignments must be different for each host in a multiple host configuration
- Disable Reset at initialization
- Enable SCSI Parity Checking
- Host Adapter Termination=LOW OFF/HIGH OFF (for configurations using external termination)

Parallel SCSI Constraints

When configuring Secure Path with the Adaptec 2944UW it is required that HBAs and their connections to the storage controllers be configured symmetrically between the two hosts. Cross cabling is not supported. For example:

- HBA #1 of Host A must connect with HSZ70 controller #1
- HBA #1 of Host B must connect with HSZ70 controller #1
- HBA #2 of Host A must connect with HSZ70 controller #2
- HBA #2 of Host B must connect with HSZ70 controller #2

Maximum configurations supported for Parallel SCSI:

- 4 hosts (standalone or configured as 2 MSCS clusters) for each set of shared storage systems
- 3 storage systems for each set of shared hosts

Secure Path Install Kit Contents

The following components are supplied in the Secure Path for Windows V3.1A release.

Table 2: Secure Path Installation Components

Windows 2000	Windows NT	Windows 2000/NT Common Components
RaiDisk v3.5.0.12	RaiDisk v 3.0.64	Secure Path Agent v3.4.7
RdFil v3.1.6	HszDisk v4.4.07	Secure Path Manager v3.1.24d

CORRECTIONS IN THIS RELEASE

- Secure Path tolerates connections of transparent mode storage systems for purposes of conversion to multiple-bus operations.
- Changed the communication method between the raidisk and the phone home support (hs_service) functions.
- Modified Secure Path behavior for compatibility with StorageWorks Command Console Version Steam Agent v2.20.66 or later.
- Eliminated the 8 HBA per server limit in the Windows NT 4.0 driver.
- Incorporated Large LUN support for up to 64 LUNs per controller pair in the Windows 2000 driver.

  NOTE: LUN numbers must be in the 0 –63 range.
- The Windows NT/Windows 2000 GUI now accepts hyphenated host names
- GUI supports WNT/W2K and Netware hosts. The GUI works with any Secure Path for Windows v3.x agent
- Corrected reported problem with GUI's handling of non-shred LUNs in Cluster configurations
- Eliminated Device Manager "yellow bangs" (disk devices whose driver associations are incomplete) by using .INF at SP driver installation
- Add Rdfil filter driver to manage device objects for Plug and Play compatibility while maintaining path state information Secure Path needs.

KNOWN PROBLEMS IN THIS RELEASE

- Memory utilization by Secure Path Manager may exhibit a sizable step function following the first use of the screen refresh feature (pressing the F5 key). Memory utilization goes from a nominal 6 – 8 Mbytes to 22 Mbytes, but plateaus at that point.

This phenomenon does not seem to cause any other adverse affect; closing and re-launching the Secure Path Manager restores memory consumption to nominal value.

- With Secure Path Manager, use of the F5 screen refresh key under heavy host system load may result in loss of right screen display. Closing and re-launching Secure Path Manager resolves this problem.
- Secure Path may continue to indicate healthy paths to devices whose access has been disabled at the controller.