

Compaq StorageWorks

Release Notes - Fibre Channel SAN Switch 8 Version 2.1.9g

These release notes contain late-breaking and supplemental information for the Compaq StorageWorks Fibre Channel Storage Area Network (SAN) Switch.

Be sure to read these notes before installing a Fibre Channel SAN Switch. This information is periodically updated and available on the Compaq Website:

<http://www.compaq.com/storage/index.html>.

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Firmware Version 2.1.9g Features

The following are features of firmware version 2.1.9g:

- Provides the ability to build large SAN networks.
- Provides the new user interface for managing switches. Features include graphical user interface (GUI) pages for fabric discovery, zoning, name server, port enables, firmware downloads, switch administration, user administration, software readable serial number, SNMP administration, license administration, and other features for managing up to 239 switches in a fabric. The number of switches currently supported in a SAN is less than the architectural limit of 239. Please call the Compaq Technical Phone Support Center at 1-800-OK-COMPAQ to determine the number of switches currently supported. Management of optionally licensed features is also included for managing remote switches.
- Supports both Netscape Navigator and Microsoft Internet Explorer browsers.
- All commands are now case insensitive. For example, instead of entering `fabricShow`, you can enter `fabricshow`.

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The Fibre Channel SAN Switches come preloaded with the latest version of the firmware. A copy of the latest version of the firmware, version 2.1.9g as of this date, is also contained on the Fibre Channel SAN Switch Software version 2.1.9g CD. The required loaders and instructions for downloading the firmware are also contained on the CD. The version 2.1.9g firmware is also available on the Compaq website at:

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

This firmware is for the Fibre Channel SAN Switch models 8, 8-EL, 16 and 16-EL, and will not work if loaded into older Fibre Channel Storage Switches.

Compatibility

The Fibre Channel SAN Switch software (version 2.1.9g and above) is compatible with the Fibre Channel Switch software (version 1.6d), allowing both types of switches to operate in the same fabric. To accomplish this compatibility, the Fibre Channel SAN Switch must be configured to use a specific addressing mode. This mode is designated VC Encoded Address Mode.

Invoke this mode using the `configure` command, as described in Appendix A of the *Compaq StorageWorks Fibre Channel SAN Switch Management Guide*. When using compatibility mode, the maximum switch count in a fabric is reduced from 239 to 32, and the maximum number of multicast groups is reduced from 256 to 31.

If the compatibility mode is not set, the following error message displays during a Telnet session when interconnecting a Fibre Channel SAN Switch and a Fibre Channel Storage Switch:

```
Error Fabric SEGMENTED, port #  
incompatible flow control parameters
```

Management

Version 2.1.9g requires that the management station have at least 32 MB of RAM to operate, and at least 128 MB of memory to manage a large SAN.

Cascading

Cascading of switches is supported for up to 239 switches with firmware version 2.1.9g. Up to 7 hops are supported where a hop is defined as a connection from one switch to another. The number of switches currently supported in a SAN is less than the

architectural limit of 239 and 7, respectively. Please call the Compaq Technical Phone Support Center at 1-800-OK-COMPAQ to determine the number of switches currently supported. Connections should be made such that traffic from an NL_Port will not transverse more than the number of currently supported hops when traveling through the cascaded switches.

When cascading switches, sequentially assign domain addresses to the switches prior to connecting them to other switches in a SAN. When connecting a powered down switch to a SAN that is running, the SAN will automatically assign a domain number to the new switch when it is powered up. When connecting a SAN to a switch that is already powered up, the switch will not join the SAN if there are duplicate domain numbers. It is best to manually assign a domain number to a switch being added to a SAN. Refer to the Compaq *StorageWorks Fibre Channel SAN Switch Management Guide* for more information on compatibility mode and zoning that can also prevent switches from connecting to a SAN.

SAN Management Station Memory Requirements

[Table 1](#) lists the memory requirements for a SAN management station with a Windows NT or 2000 operating system.

Table 1 Management Station Memory Requirements	
Number of Switches	Minimum Memory Requirements
1 - 4	64 MB
5 - 9	96 MB
10 - 20	128 MB
21 or more	256 MB

CD Directory Structure

The Fibre Channel SAN Switch Software CD version 2.1.9g contains the following items, including the names and descriptions of the files that contain release notes for the Compaq *StorageWorks Command Console* (SWCC) client and agent for managing the Fibre Channel SAN Switches.

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- Dsggb
 - Docs
 - readme.txt (CPQ SWK RELEASE NOTES; late breaking doc changes)
 - aa-rnapa-te.pdf (CPQ SWK SAN Switch 16-EL Installation and Hardware Guide)
 - aa-rmmha-te.pdf (CPQ SWK SAN Switch 8-EL Installation and Hardware Guide)
 - ek-bcp24-ia.pdf (CPQ SWK SAN Switch 8 Installation and Hardware Guide)
 - ek-bcp28-ia.pdf (CPQ SWK SAN Switch 16 Installation and Hardware Guide)
 - aa-rmmja-te.pdf (CPQ SWK SAN Switch Management Guide)
 - aa-sanrs-aa.pdf (CPQ SWK SAN Switch Remote Switch Services Installation Guide)
 - ek-ssrsr-aa.pdf (CPQ SWK SAN Switch Remote Switch Services Release Notes)
 - ek-p24fr-aa.pdf (CPQ SWK SAN Switch 8 Release Notes)
 - ek-p28fr-aa.pdf (CPQ SWK SAN Switch 16 Release Notes)
 - aa-rmmgc-te.pdf (CPQ SWK SAN Switch 8-EL Release Notes)
 - aa-rnaqb-te.pdf (CPQ SWK SAN Switch 16-EL Release Notes)
 - Firmware (Compaq StorageWorks Fibre Channel Firmware and updates)
 - firmwareupdate.txt (instructions for updating firmware)
 - v2.1.9g (switch firmware)
 - v2_1FE.mib (Management Information Base for fabric)
 - v2_1SW.mib (Management Information Base for switch)
 - v2_1TRP.mib (Management Information Base for traps)
 - javaplugin.exe (SUN java plug-in for browser)
 - NTAlpha
 - Cat.exe (mover for upgrading firmware from an Alpha)
 - Rshd.exe (small server for upgrading firmware from an Alpha)
 - NTIntel
 - Cat.exe (mover for downloading firmware from a PC)
 - Rshd.exe (small server for upgrading firmware from PC)
 - SWCC (SWCC software for managing the Compaq StorageWorks SAN Switch and the Compaq StorageWorks Fibre Channel Switch)
 - ccclient.txt (SWCC Command Console release notes)
 - fcinter.txt (Switch Agent & Client release notes)
 - readme.txt (SWCC late breaking changes)
 - Getting Started Guide.pdf (CPQ SWK Command Console for the SAN Switch Installation Guide)
 - setup.exe (SWCC Installation file)
 - Agent (contains the installSHIELD kit)
 - Client (contains the installSHIELD kit for AppMgr)
 - Acrobat
 - ar405eng.exe
 - other acrobat files

New Serial Cable Part Number

To order a serial cable through your Compaq sales representative or authorized reseller, use part number: 230436-B21. This number replaces 188851-B21.

Using the Java Plug-In

- The proper execution of the Web Management Tools version 2.1 application requires that the Java Plug-In is installed on your workstation. Web Management Tools version 2.1 requires the Java Plug-In version based on Java 1.2 (also known as Java 2) to operate correctly. The Java Plug-In is similar to other plug-ins used on your browser such as Real Audio, Adobe Acrobat, and Macromedia Director. Once the Java Plug-In is installed its, use is invisible. Microsoft Windows requires Java Plug-In 1.2.2, and Compaq Tru64 UNIX and Solaris require 1.2.
- The Java Plug-In can be loaded from the Compaq CD ROM 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.

Release Files Version 2.1.9g

The release files, MIB Files for version 2.1.9g, are as follows:

- v2_1FE.mib (Management Information Base for fabric)
- v2_1SW.mib (Management Information Base for switch)
- v2_1TRP.mib (Management Information Base for traps)

Licenses

Prior to replacing a switch or motherboard, display and record the current licenses that are 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 Tool GUI.

NOTE: If you cannot display and record the current licenses because the unit is completely inactive, further research in conjunction with the user will be necessary to accurately determine this information.

Replacement units are shipped with all licenses enabled, with the exception of the Remote Switch Services and Port Upgrade (Model 8-EL only) licenses.

To obtain a Remote Switch Services or Port Upgrade license for your replacement unit, call the Compaq Technical Phone Support Center at 1-800-OK-COMPAQ.

configUpload Telnet Command

An FTP server must be installed and running when performing the Telnet command `configUpload` on a Windows NT or 2000 system. If you do not have a Microsoft Windows NT or 2000 FTP service previously installed on your system, you need to install it.

Perform the following steps to install and configure a Windows NT or 2000 FTP server.

1. Create a folder to put the switch firmware and configuration files in.
2. Install the Windows NT or 2000 FTP server on your system from your Windows installation CD.
NOTE: If you only use the FTP server for the firmware and configuration loads, you can specify the folder created in Step 1 as the FTP Publish Directory.
3. Open the Internet Service Manager Tool.
4. Perform a configuration save by using the Telnet command `configUpload`.

FTP Service uses the standard users defined under Windows NT, so a valid local user and password is required. A user can be created using the Windows NT administrative tools.

Appropriate permissions for the created folder (NTFS volumes only) must be set up to allow the user to have read and write privileges.

New Telnet Commands

qIPortShowAll

The `qIPortShowAll` command displays the following QuickLoop port information for each port:

QuickLoop Mode

Enabled—QuickLoop mode enabled
Disabled—QuickLoop mode disabled

Looplet State

Online—Completed loop initialization
Lipped—NL_port lipped
Lipping—FL_port lipped
Initializing—Loop initialization in progress
Bypassed—Looplet being bypassed
Error—Error found in this looplet
Offline—Looplet offline
Fabric—OLD_PORT state
Not in QuickLoop Mode—Port is not in QuickLoop mode

ssn

The Fibre Channel SAN Switch has a software readable serial number that can be accessed by using the Telnet command `ssn`. If you have a switch with firmware version 2.1.9x installed, the switch displays the WWN instead of the software readable serial number. The `ssn` Telnet command can be used to change the display to show the software readable serial number by following the procedure below.

1. Record the Compaq serial number as it appears on the outside of the switch.
2. Enter `ssn "serial number"` where "serial number" is the Compaq serial number you recorded in Step 1. For example, if your switch's serial number is XX012345555, you will enter: `ssn "XX012345555"`

IMPORTANT: Use quotation marks around the serial number.

3. Press the **Return** key. You will see `committing configuration...done.`
4. You can check that the new number was accepted by entering the `ssn` Telnet command.

Known Issues

This section describes the known issues and problems related to the Fibre Channel SAN Switch.

QuickLoop

QuickLoop, with large numbers of looplets (16), can cause some adapters to time out during initialization, resulting in repetitive initializations. A new Telnet command has been added that can speed up initialization:

```
qlUnmaskLipa [ 0 | 1 ]
```

There are two modes of loop initialization, differentiated by setting the parameter to 0 or 1.

- When set to 0, initializing a looplet is off.
- When set to 1, the default for new switches, initializing a looplet is on.

When the parameter is set to initializing a looplet (1), the version 2.1.9g QuickLoop masks the Arbitrated Loop Physical Address (AL_PA) bits in the Loop Initialization Procedure (LIPA) frame using the LIPA bitmaps of those looplets that stay online. Setting the parameter to 1 disables the LIPA bitmap masking and opens AL_PAs for assignment to devices in the initialized looplet during the LIPA phase, thus allowing the primary controller to claim the same AL_PA in the case of fail-back in the Compaq HA environment.

Make sure that this parameter is set to 1.

Web Management Tools

- Netscape 4.6 (IRIX) fails to load SwitchManager.html (core dump of Netscape or SwitchApplet cannot start error).
- When using Internet Explorer version 5.0 or lower, scrolling errors may occur. Internet Explorer version 5.01 or higher is recommended.
- When using an Internet Explorer or Netscape browser, for the SUN plug-in to work correctly, you must type a slash after the URL (for example: <http://192.168.60.45/>).

SWCC

SWCC has 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, the following parameters must be set on the switch:

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

- **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

NOTE: Additional information is provided in the Compaq StorageWorks Fibre Channel SAN Switch Management Guide.

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

NOTE: This parameter is set to “true” or “t” by default.

Switch Operating System

- When connected to some Ethernet switches, the Fibre Channel SAN Switches with 100BaseT sometimes fail to connect through Telnet and the user interface. Firmware version 2.1.7 and above improves network reliability on networks that have many collisions, but you have to load the firmware into the switch to take advantage of it. If you have problems downloading firmware into the switch, try using a crossover cable directly from the host, that you are loading the firmware from, to the switch.
- The **Backspace**, **Delete**, and **Left Arrow** keys do not work properly with firmware 2.03a, during a Telnet session with a Fibre Channel SAN Switch from a Compaq Tru64 UNIX or OpenVMS machine. The keyboards shipped with these machines produce a “question mark” character instead of deleting characters when using the **Backspace** key. It is necessary to type **Control + H** to delete characters. The **Delete** key changes the case of the letter at the cursor and prevents you from adding anything

to the line. The **Left Arrow** key deletes the character to its left and prevents you from adding anything to the line.

Firmware version 2.1.7 and above provides a Telnet command called `backSpace`. `backSpace` without any parameters, returns the current state of the parameter. `backSpace 1` sets the backspace character in the switch to the Delete character. `backSpace 0` sets the Backspace character to Backspace (Control +H). This process makes the delete key work on Tru64 UNIX and OpenVMS machines.

- Fibre Channel SAN Switches are configured with a default IP address of 10.77.77.77. This IP address may not be compatible with your configuration. The IP address can be changed via a serial connection, or via the front panel.

On switches that include a serial port, make a serial port connection and use the `ipAddrSet` command to change the default IP address to the IP address that is suitable for your configuration. For additional information, see the *Compaq StorageWorks Fibre Channel SAN Switch Management Guide* for the respective switch.

NOTE: When using a serial port connection, the flow control must be set to None.

Switches that have push buttons and a display can set the IP address using the push buttons beside the display. Press the right push button twice to select the IP address, and change the IP address accordingly, using the push buttons. For more information on push buttons, see the *Compaq StorageWorks Fibre Channel SAN Switch Installation and Hardware Guide* for the respective switch.

Another method to change the IP address is to use the default IP address and an Ethernet connection to the switch. Once the Ethernet is connected to the switch, use the `ipAddrset` command to change the IP address.

Supported Configurations

This release supports cascading of switches. See Compaq Solutions Kits for supported configurations involving cascading of switches.

Cables

Optical cables for the Fibre Channel SAN Switches must be ordered separately. Cables that are 500 meters or less, 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 shortwave Giga-Bit Interface Converter (GBIC) modules in Fibre Channel SAN Switches. Single-mode optical cables are connected to longwave GBIC 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. Single-mode cables typically use 9/125 optical fibers for distances up to 10 km.

GBIC Modules

GBIC modules for the Fibre Channel SAN Switches must be ordered separately. The Compaq part number for the shortwave optical GBIC module for multi-mode cable is 380561-B21. Two longwave GBIC modules and a short single-mode test cable can be ordered in a kit (part number 340412-B21).

In the Switch Management Application page of the Web Management Tools, the GBICs are identified differently depending on the type of GBIC and the supplier. Some examples of the displays include “ID” for VIXEL shortwave GBICs and “SW” for IBM shortwave GBICs.

