release notes

# hp StorageWorks SAN Switch 2/8

**Product Version:** 3.0.2k

Second Edition (February 2003)

**Part Number:** AV-RSB7B-TE

This document summarizes late-breaking and supplemental information for the SAN Switch 2/8 EL and SAN Switch 2/8 Power Pak. In the event of conflicting information between these Release Notes and other documents contained in this product release, the Release Note content takes precedence.

For the latest version of these Release Notes and related switch documentation, access the HP storage website at: http://www.hp.com/country/us/eng/prodserv/storage.html.

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SAN Switch 2/8 Version 3.0.2k Release Notes
Second Edition (February 2003)
Part Number: AV-RSB7B-TE

# About this Document

This section lists the content contained in these Release Notes, including:

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**Note:** The SAN Switch 2/8 is offered in two configurations, the 2/8 EL and 2/8 Power Pak. These Release Notes refer to both models as the SAN Switch 2/8, unless otherwise noted.

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# Intended Audience

This document is intended for HP technicians and customers who purchased the SAN Switch 2/8 EL and SAN Switch 2/8 Power Pak models.

# Related SAN Switch 2/8 Product Documentation

The SAN Switch 2/8 kit also includes the following documents:

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**Note:** The *SAN Switch 2/16 Installation Guide* and *Release Notes* ship in hard copy format with the switch. With the exception of the Release Notes, all listed documents are provided on the *hp StorageWorks SAN Switch Software v3.0.2k* CD, part number AG-RR86C-BE.

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- *hp StorageWorks SAN Switch 2/8 Version 3.0.x Installation Guide*, part number AA-RSB6B-TE
- *hp StorageWorks SAN Switch 2/8 Version 3.0.2k Release Notes*, part number AV-RSB7B-TE (this document)
- *hp StorageWorks Common Software and Switch Options Version 3.0.x/4.0.x Release Notes,* part number AV-RTQUB-TE
- *hp StorageWorks Fabric OS Version 3.0.x/4.0.x Reference Guide*, part number AA-RS24B-TE
- *hp StorageWorks Fabric OS Procedures Version 3.0.x/4.0.x User Guide*, part number AA-RS23B-TE
- *hp StorageWorks Diagnostics and System Error Messages Version 3.0.x/4.0.x Reference Guide*, part number AA-RS22B-TE
- *hp StorageWorks Web Tools Version 3.0.x/4.0.x User Guide*, part number AA-RS25B-TE
- *hp StorageWorks Advanced Performance Monitoring Version 3.0.x/4.0.x User Guide*, part number AA-RTS4B-TE
- *hp StorageWorks ISL Trunking Version 3.0.x/4.0.x User Guide*, part number AA-RTSAB-TE
- *hp StorageWorks Extended Fabric Version 3.0.x/4.0.x User Guide*, part number AA-RTSDB-TE
- *hp StorageWorks Fabric Watch Version 3.0.x/4.0.x User Guide*, part number AA-RTSGB-TE
- *hp StorageWorks Zoning Version 3.0.x/4.0.x User Guide*, part number AA-RS26B-TE

- *hp StorageWorks Remote Switch Version 3.0.x/4.0.x User Guide*, part number AA-RTS7B-TE
- *hp StorageWorks QuickLoop Version 3.0.x User Guide*, part number AA-RTS1A-TE

Soft copy of the *hp StorageWorks SAN Switch 2/16 Version 3.0.x Installation Guide*, part number AA-RR84B-TE, is also provided on the CD, which is shared with 2/8 SAN Switch products.

For the latest supported configurations, please refer to the *hp StorageWorks SAN Design Reference Guide*, part number AA-RMPNF-TE, available at:

http://h18006.www1.hp.com/storage/saninfrastructure.html

Additional documentation, including white papers and best practices documents, are available via the HP website at:

http://welcome.hp.com/country/us/eng/prodserv/storage.html

# Features Summary

The following sections summarize the management features enabled on your specific switch model (SAN Switch 2/8 EL or SAN Switch 2/8 Power Pak).

## If You Purchased the SAN Switch 2/8 EL

The SAN Switch 2/8 EL ships with the following features enabled:

- Web Tools—Provides a graphical user interface (GUI) to monitor and manage the entire fabric.
- Zoning—Allows partitioning of the SAN into logical groupings of devices that access each other.
- IV_Domain_Fabric OS—Restricts the number of HP switches within a fabric to four. To upgrade to full fabric support, you must purchase the Full Fabric OS license, as listed in the Optional Upgrades section of these Release Notes.
- QuickLoop (present on the switch, but not enabled)—Allows arbitrated loops to attach to a fabric. To enable, use the Web Tools QuickLoop Tab, or use the telnet `qlPortEnable` command.

## If You Purchased the SAN Switch 2/8 Power Pak

The SAN Switch 2/8 Power Pak ships with the following features enabled, and ready to use:

- Web Tools—Provides a graphical user interface (GUI) to monitor and manage the entire fabric.
- Zoning—Allows partitioning of the SAN into logical groupings of devices that access each other.
- Fabric Watch—Monitors the performance and status of HP StorageWorks SAN switches, and alerts network managers as problems arise.
- Full Fabric—Updates a switch from IV_Domain_Fabric OS to Full Fabric OS.
- ISL Trunking—Using ISL trunking, high speed links ensure that server-to-storage performance is efficient.
- Advanced Performance Monitoring—Provides a comprehensive tool for monitoring the performance of storage devices within the network.

The following features are built into the switch firmware, but not enabled.

- QuickLoop—Allows arbitrated loops to attach to a fabric. To enable, use the Web Tools QuickLoop Tab, or use the telnet `qlPortEnable` command.
- Extended Fabric —Creates a fabric interconnected at distances greater than 5 km for 2 Gb interswitch links. To enable, use the Web Tools Extended Fabrics Tab, or use the telnet `portCfgLongDistance` command.
- Remote Switch—Provides a network bridge to interconnect fabrics. To enable, use the Web Tools Extended Fabrics Tab. See the *hp StorageWorks Common Software and Switch Options Version 3.0.x/v4.0.x Release Notes* for Remote Switch limitations.

# Optional Upgrades

The following upgrades are available for the SAN Switch 2/8:

- Full Fabric Upgrade—allows the user to upgrade their switch from IV_Domain_Fabric OS to Full Fabric OS.
- Power Pak Upgrade Bundle—includes licenses for ISL Trunking, Advanced Performance Monitoring, Extended Fabric, Remote Switch and Fabric Watch options.

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**Note:** Options purchased separately require you to obtain a license. See the next section, "Obtaining Optional Software License Keys from HP."

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# Obtaining Optional Software License Keys from HP

If you've purchased optional software, or need to reinstall software features due to a motherboard replacement in your switch, you will need to retrieve the software license keys from the HP Authorization Center.

Obtain software license keys as follows:

- If you have your HP Registration Number, (located on your software entitlement certificate) go to http://webkey.external.hp.com/welcome.asp.
- If your HP Registration Number is unavailable, contact the Authorization Center directly:
  - Canada and United States, (Monday through Friday 6:00 am to 6:00 pm MST), (801) 431-1451 or (800) 861-2979.
  - Asia, (Monday through Friday 9:00 am to 5:00 pm), +81-03-3227-5289 or +81-3-3227-5289.
  - Europe, Middle East, Africa and Netherlands (Monday through Friday 9:00 am to 6:00 pm), +31-555-384-210.

# Orderable Hardware

Table 1 lists optional hardware kits for the SAN Switch 2/8.

**Table 1: SAN Switch 2/8 Orderable Hardware**

| Accessory | Part Number |
|---|---|
| Short wavelength SFP | A6515A* or 300834-B21** |
| Long wavelength SFP, 10 km | A6516A* or 300835-B21** |
| 2m LC-to-LC Fibre Channel (fc) cable | C7524A* |
| 2m LC-to-LC multi-mode fc cable | 221692-B21** |
| 16m LC-to-LC fc cable | C7525A* |
| 5m LC-to-LC multi-mode fc cable | 221692-B22** |
| 50m LC-to-LC fc cable | C7526A* |
| 15m LC-to-LC multi-mode fc cable | 221692-B23** |
| 200m LC-to-LC fc cable | C7527A* |
| 30m LC-to-LC multi-mode fc cable | 221692-B26** |
| 50m LC-to-LC multi-mode fc cable | 221692-B27** |
| 2m LC-to-SC fc cable | C7529A* |
| 2m LC-to-SC multi-mode fc cable | 221691-B21** |
| 16m LC-to-SC fc cable | C7530A* |
| 5m LC-to-SC multi-mode fc cable | 221691-B21** |
| 15m LC-to-SC multi-mode fc cable | 221691-B23** |
| 30m LC-to-SC multi-mode fc cable | 221691-B26** |
| 50m LC-to-SC multi-mode fc cable | 221691-B27** |
| SC female to SC female adapter | C7534A* |
| 2m LC male to SC male adapter kit | C7534A* |

* premerger HP part number
** premerger Compaq part number

**Note:** The hp StorageWorks SAN switch Universal Rack Mount Kit is a separate, orderable item. See the *hp StorageWorks SAN switch Universal Rack Mount Kit Installation Addendum*, part number AV-RU6YA-TE, supplied with the rack mount kit for installation instructions.

# hp StorageWorks SAN Switch Software v3.0.2k CD

The hp SAN Switch 2/8 ships with the latest version of the firmware installed. A copy of the latest version of the firmware as of this date, v3.0.2k, is also contained on the *hp StorageWorks SAN Switch Software v3.0.2k* CD, part number AG-RR86C-BE. The v3.0.2k firmware is also available on the HP website at:

http://www.compaq.com/products/storageworks/hubs-and-bridges/firmwareupdate.html

# v3.0.2k Firmware Overview

Firmware v3.0.2k works with HP StorageWorks 2 Gb switch models only. The firmware will not work if loaded onto HP StorageWorks 1 Gb switch models.

Additionally, firmware release v3.0.2k provides fixes for problems associated with v3.0.2j.

## Firmware v3.0.2k Updates

Enhancements to firmware V3.0.2k include:

- 3.0.2k provides support for the hp StorageWorks MSA SAN switch 2/8.
- Fan errors no longer display after a specific interval (414 days) of run time.
- Extends name service query time to 1 second from 0.12 second.
- No longer sends PDISK to a single Arbitrated Loop Physical Address (ALPA) on a single port on the switch.
- Supports both Microsoft Internet Explorer and Netscape Navigator Browsers.
- Commands are insensitive to letter case. For example, the command line accepts `fabricshow` as well as `fabricShow`.
- Active Zone Configuration Warning: Web Tools now issues a warning before disabling an active zone configuration. This lowers the risk that a Zoned Fabric may become un-zoned. A "Confirm Zone Delete" window appears confirming deletion of a zone. The window also notifies the user that the specified zone member will be removed from corresponding configurations. The user should click **Yes** to continue, and **No** to cancel the zone delete.

## Excessive Error Counts

Encoding Out Error counts vary under the following conditions:

- When the switch port is set to auto-negotiation, and an N-port device is connected, the port synchronization takes longer to complete, and a larger error count displays.
- If a 1Gbps signal is received and the speed negotiation is transmitting at 2 Gbps, a larger error count displays.If the portSpeed and N-port device are configured to 2 Gbps, encoding out errors are minimal. Similarly, if the portSpeed and N-port device are configured to 1 Gbps, encoding out errors are minimal.
- If auto-negotiation is set, the potential error count can be excessive.

# Hardware Updates

The following sections list SAN Switch 2/8 hardware updates.

## Verify Licenses Before Replacing Hardware

Prior to replacing a switch or motherboard, display and record the current feature licenses active in the unit. Additional licenses could have been added to the switch after the installation. Licenses that are active can be viewed from a Telnet session using the `licenseshow` command, or they can be viewed from the Web Tools GUI.

## Cables

Optical cables for the Fibre Channel SAN Switches must be ordered separately. Cables that are 500 meters or less for 1 Gbps and 300 meters or less for 2 Gbps, should be multi-mode Fibre Channel cables. Cables that are longer than 500 meters should be single-mode.

Multi-mode optical cables are connected to short-wave Small Form Factor Pluggable (SFP) modules in Fibre Channel SAN Switches. Single-mode optical cables are connected to longwave SFP modules in the Fibre Channel SAN Switches. Multi-mode cables should use 50/125 optical fibers, SC Duplex connectors with a PC finish.

Use of 62.5/125 should be restricted to situations where 62.5/125 optical fiber was previously installed and the link lengths are to be kept shorter than 200 meters at 1 Gbps and shorter than 150 meters for 2 Gbps.

# Compatibility

SAN Switch firmware v3.0.2k is compatible with the StorageWorks SAN Switch software version 2.6.0h, allowing both 1 and 2 Gb switches to operate in the same fabric.

For the latest supported configurations, please refer to the *hp StorageWorks SAN Design Reference Guide*, part number AA-RMPNF-TE, available at:

http://www.compaq.com/products/storageworks/san/documentation.html

**Note:** hp StorageWorks 1 Gb switch models running software version 1.6d are *not* supported with the SAN Switch 2/8.

The minimum supported firmware level for the StorageWorks Enterprise Virtual Array is VCS v1.02. The upgrade of the Enterprise storage subsystem firmware must be performed before the upgrade of the switch firmware. Please consult the Enterprise Virtual Array technical documentation for specific information for upgrading VCS firmware.

# Important Information about the IV_Domain_Fabric License

Read the following sections for important information regarding the IV_Domain_Fabric license installed on your SAN Switch 2/8 EL model only.

## Four Switch Limitation

The SAN Switch 2/8 EL shipping configuration integrates the IV_Domain_Fabric license. The IV_Domain_Fabric license limits the number of switches that can be connected to a single fabric to four. If more than four switches (of any type) are added to the fabric where EL switches are installed, Web Tools generates multiple error messages.

**Note:** You can upgrade the 2/8 EL switch to full fabric support by installing an optional upgrade license. See the "Four Switch Limitation Workarounds" described in these Release Notes for instructions on how to purchase the Full Fabric license.

## Four Switch Limitation Workarounds

Use one of the following workarounds to prevent four switch limitation errors.

- Upgrade the current HP StorageWorks SAN Switch 2/8 EL IV_Domain_Fabric license to the *optional* Full Fabric license. The Full Fabric license provides full fabric functionality, with no limits on the number of switches in the fabric.

  For purchasing information, contact your authorized HP Sales representative, or go to the HP storage website at:

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

**Note:** Complete installation instructions are provided with each license. After the Full Fabric license is installed, the fabric identifies the switch as a 2/8-EL with a Full Fabric license, providing full fabric functionality.

- In fabrics which contain five or more switches, with at least one switch with the IV_FABRIC license installed, reduce the number of switches to four or less.

# Management Station Requirements for Running Web Tools

The workstation used to manage a fabric and configure a switch must meet the following requirements in order to install and run Web Tools. Web Tools is installed and runs on the switch, but is displayed in a web browser running on the workstation.

## Operating Systems

One of the following operating systems must be installed:

- Solaris 2.61 or later
- Windows 95, 98, or 2000
- Windows NT 4.0

## Memory Requirement (Windows operating systems)

The minimum installed RAM memory requirements are listed next. Generally, managing more switches means a larger memory requirement.

| Number of Switches | Minimum Memory Requirement |
|---|---|
| 1-4 | 64 MB |
| 5-9 | 96 MB |
| 10-20 | 128 MB |
| 21 or more | 256 MB |

## Disk Space

Free disk space of 5 MB or more is required to store the program. Free disk space of 256 MB is recommended to run the program efficiently.

## Web Browsers

One of the following web browsers must be installed:

- Netscape Communicator 4.5x, 4.7x
- Internet Explorer 4.x, 5.x

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**Note:** The browser must be configured to work with Web Tools. For configuration information, refer to the *hp StorageWorks Web Tools User Guide* contained on the *hp StorageWorks SAN Switch Software v3.0.2k* CD that shipped with the switch.

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## Java Plug-in

The correct Java Plug-in must be installed for the operating system installed on the workstation.

- **Windows 95, 98, 2000, or NT**:
  Java Plug-in version 1.3.1_01 is required for the SAN Appliance.
- **Solaris**:
  Java Plug-in version 1.2.2-02 for Solaris, including the Java Plug-in patch created by Sun Microsystems for Solaris, is required.

The Java Plug-In is contained on the *hp StorageWorks SAN Switch Software v3.0.2k* CD included with the switch. The plug-in is located in the FIRMWARE subdirectory. Double-click on the *JAVAPLUGIN.EXE* file to begin the installation procedure.

# SNMP-based Management

Many SNMP Fibre Channel Management programs have the capability to log SNMP trap information (error and status events) occurring on the switch into the Windows NT application Event log. To enable this capability, parameters must be set on the switch.

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**Note:** These parameters can be set either through Web Tools by selecting the **admin.** button and clicking on the **SNMP Admin** tab, or by using the Telnet interface along with the `agtcfgSet` Telnet command.

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The switch will send one copy of a trap message to each IP address that is listed in the communities. If you enter the same IP address into more than one of the communities, you will get multiple copies of the same trap message.

- **swEventTrapLevel: (0..5)—**must be set for a severity level from 0 to 5
  - 0 – none
  - 1 – critical
  - 2 – error
  - 3 – warning
  - 4 – informational
  - 5 – debug

- **authTrapsEnabled: (true, t, false, f)**—must be set to *true* or *t* to enable sending of traps

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**Note:** This parameter is set to *true* or *t* by default.

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