

SANworks by Compaq

Release Notes - Sun Solaris Kit V2.0A for Enterprise Virtual Array

Part Number: AA-RR0ED-TE

Fourth Edition (April 2003)

Product Version: 2.0A

This document contains the most recent product information about the *SANworks by Compaq* Sun Solaris Kit V2.0A used for integrating host servers with the *StorageWorks™* Enterprise Virtual Array (VCS Version 2.0).

For the latest version of these Release Notes and other product documentation, visit the *StorageWorks* website at:

<http://h18006.www1.hp.com/storage/index.html>

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Release Notes - Sun Solaris Kit V2.0A for Enterprise Virtual Array

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Release Notes Contents

These release notes cover the following major topics:

- Enterprise Virtual Array Storage System, page 4
- Supported Operating Systems, page 6
- Operating Constraints, page 10
- Avoiding Problem Situations, page 11
- Enterprise Storage System Notes, page 11
- Licensing Support Information, page 12
- Storage System Scripting Utility for Enterprise Virtual Array, page 13
- Windows 2000 Dynamic Disk Snapshots and SnapClones, page 13

Intended Audience

This document is intended to assist customers who purchased the hp StorageWorks Enterprise Virtual Array and the associated hp SANworks Operating System kits. Other associated software packages are:

- hp SANworks Virtual Controller Software Package V2.0 for Dual HSV Controllers
- hp SANworks Snapshot for Virtual Controller Software V2.0 for Dual HSV Controllers

This document is also intended for use by hp Customer Service personnel responsible for installing and maintaining designated devices associated with this storage system.

Conventions

The following conventions are used throughout this document:

- Unless otherwise specified, all references to VCS V2.0 refer to the software package (kit) and documentation version level. These software packages and documentation support VCS V2.0.
- Unless otherwise specified, all documentation that supports VCS V1.0, VCS V1.01, and VCS V1.02, also supports VCS 2.0.

- The *System Software for Enterprise Virtual Array* is the storage system software that contains Virtual Controller Software (VCS), Environmental Monitoring Unit (EMU) firmware, programmable component images, diagnostics, and message files. This storage system software is usually represented by a four-digit number, for example V2.000.
- Unless otherwise specified, all references to a controller or controller pair should be interpreted as the HSV110 Controller or HSV110 Controller pair.
- Unless otherwise specified, all references to the Enterprise Storage System or storage system should be interpreted as the Enterprise Virtual Array.
- Unless otherwise specified, all references to rack should be interpreted as the 9000-Series Enterprise Storage System Rack.
- Unless otherwise specified, all licensing references to host ID should be interpreted as the storage system World Wide Name (WWN).
- Unless otherwise specified, all references to the management appliance should be interpreted as the hp SANworks Management Appliance.
- Unless otherwise specified, all references to a single instance of a management agent, or the element manager, should be interpreted as the hp SANworks HSV Element Manager.
- The term Fabric means Fibre Channel Switched (FC-SW) connectivity.

Enterprise Virtual Array Storage System

This document contains the most recent product information about the Enterprise Virtual Array. An Enterprise Virtual Array storage system consists of the following:

- One pair of HSV110 Controllers.
- An array of physical disk drives that the controller pair controls. The disk drives are located in drive enclosures that house the support systems for the disk drives.
- Associated physical, electrical, and environmental systems.
- The HSV Element Manager, which is the graphical interface to the storage system. The element manager software resides on the Management Appliance and is accessed through a browser.
- Management Appliance, switches and cabling.
- At least one host attached through the fabric.

Enterprise Virtual Array System Software

hp SANworks Virtual Controller Software (VCS) V2.0 provides storage software capability for the HSV110 Array Controller and is provided in the VCS V2.0 software kit.

Multiple Storage System Types

The extended interoperability of the heterogeneous SAN allows you to mix several types of *StorageWorks* storage systems. *StorageWorks* recommends the following configuration rules when different storage products are shared in the same SAN:

- HSG80 ACS Version 8.7 and EVA VCS Version 2.0—Use ACS Solution Software Version 8.7A (includes SWCC Version 2.5) and VCS Version 2.0 compatible multi-bus software/drivers.
- HSG80 ACS Version 8.6 and EVA VCS Version 2.0—Use ACS Solution Software Version 8.6 (if SWCC Version 2.4 components are desired) and VCS Version 2.0 compatible multi-bus software/drivers.

Enterprise Virtual Array Documentation

The Enterprise Virtual Array Catalog of Associated Documentation is included on the Technical Documentation page. You can display a comprehensive list of Enterprise Virtual Array documentation, as well as associated product documentation that may be required to operate your storage system. To access the Technical Documentation page, go to:

<http://h18006.www1.hp.com/products/storageworks/enterprise/documentation.html>

Support Release Information

For future product support release information visit

<http://h18006.www1.hp.com/storage/index.html>

This website provides downloadables for storage products.

Supported Configurations

Refer to the Enterprise Virtual Array Quick Specs for supported configurations. The *HP StorageWorks Heterogeneous Open SAN Design Reference Guide* is a detailed guide for SAN configurations and is available at:

<http://h18004.www1.hp.com/products/storageworks/san/documentation.html>

Supported Operating Systems

The Enterprise Virtual Array storage system is compatible with the following operating systems:

- Tru64 UNIX
- Windows NT/Windows 2000/Windows Server 2003
- OpenVMS
- Sun Solaris
- HP-UX
- IBM AIX
- Linux (single-path only)
- Novell NetWare (single-path only)

Table 1–1 lists the operating system’s specifications, which are compatible with the Enterprise Virtual Array.

NOTE: Table 1-1 contains current minimum level operating system specifications at the time of the Enterprise Virtual Array V2.0 release. Some component versions may change due to revision. For the latest information go to:

<http://h18006.www1.hp.com/storage/index.html>

Table 1–1: Operating System Specifications

Platform	OS Version	Clustering	FCA (HBA)	Adapter Firmware	Adapter Driver	Secure Path
SUN4U and SunFire Series	2.6, 7, 8, 9	SunCluster 2.2 and Veritas Cluster 3.5	†32 bit PCI	3.0.3	2.5.9.03	***3.0B
			†64 bit Sbus	13.3.7	2.5.9.03	***3.0B
			PCI 2Gb (FCA2257P)	FCode 1.18.5	3.26	***3.0B
			Sbus 1Gb (FCA2257S)	FCode 1.18.3	3.26	***3.0B
			cPCI 1Gb (FCA2257C)	FCode 1.18.5	3.26	*3.0B

** cPCI 1-Gb adapter is supported only on Solaris 8 and Solaris 9.

*** Secure Path V2.1D is only supported for migration purposes during the upgrade of VCS from V1.x to V2.0. Secure Path V3.0B is required for Solaris 9. Secure Path V3.0A is available for Solaris 2.6, 7, and 8.

† HBA not supported on Solaris 9.

Required Patches

This release of this Platform Software Kit was qualified with Sun Solaris patches installed. Patch details are found in Table 1–2.

IMPORTANT: Do not neglect the required patches. Your system will not function properly without them.

Table 1–2: Required Patches

Solaris Version	Patch Number	Patch Description
2.6	106226-01 105181-31 106125-08 105375-18 105356-10 105357-04 106429-02 105210-38	format kernel patchadd Dynamic Reconfiguration Dynamic Reconfiguration Dynamic Reconfiguration kma/mm libc
2.7	106541-16 107544-03	kernel fsck
2.7 (UE10000 only)	107450-04	gethostbyaddr
2.8	108528-15 109793-07 110912-02 111293-04 110383-02 108827-10 111310-01 109279-18 109904-05 109742-04 109906-06 112396-02 108987-09 111111-03	kernel su driver cfgadm libdevinfo libnvpair libthread libdhcagent mipagent mpathd multipathing ifconfig fgrep patchadd nawk
2.8 (UE10000 only)	110794-02 111049-02	Dynamic Reconfiguration cvcd
2.9	112233-03 112834-02 113277-05	kernel scsi sd/ssd

Table 1–3 details the supported web browsers.

Table 1–3: Supported Browsers

OS	OS Version	Browser	Minimum Version
SUN Solaris	2.6, 7, 8, 9	Netscape Communicator	V4.79

Switch Support

This Fibre Channel Platform Kit supports the Fibre Channel switches and firmware versions listed in Table 1–4.

IMPORTANT: StorageWorks recommends that you do not mix switch firmware versions in your SAN. It is considered best practice to uniformly upgrade all switches in the SAN.

Table 1–4: Fibre Channel Switch Support

Description	Part Number	Firmware Version
SAN Switch 8 (8 Port FC, 1 Gbps)	158222-B21 DS-DSGGB-AA	2.6.0h
SAN Switch 16 (16 Port FC, 1 Gbps)	158223-B21 DS-DSGGB-AB	2.6.0h
SAN Switch 8-EL (8 Port FC Entry Level, 1 Gbps)	176219-B21 DS-DSGGC-AA	2.6.0h
SAN Switch 16-EL (16 Port FC Entry Level, 1 Gbps)	212776-B21 DS-DSGGC-AB	2.6.0h
SAN Switch 2/32(16-32 Ports FC, 2 Gbps)	230616-B21 DS-DSGGS-AA	4.0.2b
SAN Switch Integrated (32 Port FC, 1 Gbps)	230616-B21 DS-DSGGS-AA	2.6.0h
SAN Switch Integrated 64 (64 Port FC, 1 Gbps)	230617-B21 DS-DSGGS-AB	2.6.0h
SAN Switch 2/16 (16 Port FC, 2 Gbps)	240602-B21 DS-DSGGD-AA	3.02k
SAN Switch 2/8-EL (8 Port FC Entry Level, 2 Gbps)	258707-B21 DS-DSGGD-AC	3.02k
SAN Switch 2/16-EL (16 Port FC Entry Level, 2 Gbps)	283056-B21 DS-DSGGD-AD	3.02k
SAN Core Switch 2/64 (32-64 Ports FC, 2 Gbps)	254508-B21 DS-DSGGE-AB	4.0.2b
SAN Director 64 (32-64 Ports FC, 1 Gbps)	254512-B21 DS-DMGGD-AA	02.00.00

Table 1–4: Fibre Channel Switch Support (Continued)

SAN Edge Switch 32 (32 Ports FC, 1 Gbps)	2T-M3032-AA (See Note)	02.00.00
SAN Edge Switch 16 (16 Ports FC, 1 Gbps)	2T-M3016-AA (See Note)	02.00.00
SAN Director 2/64 (32-64 Ports FC, 2 Gbps)	286809-B21 DS-DMGGD-BA	02.00.00
SAN Director 2/140 Switch (140 Ports FC, 2 Gbps)	316093-B21 DS-DMGGD-CA	04.01.02
SAN Edge Switch 2/32 (32 Ports FC, 2 Gbps)	286810-B21 DS-DMGGE-BC	02.00.00
SAN Edge Switch 2/16 (16 Ports FC, 2 Gbps)	286811-B21 DS-DMGGE-BB	02.00.00
SAN Edge Switch 2/24 (24 Ports FC, 2 Gbps)	316095-B21 DS-DMGGE-BD	04.01.02

NOTE: The listed 1 Gbps SAN Edge Switches are CSS (Custom Services and Solutions) orderable only. Please contact your StorageWorks sales representative at 1-800-STORWORK for further information on these CSS components.

For the latest versions of switch firmware, please visit the StorageWorks website:

<http://www.hp.com/country/us/eng/prodserv/storage.html>

Multiple Path Support

Sun Solaris requires the installation of hp Secure Path on each host to achieve high availability multiple path capability. Secure Path is licensed on a per-host basis. Each Sun Solaris host requires Secure Path for Sun Solaris. Reference Table 1–1 for the specific Secure Path versions.

Single Path Support Configurations

Sun Solaris server with a single FCA supports single path mode.

IMPORTANT: Single path mode should not be used in mission critical environments. See the white paper for further details.

Operating Constraints

Any operating constraints specific to the Enterprise Virtual Array hardware and HSV Element Manager can be found in their respective release notes.

Failover/Failback

There are specific failback preference settings for the HSV controllers that are operating system specific (see the Enterprise Virtual Array hardware release notes for details).

Avoiding Problem Situations

Avoiding problem situations specific to the hp SANworks Management Appliance can be found in the Management Appliance Update January 2002 Release Notes.

Avoiding problem situations specific to the hp SANworks HSV Element Manager can be found in the HSV Element Manager Release Notes.

In addition, avoiding problem situations pertaining Enterprise Virtual Array hardware can be found in the hardware release notes.

Secure Path Version

The Enterprise Virtual Array with VCS 2.0 should not be operated with a down version of Secure Path. Ensure that you have the current version for your operating system (see Table 1–1).

Codeload Usage

When a maximum configured system is running at maximum load, codeload functionality cannot be used effectively due to Secure Path timing constraints. The system may time out before codeload is completed. Because of this behavior, VCS upgrade should be done during off peak usage.

Enterprise Storage System Notes

Cable Requirements

When an Enterprise Virtual Array is installed, an SC-to-LC (1-Gb to 2-Gb) cable is required for host connectivity. Table 1–5 provides a listing of available cables.

Table 1–5: LC-SC cables

Length	Description	hp Part Number
2.0 m ± 40 mm	CA ASSY, LC-SC, Optical 2M	187891-002

Table 1–5: LC-SC cables

Length	Description	hp Part Number
5.0 m ± 80 mm	CA ASSY, LC-SC, Optical 5M	187891-005
15.0 m ± 150 mm	CA ASSY, LC-SC, Optical 15M	187891-015
30.0 m ± 300 mm	CA-ASSY, LC-SC, Optical 30M	187891-030
50.0 m ± 500 mm	CA-ASSY, LC-SC, Optical 50M	187891-050

Table 1–6: LC-LC cables

Length	Description	hp Part Number
2.0 m ± 40 mm	2-meter LC-LC Multi-Mode Fibre Cable	221692-B21
5.0 m ± 80 mm	5-meter LC-LC Multi-Mode Fibre Cable	221692-B22
15.0 m ± 150 mm	15-meter LC-LC Multi-Mode Fibre Cable	221692-B23
30.0 m ± 300 mm	30-meter LC-LC Multi-Mode Fibre Cable	221692-B26
50.0 m ± 500 mm	50-meter LC-LC Multi-Mode Fibre Cable	221692-B27

Licensing Support Information

If you have trouble obtaining a License Key or need other licensing support information, refer to the *hp StorageWorks Enterprise Virtual Array License Instructions* which are shipped with the VCS V2.0 software kit.

For assistance with incorrect Authorization ID, contact your authorized HP Authorized Service Provider.

For assistance with lost Authorization ID and Authorization ID not shipped, contact your HP order channel.

Storage System Scripting Utility for Enterprise Virtual Array

Refer to the HSV Element Manager release notes prior to using the Storage System Scripting Utility (SSSU), as SSSU communicates directly with the element manager.

Windows 2000 Dynamic Disk SnapShots and SnapClones

The use of SnapShots and SnapClones in HP SANs is not supported in a Windows 2000 environment if the SnapShot or SnapClone is presented to the same Windows 2000 host as the LUN from which the SnapShot or SnapClone was created. SnapShots and SnapClones are features of the HSG80 and HSV110 controller based HP Storage systems. All Dynamic disks on a system have information in their metadata about the other dynamic disks on the system that exist. When Windows is presented with two dynamic disks that have the same information on them, it does not have code to resolve the conflict.