

SANworks by Compaq

Release Notes - IBM AIX Kit V2.0A for Enterprise Virtual Array

Part Number: AA-RSX0B-TE

Second Edition (March 2003)

Product Version: 2.0A

This document contains the most recent product information about the *SANworks by Compaq* IBM AIX 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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Printed in the U.S.A.

Release Notes - IBM AIX Kit V2.0A for Enterprise Virtual Array

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Release Notes Contents

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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.

New Features

This section briefly describes new features and changes that are supported by the Version 2.0A release of the Platform Kit together with the array controller running ACS Version 2.0.

New Features for Version 2.0A

The following are major enhancements included in the V2.0A release of the Platform Kit.

- **EVA3000 Support**—The latest version of the Platform Kit is compatible with the latest version of Secure Path software (2.0C) which is required for EVA3000 and HSV100 controllers. Also new to this kit is a fileset that contains the ODM entries needed for proper device discovery of the EVA3000 disks. See Host Considerations, page 11 for installation instructions.
- **Directory Permissions Bug Fix**—Version 2.0A of the Platform Kit corrects a problem where the software was unnecessarily changing the directory permissions on the /tmp and /usr directories.

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.

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>

Adobe Acrobat Reader

IBM AIX 5.1.0 does not support Acrobat Reader. You will need to read the PDF files included on the CD-ROM on a system that has Acrobat Reader installed.

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
- Novell NetWare (Single Path)

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

Operating System	OS Version	Clustering	FCA (HBA)	Adapter Firmware	Adapter Driver	Secure Path
IBM-AIX	4.3.3 and 5.1	HACMP/ES 4.4.1	Cambex PCI-1000f	2.01.38	1.5.20.2	2.0C

Table 1–2 details the supported web browsers.

Table 1–2: Supported Browsers

OS	OS Version	Browser	Minimum Version
IBM-AIX	4.3.3 and 5.1	Netscape Communicator	V4.79

Switch Support

This Fibre Channel Platform Kit supports the Fibre Channel switches and firmware versions listed in Table 1–3.

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 1–3: 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

Table 1–3: Fibre Channel Switch Support (Continued)

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) (multiple-bus failover mode only)	254512-B21 DS-DMGGD-AA	02.00.00
SAN Edge Switch 32 (32 Ports FC, 1 Gbps) (multiple-bus failover mode only)	2T-M3032-AA (See Note)	02.00.00
SAN Edge Switch 16 (16 Ports FC, 1 Gbps) (multiple-bus failover mode only)	2T-M3016-AA (See Note)	02.00.00
SAN Director 2/64 (32-64 Ports FC, 2 Gbps) (multiple-bus failover mode only)	286809-B21 DS-DMGGD-BA	02.00.00
SAN Director 2/140 Switch (140 Ports FC, 2 Gbps) (multiple-bus failover mode only)	316093-B21 DS-DMGGD-CA	04.01.02
SAN Edge Switch 2/32 (32 Ports FC, 2 Gbps) (multiple-bus failover mode only)	286810-B21 DS-DMGGE-BC	02.00.00
SAN Edge Switch 2/16 (16 Ports FC, 2 Gbps) (multiple-bus failover mode only)	286811-B21 DS-DMGGE-BB	02.00.00
SAN Edge Switch 2/24 (24 Ports FC, 2 Gbps) (multiple-bus failover mode only)	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

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

Single Path Support Configurations

Single Path configurations are not supported on IBM AIX.

Supported Servers

The following section list the servers supported by the Enterprise Virtual Array.

Supported IBM Servers

Table 1–4 lists the Enterprise Virtual Array compatible IBM AIX server models.

Table 1–4: Supported IBM AIX Servers

• P270	• P610	• P620
• F50	• F80	• P660
• H70	• H80	• P680
• S70	• S7A	• P690 with restrictions
• M80	• S80	• P640

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).

All virtual disks for use by an IBM AIX host should be set to “No Preference” on the **Virtual Disk Properties** page in the HSV Element Manager.

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
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.

Host Considerations

This section contains information on issues and important reminders regarding the host servers.

Installation Procedure for ODM Entries

A fileset is included with the Platform Kit that contains the necessary device ODM entries for proper device discovery of the EVA3000 disks. This fileset is installed as part of the normal installation procedure but can also be installed separately by following the procedure below:

1. Go to the /aix_spec directory in the Platform Kit CD-ROM.

2. Execute the command: `installp -acd hsv100.rte all`
3. Execute the command: `cfgmgr -v`

These steps allow you to discover EVA3000 devices.

PCI Hot Swapping of Cambex FCAs Not Supported

Hot swapping is defined as replacing one FCA with an identical FCA in the same PCI slot while the system is up. This function is not supported on p-series systems that support hot swapping, as it hangs the server. To replace an FCA, you must first shutdown the server.

PCI Hot Addition of Cambex FCAs Not Supported

Hot Adding is defined as adding a PCI FCA to an empty PCI slot while the system is up and running. This function is not supported on the p-series systems as the hot addition of the Cambex FCA fails. The server must be shutdown in order to add an FCA.

Cambex FCA Driver Does Not Support Extended Error Handling (EEH) on P690

EEH is a mechanism built into the p-series servers that allows the server to isolate a faulty FCA and shut it down. The IBM/Cambex solution does not support IBM EEH-Extended Error Handling. This means that an errant Cambex PCI card cannot electrically be taken offline by the p690 CPU. The availability of the p690 solution with IBM/Cambex is equal to other IBM server models.

Installing Software via SMIT

The filesets that are contained on the kit CD-ROM can be installed via SMIT. The advantage to doing this is that the filesets are installed very quickly. The disadvantage is that no configuration is performed. hp recommends that you use the `INSTALL` script on the CD. To install the filesets using SMIT, perform the following steps:

NOTE: Installing the software via SMIT does not install the Secure Path 2.0C driver. You will have to manually install the Secure Path driver from the Secure Path CD-ROM.

1. Insert the CD into your CD-ROM drive.
2. Invoke SMIT using the command `smit install_latest`.
3. Select the CD-ROM device that has the kit CD-ROM in it from the dialog box.

4. Click **OK** in the next dialog box.

You can install only specific software if you use the **List** button next to the **SOFTWARE to install** field.

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.

