StorageWorks by Compaq

Release Notes -
Fibre Channel SAN Switch 16

Part Number: EK-P28FR-AA.F01

Sixth Edition (February 2002)

Product Version: 2.6

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

For the latest version of these Release Notes and other Fibre Channel SAN Switch documentation, visit the Compaq storage website at:

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

COMPAQ

Release Notes Contents

These release notes cover the following major topics:

Intended Audience

This document is intended for customers who purchased the StorageWorks by Compaq Fibre Channel SAN Switch .

Fibre Channel SAN Switch Related Documentation

The Fibre Channel SAN Switch related documentation is listed in the section titled CD Directory Structure.

Additional documentation, including white papers and best practices documents, are available via the Compaq website at:
http://www.compaq.com.

Firmware Version 2.6 Features

The following are features of firmware version 2.6:

- 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.

- 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.

- Fabric Assist Mode Zones: Fabric Assist zoning now supports the ability to assign Arbitrated Loop Physical Addresses (ALPAs) to the targets zoned with private initiators which require a fixed ALPA for specific services such as booting. For more information.

- Loop Port Control (LPC): Loop Port Control (LPC) is an Extended Link Service that provides a mechanism to an N*_Port to request and an FL_Port transmit the LPB or LPE primitive sequence on a remote arbitrated loop. There are now two ALPA bitmaps; one bitmap of devices to bypass and another bitmap of devices to enable.

- Switch Names: Switch names can now begin with a numeric character.

- portCfgFAport command: A new Telnet command (portCfgFAport) that enables a user to lock a port as a Fabric Assist Host port.

- loopPortTest command: A new Telnet command (loopPortTest) that verifies the intended functional operation of the switch.

- portCfgLPort command: This Telnet command has been modified to allow the user the option to lock a port as a Public L_Port.

- fazoneCreate command: This Telnet command has been modified to accept a preferred ALPA value that may be assigned to the targets that are zoned with the private initiator.

The Fibre Channel SAN Switches come preloaded with the latest version of the firmware. A copy of the latest version of the firmware, version 2.6, as of this date, is also contained on the Fibre Channel SAN Switch Software version 2.6 CD. The required loaders and instructions for downloading the firmware are also contained on the CD. The version 2.6 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 2.6 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
```

Compatibility with QuickLoop

When using HP-UX QuickLoop configurations, switch firmware version 2.6.0b must be used. Firmware V2.6.0b correctly handles switch-based QuickLoop functionality. V2.6.0b is a special release of the Version 2.6.0 firmware, available from the Compaq website.

Compatibility with StorageWorks Enterprise Virtual Array

When the *StorageWorks*™ SAN switch firmware is upgraded to v2.6, the minimum supported firmware level for the StorageWorks Enterprise Virtual Array (Enterprise) 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.

Compatibility with SANworks Data Replication Manager

V2.6 firmware supports *SANworks*™ Data Replication Manager (DRM) by Compaq in all configurations, with the following exceptions:

- DRM solutions using the Novell operating system are not currently supported by V2.6 firmware, and will require the use of earlier firmware versions. Please reference the DRM software support matrix for the latest information on Novell. View this matrix at:

  http://www.compaq.com/products/sanworks/drm/softwaresupport.html

- V2.6 firmware supports DRM using Fiber Channel optical links. V2.6 firmware does not currently support some DRM configurations using FC-IP or FC-ATM links, and will require the use of earlier firmware versions. For the latest update on supported DRM configurations, please refer to the *DRM Application Notes* for inter-site links:

  http://www.compaq.com/products/sanworks/drm/documentation.html

Cascading

Cascading of switches is supported for up to 7 hops where a hop is defined as a connection from one switch to another. 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.

Standards of Compliance

Fabric OS version 2.6 is compliant with the FC-GS-3 standard except for the following items:

- Fabric Zone Server (Section 6.3 of the standard)
- Time Server (Section 7 of the standard)
- Key Distribution Service (Section 9 of the standard)

The following Management Server Topology Discovery commands are not supported by v2.6:

- GTIN
- GATIN
- GNID

Information about Fibre Channel standards and the Fibre Channel industry in general can be found on the Fibre Channel Industry Association web site, located at: http://www.fibrechannel.com.

Management Station Requirements

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)

- 128 MB for fabrics comprised of 21 switches or less
- 256 MB for fabrics comprised of more than 21 switches

Disk Space

Free disk space of 5 MB or more is required.

Web Browsers

One of the following web browsers must be installed:

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

NOTE: The browser must be configured to work with WEB TOOLS. For configuration information, refer to the Management Guide.

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 1.2.2-007 is recommended, but versions 1.2.2-005 and 1.2.2-006 are also compatible. Version 1.3.1_01 is required for 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.

CD Directory Structure

The SAN Integrated Switch Software CD version 2.6 contains the following items.

- Dsggb
    - Docs
        - README.TXT (CPQ SWK RELEASE NOTES; late-breaking doc changes)
        - AA-RNAPC-TE.PDF (CPQ SWK SAN Switch 16-EL Installation and Hardware Guide)
        - AA-RMMHB-TE.PDF (CPQ SWK SAN Switch 8-EL Installation and Hardware Guide)
        - EK-BCP24-IA.C01.PDF (CPQ SWK SAN Switch 8 Installation and Hardware Guide)
        - EK-BCP28-IA.C01.PDF (CPQ SWK SAN Switch 16 Installation and Hardware Guide)
        - AA-RPDFC-TE.PDF (CPQ SWK SAN Integrated Switch Installation and Hardware Guide)
        - AA-RMMJB-TE.PDF (CPQ SWK SAN Switch Management Guide)
        - EK-P24FR-AA.F01.PDF (CPQ SWK SAN Switch 8 Release Notes)
        - EK-P28FR-AA.F01.PDF (CPQ SWK SAN Switch 16 Release Notes)
        - AA-RMMGD-TE.PDF (CPQ SWK SAN Switch 8-EL Release Notes v2.6)
        - AA-RNAQC-TE.PDF (CPQ SWK SAN Switch 16-EL Release Notes v2.6)
        - AV-RPDGC-TE.PDF (CPQ SWK SAN Integrated Switch v2.6 Release Notes)
        - AA-RR7DB-TE.PDF (Extended Fabric Version 2.6 User Guide)
        - AA-RR79B-TE.PDF (Fabric Watch Version 2.6 User Guide)
        - AA-RR7AB-TE.PDF (Extended Fabric Version 2.6 Release Notes)
        - AA-RR75B-TE.PDF (Fabric Watch Version 2.6 Release Notes)
    - Firmware (Compaq StorageWorks Fibre Channel Firmware and updates)
        - firmwareupdate.txt (instructions for updating firmware)
        - v2.6 (switch firmware)
        - v2_6FE.mib (Management Information Base for fabric)
        - v2_6SW.mib (Management Information Base for switch)
        - v2_6TRP.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)
        - AA-RHDAD-TE.PDF (CPQ SWK Command Console for Hubs, Switches, and Tape Controllers Version 2.6 Getting Started Guide)
        - setup.exe (SWCC Installation file)
    - Agent (contains the installSHIELD kit)
        - NT Intel

      - SAN ManagementClient (contains the installSHIELD kit for AppMgr)
         - Console
         - SanInterconnect

- Acrobat
      - rs405eng.exe (installer for Acrobat Reader plus search to enable viewing of pdf files)

manuals.pdf (Home page for all PDF documentation included on the CD-ROM)

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 Tools 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 2.6

The MIB Files for version 2.6 are as follows:

- v2_6FA.mib (Fibre Alliance Fibre Channel Management Framework Integration MIB)

- v2_6FE.mib (Fabric Element Management Information Base for fabric)

- v2_6SW.mib (Fibre Channel Switch Management Information Base)

- v2_6TRP.mib (Enterprise Specific Traps for Fibre Channel Switch).

New Front Panel Commands and Changes

Three new options have been added to the front panel commands:

Disable RLS Probing

When RLS Probing is not selected (enabled or "0"), the switch port will issue RLS Extended Link Service to the attached devices every four seconds to collect link status data. Otherwise, RLS will not be sent to the devices. RLS Probing is selected by default (disabled or "1".)

Ethernet Link Mode

This command sets the Ethernet speed and is similar to the Telnet command ifmodeset. The parameters are auto, 10H, 100H, 100F where H=Half duplex and F=Full duplex.

Suppress Class F Traffic

This command suppresses class F traffic for remote switch configuration. The parameters are "0" for off and "1" for on.

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 and Modified Telnet Commands

The following commands have been added or modified:

New Commands

- LoopPortTest
- portCfgFAport

Changed Commands

- portCfgLport
- fazoneCreate

portCfgFAport

Synopsis: portCfgFAport port_number, mode

Availability: admin

Description: Locks a port as a Fabric Assist Host port. This command enables a user to hard configure a port as a Fabric Assist Host port. The switch attempts to initialize the port as a private loop port only. This command should not be used on ports that are not intended to be contained within a Fabric Assist Zone.

Table 1: portCfgFAport Operands

Operand	Description
port_number	The port number you want to designate as a Fabric Assist Host port. This operand is required.
mode	A value of 1 to configure the port_number as a Fabric Assist Host port. Specify a value of 0 to release the port from its previous role as a Fabric Assist Host port. This operand is required.

NOTE: Without any operand, the command will report a list of ports with their current setting.

portCfgFAport Example

To configure switch port 3 as a Fabric Assist Host port:

```
admin> portCfgFCompaq Aport 3,1

Committing configuration...done.

switch:admin> portCfgFAport

Ports: 0 1 2 3 4 5 6 7

       ─────────────────
       - - - -YES- - -
```

portCfgLport

Synopsis: portCfgLport port_number, Lportmode [,privatemode]

Availability: admin

Description: Locks a port as an L-port. This command enables a user to designate a port as a locked L-port. The switch only attempts to initialize that port as an FL-port. By default the L-port will be a public L-port. If the port is designated private, then the FLOGI is rejected.

The switch does not attempt point-to-point (F_PORT) initialization on the port. However, if the device attached to the port initiates point-to-point communication, then the switch responds accordingly, and the port may then become an F_PORT. Similarly, being locked as an L-port does not prevent the port from becoming an E_PORT. Locking a port as an L-port only affects what actions the switch initiates, and does not change how the switch responds to an initialization request.

Table 2: portCfgLport Operands

Operand	Description
port_number	The port number you want to designate as a Fabric Assist Host port. This operand is required. When the port operand is present, the Lportmode operand must be present as the second parameter. When no port number is specified, the command will report a list of ports with their current settings.
Lportmode	A value of 1 designates the specified port as a locked L-port. A value of 0 releases a port from its previous role as a locked L-port. This operand is required.
privatemode	If this operand is not specified the default value is set to 0. A value of 1 designates the port as a private L-port where any FLOGI is rejected. A Value of 0 designates the L-port as a normal public L-port. This operand is optional.

portCfgLport example

To configure switch port 3 as a locked and private L-port:

```
switch:admin>portCfgLport 3, 1, 1

Committing configuration...done.
```

loopPortTest

Synopsis: loopPortTest [passCount, port]

Availability: admin

Description: Tests the L-port path on a loop. This command verifies the functional operation of the switch by sending frames from one port transmitter, and looping the frames back through an external fiber cable, including all the devices on the loop, into a second ports receiver. This exercises all the switch components from the main board, to the GBIC, to the fiber cable, to the GBICs (of the devices and the switch) and back to the main board.

The cables and GBICs connected should be of the same technology, for example, a short wavelength GBIC switch port is connected to another short wavelength GBIC device port through a short wavelength cable; or a long wavelength port is connected to a long wavelength port.

Only one frame is transmitted and received at any time. When the test is running, the port LEDs flicker green rapidly. When this command detects a failure, one or more of the following error messages are displayed:

- DIAG-INIT
- DIAG-PORTDIED
- DIAG-XMIT
- DIAG-TIMEOUT
- DIAG-ERRSTAT
- DIAG-STATS
- DIAG-PORTWRONG
- DIAG-DATA

Table 3: LoopPortTest Operands

Operand	Description
passcount	The number of times (or number of frames per port) execute this test. If omitted, the default value used is 0xfffffffe. This operand is optional.
port	The number of the port to be tested. If omitted, the test will be executed on all online L-ports. This operand is optional.

LoopPortTest Example

To run this command 100 times on port 8:

```
switch:admin> loopPortTest 100, 8

Configuring L-port 7 to CableLoopback Port........done.

Running Loop Port Test ........ passed.

Configuring Loopback L-port(s) back to normal
L-port(s)........done.

value = 0
```

fazoneCreate

Synopsis: fazoneCreate fazoneName, fazoneMemberList

Availability: admin

Description: Creates a Fabric Assist zone (fazone). There are two operands for this command, fazoneName, fazoneMemberList.

Table 4: fazoneCreate Operands

Operand	Description
fazoneName	fazoneName is the name for the new fazone, and cannot be already used for any other fazone object. The name of the fazone must be enclosed in quotation marks. This operand is required.
fazoneMemberList	A list of members, the member list must be enclosed in quotation marks. Each member must be separated by a semi-colon (;). This operand is required.

A fazone name is a C-style name, i.e. a name beginning with a letter and followed by any number of letters, digits and underscore characters. Names are case sensitive for example "Zone_1" and "zone_1" are different fazones. White space is ignored.

Physical Fabric port numbers are specified as a pair of decimal numbers "s,p" where "s" is the switch number (domain ID) and "p" is the port number on that switch. For example, "2, 12" specifies port 12 on switch number 2. When a fazone member is specified by physical Fabric port number, then all devices connected to that port are in the fazone. If this port is an arbitrated loop, then all devices on the loop are in the fazone.

fazoneMemberList is a semi-colon separated list of one or more: physical Fabric port numbers, WWN, fazone alias names, or exactly one FA host member. The fazone member list must have at least one member, empty lists are not allowed.

WWNs are specified as eight hex numbers separated by colons, for example "10:00:00:60:69:00:00:8a". Zoning has no knowledge of the fields within a WWN, the eight bytes are simply compared with the Node and Port Names presented by a device in a login frame (FLOGI or PLOGI). When a fazone member is specified by Node Name, then all ports on that device are in the fazone. When a fazone member is specified by Port Name than only that single device port is in the fazone.

Zone alias names have the same format as fazone names, and are created with the aliCreate command. The alias must resolve to a list of one or more physical Fabric port numbers, or WWNs, or QuickLoop AL_PAs or an Initiator member.

An FA host member is defined by wrapping the physical fabric port or a physical device (aWWN) between "H{" and "}". For example, H{5,6} or H{10:00:00:60:69:00:00:8a} is an initiator member. Several methods can be used to define members of the member group. For example, a fazone defined with the following members: "2,12; 2,14; 10:00:00:60:69:00:00:8a"would contain what ever

devices are connected to switch 2, ports 12 and 14, and the device with a WWN of "10:00:00:60:69:00:00:8a" (either Node Name or Port Name) whichever port in the Fabric it is connected to.

Each target listed within the fazone definition shall be assigned an ALPA when the private host performs loop initialization. When the private host communicates with this assigned ALPA the private loop frame shall be translated into a public format and then delivered to the target's location within the fabric.

Loop devices that are zoned with the private host shall be assigned the same ALPA that they claimed during their own loop initialization, provided that it is still available on the private host's loop. Other public devices zoned with the private host shall be assigned the lowest available ALPA during the private host's loop initialization.

If however, the ALPA by which the fazoned target must be identified by does not conform to the default ALPA assignment process, then a preferred ALPA may be assigned to each target within the fazone definition. The identified preferred ALPA shall be the ALPA value that is assigned to the target during the private host's loop initialization, provided that it is not claimed by the private host or another preferred ALPA assignment.

To assign a preferred ALPA add to the definition of the target (Domain,Port or WWN) the preferred ALPA within square brackets [ ]. For example, a fazone defined as

"H{1,1}; 2,12[0xe2]; 2,14[0xe8]; 10:00:00:60:69:00:00:8a[0xef]"

would contain all devices connected to switch 2, ports 12 and 14, and the device with a WWN of "10:00:00:60:69:00:00:8a" (either Node Name or Port Name) whichever port in the Fabric it is connected to. The target connected to switch 2, port 12 would be assigned an ALPA value of 0xE2, and the target connected to port switch 2, port 14 would be assigned an ALPA value of 0xE8. Finally, the ALPA assigned to the target identified by the WWN would be assigned a value of 0xEF.

Preferred ALPA assignments given to a Domain Port that is not a public N-Port device are ignored, and the fazone is created without error.

NOTE: The fazoneCreate command changes the defined configuration, use the cfgShow command to review changes. For the change to become effective, an appropriate fazone configuration must be enabled using the cfgEnable command. For the change to be preserved across switch reboots, it must be saved to non-volatile memory using the cfgSave command.

fazoneCreat Example

To create three fazones using a mixture of port numbers and fazone aliases:

```
switch:admin> fazoneCreate "Red_fazone", "H{1,0};loop1"

switch:admin> fazoneCreate "Blue_fazone",
"H{1,1};array1;1,2;array2".

switch:admin> fazoneCreate "Green_fazone",
"1,0;loop1;H{1,2};array2".

switch:admin> fazoneCreate "Yellow_fazone",

    "1,0[0xe2};loop1;H{1,2};array2[0x02]"
```

Known Issues

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

configdefault Command

If the configdefault command is issued to a switch, it resets all switch settings to the Compaq default values (except for the "route.delayReroute" parameter). Therefore, if you use the configdefault command, you must reset the "route.delayReroute" parameter. The Compaq default value is route.delayReroute: 1

The iodset command can be used to set the route.delayReroute: parameter to a 1:

```
it4:admin> iodset
```

Committing configuration...done.

The iodshow command can also be used to examine the state of the route.delay Reroute parameter:

```
it4:admin> iodshow
```

IOD is set

The command configshow can also be used to examine the state of the route.delay Reroute parameter.

```
route.delayReroute:    1
```

Telnet Configure Command

Two parameters, each reserved for future use and identified below in bold italics, are present in the Compaq StorageWorks SAN Switch configuration dialog invoked with the Telnet command configure. Changing the default values of these prompts is not supported by Compaq until such time that formal notice of support is provided.

Do not change the default value of the parameter "Switch Operating Mode" or of the command "Core Switch PID Format." These parameter are shown highlighted in the following Telnet session:

```
Switch:admin> configure

Configure...

Fabric parameters (yes, y, no, n): [no] y

Domain: (1..239) [1]

BB credit: (1..27) [16]

R_A_TOV: (4000..120000) [10000]

E_D_TOV: (1000..5000) [2000]

Data field size: (256..2112) [2112]

Sequence Level Switching: (0..1) [0]

Disable Device Probing: (0..1) [0]

Suppress Class F Traffic: (0..1) [0]

SYNC IO mode: (0..1) [0]

VC Encoded Address Mode: (0..1) [0]

Core Switch PID Format: (0..1) [0]

Per-frame Route Priority: (0..1) [0]

Long Distance Fabric: (0..1) [0]

Virtual Channel parameters (yes, y, no, n): [no]

Switch Operating Mode (yes, y, no, n): [no] y

Interoperability Mode: (0..1) [0]

Zoning Operation parameters (yes, y, no, n): [no]

Arbitrated Loop parameters (yes, y, no, n): [no]

System services (yes, y, no, n): [no]

Portlog events enable (yes, y, no, n): [no]

No changes.

Switch: admin>
```

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

Read this section for issues related to SWCC.

Fabric Window Times Out

If running Windows NT v4.0, SP6a, upon rebooting or disconnecting the switch from the network, the Fabric window sometimes hangs.

Workaround

Restart the SWCC SAN agent.

Enabling SNMP Trap Log

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.