HP Support Center

Brocade 4Gb SAN Switch for HP c-Class BladeSystem - Setup, Configuration and Installation Procedures

Overview

This document discusses about the Setup, Configuration and Installation procedures involved with the Brocade 4Gb SAN Switch.

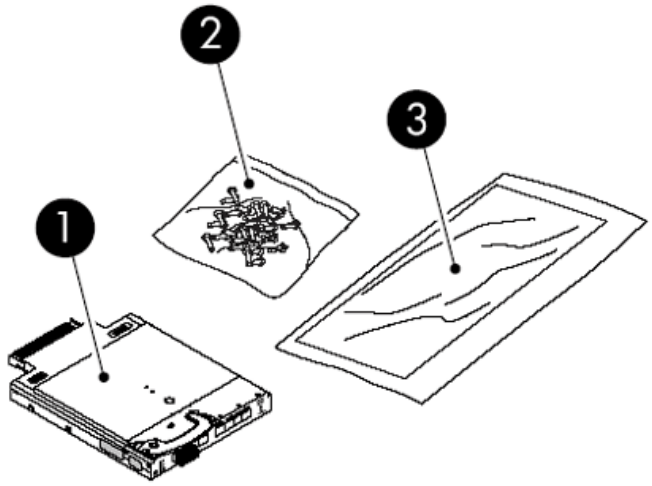
top

Shipping carton contents

The 4Gb SAN Switch kit shipping carton contains three items, identified in Figure 1:

- *Brocade 4Gb SAN Switch for HP c-Class BladeSystem installation instructions*
- SFP dust covers (must be inserted in ports where Small Form-factor Pluggable (SFP) optical transceivers are not installed)
- One Brocade 4Gb SAN Switch with two or four SFPs installed.
  Models include:
  - Brocade 4/12 SAN Switch for HP c-Class BladeSystem with twelve active ports (ships with two Short Wavelength (SWL) 4Gb SFPs installed, as shown in Figure 1).
  - Brocade 4/24 SAN Switch for HP c-Class BladeSystem with sixteen internal and eight external active ports (ships with four 4Gb SFPs installed).
  - Brocade 4/24 SAN Switch Power Pack for HP c-Class BladeSystem with sixteen internal and eight external active ports (ships with four 4Gb SFPs installed).

Figure 1: Shipping carton contents



1 - Brocade 4Gb SAN Switch
2 - Dust covers for empty SFP ports
3 - *Brocade 4Gb SAN Switch for HP c-Class BladeSystem installation instructions*

top

Installation and safety considerations

The 4Gb SAN Switch installs in the I/O bays in the rear of the HP c-Class BladeSystem enclosure. Refer to the HP BladeSystem c7000 Enclosure Setup and Installation Guide for specific enclosure requirements.

Installing multiple switches

Install and configure one 4Gb SAN Switch at a time. This is required so that Ethernet IP address conflicts do not occur with duplicate default Ethernet IP addresses. Each switch must be assigned a unique Ethernet IP address during configuration. Once the default Ethernet IP address on the 4Gb SAN Switch has been changed, additional 4Gb SAN Switches can be installed in the enclosure.

See the *HP BladeSystem c7000 Enclosure Setup and Installation Guide* for help identifying the specific enclosure setup, available connections and power requirements.

top

Electrical considerations

The 4Gb SAN Switch requires 35 watts, provided by the enclosure. No other power requirement or provision exists.

top

Environmental considerations

Ensure proper cooling and ventilation by verifying the following:

- The air vents on the enclosure are not blocked or restricted.
- The ambient air temperature at the front of the enclosure does not exceed 35° (degrees) C (95° (degrees) F) while the switch is operating.

NOTE: The dust covers that ship with the 4Gb SAN switch *must* be inserted into any ports where SFPs are not installed, to help contain air flow in the BladeSystem chassis.

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top

top

Installing the Brocade 4Gb SAN Switch

CAUTION: Do not install multiple switches at the same time with default addresses or an address conflict will occur.

The Brocade 4Gb SAN switch is a hot-pluggable device. The enclosure power may be on or off when inserting the switch. Follow these steps to install the 4Gb SAN Switch.

1. Locate the appropriate interconnect bay in the rear of the enclosure per the *HP BladeSystem c7000 Enclosure Setup and Installation Guide* provided with the enclosure.
   Remove the slot cover (if installed).

   NOTE: Populate all enclosure I/O bays with the appropriate component (for example a switch, Pass-Thru or one of the blank panels provided with the enclosure).

   CAUTION: Properly ground yourself before handling the switch.

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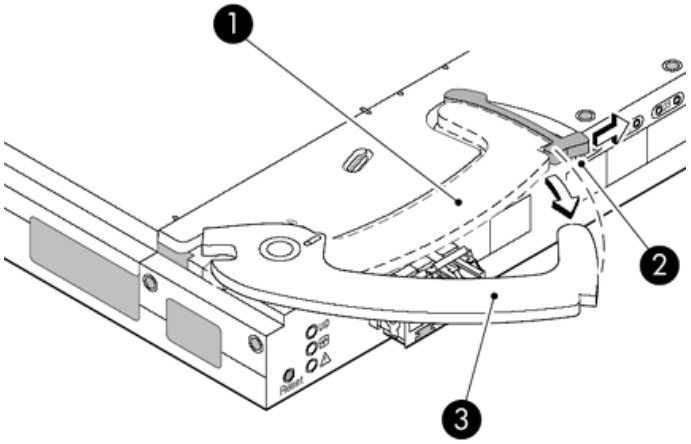
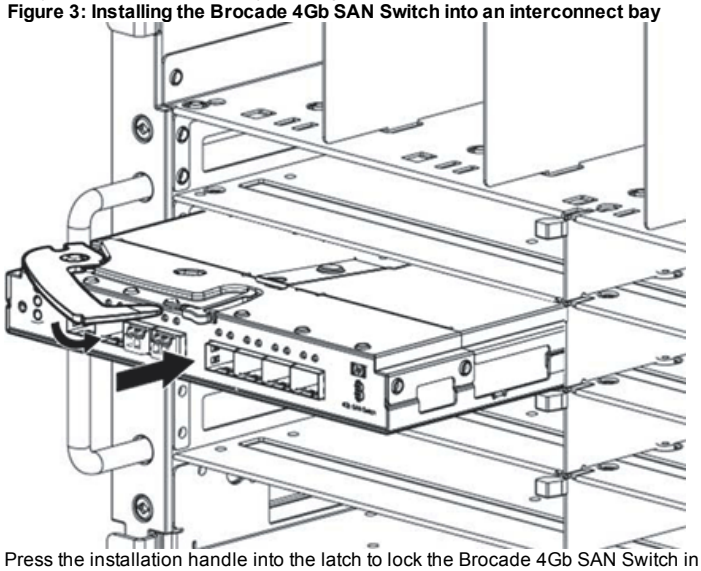
2. Press the handle latch to release the installation handle (see Figure 2).
   Figure 2: Releasing the installation handle



1 - Installation handle in latched position
2 - Handle latch
3 - Installation handle (released)

3. Align the Brocade 4Gb SAN Switch with the appropriate interconnect bay according to the enclosure's specific configuration. Push firmly into the interconnect bay (see Figure 3).

Figure 3: Installing the Brocade 4Gb SAN Switch into an interconnect bay



4. Press the installation handle into the latch to lock the Brocade 4Gb SAN Switch in place.

top

OA verifies power

As defined earlier, the HP BladeSystem Onboard Administrator (OA) is the enclosure management processor that manages the devices contained within the enclosure. The OA provides a single point from which to perform basic management tasks on switches or server blades installed in the enclosure.

NOTE: HP recommends reading the *HP BladeSystem c7000 Enclosure User Guide* and the *HP BladeSystem Onboard Administrator User Guide* . Reading these guides in sequence will promote an overall understanding of the enclosure system.

Once the switch is installed in the interconnect bay, the OA verifies that the switch type matches the mezzanine cards present on the servers. If there is no mismatch, the OA powers up the switch.

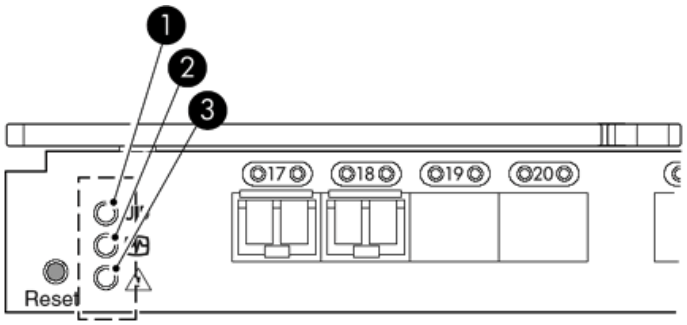
If the switch does not power up, check the enclosure and switch status via the OA web interface. Refer to the *HP BladeSystem Onboard Administrator User Guide* .

top

Checking LEDs

See Figure 4 to locate power-on LEDs. Verify that the LEDs match the description accordingly.

Figure 4: Verifying power-on LEDs



1 - UID LED (Off)

2 - Health ID LED (Steady green light)
3 - Module Status LED (Steady green light)

top

Setting the IP address

Obtain the following items to set the IP address via a serial connection:

- Computer with a terminal application (such as HyperTerminal in a Windows environment or TERM in a UNIX environment).
- Null modem serial cable.

Replace the default IP address and related information with the information provided by the network administrator. By default, the IP address is set to 10.77.77.77.

1. Verify that the enclosure is powered on.
2. Identify the active OA in the BladeSystem.
3. Connect a Null modem serial cable from the computer to the serial port of the active OA.
4. Configure the terminal application as follows:
   In a Windows environment, type:
   - Bitsper second - 9600
   - Databits - 8
   - Parity-None
   - Stopbits - 1
   - Flow control - None

   In a UNIX environment, type: `tip /dev/ttyb -9600`
5. Log into the OA.
6. Press **Enter** to display the switch console.
7. Identify the interconnect bay number where the switch is installed. At the OA command line, type:
   `connect interconnect x`
   Where `x` is the interconnect bay slot where the switch is installed.
   a. User: admin
   b. Password: password

   NOTE: Type entries as shown, as commands are case sensitive.
8. **Or** , follow the onscreen prompts to change the password.
9. The OA will then connect its serial line to the Switch in the specified interconnect bay. A prompt displays indicating that the escape character for returning to the OA is Ctrl __ (underscore).
10. At the command line, type: `ipaddrset` .
11. Enter the remaining IP addressing information, as prompted.
12. Optionally, enter `ipaddrshow` at the command prompt to verify that the IP address is set correctly.
13. Record the IP addressing information and store in a safe place.
14. Type `Exit` and press **Enter** to log out of the serial console.
15. Disconnect the serial cable.

top

Configuring the Brocade 4Gb SAN Switch

The 4Gb SAN Switch must be configured to ensure correct operation within a network and fabric. For instructions about configuring the switch to operate in a fabric containing switches from other vendors, refer to the *HP StorageWorks SAN Design reference guide* : http://h18000.www1.hp.com/products/storageworks/san/documentation.html .

For more information about the CLI, refer to the *HP StorageWorks Fabric OS 5.0.0 Command Reference Guide* .

Items required for configuration

The following items are required for configuring and connecting the 4Gb SAN Switch for use in a network and fabric:

- 4Gb SAN Switch installed in the enclosure.
- IP address and corresponding subnet mask and gateway address recorded.
- Ethernet cable
- SFP transceivers and compatible optical cables, as required.
- Access to an FTP server for backing up the switch configuration (optional).

top

Connecting to the Command Line Interface

Make an Ethernet connection and log into the Brocade 4Gb SAN Switch:

1. Connect the workstation to the Ethernet network containing the OA. If the OA is not on a network, connect directly to the OA/iLO Ethernet port on the active OA.

   NOTE: Verify that the switch is not being re-configured from any other connections during the remaining steps.
2. Open a telnet connection using the IP address set earlier. The login prompt displays when the telnet connection locates the switch in the network.
3. Enter the user name, using the administrative account `admin` .
4. Enter the password. The default password is `password` .

   NOTE: Run up to two simultaneous `admin` sessions and four `user` sessions.

   If the system passwords have not been changed from the default, they need to be changed. Enter the new system passwords, or press **Ctrl-c** to skip the password prompts.
5. Verify that the login was successful. If successful, the prompt displays the switch name and user ID to which the connection is established.

top

Setting the date and time

Date and time are used for logging events. 4Gb SAN Switch operation does not depend on the date and time; a switch with an incorrect

date and time value will function properly.

To set the date and time using the CLI:

1. If this is not already done, connect to the switch and log in as `admin` .
2. Issue the date command using the following syntax:
   date “mmddHHMMyy”
   where:
   - *mm* is the month; valid values are 01 through 12.
   - *dd* is the date; valid values are 01 through 31.
   - *HH* is the hour; valid values are 00 through 23.
   - *MM* is minutes; valid values are 00 through 59.
   - *yy* is the year; valid values are 00 through 99 (values greater than 69 are interpreted as 1970-1999, and values less than 70 are interpreted as 2000-2069).

   For example :
   switch:admin> date
   Fri Jan 29 17:01:48 UTC 2000
   switch:admin> date 0227123003
   Thu Feb 27 12:30:00 UTC 2003
   switch:admin>
   For details about changing time zones, see the `tsTimeZone` command in the *HP StorageWorks Fabric OS 5.0.0 Command Reference Guide* .

top

Verifying installed licenses

To determine the type of licensing included with the 4Gb SAN Switch, type `licenseshow` at the command prompt as in the following example:

Figure 5: Example 1

```
switch:admin> licenseshow

XXXnnXXnXnnXXX:

Fabric Watch license

Release v5.0 license

XXXnnXXnXnnXXX:

Zoning license

XXXnnXXnXnnXXX:

Web license

XXXnnXXnXnnXXX:

Full Fabric
```

NOTE: For more information about the Command Line Interface (CLI), refer to the *HP StorageWorks Fabric OS 5.0.0 Command Rreference Guide* .

top

Modifying the FC domain ID (optional)

If desired, the FC domain ID can be modified. The default FC domain ID is domain 1. If the 4Gb SAN Switch is not powered on until after it is connected to the fabric and the default FC domain ID is already in use, the domain ID for the new switch is automatically reset to a unique value. If the switch is connected to the fabric after is has been powered on and the default domain ID is already in use, the fabric segments.

Type `fabricshow` to determine the domain IDs that are currently in use. The maximum number of domains with which the 4Gb SAN Switch communicates is determined by this switch’s fabric license.

To modify the domain ID:

1. Type `switchdisable` to disable the switch.
2. Type `configure` , then type a new value.
   Or press **Enter** to accept each default value.
3. At the Fabric parameters prompt, type **Y** and press **Enter** :
   `Fabric parameters (yes, y, no, n): [no]` **y**
4. Enter a unique domain ID. For example:
   `Domain: (1..239) [1]` **3**
5. Complete the remaining prompts or press **Ctrl+D** to accept the remaining default settings.
6. Type `switchenable` to re-enable the switch.
7. Type `fabricshow` to confirm any changes made to the domain ID.
8. Optionally, verify switch policy settings and specify any custom status policies that need to change:
   a. Type `switchstatuspolicyshow` to verify the current policy settings. If desired, type `switchstatuspolicyset` at the prompt to change switch policy settings. This command sets the policy parameters that determine the overall switch status.
   b. Customize the status policies as desired.
9. To deactivate the alarm for a particular condition, enter **0** at the prompt for that condition.

top

Disabling and enabling a switch

By default, the switch is enabled after power on and diagnostics and switch initialization routines complete. The switch can be disabled and re-enabled as necessary.

To disable:

1. If this is not already done, connect to the switch and log in as `admin` .
2. Issue the `switchDisable` command.
   All Fibre Channel ports on the switch are taken offline. If the switch was part of a fabric, the fabric reconfigures.
   To enable:
   a. If this is not already done, connect to the switch and log in as `admin` .
   b. Issue the `switchEnable` command.
      All Fibre Channel ports that pass the Power-on Self Test (POST) are enabled. If the switch has interswitch links (ISLs) to a fabric, it joins the fabric.

top

Disabling and enabling a port

To enable a port:

1. Connect to the switch and log in as `admin` .
2. Issue `portenable` portnumber where portnumber is the port number of the port that needs to be enabled.
   To disable:
   a. If this is not already done, connect to the switch and log in as admin.
   b. Issue `portdisable` portnumber where portnumber is the port number of the port that needs to be disabled.

top

Using Dynamic Ports On Demand (DPOD)

In the past, Ports On Demand (POD) functionality was static. A preset group of ports were individually enabled per each POD license. In contrast, the new DPOD functionality does not require a predefined assignment of ports. Port assignment is determined by the total number of ports in use as well as the number of purchased ports.

In summary, the DPOD feature simplifies port management by:

- automatically detecting HBA connected server ports or cabled ports.
- automatically enabling ports.
- automatically assigning port licenses.

To initiate DPOD, use the `licensePort` command.

NOTE: For the Brocade 4Gb SAN Switch, DPOD works only if the server blade is installed with an HBA present. A server blade that does not have a functioning HBA will not be treated as an active link for the purpose of initial POD port assignment.

top

DPOD commands

Use the `licensePort` command to manage dynamic POD assignments with the following options:

- `licensePort -reserve portnum` reserves a future license assignment for a specific port, even if the port is currently offline.
- `licensePort -release portnum` removes a license from a port.
- `portCfgPersistentDisable` blocks a specific port from future assignments.
- `licensePort -show` displays an overview of the POD license status and port assignments.
  The following shows examples of the `licensePort -show` command for a Brocade 4/12 SAN Switch and a Brocade 4/24 SAN Switch:

Figure 6: Example for Brocade 4/12 SAN Switch

```
swd77:admin> licenseport -show
  24 ports are available in this switch
   No POD licenses are installed
      Dynamic POD method is in use
  12 port assignments are provisioned for use in this switch:
  12 port assignments are provisioned by the base switch license
  *6 port assignments added if the 1st POD license is installed
  *6 more assignments added if the 2nd POD license is installed
   4 ports are assigned to installed licenses:
         4 ports are assigned to the base switch license
  Ports assigned to the base switch license:
     15, 16, 17, 18*
  Ports assigned to the first POD license:
     None
  Ports assigned to the second POD license:
     None
  Ports not assigned to a license:
     0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 19
     20, 21, 22, 23
```

Figure 7: Example for Brocade 4/24 SAN Switch

```
cp081044:admin> licenseport --show
  24 ports are available in this switch
     Full POD license is installed
     Dynamic POD method is in use
  24 port assignments are provisioned for use in this switch:
  12 port assignments are provisioned by the base
  12 port assignments are provisioned by a full POD license
  11 ports are assigned to installed licenses:
        11 ports are assigned to the base switch license
         0 ports are assigned to the full POD license
  Ports assigned to the base switch license:
     1, 2, 3, 4, 5, 6, 7, 8, 17*, 18*, 19*
  Ports assigned to the full POD license:
     None
  Ports not assigned to a license:
     0, 9, 10, 11, 12, 13, 14, 15, 16, 20, 21, 22, 23

  13 license reservations are still available for use by unassigned
  ports
   3 license assignments are held by offline ports (indicated by *)
```

NOTE: The DPOD feature does not consider disabled ports as candidates for license assignments. You can persistently disable an otherwise viable port to cause it not to come online and preserve a license assignment for future use.

top

top

Verifying the configuration

After setting initial parameters, verify the configuration as follows:

1. Check the LEDs to verify that all components are functional.
2. Type `switchshow` to get information about the switch and port status.
3. Type `fabricshow` to get general information about the fabric.

top

Backing up the configuration

HP recommends regular backups to ensure that a recent configuration is available, if required. For specific instructions on how to back up the configuration, refer to the *HP StorageWorks Fabric OS 5.x administrator guide* .

To back up the switch configuration to an FTP server, type `configupl` and follow the prompts. The `configupl` command copies the switch configuration to the server, making it available for downloading to a replacement switch, if necessary.

top