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Brocade Adapters

Administrator's Guide

Supporting CNA models BR-1010 and BR-1020

Supporting HBA models 415, 425, 815, 825

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Document History

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About This Document

In this section

How this document is organized

. This document is organized to help you find the information that you want as quickly and easily as possible.

The document contains the following components:

- Chapter 1, “Fibre Channel over Ethernet,” provides conceptual information about the Fibre Channel over Ethernet technology, including converged enhanced Ethernet (CEE).
- Chapter 2, “HCM Overview,” provides a description of the Host Connectivity Manager (HCM) application software, the graphical user interface (GUI), system requirements, and supported operating systems.
- Chapter 3, “Getting Started with HCM Software,” explains how to launch the management software, set security passwords, discover SAN components, and log out.
- Chapter 4, “Host Configuration,” provides the procedures to configure operating parameters (basic and advanced), security authentication, and persistent binding using the Brocade Command Line Utility (BCU) or the GUI.
- Chapter 5, “Monitoring,” describe the HCM monitoring features.
- Chapter 6, “Diagnostics,” describes the non-destructive group of diagnostic commands that can be run from the BCU or the GUI.
- Appendix A, “HCM Dialog Boxes,” lists the fields that are associated with the HCM GUI and provides a definition for each field.
- Appendix B, “Brocade Command Utility,” provides reference information for the Host Connectivity Manager (HCM) commands that can be run from the Brocade Command Line Utility (BCU)
- Appendix D, “Glossary and acronyms,” provides reference information for common terms and acronyms.

- Appendix C, "HCM Troubleshooting," provides a summary of HCM navigation problems and workarounds.

Document conventions

This section describes text formatting conventions and important notice formats used in this document.

Text formatting

The narrative-text formatting conventions that are used are as follows:

bold text	Identifies command names Identifies the names of user-manipulated GUI elements Identifies keywords and operands Identifies text to enter at the GUI or CLI
italic text	Provides emphasis Identifies variables Identifies paths and Internet addresses Identifies document titles
`code` text	Identifies CLI output Identifies command syntax examples

For readability, command names in the narrative portions of this guide are presented in mixed lettercase: for example, switchShow. In actual examples, command lettercase is often all lowercase. Otherwise, this manual specifically notes those cases in which a command is case sensitive.

Notes, cautions, and warnings

The following notices and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

NOTE
A note provides a tip, guidance or advice, emphasizes important information, or provides a reference to related information.

ATTENTION
An Attention statement indicates potential damage to hardware or data.

CAUTION

A Caution statement alerts you to situations that can be potentially hazardous to you or cause damage to hardware, firmware, software, or data.

Key terms

For definitions specific to Brocade and Fibre Channel, see the *Brocade Glossary*.

For definitions specific to this document, see "Glossary and acronyms" on page 201.

For definitions of SAN-specific terms, visit the Storage Networking Industry Association online dictionary at:

http://www.snia.org/education/dictionary

Notice to the reader

This document may contain references to the trademarks of the following corporations. These trademarks are the properties of their respective companies and corporations.

These references are made for informational purposes only.

Corporation	Referenced Trademarks and Products
Microsoft Corporation	Windows Server, Windows XP, Windows Vista
Sun Microsystems, Inc.	Sun, Solaris
Red Hat, Inc.	Red Hat, Red Hat Network, Maximum RPM, Linux Undercover
Novell, Inc.	SuSE Enterprise Server (SLES), Linux
VMware	VMware, ESX Server

Additional information

This section lists additional Brocade and industry-specific documentation that you might find helpful.

Brocade resources

To get up-to-the-minute information, join Brocade Connect. It's free! Go to *http://www.brocade.com* and click **Brocade Connect** to register at no cost for a user ID and password.

For practical discussions about SAN design, implementation, and maintenance, you can obtain *Building SANs with Brocade Fabric Switches* through:

http://www.amazon.com

For additional Brocade documentation, visit the Brocade Web site:

http://www.brocade.com

Release notes are available on the Brocade Connect Web site and are also bundled with the Fabric OS firmware.

Other industry resources

For additional resource information, visit the Technical Committee T11 Web site. This Web site provides interface standards for high-performance and mass storage applications for Fibre Channel, storage management, and other applications:

http://www.t11.org

For information about the Fibre Channel industry, visit the Fibre Channel Industry Association Web site:

http://www.fibrechannel.org

For information about the Institute of Electrical and Electronics Engineers (IEEE) organization, visit the IEEE Web site:

http://standards.ieee.org/

Getting technical help

Contact your adapter support supplier for hardware, firmware, and software support, including product repairs and part ordering. To expedite your call, have the following information available:

- Adapter model
- Adapter operating system version
- Error numbers and messages received
- supportSave command output (see "debug" on page 162 for details)
- Detailed description of the problem, including the switch or fabric behavior immediately following the problem, and specific questions
- Description of any troubleshooting steps already performed and the results
- Serial console and Telnet session logs
- syslog message logs

Related documentation

Part Number	Document Title
53-1000884-01	*Brocade Fibre Channel Adapter Installation and Reference Manual supporting CNA models BR-1010 and BR-1020 and HBA models 415, 425, 815, and 825*
53-1000885-01	*Brocade Fibre Channel Adapter Troubleshooting Guide supporting CNA models BR-1010 and BR-1020 and HBA models 415, 425, 815, and 825*
53-1000598-03	*Fabric OS Administrator's Guide supporting Fabric OS v6.1.0*
53-1000853-01	*Fabric OS Troubleshooting and Diagnostics Guide supporting Fabric OS v6.1.0*

Document feedback

Quality is our first concern at Brocade and we have made every effort to ensure the accuracy and completeness of this document. However, if you find an error or an omission, or you think that a topic needs further development, we want to hear from you. Forward your feedback to:

documentation@brocade.com

Provide the title and version number of the document and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

Chapter

1 Fibre Channel over Ethernet

In this chapter

FCoE overview

Fibre Channel over Ethernet (FCoE) leverages Ethernet enhancements, called *Converged Enhanced Ethernet (CEE),* to transport encapsulated Fibre Channel frames over Ethernet. Ethernet is the physical layer over which the encapsulated FC frames are transported.

One of the barriers to using Ethernet as the basis for a converged network has been the limited bandwidth that Ethernet has historically provided. However, with 10 Gbps Ethernet, the available bandwidth now offers the potential to consolidate all the traffic types over the same link.

Unlike Fibre Channel, Ethernet is not a peer-to-peer protocol. The mechanism used to discover new ports, MAC address assignments and FC logins and logouts is called the FCoE Initialization Protocol (FIP).

DCB exchange protocol

DCB Exchange (DCBX) protocol is used between data center bridging (DCB) devices, such as a converged network adapter (CNA) and a FCoE switch, to exchange configuration with directly-connected peers.

NOTE
When DCBX protocol is used, any other LLDP implementation must be disabled on the host systems.

Drivers

Three types of adapter drivers are provided in installation packages:

- Storage driver - This is a unified driver that provides Fibre Channel frame transport for Brocade HBAs and FCoE transport for Brocade CNAs. The adapter logic detects either a FCoE or Fibre Channel network and the appropriate driver support is provided automatically.

  NOTE
  The unified storage driver will claim all installed Brocade Fiber Channel HBAs, as well as FCoE CNAs installed in a system. This driver will be used instead of the driver originally installed for the HBA.

- Network driver - This is the driver for frame transport over Ethernet and basic Ethernet services. This driver only applies to CNAs.
- Intermediate driver - This is for Windows systems only. It provides support for multiple VLANs. This driver only applies to CNAs.

The firmware is packaged with both the Storage driver and the Network driver so that it can be downloaded by either of the drivers. The firmware is also stored in the flash for SAN boot.

For more information about the driver packages, support for the drivers, and driver installation, refer to the *Brocade Adapters Installation and Reference Manual*.

Enhanced Ethernet features

Enhanced Transmission Selection (ETS) and priority-based flow control are the two basic requirments in a lossless Ethernet environment. These capabilities allow the Fibre Channel frames to run directly over 10 Gbps Ethernet segments without adversely affecting performance.

Enhanced transmission selection

With ETS, more important storage data traffic can be assigned higher priority and higher guaranteed bandwidth so that it is not stalled by less important traffic. To enable effective utilization of the network, ETS allows lower priority to unused bandwidth from high-priority queues

ETS allows configuration of bandwidth per priority group.

Priority group ID usage is defined as follows:

- PGID = {0, 7} is used when the priority group is limited for its bandwidth use.
- PGID = {8, 14} is reserved.
- PGID = {15} is used for priorities that are not limited for their bandwidth use.

The configured priority group percentage refers to the maximum percentage of available link bandwidth after PGID 15 is serviced, assuming all priority groups are fully subscribed. If one of the priority groups does not consume its allocated bandwidth, then any unused portion is available for use by other priority groups.

Priority-based flow control

Priority flow control pauses traffic based on the priority levels. A high-level pause algorithm follows:

- During periods of heavy congestion, the receive buffers reach high threshold and generate a pause.
- The pause tells transmission (Tx) queues to stop transmitting.
- After the receive (Rx) buffers reach low threshold, a zero pause is generated.
- The zero Pause signals the Tx queues to resume transmitting.

Ethernet jumbo frames

The basic assumption underlying FCoE is that TCP/IP is not required in a local data center network and the necessary functions can be provided with Enhanced Ethernet. The purpose of an "enhanced" Ethernet is to provide reliable, lossless transport for the encapsulated Fibre Channel traffic. Enhanced Ethernet provides support for jumbo Ethernet frames and in-order frame delivery.

The Brocade FCoE 10 Gbps converged network adapter supports jumbo packets of up to 9 KB, compared to the original 1,518-byte MTU for Ethernet. The frame size increase allows the same amount of data to be transferred with less effort.

The frame data field size that you can set using the HCM GUI or BCU is for the storage side. You can set the MTU using the OS interface, and this is for the network side. See "Frame data field size" on page 28 for information about setting the frame data field size.

NOTE
If a jumbo frame size is set for the CNA, the frame size setting on the attached FCoE switch must match or it cannot accept jumbo frames.

FCoE protocols supported

The Brocade FCoE converged network adapter supports two layers of protocols: Ethernet link layer and FCoE layer. They are listed in the following sections.

Ethernet link layer protocols supported

The following protocols support the Ethernet link layer.

- 802.1q (VLAN)
- 802.1Qaz (enhanced transmission selection)
- 802.1Qbb (priority flow control)
- 802.3ad (link aggregation)
- 802.3ae (10 Gb Ethernet)
- 802.1p (priority encoding)
- IEEE 1149.1 (JTAG) for manufacturing debug and diagnostics
- IPv4 specification (RFC 793/768)
- IPv6 specification (RFC 2460)
- TCP/UDP specification (RFC 793/768)
- ARP specification (RFC 826)
- RSS with support for IPV4TCP, IPV4, IPV6TCP, IPV6 hash types
- HDS (Header-data split)

FCoE protocols

The following protocols support Fibre Channel over Ethernet.

- FIP (FC-BB5 compliant):
  - Support for FIP Discovery protocol for dynamic FCF discovery and FCoE link management
  - Support for FPMA and SPMA type FIP fabric login
- Support for Initiator mode only (FCP-3 compliant in Initiator mode)
- SCSI protection information support
- IP-over-FC
- NPIV support

Chapter

HCM Overview

2

In this chapter

HCM software

The Host Connectivity Manager (HCM) is a management software application for configuring, monitoring, and troubleshooting Brocade HBAs and Converged Network Adapters (CNAs) in a storage area network (SAN) environment.

The management software has two components:

- The agent, which runs on the host.
- The management console, which is the graphical user interface client used to manage the HBA or CNA.

You can manage the software on the host or remotely from another host. The communication between the management console and the agent is managed using JSON-RPC over https.

The information in this guide is intended for OEMs, field service personnel, and customers who are installing Brocade hardware and HCM software.

NOTE
All HCM, utility, SMI-S Provider, boot software, and driver installation packages, as well as the Driver Update Disk (DUD), are described in the *Brocade Adapters Installation and Reference Manual*.

HCM features

Common HBA and CNA management software features include the following:

- Discovery using the agent software running on the servers attached to the SAN, which enables you to contact the devices in your SAN.
- Configuration management , which enables you to configure local and remote systems. With HCM you can configure the following items:
  - Local host
  - Brocade 4 Gbps and 8 Gbps HBAs
  - HBA ports (including logical ports, base ports, remote ports, and virtual ports)
  - Brocade 10 Gbps single-port and 10 Gbps dual-port converged network adapters (CNAs)
  - CEE ports
  - FCoE ports (CNA only)
  - Ethernet ports (CNA only)
- Diagnostics, which enables you to test the adapters and the devices to which they are connected:
  - Link status of each adapter and its attached devices
  - Loopback test, which is external to the adapter, to evaluate the ports (transmit and receive transceivers) and the error rate on the adapter
  - Read/write buffer test, which tests the link between the adapter and its devices
  - FC protocol tests, including echo, ping, and traceroute
- Monitoring, which provides statistics for the SAN components listed in Table 9.
- Security, which enables you to specify a CHAP secret and configure authentication parameters.
- Event notifications, which provide asynchronous notification of various conditions and problems through a user-defined event filter.

Tree node pop-up menus

You can use the HCM GUI main menu or the Brocade Command Line Utility (BCU) to configure, monitor, and troubleshoot your SAN components. The instructions for using each feature are detailed in subsequent chapters of this document. For each SAN component, you can optionally right-click its icon and a pop-up menu displays (see Table 1).

The HCM GUI consists of three layers, and the features display differently depending on the configuration. There are three possible configuration scenarios, as follows:

- Both the storage driver and the link layer driver are installed.
- Only the storage driver is installed.
- Only the link layer driver is installed.

Whether the FCoE Port node or the Ethernet node are presented in the tree depends on the drivers that are installed.

TABLE 1 HCM tree pop-up menus

SAN component	Pop-up menu feature
Host	Refresh All Start Polling Upload Boot Code Image Change Agent Password Configure Names Basic Port Configuration Persistent Binding Statistics > Port Statistics FC-SP Support Save Tree > Copy | Search | Collapse All | Expand All
Brocade HBA 4 Gbps or 8 Gbps	Refresh Define Name Upload Boot Code Image Basic Port Configuration Persistent Binding Port Statistics Diagnostics FC-SP Enable Adapter
Converged Network Adapter (CNA), 10 Gbps	Refresh Define Name Persistent Binding Statistics > Port | CEE | FCP IM Module Statistics Diagnostics Enable Port Tree > Copy | Search | Collapse All | Expand All
FCoE Port	Refresh Define Names Port Configuration > Basic | Advanced Persistent Binding Virtual Port > Create | Delete Statistics > Fabric | IOC Beacon > Port Tree > Copy | Search | Collapse All | Expand All
Ethernet Port	Refresh Names Basic Port Configuration (includes Ethernet Logging Level) VLAN Configuration Change Password for HCM User HCM Logging Levels Syslog Statistics > IOC Ethernet | VLAN Diagnostics > Ethernet Tests Tree > Copy | Search | Collapse All | Expand All

Operating system support

There are slight differences in the operating systems (OSs) that are supported on the driver, on the Host Connectivity Manager (HCM), and the Brocade Command Line Utility (BCU), and the HCM agent.

Ethernet Link Layer Driver OS support

Table 2 lists the operating systems supported on the driver.

NOTE
The Brocade Command Line Utility (BCU) is a standalone application that is installed as part of the driver package. The BCU is used primarily for managing adapters installed on a local machine. The BCU is supported across all operating system versions listed in Table 2.

Supported drivers vary with the operating system being used. For example, for Windows, the Storport miniport driver is supported (there is no support for the SCSI miniport driver) and for Solaris, only the Leadville-based driver is supported.

TABLE 2 Ethernet Link Layer Driver operating system support

Operating System	x86	IA64	IEM64T	AMD64
Windows Server 2003, R2, SP2 Requires SP2 plus Hotfix 932755 and KB943545	Yes	No	Yes	Yes
Windows Server 2008	Yes	Yes	Yes	Yes
Linux 2.6 kernel				
Novell SuSE Linux Enterprise Server (SLES) 10.1, 10.2	Yes	No	Yes	Yes
Novell SuSE Linux Enterprise Server (SLES) 11.0	Yes	No	Yes	Yes
Red Hat Enterprise Linux (RHEL) 4.6, 4.7	Yes	No	Yes	Yes
Red Hat Enterprise Linux (RHEL) 5.2, 5.3	Yes	No	Yes	Yes
VMware ESX 3.5, U3, U4	Yes	No	Yes	Yes

FCoE Driver OS support

Table 3 lists the operating systems supported on the FCoE driver.

TABLE 3 FCoE driver operating system support

Operating System	x86	IA64	IEM64T	AMD64	SPARC
Windows Server 2003, R2, SP2 Requires SP2 plus Hotfix 932755 and KB943545	Yes	Yes	Yes	Yes	No
Windows Server 2008	Yes	Yes	Yes	Yes	No
Linux SuSE Enterprise Server (SLES) 10.1 and 10.2	Yes	Yes	Yes	Yes	No
Linux SuSE Enterprise Server (SLES) 11.0	Yes	Yes	Yes	Yes	No
Linux Red Hat Enterprise 4.6, 4.7	Yes	Yes	Yes	Yes	No
Linux Red Hat Enterprise 5.2, 5.3	Yes	Yes	Yes	Yes	No
Solaris 10.5[1]	Yes	No	Yes	Yes	Yes
VMware ESX 3.5, U3, U4	Yes	No	Yes	Yes	No

[1] FCoE driver only. The Networking driver is not supported on Solaris 10.5.

Supported features

Some features are available only in specific port nodes. These features are identified in Table 4.

TABLE 4 Port node-specific features

Features	FCoE port	Link Layer (LL) Ethernet port	Physical port
Define name	Yes	No	Yes
Port configuration	Yes	No	No
Persistent binding	Yes	No	Yes
Virtual port configuration	Yes	No	No
Statistics	Fabric statistics, IOC statistics	Eth IOC statistics, VLAN statistics, Eth statistics	Port statistics,CEE statistics, FCP IM statistics
Diagnostics	Fibre Channel diagnostics	No	Yes
FC-SP authentication	Yes	No	No
Enable port	Yes	No	Yes
Beaconing (port)	Yes	Yes	No
VLAN configuration	No	Yes	No

OS-specific features

Some features are available only in specific OS environments. The features are shown in Table 5.

TABLE 5 OS-specific features

Features	Windows	Linux	Solaris	VMWare
Storage - NPIV support	Yes	Yes	No	Yes
Ethernet - VLAN support	Yes	Yes	No	Yes
Ethernet - Receive Side Scaling (RSS)	Yes	No	No	No
Ethernet - Header Data Split (HDS)	Yes	No	No	No

Chapter

Getting Started with HCM Software 3

In this chapter

HCM software launch

The following procedures describe how to launch the HCM application in Windows, Linux, and Solaris.

- "Launching the application on Windows platforms"
- "Launching the application on Linux platforms"
- "Launching the application on Solaris platforms"

Launching the application on Windows platforms

After installing the HCM software, locate Brocade HCM on the Windows platform by selecting **Start > Programs > BROCADE_FCHBA**.

OR

Click the desktop icon to launch the application.

The following figure shows the screen that appears when HCM software is first launched.

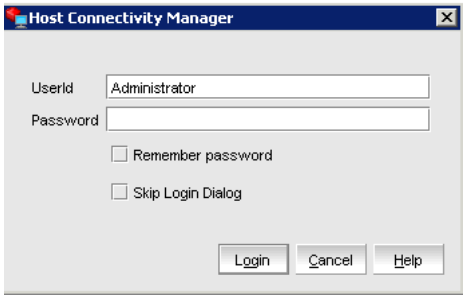


FIGURE 1 HCM Login dialog box

The factory default user ID and password are **Administrator** and **password**. After you log in for the first time, you should change the default password to a new one using the HCM GUI.

Launching the application on Linux platforms

After installing the HCM software, locate Brocade HCM on the Linux platform.

- If using a GNOME shell, double-click the **BROCADE_FCHBA** icon to launch the application.
- If using a KDE shell, single-click the **BROCADE_FCHBA** icon to launch the application.

OR

Start the application from the command prompt using the following commands:

```
suse116208:~ # cd /opt/brocade/fchba/client
suse116208:<installed directory>/fchba/client # ./BROCADE_FCHBA
```

Launching the application on Solaris platforms

After installing the HCM software, you can launch the Brocade HCM application on the Solaris platform by double-clicking on the BROCADE_FCHBA icon.

OR

Start the application from the command prompt using the following commands:

```
sun-116190# cd <installed directory>/fchba/client/
sun-116190# ./BROCADE_FCHBA
```

Remember password

The Login dialog has a check box to remember the password. If you check the **Remember password** check box, you do not need to enter the password the next time you launch the application.

Skip login

Take one of the following actions to manage the Skip Login feature.

- Enable **Skip Login** by checking the **Skip Login Dialog** check box.

  If the **Skip Login** check box is checked, it automatically disables the **Remember password** option.
- Disable **Skip Login** by setting `hba-application.skip-login=false` in the `/data/HBAApplication.properties` file.
- Select the **Skip Login** check box if you do not want the **Login** dialog box to appear the next time the application is started.

Changing an HCM application password

You can change the default password of the application to a different password using the **Change HCM Password** dialog.

Note the following when you change a password:

- You must validate your user identity by supplying your old password before you can change to a new password. The new password must be different than the old password.
- The password can begin with an alphabetic, numeric, or special character.
- The default minimum and maximum length of the password is 8 and 64 characters. You can configure the password length in the `HBAApplication.properties` file:

```
# min chars for the application password
password_min=8
#max chars for the application password
password_max=64
```

- The password is encrypted and stored in the `noitacitnehtua.properties` file.

1. From the Host Connectivity Manager, select **Configure > Change Password > Change Password for HCM User**.

   The **Change HCM Password** dialog box displays.

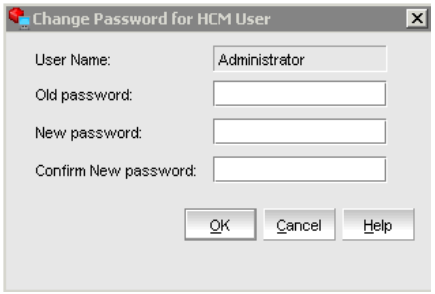


FIGURE 2 **Change HCM Password dialog box**

2. Type the current password for the account. The default user name and password are **Administrator** and **password**.
3. Type the new password of the account.

   The new password must have at least one character different from the old password.
4. Retype the new password in the **Confirm New password** field.
5. Click **OK**.

NOTE
Both the user name and passwords are case-sensitive.

Changing an HCM agent password

You can change the default password of the agent to a different password using the **Change HCM Agent Password** dialog.

Note the following when you change a password:

- You must validate your user identity by supplying your old password before you can change to a new password. The new password must be different than the old password.
- The password can begin with an alphabetic, numeric, or special character.
- The default minimum and maximum length of the password is 8 and 64 characters. You can configure the password length in the `HBAApplication.properties` file:

```
# min chars for the application password
password_min=8
#max chars for the application password
password_max=64
```

- The password is encrypted and stored in the `noitacitnehtua.properties` file.

1. From the Host Connectivity Manager, click **Configure > Change Password > Change Agent Password**.

   The **Change HCM Agent Password** dialog box displays.

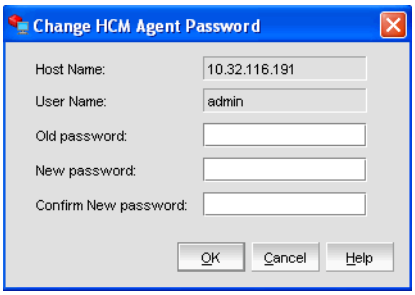


FIGURE 3 Change HCM Agent password dialog box

2. Type the current password for the account. The default user name and password are **admin** and **password**.
3. Type the new password of the account.

   The new password must have at least one character different from the old password.
4. Retype the new password in the **Confirm New password** field.
5. Click **OK**.

NOTE
Both the user name and passwords are case-sensitive.

Resetting a password or restoring a factory default password

After a successful installation, copy the `/data/noitacitnehtua.properties` file to your personal folder so that, in case the password is lost, you can overwrite the `noitacitnehtua.properties` file in the data folder with the local copy. This restores the factory default user name (Administrator) and password (password).

Backing up data after an uninstall

If you uninstall the Brocade HCM software, you are prompted to back up the application configuration data that was created during installation.

The following application configuration files are backed up in the data directory:

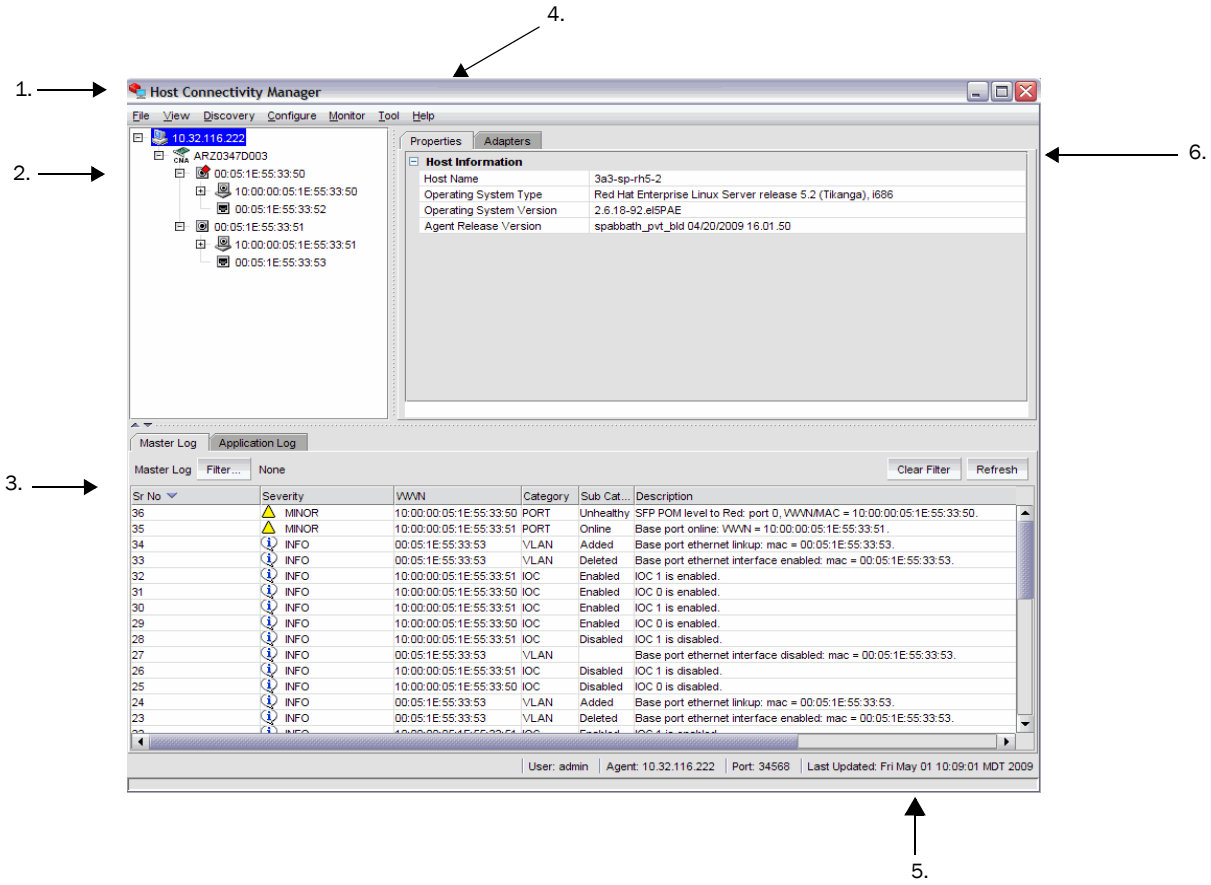
- `HBAApplication.properties`
- `SetupDiscovery.properties`
- `HbaAliasdb.properties`
- `log4j.xml`
- `noitacitnehtua.properties`

To restore the backed-up configuration data when you re-install the HCM, you must manually overwrite the new data directory contents with the backed-up data. This restores your previous settings.

HCM main window

From the Host Connectivity Manager main window, you can manage all the adapters installed in this computer. Alternatively you can manage adapters installed in remote computers, if the computers are networked. Only one host can be managed at a time; multiple host management is not supported.

Refer to the *Brocade Fibre Channel CNA Installation and Reference Manual supporting CNA models BR-1010 and BR-1020 and HBA models 415, 425, 815, and 825* for instructions on how to install both the driver and GUI, the driver only, or the GUI only.



1. Menu bar
2. Device tree window
3. Master Log
4. Online help
5. System information
6. Context view

FIGURE 4 Host Connectivity Manager main window

HCM product icons

On the left side of the Host Connectivity Manager, there is a navigation tree for representing the managed host with adapters and ports. Each tree node has an icon to represent the type of node. If the operational status is offline, link-down, or error, a small red diamond appears on the upper right corner of the icon.

Table 6 shows the product icons that represent the components that HCM manages.

TABLE 6 HCM product icons

Host (agent up)		Remote Port (Initiator) online	
Host (agent down)		Remote Port (Initiator) offline	
HBA online		Remote Port (Target) online	
HBA offline		Remote Port (Target) offline	
CNA online		LUN	
CNA offline		Ethernet Port	
Port (with SFP) link up		Base Port (link up)	
Port (with SFP) link down		Base Port (link down)	
Port (without SFP) link up		Virtual Port (online)	
Port (without SFP) link down		Virtual Port (offline)	
FCoE Port			

Discovery

Discovery enables you to contact the adapters present in a specified host in your SAN. The setup discovery profile is saved in the `SetupDiscovery.properties` file to remember the history of each host and related attributes of discovered hosts.

When you log in to HCM, the specified host is automatically contacted (discovered) and displayed on the navigation tree. By default, the local host is automatically contacted (discovered) and displayed on the navigation tree. When you configure and turn on discovery, the application discovers Brocade adapters in that host, connected to the SAN.

NOTE
The HCM application enables you to discover Brocade adapters, ports, virtual ports, remote ports, and LUNs using out-of-band discovery only.

Setting up out-of-band discovery for an adapter

When performing out-of-band discovery, you are managing the adapter remotely. The application connects to the agent running on the host server over the IP network and product information is copied back from the Brocade adapter to the server. If you do not configure the application to directly discover the devices, the connections and attached devices may not display correctly.

1. From the Host Connectivity Manager, click **Discovery > Setup**.

   The **Setup for Discovery** dialog box displays.

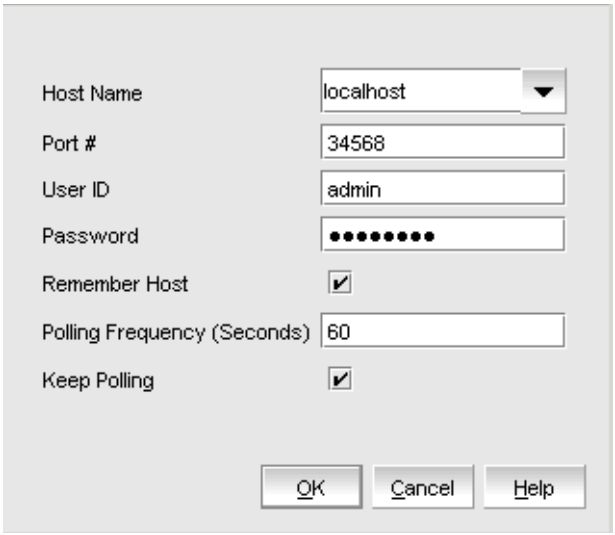


FIGURE 5 Setup for Discovery dialog box

2. From the **Host Name** list, select the host name from where you will discover the adapter.

   For the first time, the Host Name list will contain only the Local host. You must specify the Hostname or the IP address for discovering the remote servers. Only previously-discovered servers are available in the Host Name list.

3. Type the port number in the **Port Number** text box. The default is 34568.

4. Type in the user ID and password that will authenticate the SAN product with the agent. The default user ID and password are **admin/password**.

   It is recommended you change the agent password on the host for security reasons.

   NOTE
   Click the **Remember Host** check box if you do not want to type it in each time you set up discovery.

5. In the **Polling Frequency (Seconds)** text box, specify the value for how frequently the application has to poll for newly discovered devices.

   All parameters related to the adapters that are installed in that server are refreshed each time the poll occurs.

   NOTE
   If the **Keep Polling** check box is checked, polling occurs after the specified polling interval. If the check box is not checked, polling stops.

6. Click **OK**.

Logging off HCM

End the HCM session using one of the following methods:

- From the Host Connectivity Manager, click **File > Exit**.
- Click the **X** in the upper-right corner of the HCM window to close it.

3 Logging off HCM

Chapter

4

Host Configuration

In this chapter

Host security authentication

Use the HCM GUI or the Brocade command line utility (BCU) to display the authentication settings and status. There are five well-known DH groups; however, only DH-CHAP group 0, called NULL DH, is supported in this release.

NOTE
Security authentication is not supported on Solaris platforms.

Configuring security authentication using the GUI (Host and HBA)

You can access the **Fibre Channel Security Protocol Configuration** dialog box by selecting the Host, an HBA, or an HBA port from the device tree.

NOTE
FC-SP is not available for Solaris platforms.

1. Select the appropriate device based on how you want to configure security authentication:
   - From the host level, select the host from the device tree.
   - From the HBA level, select the adapter from the device tree.
   - From an HBA port, select a port from the device tree.
2. Select **Configure > FC-SP** from the main menu, or perform the appropriate following step to open the security authentication dialog box:
   - From the host level, right-click the host and select FC-SP from the list.

     The **Fibre Channel Security Protocol Configuration** (host level) dialog box displays, as shown in Figure 6.
   - From the adapter level, right-click the adapter and select FC-SP from the list.

     The **Fibre Channel Security Protocol Configuration** (adapter level) dialog box displays. This dialog box is identical to the **Fibre Channel Security Protocol Configuration** (host level) dialog box.
   - From the adapter port level, right click a port and select **FC-SP > Authentication** from the list.

   The **Fibre Channel Security Protocol Configuration** dialog at the host level displays.

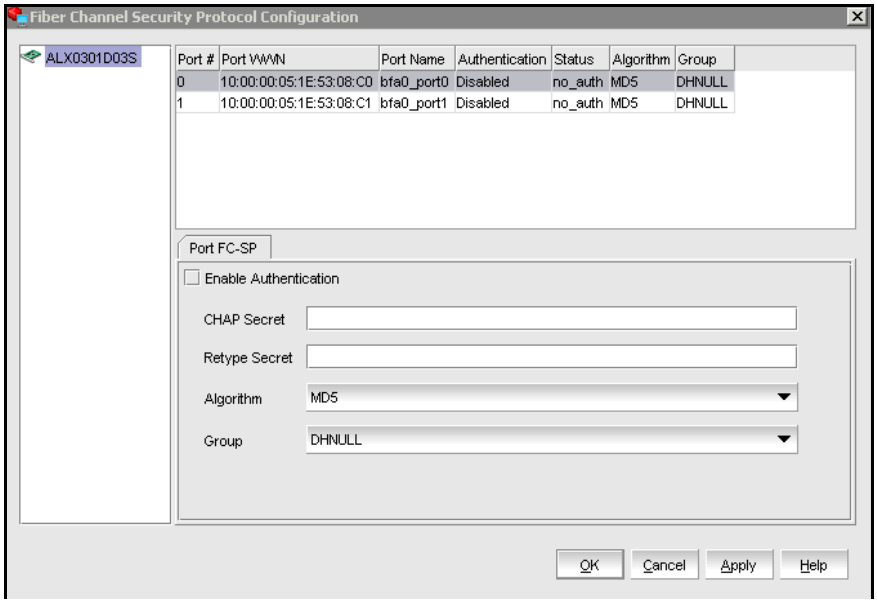


FIGURE 6 **Fibre Channel Security Protocol Configuration - host level dialog box**

3. Configure the following parameters on the **Port Security Authentication** tab:
   a. Select the **Enable Authentication** check box to enable or disable the authentication policy.

      If authentication is enabled, the port attempts to negotiate with the switch. If the switch does not participate in the authentication process, the port skips the authentication process.

   b. Type and retype the secret.

      The maximum length of the secret is 63 bytes. The default secret for each interface is its port world wide name (PWWN) without the colons; for example, `0102030405060708`. Select the algorithm type from the list:

      - **MD5** - A hashing algorithm that verifies a message's integrity using Message Digest version 5.
      - **SHA1** - A secure hashing algorithm that computes a 160-bit message digest for a data file that is provided as input.
      - **MD5SH1** - Similar to the MD5 hashing algorithm, but used for DH-CHAP authentication
      - **SHA1MD5** - Similar to the SHA1 hashing algorithm, but used for DH-CHAP authentication

   c. Select **DHNULL** as the group value (this is the only group that is supported).
4. Click **Apply** to apply the changes.
5. Click **OK** to save the changes and close the dialog box.

Configuring security authentication using the BCU

Enter the following command to display or configure security authentication for the ports.

bcu auth - -**algo** <*port_id*> <*md*|*sha1*|*ms*|*sm*>

bcu auth - -**policy** <*port_id*> {*on*|*off*}

bcu auth - -**secret** <*port_id*> "*secret_string*"

bcu auth - -**show** <*port_id*>

bcu auth - -**stats** <*port_id*>

bcu auth - -**statsclr** <*port_id*>

Refer to "auth" on page 154 for details about these commands.

Buffer credits

Buffer-to-buffer credit flow control is implemented to limit the amount of data a port sends, based on the number and size of the frames sent from that port. This scheme allows Fibre Channel to be self-throttling, thereby allowing it to establish a reliable connection without the need to accommodate dropped frames due to congestion. Buffer credit limits between each device and the fabric are communicated at the time of fabric login. One buffer credit allows a device to send one frame of data (typically 1 or 2 KB). Buffer credits cannot be configured on an adapter.

The default BB Credit is 1. The baseline for the calculation is one credit per kilometer at 2 Gbps. This yields the following values for 10 km:

- 5 credits per port at 1 Gbps
- 10 credits per port at 2 Gbps
- 20 credits per port at 4 Gbps
- 40 credits per port at 8 Gbps

Refer to the "Extended Fabrics concepts and planning" section of the *Fabric OS Administrator's Guide* for detailed information about buffer credits.

Basic port configuration

For each port, you can configure the following parameters using the **Basic Port Configuration** dialog box, the Brocade Command Line utility (BCU), or both. Table 7 lists the features and configuration options.

TABLE 7 Basic port configuration options

Port configuration parameter	Configurable using the GUI	Configurable using the BCU	For more information
Port logging level[1]	Yes	Yes	"Port logging level"
Configure speed (HBA only)	Yes	Yes	"Port speed"
Frame data field size	Yes	Yes	"Frame data field size"
Persistent Binding Note: The persistent binding option is available on Windows platforms only.	Yes	Yes	"Persistent binding"
QoS (HBA only)	Yes	Yes	"QoS (HBA only)"
MPIO mode (HBA only)	Yes	Yes	"MPIO (HBA only)"
Path Time Out [2]	Yes	Yes	"Path Time Out"
Target Rate Limiting (HBA only)	Yes	Yes	"Target rate limiting (HBA only)"
Boot over SAN (HBA only)	Yes	Yes	"Boot over SAN (HBA only)"
Boot code image upload (HBA only)	Yes	Yes	"Boot code image upload (HBA only)"

[1] If an Ethernet port is selected, the Basic Port Configuration dialog displays an additional feature called "Eth Logging Level."
[2] Path Time Out is available only when MPIO is disabled.

Opening the Basic Port Configuration dialog box

There are slight changes in HCM's basic port configuration dialog, depending on the operating system. You can access the **Basic Port Configuration** dialog box by selecting the Host, an HBA, an HBA port, a CNA, or an FCoE port from the device tree.

1. Select a device from the device tree.
2. Select **Configure > Basic Port Configuration** from the main menu.

   The **Basic Port Configuration** dialog box displays.

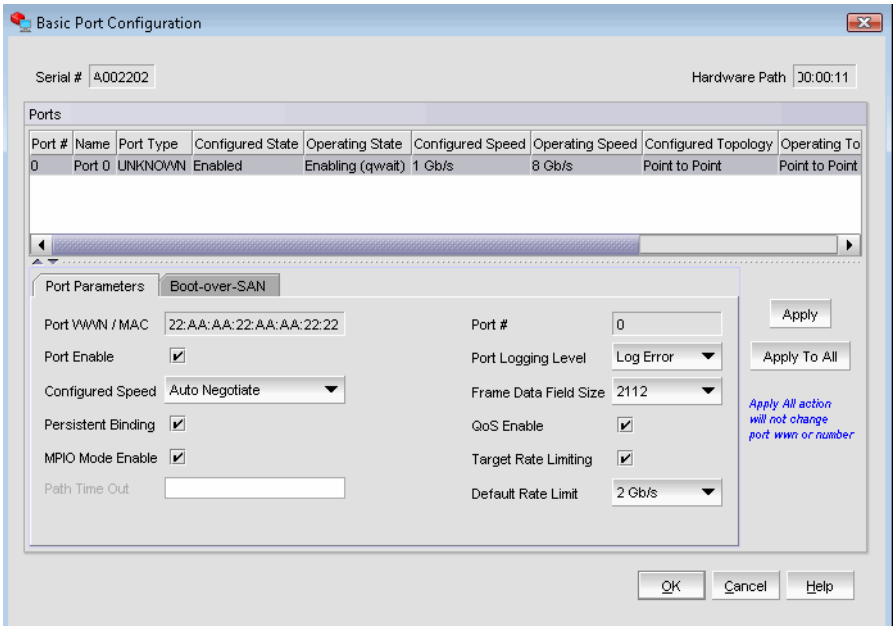


FIGURE 7 **Basic Port Configuration dialog box - Windows, Linux, and VmWare**

Port logging level

The number of messages logged by the host depends on the predetermined logging level. Although the adapter might generate many messages, only certain types of messages are logged based on the specified logging level.

Configuring the port logging level using the GUI

1. Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

   The **Basic Port Configuration** dialog box displays.

2. Select a value from the **Port Logging Level** list.

   Supported values are Log Critical, Log Error, Log Warning, and Log Info.

3. Click **Apply** to apply the changes.
4. Click **OK** to save the changes and close the window.

Configuring the port logging level using the BCU

Enter the following command to set the logging level on the port.

bcu log –-**level** <*port_id*> [<*level*>] [-m <fw|ha1|fcs|drv|aen|all>]

Refer to "log" on page 181 for details about this command.

Ethernet logging level

The number of messages logged by the host depends on the predetermined logging level. Although the Ethernet port might generate many messages, only certain types of messages are logged based on the specified logging level.

Configuring the Ethernet logging level using the GUI

1. Select an Ethernet port from the Host Connectivity Manager device tree.
2. Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

   The **Basic Port Configuration** dialog box displays.

3. Select a value from the **Eth Logging Level** list.

   Supported values are Log Critical, Log Error, Log Warning, and Log Info.

4. Click **Apply** to apply the changes.
5. Click **OK** to save the changes and close the window.

Configuring the Ethernt logging level using the BCU

Enter the following command to set the logging level on the port.

bcu ethlog - -**level** <*port_id*> [<*level*>]

Refer to "ethlog" on page 171 for details about this command.

Port speed

Port speed is the maximum amount of data that can pass through the port at a given second. The unit of measurement is in gigabits per second (Gbps).

NOTE
For the 10 Gbps CNA, the only option is auto-negotiate.

Configuring the port speed using the GUI

1. Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

   The **Basic Port Configuration** dialog box displays.

2. Select a value from the **Configured Speed** list.

   Speed options for the HBA are 1 Gbps, 2 Gbps, 4 Gbps, and 8 Gbps. The available speed options depend on the HBA's speed and the port's SFP. Auto-negotiate is the recommended setting and it is the default.

3. Click **Apply** to apply the changes.

   A port disable/enable configuration dialog displays, confirming the configured speed, which will take effect when the port is disabled or enabled.

4. Click **Yes** to continue, or **No** to cancel the operation.

5. Click **OK** to close the window.

Configuring the port speed using the BCU

Enter the following command to set the port speed.

bcu port - -**speed** <*port_id*> [<*speed*>]

Refer to "port" on page 185 for details about this command.

Frame data field size

Buffer credits determine the maximum amount of frame data. If the number of buffer credits is not large enough to handle the link distance and speed, performance can be severely limited.

See "Buffer credits" on page 24 for information about buffer credits.

Specifying the maximum frame size using the GUI

1. Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

   The Basic Port Configuration dialog box displays.

2. Select the frame size from the **Frame Data Field Size** list. Options include 512, 1024, 2048, and 2112 Mbps. The default value is 2112.
3. Click **Apply** to apply the change.
4. Click **OK** to close the window.

Configuring the frame data field size using the BCU

The dfsize command sets the ports maximum receive data field size. If you do not specify a value, the driver default receive buffer size displays, which is 2112.

NOTE
The new receive data field size takes effect when the port is re-enabled.

Enter the following command to set the frame data field size.

bcu port - -**dfsize** <*port_id*> [<*dfsize*>]

Refer to "port" on page 185 for details about this command.

Persistent binding

Persistent binding enables you to permanently assign a system SCSI target ID to a specific FC device. Persistent binding can be achieved by binding to world wide port name (WWPN), world wide node name (WWNN), or device ID (DID).

You can access the **Persistent Binding** dialog box by selecting the Host, an HBA, a CNA, a CEE port, or an FCoE port from the device tree.

Enabling and disabling persistent binding using the GUI

Persistent binding can be enabled or disabled from the HCM GUI using the following steps:

1. Launch the **Basic Port Configuration** dialog at the port level.
2. Check or uncheck the persistent binding check box in the **Basic Port Configuration** dialog.

NOTE
The Persistent Binding check box is not available for Solaris agents.

Enabling and disabling persistent binding using the BCU

Target persistent binding enables target port world wide name binding to a persistent target ID for the OS stack. Using the -list operand, you can query the list of mappings from the persistent binding module.

Enter the following commands to configure target persistent binding.

bcu pbind - -**list** <*port_id*> [<*pwwn*>]

bcu pbind - -**clear** <*port_id*>

Refer to "pbind" on page 184 for details about this command.

QoS (HBA only)

NOTE
The QoS feature is not supported on the converged network adapter (CNA).

Quality of Service (QoS) works in conjunction with the QoS feature on Brocade switch F_Ports. The Fabric operating system (FOS) provides a mechanism to assign traffic priority (high, medium, or low) for a given source and destination traffic flow. By default, all flows are marked as medium.

This feature is supported only on 8 Gbps HBA ports installed on specific switch models that use Fabric OS 6.2 and later. The following licenses need to be installed on the switch connected to each HBA port (edge switch):

- Adaptive Networking (AN) license.
- Server Application Optimization (SAO) license.

To determine if these licenses are installed on the connected switch, execute the Fabric OS **licenseshow** command. Refer to the *Fabric OS Administrator's Guide* for detailed information about QoS.

Configuring QoS on the switch side using the BCU

On the switch side, you can create QoS zones using the PWWNs that correspond to devices in a source/destination traffic flow. You need a Server Application Optimization (SAO) license installed on the switch to enable QoS. In addition, an Adaptive Network (AN) license is required on the switch to enable QoS on the switch ports.

You enable or disable QoS settings on ports with the **portCfgQos** command. Refer to the *Fabric OS Administrator's Guide* for details about this command on the switch side.

Configuring QoS on the HBA side using the BCU

There are three possible QoS states:

- Enabled, online - QoS is established with the switch.
- Enabled, offline - QoS negotiation failed and QoS was not established with the switch. Possible reasons for failure could be the license is not installed on the switch or QoS is not enabled on the port.
- Disabled.

NOTE
You must first enter the `bcu port -disable <port_id>` command, followed by the `bcu port -enable <port_id>` command, before the `bcu qos -enable` or `bcu qos -disable` commands take effect.

Enter the following commands to enable or disable QoS support on the HBA side.

bcu qos - -**enable** <*port_id*>

bcu qos - -**disable** <*port_id*>

bcu qos - -**query** <*port_id*>

bcu qos - -**stats** <*port_id*>

bcu qos - -**statsclr** <*port_id*>

Refer to "qos (HBA only)" on page 190 for details about this command.

MPIO (HBA only)

Multipathing I/O (MPIO) uses redundant physical path components such as adapters, cables, and switches to create logical paths between the server and the storage device. In the event that one or more of these components fails, causing the path to fail, MPIO uses an alternate path for I/O so that applications can still access their data.

Specifying the MPIO using the GUI

1. Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

   The **Basic Port Configuration** dialog box displays.
2. Click the **MPIO Mode Enable** check box.
3. Click **OK** to close the window.

Specifying MPIO using the BCU

Enter the following command to set the MPIO mode to on or off. If the MPIO mode is off, you can specify an optional path time out value (TOV) in seconds (1 to 60). A timeout value of 10 is the default.

bcu fcpim - -**pathtov** <*port_id*> tov

Refer to "fcpim" on page 177 for details about this command.

Path Time Out

You can enable or edit the Path Time Out field only when MPIO is disabled.

Specifying Path Time Out using the GUI

1. Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

   The Basic Port Configuration dialog box displays.

2. Type a value in the **Path Time Out** text field. Its value range is 0 to 60. A timeout value of 30 is the default.
3. Click **OK** to close the window.

Specifying Path Time Out using the BCU

Enter the following command to set the MPIO mode to on or off. If the MPIO mode is off, you can specify an optional path time out value (TOV) in seconds (1 to 60). A timeout value of 30 is the default.

bcu fcpim - -**pathtov** <*port_id*> tov

Refer to "fcpim" on page 177 for details about this command.

Target rate limiting (HBA only)

NOTE
The target rate limiting feature is not supported on the converged network adapter (CNA).

The target rate limiting feature is used to minimize congestion at the adapter port caused by a slow drain device operating in the fabric at a slower speed. A remote port's operating speed is determined from the fabric. Traffic destined to the remote port is limited to its current operating speed.

Enabling and disabling rate limiting on the adapter side using the GUI

Target rate limiting is supported only when the adapter port is connected to the fabric. Therefore, target rate limiting is not supported when the port is directly connected with another device.

1. Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

   The **Basic Port Configuration** dialog box displays.

2. Enable the Target Rate Limiting feature by clicking the corresponding check box.
3. Select the default rate limit from the list. Options include 1 Gbps, 2 Gbps, and 4 Gbps; the default is 2 Gbps.
4. Click **OK** to close the window.

Enabling and disabling rate limiting on the adapter side using the BCU

Enter the following command to enable or disable rate limiting on the adapter side.

NOTE
You must first enter the `bcu port --disable <port_id>` command, followed by the `bcu port --enable <port_id>` command, before the `bcu ratelim --enable` or `bcu ratelim --disable` commands take effect.

bcu ratelim - -**enable** <*port_id*> [-s <*default_speed*>]

bcu ratelim - -**disable** <*port_id*>

bcu ratelim **- -query** <port_id>

bcu ratelim **- -defspeed** <port_id> [<1|2|4>]

Refer to "ratelim (HBA only)" on page 191 for details about this command.

Boot over SAN (HBA only)

NOTE
The Boot over SAN feature is not supported on the converged network adapter (CNA).

The boot over SAN feature allows you to target remote boot devices (LUNs on SAN storage arrays) from which to boot the host system. When the host's operating system and adapter driver are installed on the remote device, the adapter BIOS and user-configurable boot instructions stored in adapter flash memory allow the host to boot from the device.

NOTE
Various operating systems require you to follow specific guidelines to enable servers to boot from a SAN. Understanding these requirements is key to a successful deployment of a boot over SAN environment.

Boot LUNs are identified to adapter ports using the BIOS Configuration Utility and BCU commands. These utilities also allow you to enable or disable BIOS for booting the host system over SAN, set boot options, and set the port speed. Refer to the *Brocade Adapters Installation and Reference Manual* for instructions.

After you have configured boot devices using the BIOS Configuration Utility, you can enable or disable BIOS for boot over SAN, set boot options, and set port speed using the HCM GUI. All configuration is stored in flash memory.

Configuring Boot over SAN

The boot-LUN table lists the vendor information, LUN capacity, and whether the LUNs are accessible. These fields are not editable.

You can access the **Boot over SAN** dialog box by selecting the Host, an HBA, or an HBA port from the device tree.

NOTE
Boot over SAN configuration using the **Basic Port Configuration** dialog box is enabled on all platforms if the agent version is 1.1 or higher.

Select **Configure > Basic Port Configuration** from the Host Connectivity Manager.

The **Basic Port Configuration** dialog box displays.

5. Click the **Boot-over-SAN** tab.

   The **Boot-over-SAN** dialog box displays.

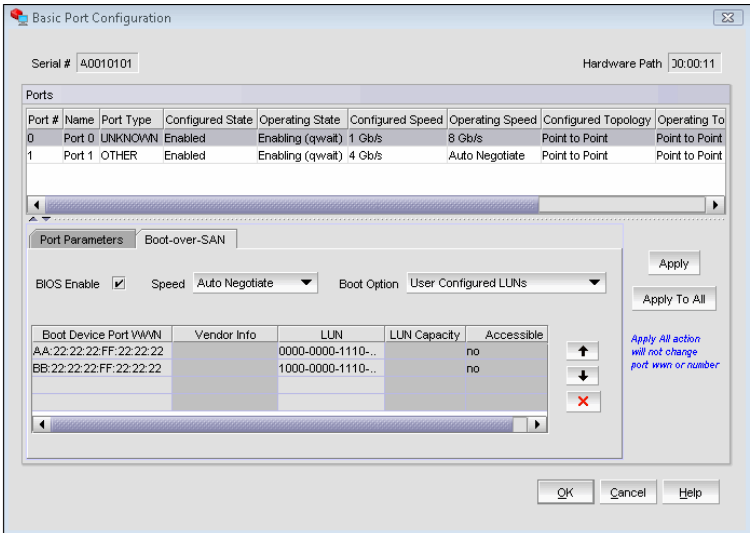


FIGURE 8 **Boot-over-SAN dialog box**

6. Click the **BIOS Enable** check box to enable Boot Over SAN.

NOTE
Auto Negotiate is the only speed option for the 10 Gbps CNA card.

7. From the Boot Option list, select one of the following:

   - **Auto Discovered from Fabric** - Enables Boot over SAN using boot LUN information stored in the fabric. This is the default setting.
   - **First Visible LUN** - Enables Boot over SAN from the first discovered LUN in the SAN.
   - **User Configured LUNs** - Allows the user to select and prioritize the remote target and LUN for booting over SAN.

8. Select the Boot Device Port WWN row in the table, then click the up and down arrows to move the row up or down in the table. The host will attempt to boot from the first LUN in the table, and then move on to succeeding LUNs.
   - You can delete a row using the **Delete** button under the arrows.
   - Click the **Boot Device Port WWN** and **LUN** fields to physically enter boot LUNs to the table. These LUNs must be visible to the adapter to be accessible as boot LUNs.
9. Click **OK**.

   The Vendor Info, LUN Capacity, and Accessible status that correspond to the selected boot device and LUN display automatically.

Enabling and disabling Boot over SAN using the BCU

Boot commands enable you to query a boot configuration and set or disable the boot over SAN configuration. Enter the following command to enable or disable Boot over SAN.

bcu boot - -**blunZone** -c <cfg> -p <port_wwn> -r <rport_wwn> -l <lun_id | lun#>

bcu boot - -**upload** [adapter_id] <image_file> [-a]

Refer to "boot (HBA only)" on page 159 for details about this command.

Boot code image upload (HBA only)

You can upload a boot code image on the local host or on an HBA. The boot-over-SAN feature is not supported on the converged network adapter (CNA) . Follow these steps to upload the latest boot code using either the HCM GUI or the BCU.

NOTE
On Solaris systems, the Boot Code Image Upload menu is disabled if the host does not have a Fibre Channel HBA card or if the driver version is lower than 1.1.0.7 (the version must be 1.1.0.7 or higher for Solaris).

Updating boot code using the GUI

1. Download the boot code (brocade_adapter_boot_fw_v2-0-0-0) from www.brocade.com/hba to a folder on your local drive.
2. Launch HCM.
3. Right-click a host or adapter from the device tree and select **Upload Boot Code Image** from the list.
   - Right-clicking a host uploads the boot code image to all adapters that are installed on the host.
   - Right-clicking an adapter uploads the boot code image to the selected adapter only.

   The **Boot Code Image Upload** dialog displays.

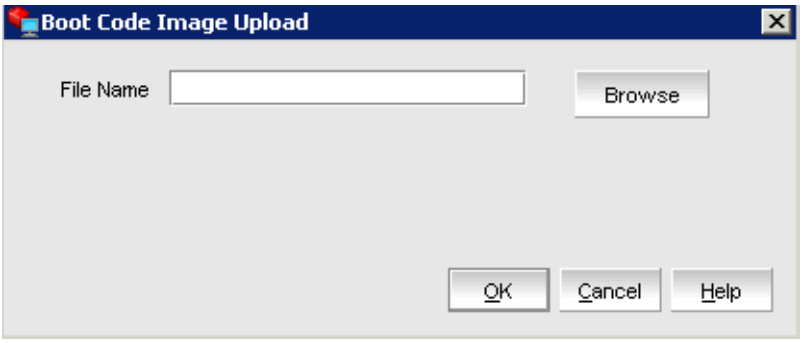


FIGURE 9 **Boot Code Image Upload dialog box**

4. Click the **Browse** button and navigate to the location of the boot code image.
5. Select the boot code image and click **Open**.

   The selected file uploads. If an error occurs during the uploading process, an error message displays.

Virtual Port configuration

Virtual ports (V_Ports) appear to the hosts as physical ports in the data network. One or more virtual ports are assigned to each host, and a host can access storage at a virtual port only if the virtual port has been assigned to the host.

NOTE
You cannot create a V_Port that already exists in the **Names** dialog. If you need to re-create a V_Port that has been deleted through an interface other than the currently managing HCM or the V_Ports deleted on Linux servers reboot, you must first manually remove the V_Port's WWN from the **Names** dialog box in HCM. If you do not manually remove the V_Port from HCM, an error message displays that the V_Port already exists. See "Removing a name entry" on page 43 for instructions.

Creating a Virtual Port

You create virtual ports on HBA ports and FCoE ports only; virtual ports are not supported on an adapter. Virtual ports are not supported for VMware and Solaris agents.

1. Select a physical HBA port or an FCoE port from the device tree.
2. Select **Configure > Virtual Port > Create** from the main menu.

   OR

   Right-click the physical port and select **Virtual Port > Create** from the list.

   The **Virtual Port Creation** dialog box displays. The following fields are system-generated:

   - Physical port world wide name.
   - Virtual port world wide name - This WWN must be unique.
   - Virtual node world wide name - The system returns the default node WWN, which is the physical port node WWN.

NOTE
By default, the **Use auto-generated** check box is selected and the **Generate Again** button is enabled. You can still edit the Virtual Port WWN field if **Use auto-generated** is selected.

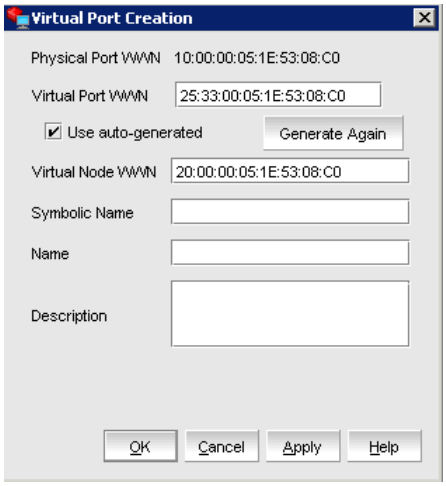


FIGURE 10 Virtual Port Creation dialog box

3. (*Optional*). Provide a symbolic name for the virtual port.
4. (*Optional*). Provide an alias name for the virtual port. By creating an alias, you can assign a familiar name to a device or group multiple devices into a single name. This can simplify cumbersome data entry and allows an intuitive naming structure.
5. (*Optional*). Enter descriptive information about the virtual port into the **Description** text box.
6. Click **OK** to apply the changes and close the window.

Deleting a Virtual Port

1. Select a virtual port from the device tree.
2. Select **Configure > Virtual Port > Delete** from the main menu.

   OR

   Right-click the virtual port and select **Virtual Port > Delete** from the list.

   A warning message displays, asking for confirmation.
3. Click **OK** to continue.

   The **Virtual Port Deletion** dialog box displays.
4. Click the check box that corresponds to one or multiple virtual ports you want to delete, and click the **Delete Selected** button.

   If you want to delete all virtual ports, click the **Delete All** button.

NOTE
You can also select a base port from the device tree and delete it the same way you delete a virtual port.

HCM Logging levels

You can set the log level for the following modules:

- Agent communication log, where all messages are exchanged between the HCM GUI application and the HCM agent.
- HCM debug log, where messages are logged locally.

If you do not set an HCM log level, TRACE, which is the most verbose and the default, is used.

Configuring the HCM logging level using the GUI

1. Select **Configure >HCM Logging Levels** from the Host Connectivity Manager.

   The **Configure HCM Logging Levels** dialog box displays.

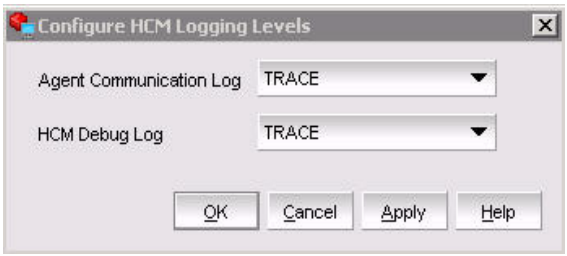


FIGURE 11 Configure HCM Logging Levels dialog box

2. From both the **Agent Communication Log** and the **HCM Debug Log** lists, select one of the following:
   - Trace, which is the most verbose.
   - Debug
   - Info
   - Warning
   - Error
   - Fatal, which is the least verbose.
3. Click **Apply** to apply the change.

Advanced port configuration

You can access the **Advanced Port Configuration** dialog box by selecting an HBA port or an FCoE port from the device tree.

For each port, you can configure the following parameters using the **Advanced Port Configuration** dialog box, the Brocade Command Line utility (BCU), or both. Table 8 lists the features and configuration options.

TABLE 8 Advanced port configuration options

Port configuration parameter	Configurable using the GUI	Configurable using the BCU
Queue Depth	Yes	Yes
Interrupt Control Coalesce (HBA only)	Yes	Yes
Interrupt Control Latency (HBA only)	Yes	Yes
Interrupt Control Delay (HBA only)	Yes	Yes

Opening the Advanced Port Configuration dialog box

1. Select an HBA port or FCoE port from the device tree.
2. From the Host Connectivity Manager, select **Configure > Port Configuration > Advanced.**

   The **Advanced Port Configuration** dialog box displays.

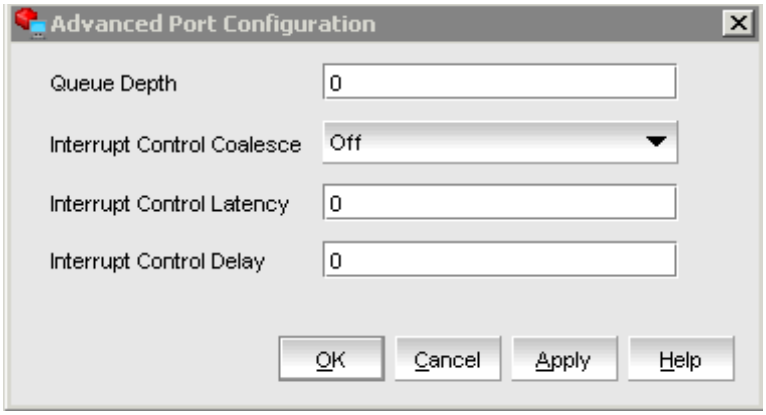


FIGURE 12 Advanced Port Configuration dialog box

Queue Depth configuration

The queue depth is the number of I/O operations that can be run in parallel on a device. When the queue is full, the drive refuses to accept any additional SCSI commands. The device continues to refuse new commands until at least one command has been completed, freeing up space in the queue.

Configuring the queue depth using the GUI

1. Select a port from the device tree.
   - From the Host Connectivity Manager, select **Configure > Advanced Port Configuration.**

     The **Advanced Port Configuration** dialog box displays.

     OR
   - Right-click a port and select **Port Configuration > Advanced**.
2. Set the queue depth (a value that represents the number of parallel I/O operations).

   The valid queue depth range is 0-2000.
3. Click **OK**.

Configuring the queue depth using the BCU

Enter the following command to set the queue depth.

bcu fcpim - -**qdepth** <*port_id*> <*q_depth_value*>

Refer to "fcpim" on page 177 for details about this command.

Interrupt Control Coalesce

NOTE
The Interrupt Control Coalesce feature is not supported on the converged network adapter (CNA).

Interrupt control coalescing allows the system to change CPU utilization by varying the number of interrupts generated. Increasing the latency monitor timeout value should result in a lower interrupt count and less CPU utilization, which may result in higher throughput.

Configuring the Interrupt Control Coalesce using the GUI (HBA only)

1. Select a port from the device tree.
   - From the Host Connectivity Manager, select **Configure > Advanced Port Configuration.**

     The **Advanced Port Configuration** dialog box displays.

     OR
   - Right-click a port and select **Port Configuration > Advanced**.
2. Set the latency and delay values:
   - Select On from the **Interrupt Control Coalesce** list.
   - Specify the latency monitor timeout value in microseconds, if coalesce is set to on. Latency timeout values supported are 0-225 microseconds. Setting the latency timeout value to 0 disables the latency monitor time out interrupt.
   - Specify the delay timeout value in microseconds, if coalesce is set to on. Delay timeout values supported are 0-1125 microseconds. Setting the delay timeout value to 0 disables the latency monitor time out interrupt.
3. Click **OK**.

NPIV

N-Port ID Virtualization (NPIV) enables a single Fibre Channel protocol port to appear as multiple, distinct ports. NPIV provides separate port identification within the fabric for each operating system image (partition) behind the port, as if each operating system image had its own unique physical port.

Each NPIV device has a unique virtual port ID (PID), port WWN, and node WWN. The virtual port has the same properties as an N_Port and is therefore capable of registering with all services of the fabric. In other words, multiple virtual devices emulated by NPIV appear no different than regular devices connected to a non-NPIV port. The maximum number of virtual PIDs for an N_Port on a FC switch is 255. For a CEE switch, the maximum number of V_Ports is 64.

NPIV is available at the physical port level or at the virtual fabric level. If virtual fabric ports are detected, then you cannot configure NPIV parameters at the physical port level. If virtual fabric ports are deleted on the switch port side, the NPIV parameters can then be configured at the physical port level. No settings are available for V_Ports from basic port configuration.

NOTE
NPIV is not supported on Solaris platforms.

Name configuration

The Host Connectivity Manager allows you to configure names as a method of providing familiar, simple names to world wide names for adapters, ports, virtual ports, and remote ports in the SAN. (A logical port can be a base port or a virtual port.) Only unique names are allowed.

You can access the **Configure Names** dialog box by selecting an HBA, an HBA port, a Virtual Port, a CNA or a CEE port from the device tree.

You can perform the following name tasks using either the **Configure Names** dialog or the **Define Names** dialog:

- Associate a name that represents an adapter, port, virtual port, or remote port. Note the following things about names:
  - Among all adapters, two cannot have duplicate names.
  - Among all the ports, two cannot have duplicate names.
  - A port and adapter can have the same name.
  - You cannot associate a name for a storage device.
  - Name changes on remote ports and virtual ports are sent to the *.properties file local to the HCM application but are not sent to the agent.
- Add a detached WWN and an associated name with Type and operational status as Unknown.
- Remove or disassociate a name from a WWN.

NOTE
You can launch the **Define Names** dialog by right-clicking an adapter, port, remote port, or V_Port.

Name validation

Note the following when you define a name:

- The name cannot begin with a number.
- The name cannot begin with an underscore (_) or hyphen (-), however an underscore or hyphen character is allowed within the name; for example, name1_name-2.
- No special characters are allowed, except for an underscore or hyphen.
- The maximum length of the name is 15 characters.
- The maximum length of the description is 80 characters.

Editing the name fields

Only the name, the world wide name (WWN), and the description fields are editable. Depending on the component, the following occurs when you edit the name fields:

- Name changes on the adapter and ports are sent to the agent and stored in the *.properties file.
- Name changes on remote ports and virtual ports are sent to the *.properties file local to the HCM application but are not sent to the agent.

1. Select an HBA, an HBA port, a Virtual Port, a CNA or a CEE port from the device tree.
2. Select **Configure > Names** from the Host Connectivity Manager.

   OR

   Right-click a device from the device tree and select **Configure > Names**.

   The **Configure Names** dialog box displays all the discovered and detached (undiscovered) names.

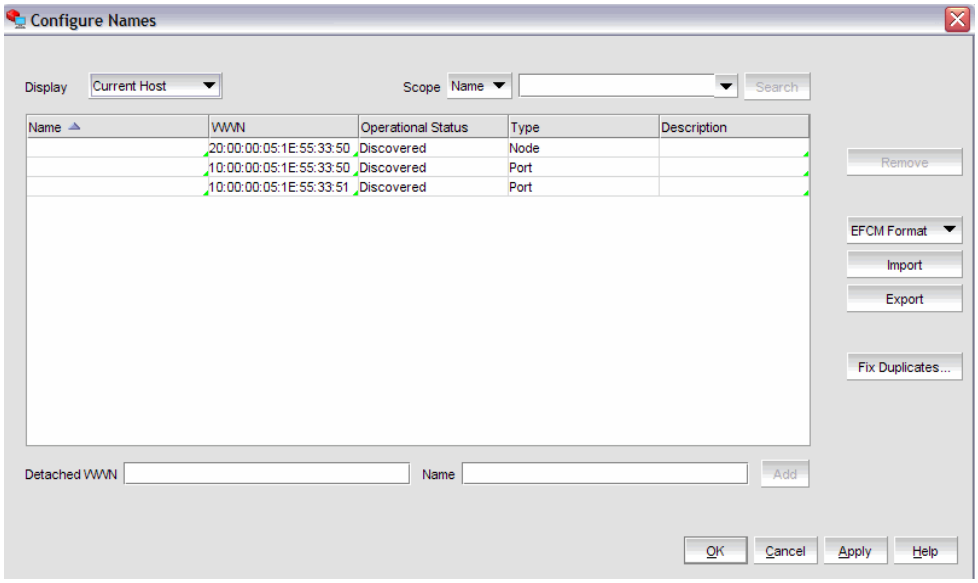


FIGURE 13 Configure Names dialog box

3. Select a row and edit the name, the WWN, and the description, as needed.
4. Click **OK**.

Adding name entries

You can add up to 2000 names which are then stored in the `HbaAliasdb.properties` file. The entries persist during reboot.

The WWN types are as follows:

- Node
- Port
- Remote Port
- V_Port
- Dual Role (port type that acts as initiator and target)
- Unknown

1. Select an HBA, an HBA port, a Virtual Port, a CNA or a CEE port from the device tree.
2. Select **Configure > Names** from the Host Connectivity Manager.

   OR

   Right-click a device from the device tree and select **Configure > Names.**
3. Type a name that represents an adapter, port, or storage device into the **Name** text box.
4. Type a valid WWN that corresponds to the name.
5. Click **OK** to close the window.

   The new component is added to the **Name** list.

Removing a name entry

The Remove functionality clears the name and description values of a selected detached WWN.

1. Select an HBA, an HBA port, a Virtual Port, a CNA or a CEE port from the device tree.
2. Select **Configure > Names** from the Host Connectivity Manager.

   OR

   Right-click a device from the device tree and select **Configure > Names**.

   The **Configure Names** dialog box displays all the names available at the host.
3. Select one of the following from the **Display** list:
   - Current Host
   - All WWNs
   - Only Nodes
   - Only Ports
   - Only V_Ports
   - Only Remote Ports

   A list of names for the devices you selected displays.

4. Select a device to highlight it and click the **Remove** button to remove the discovered device from the list.

   The **Remove** button clears the names of the discovered WWN and the entire row of the detached (undiscovered) WWN.

5. Click **OK** to close the window.

Exporting the properties for a WWN

You can export the properties for a world wide name in .csv, *.properties, or .txt file format.

1. Select an HBA, an HBA port, a Virtual Port, a CNA or a CEE port from the device tree.
2. Select **Configure > Names** from the Host Connectivity Manager.

   OR

   Right-click a device from the device tree and select **Configure > Names**.

   The **Configure Names** dialog box displays.
3. Select one of the following from the **Display** list:
   - Current Host
   - All WWNs
   - Only Nodes
   - Only Ports
   - Only L_Ports
   - Only V_Ports
   - Only Remote Ports
4. Click the **Export** button.

   The **Save** dialog box displays. You can save the properties file in .txt, .csv, or .properties format.
5. Name the file, and click **Save**.
6. Click **OK** to close the window.

Importing the properties for a WWN

1. Select **Configure > Names** from the Host Connectivity Manager.

   OR

   Right-click a device from the device tree and select **Configure Names**.

   The **Configure Names** dialog box displays.
2. Select one of the following from the **Display** list:
   - Current Host
   - All WWNs
   - Only Nodes
   - Only Ports
   - Only Remote Ports
3. Click the **Import** button.

   The **Open** dialog box displays.
4. Navigate to the location of the *.properties file from which you will import properties for the selected device.
5. Name the properties file, and click **Open**.
6. Click **OK** to close the window.

Importing properties in EFCM format

You can use this procedure to import properties in Enterprise Fabric Connectivity Manager (EFCM) format.

1. In the **Configure Names** dialog box, select **EFCM Format** and then select **Import**.
2. Click **OK**.
3. Navigate to the location of the *.properties file from which you will import properties for the selected device.

   The format appears as follows.

```
# Names Export File V 1.0 : DO NOT DELETE / MOVE / MODIFY THIS LINE
# For each row in the file the name should be followed by an '='
# Column Format: WWN=Name=Type =Description
# EFCM Names file Format [ Delimiter '=' ]
##########################################################################
200000051e536b20=s=Node=
200000051e536b43=bfa0=Node=
100000051e536b20=a=Port=
100000051e536b44=bfa0_port1=Port=
100000051e536b43=bfa0_port0=Port=
```

Importing properties in DCFM or FM format

You can use this procedure to import properties in DCFM or Fabric Manager (FM) format.

1. In the **Configure Names** dialog box, select **DCFM/FM Format** and then select **Import**.
2. Navigate to the location of the *.properties file from which you will import properties for the selected device.

   The format appears as follows:

```
# Names Export File V 1.0 : DO NOT DELETE / MOVE / MODIFY THIS LINE
# For each row in the file the name should be followed by an ','
# Column Format: WWN,Name,Type ,Description
# FM Names file Format [ Delimiter ',' ]
#########################################################################
200000051e536b20,s,Node,
200000051e536b43,bfa0,Node,
100000051e536b20,a,Port,
100000051e536b44,bfa0_port1,Port,
100000051e536b43,bfa0_port0,Port,Adding a name and a WWN
```

3. Click **OK**.

DCFM support for FCoE

The converged network adapter (CNA) is supported in the Data Center Fabric Manager (DCFM), version 10.3. DCFM 10.3 supports the following FCoE features:

- Virtual LANs (VLANs)
- Converged Enhanced Ethernet (CEE) switches and ports
- CEE maps
- Link Layer Discovery Protocol - Data Center Bridging Exchange (LLDP-DCBX) profiles
- Access control lists
- Spanning tree protocol
- 802.1x authentication
- FCoE login groups
- Virtual ports and trunks

Importing duplicated names

The **Duplicated Names** dialog box displays when you import a file with a duplicate name.

1. Select **Configure > Names** from the Host Connectivity Manager.

   OR

   Right-click a device from the device tree and select **Configure Names**.

   If there are duplicate names, the **Duplicated Names** dialog box displays.

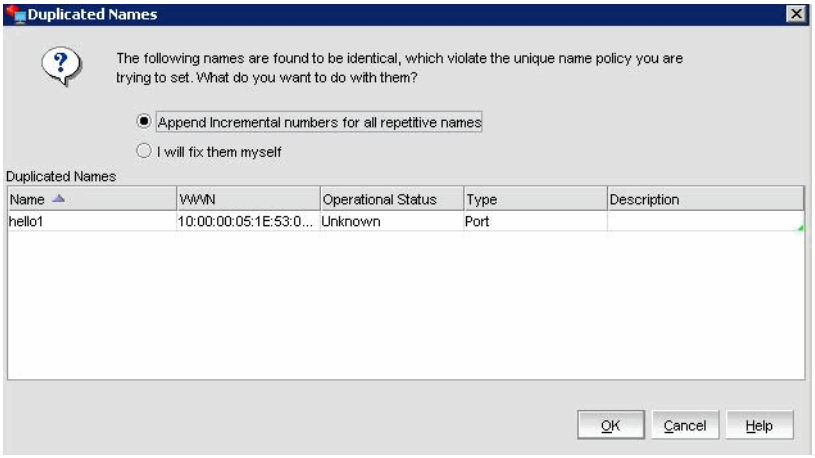


FIGURE 14 Duplicated Names dialog box

2. Determine which method you will use to fix the name policy violation, and click the appropriate button.

   - **Append incremental numbers for all repetitive names** - Click to instruct the software to add incremental numbers to fix the duplicated names.
   - **I will fix them myself** - Change duplicate names using the procedure in "Editing the name fields" on page 42.

3. Click **OK**.

VLAN configuration

A Virtual LAN (VLAN) is a collection of network nodes that share the same broadcast domain regardless of their physical location or connection point to the network. A VLAN serves as a logical workgroup with no other physical barriers and allows users to share information and resources as though located on the same LAN.

NOTE
VLAN configuration is a Windows-only feature.

There are three types of VLANS:

- Regular VLAN - A VLAN is identified using a VLAN ID (with a range of 1-4094, where 0 is used for an untagged VLAN) and a VLAN name.
- Passthru VLAN

  A Passthru VLAN has VLAN ID 0 and PASSTHRU as its VLAN Name. It can be created or deleted at any time and is treated as a regular VLAN; however, a Passthru VLAN is not editable.
- Port VLAN (PVID)

  You create a Port VLAN using Windows Device Manager. The VLAN ID is assigned when it is created and the VLAN name is PORT VLAN. You cannot create, edit, or delete a Port VLAN using the Host Connectivity Manager (HCM).

NOTE
If a PORT VLAN exists in the VLAN configuration, you cannot perform any add, delete, or edit operations on any VLAN. In addition, you cannot view statistical information on any VLAN.

Adding a VLAN

You can access the **VLAN Configuration** dialog box by selecting an Ethernet port from the device tree. This procedure provides instructions about how to add a VLAN to an Ethernet port.

NOTE
You can create a regular VLAN or a passthru VLAN only if a Port VLAN ID (PVID) does not exist. You cannot name a regular VLAN “PORT LAN” or “Passthru.”

1. From the Ethernet port level, select an Ethernet port from the device tree.
2. Select **Configure > VLAN Configuration** from the main menu.

   OR

   Right-click an Ethernet port and select **VLAN Configuration** from the list.

The **VLAN Configuration** dialog displays.

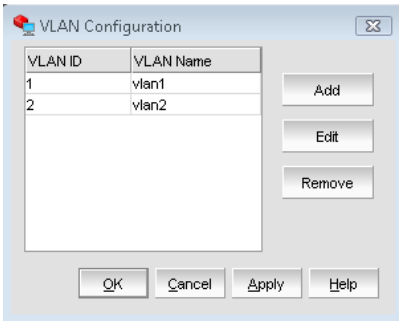


FIGURE 15 VLAN Configuration dialog box

3. Click the **Add** button that corresponds to the **VLANs** table.
4. Click **Add** on the **VLAN Configuration** dialog (Figure 15).

   The **Add VLAN** dialog displays. Figure 16 shows a VLAN configuration before a passthru VLAN is configured.

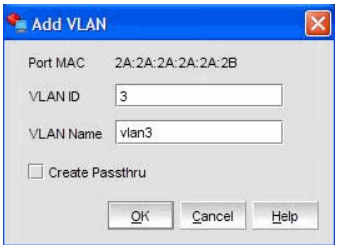


FIGURE 16 Add VLAN dialog box

5. Enter a VLAN identifier in the **VLAN ID** text box. The range is 1 to 4094.
6. Enter a VLAN name in the **VLAN Name** text box. The VLAN name must not exceed 31 characters.
7. (Optional) Click the **Create Passthru** checkbox to designate the VLAN as a Passthru VLAN.
8. Click **OK**.

VLAN configuration conflicts

Figure 17 shows the **VLAN Configuration** dialog box if a PORT VLAN exists in the configuration. When a PORT VLAN exists, the VLAN Add, Edit, and Remove buttons are disabled.

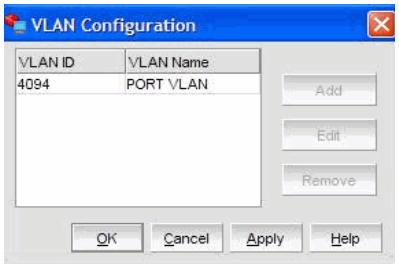


FIGURE 17 VLAN Configuration dialog box with PORT VLAN

A port VLAN cannot co-exist with a regular or Passthru VLAN. If the configuration includes a regular VLAN or a Passthru VLAN and a PORT VLAN, an error message displays, shown in Figure 18.

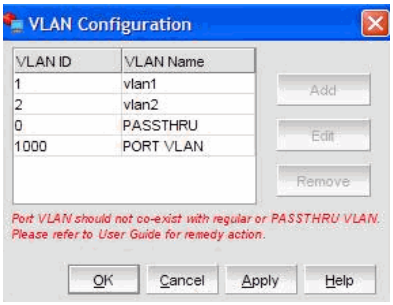


FIGURE 18 VLAN Configuration conflicts

You can remove a regular VLAN or Passthru VLAN from an invalid configuration using the instructions in "Removing a VLAN" on page 51. A regular VLAN or Passthru VLAN can be removed at any time. A PORT VLAN, however, is not editable.

Editing a VLAN

You can access the **VLAN Configuration** dialog box by selecting an Ethernet port from the device tree. This procedure provides instructions about how to edit an existing VLAN.

You cannot edit a PORT VLAN or a Passthru VLAN.

1. From the Ethernet port level, select an Ethernet port from the device tree.
2. Select **Configure > VLAN Configuration** from the main menu.

   OR

   Right-click an Ethernet port and select **VLAN Configuration** from the list.

   The **VLAN Configuration** dialog displays.

3. Click **Edit** on the **VLAN Configuration** dialog (Figure 15).

   The **Edit VLAN** dialog displays.

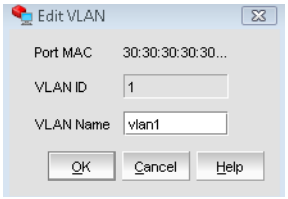


FIGURE 19 **Edit VLAN dialog box**

4. Type a new name in the **VLAN Name** text box.
5. Click **OK**.

Removing a VLAN

You can access the **VLAN Configuration** dialog box by selecting an Ethernet port from the device tree. This procedure provides instructions about how to remove an existing VLAN.

1. From the Ethernet port level, select an Ethernet port from the device tree.
2. Select **Configure > VLAN Configuration** from the main menu.

   OR

   Right-click an Ethernet port and select **VLAN Configuration** from the list.

   The VLAN Configuration dialog displays.
3. Click **Remove** on the VLAN Configuration dialog (Figure 15).

   A warning dialog displays.

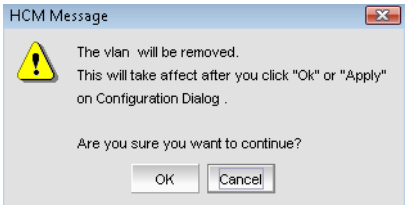


FIGURE 20 **Remove VLAN dialog box**

4. Click **OK** to remove the VLAN from the configuration.

Chapter

Monitoring

5

In this chapter

Performance monitoring

The Host Connectivity Manager (HCM) **Port Statistics** window enables you to monitor the performance of the CNA and the traffic between the CNA and the LUNs. You can use the information to isolate and troubleshoot areas that impact application performance.

The components listed in Table 9 display statistics when the FCoE port node is selected. Refer to "HCM Dialog Boxes" on page 75 for a description of each statistics field.

TABLE 9 Statistics monitored by component

Component	Statistics monitored
Local host	• Port
HBA	• Port
HBA port	• Port • Fabric • IOC • QoS • Authentication
CNA	• Port
CEE port	• Port • CEE • FCP IM Module
Ethernet port	• Eth IOC • VLAN • Eth
FCoE port	• Fabric • IOC
Logical port and base port	• Logical port
Virtual port	• Logical port • Virtual port

Polling frequency rate

The faster the polling rate, the more quickly the HCM GUI receives indications from the host. However, faster polling rates consume more of your system's CPU and network resources and can therefore slow the system.

Controlling the polling frequency rate

To control port statistics polling, do one of the following from any of the **Statistics** dialog boxes.

1. Click the **Start Polling** box to manually poll the port statistics.
2. Type the polling rate in the **Polling Frequency in Seconds** text box. The range is between five and 3600 seconds. The default is five seconds.
3. Click the **Stop Polling** box to stop port statistics polling.
4. Check the **Keep Running Data** check box to see the trend.

Resetting statistics

1. Click the **Reset** button on any of the **Statistics** dialog boxes.

   A warning dialog displays.

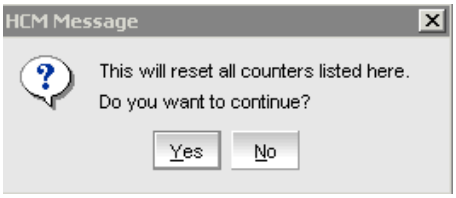


FIGURE 21 Reset Statistics warning

2. Click **Yes**.

   All of the statistics are reset to **0**.

Master Log

The **Master Log Properties** dialog box, described in Table 10, displays a list of all events that have occurred. Event monitoring enables early fault detection and isolation on a selected adapter. You can filter the events based on the user-defined criteria shown in Figure 22.

TABLE 10 Master Log fields

Field	Description
Filter button	Click to launch the **Master Log** Filter dialog box.
Clear Filter button	Click to clear the master log filter option set.
Sr No column	Displays a numbering sequence in ascending order.
Severity column	Displays the event severity (informational, minor, major, or critical).
WWN/MAC column	Displays the world wide name (WWN) or the media access control (MAC) address of the device on which the event occurred.
Category column	Displays the category of event; for example, Rport or ITNIM.
Subcategory column	Displays the subcategory of the main category.
Description column	Displays a brief description of the event.
Date/Time column	Displays the date and time when the event occurred.

Event severities

Table 11 describes the icons that represent the four event types.

TABLE 11 HCM Master Log icons

Description
Critical-level messages indicate that the software has detected serious problems that will eventually cause a partial or complete failure of a subsystem if not corrected immediately; for example, a power supply failure or rise in temperature must receive immediate attention.
Major messages represent conditions that do not impact overall system functionality significantly. For example, timeouts on certain operations, failures of certain operations after retries, invalid parameters, or failure to perform a requested operation.
Minor messages highlight a current operating condition that should be checked or it might lead to a failure in the future. For example, a power supply failure in a redundant system relays a warning that the system is no longer operating in redundant mode and that the failed power supply needs to be replaced or fixed.
Information-level messages report the current non-error status of the system components; for example, the online and offline status of a fabric port.

Filtering event log entries

Event filtering enables you to block events based on user-defined criteria (severity or type of log). Events that have been filtered out do not appear in the Master Log

1. Click the **Filter** button in the **Master Log** section of the bottom pane.

   The **Master Log Filter** dialog box displays.

2. Filter the events using one or a combination of the criteria shown in Figure 22.

NOTE
The Category is the type of event; for example, an adapter, port, or audit.

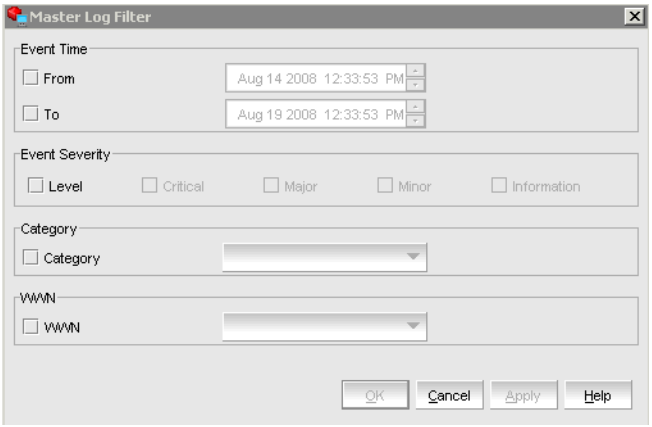


FIGURE 22 Master Log Filter dialog box

3. Click **Apply** to save your changes, or click **Cancel** to exit the window.

   OR

   Click **OK** to save the changes and exit the window.

Application log

The application log displays all application-related informational and error messages, as well as the following attributes:

- Date and time the message occurred
- Severity of the message
- Description of the message
- The agent IP address

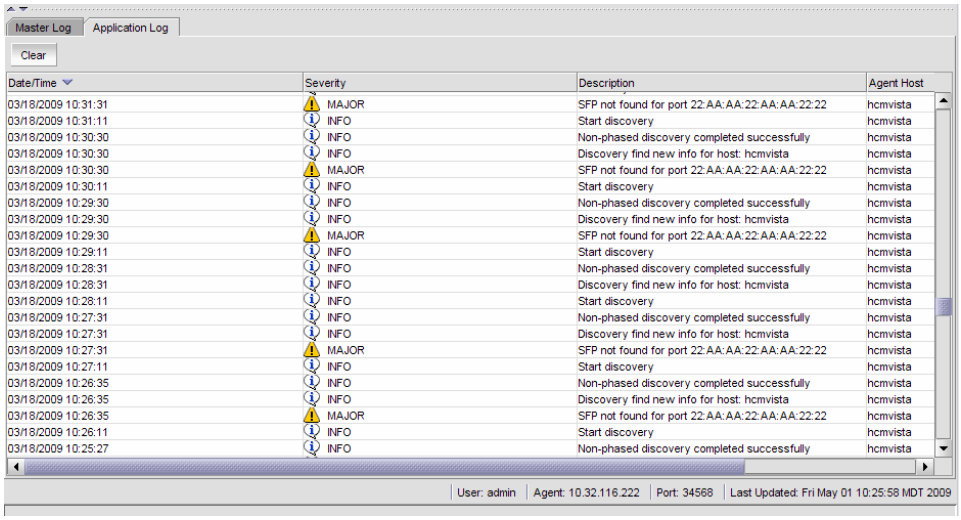


FIGURE 23 HCM Application Log

Syslog support

Syslog forwarding is the process by which you can configure the Host Connectivity Manager (HCM) agent to send Syslog messages to other computers through port 514. You can configure the HCM agent to forward events to a maximum of three Syslog destinations. These events will display in the operating system logs.

The HCM stores all the received events from the driver in the agtEvent.log file. By default, the location is `/opt/hcmagent/log/hbaEvents.log` in Linux and Solaris systems.

Opening the Syslog Server Configuration dialog box

1. Select an adapter from the device tree.
2. Select **Configure > Syslog** from the main menu.

   The **Syslog Server Configuration** dialog box displays.

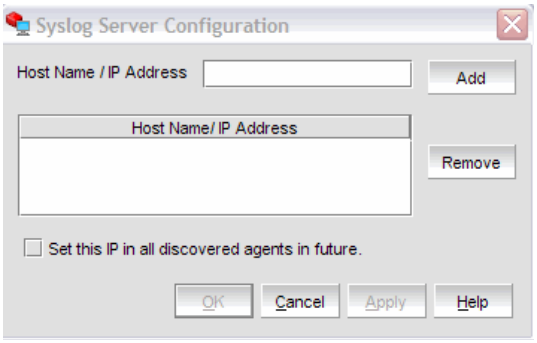


FIGURE 24 Syslog Server Configuration dialog box

Registering a host server

You can register up to three Syslog destinations on managed Fabric OS devices.

1. Select **Configure > Syslog** from the main menu.

   The **Syslog Server Configuration** dialog box displays.
2. Enter the host name or IP address of the destination device into the **Host Name/IP Address** field.
3. Click **Add** to register the host as a Syslog destination.
4. Click **OK** to close the dialog box.

Removing a host server

1. Select **Configure > Syslog** from the main menu.

   The **Syslog Server Configuration** dialog box displays.
2. Enter the host name of the destination device into the **Hostname** field.
3. Enter the IP address of the destination device into the **IP Address** field.
4. Click **Remove** to remove the host as a Syslog destination.
5. Click **OK** to close the dialog box.

5 Syslog support

Chapter

6

Diagnostics

In this chapter

Related Diagnostic Documentation

The information in this chapter is specific to commands that support the adapter. You can run diagnostics using the Brocade Command Line Utility (BCU) or the Host Connectivity Manager (HCM) GUI.

For more information, refer to the documentation listed in Table 12.

TABLE 12 Related diagnostic documentation

Part Number	Document Title
53-1001254-01	*Brocade Adapters Installation and Reference Manual* *Supporting CNA models BR-1010 and BR-1020* *Supporting HBA models 415, 425, 815, 825*
53-1001253-01	*Brocade Adapters Troubleshooting Guide* *Supporting CNA models BR-1010 and BR-1020* *Supporting HBA models 415, 425, 815, 825*
53-1001336-01	*Fabric OS Administrator's Guide supporting Fabric OS v6.3.0*
53-1001340-01	*Fabric OS Troubleshooting and Diagnostics Guide supporting Fabric OS v6.3.0*

Fibre Channel diagnostics using the BCU

The purpose of diagnostic commands is to evaluate the integrity of the system hardware. Be sure to disable the port before running any type of port diagnostics. In addition, it is advisable that you do not perform other operations on the adapter while running HCM or BCU diagnostics.

diag commands

The diag commands shown in Table 13 monitor hardware components and can be performed while the system is running (they are non-disruptive).

TABLE 13 Fibre Channel diag commands

Command	Description
beacon	Blinks the appropriate port LED for physical identification. Beaconing can occur at the port or the link level.
loopback	Sends a health check message from the host to firmware through message queues that are memory-mapped over the PCI.
memtest	Tests the adapter's memory blocks.
pciloopback	Checks the communication path between the host and the IO Controller (IOC).
queuetest	Tests the CPE/RME queue.
sfpshow	Displays small form factor pluggable (SFP) information.
tempshow	Displays the temperature of the adapter.

Refer to "diag" on page 165 for details about this command.

fcdiag commands

Fibre Channel diagnostics include the tests shown in Table 14.

TABLE 14 Fibre Channel diagnostic tests

Command	Description
fcping	Determines the basic connectivity between the Fibre Channel network points and monitors and measures network latency.
fctraceroute	Reports on a SAN path, including node hops and latency data.
fcecho	Sends an FC Echo Extended Link Services (ELS) request to a remote port.
linkbeacon	Blinks the LED light of the remote port of the link.
scsitest	Tests the SCSI components.

Refer to "fcdiag" on page 175 for details about this command.

Fibre Channel diagnostics using the GUI

The purpose of diagnostic commands is to evaluate the integrity of the system hardware. Be sure to disable the port(s) before running any type of port diagnostics. In addition, it is advisable that you do not perform other operations on the adapter while running HCM or BCU diagnostics.

NOTE
When you invoke a test on an adapter, you can run diagnostics for one or both ports within the selected adapter.

Running a hardware-level test using the GUI

1. Select an adapter or port from the device tree.
2. Select **Configure > Diagnostics** from the main menu.

   OR

   Right-click the component and select **Diagnostics** from the list

   The **Diagnostics** dialog box is displayed.

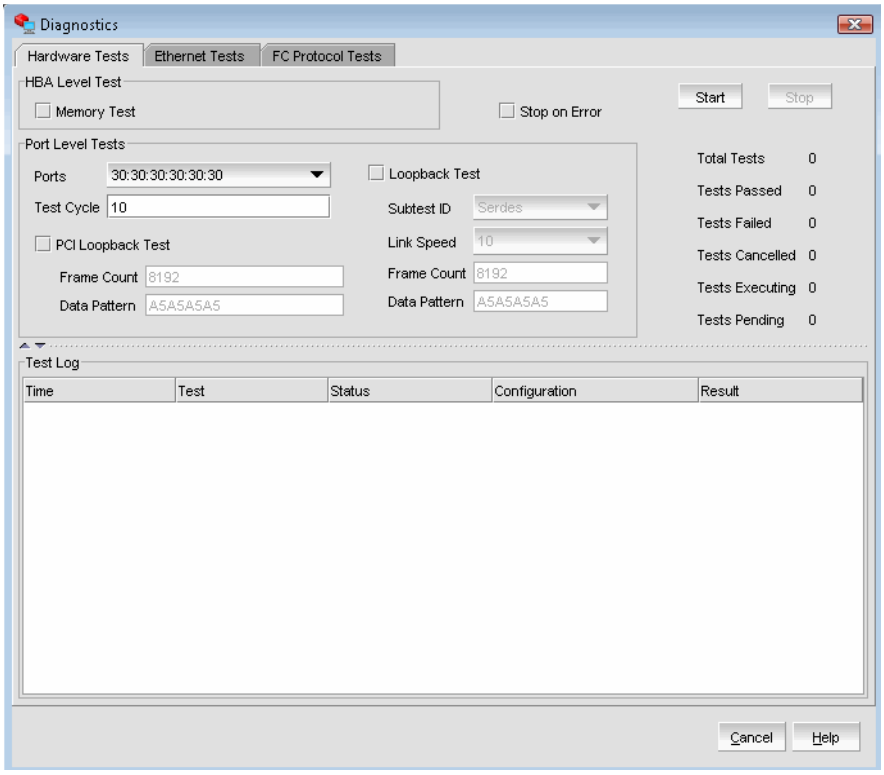


FIGURE 25 Diagnostics - Port Tests dialog box

3. Click the check box that corresponds to the port test you are running.
4. Specify the parameters based on parameter information found in Table 15.

NOTE
Click the **Stop on Error** check box if you want the test to stop running if an error occurs.

5. Click **Start** to run the test.

Hardware-level test parameters

TABLE 15 Hardware-level test parameters

Hardware-level test	Parameter	Test Options
Memory test **NOTE:** During the test IOC will be disabled.	None	You can enable or disable this test. Regardless of test cycle set value, the Memory Test will run only once.
PCI loopback test	Frame Count	Integer from 0 - 4,294,967,295. The default value is 8192.
	Data Pattern	Default value is A5A5A5A5.
	Test Cycle	The number of times the test runs. The default value is 10.
Port loopback test **NOTE:** For an External Loopback test, you must plug in the loopback connector.	Subtest ID	• External • Serdes
	Link Speed	10 Gbps
	Frame Count	Integer from 0 - 4,294,967,295. The default value is 8192.
	Test Cycle	The number of times the test runs. The default value is 10.
	Data Pattern (hexadecimal)	Default value is A5A5A5A5.

Running a Fibre Channel protocol-level test using the GUI

There are three protocol-level tests:

- Echo test, which sends an FC Echo ELS to a remote port.
- FC ping test, which requests the management server to test the connectivity with a given remote port (without zoning restrictions). Not supported in Solaris operating systems.
- FC traceroute test, which requests to enumerate the route between two given end points. Not supported in Solaris operating systems.

To run one of the protocol-level tests, use the following procedure.

1. Select an adapter or port from the device tree.
2. Select **Configure > Diagnostics** from the main menu.

   OR

   Right-click the component and select **Diagnostics** from the list.

   The **Diagnostics** dialog box is displayed.
3. Click the **FC Protocol Tests** tab.

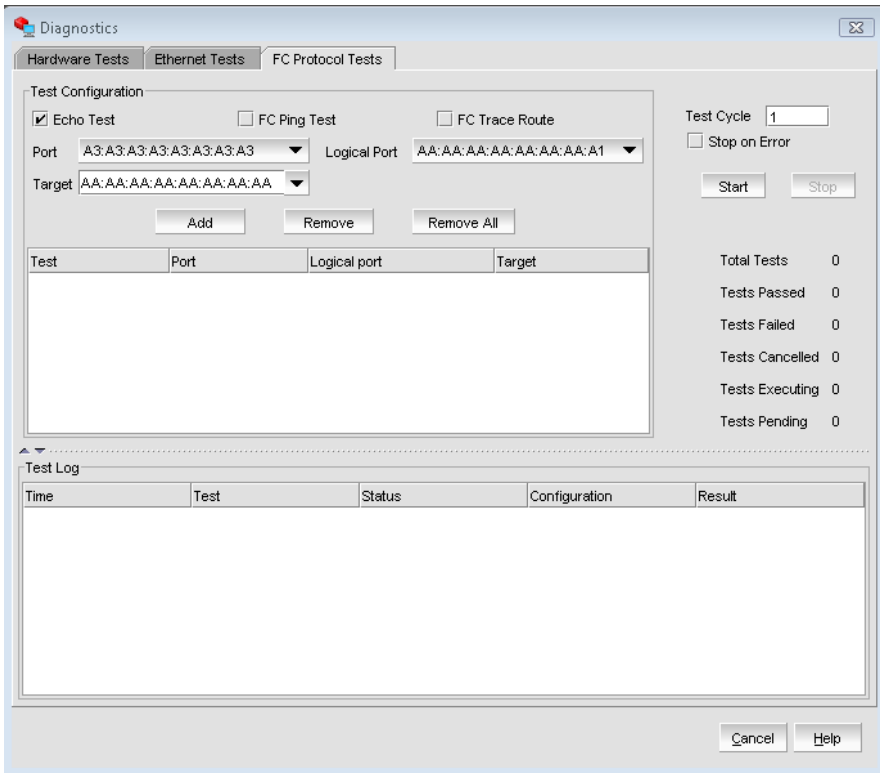


FIGURE 26 **Protocol-level tests dialog box**

4. Click the check box that corresponds to the protocol test you are running.
5. Select a port, target, and logical port from the lists, and click **Add** to add it to the test table.
6. Define how many times the test runs by specifying the test cycle number. The default test cycle number is 1.
7. Click **Start** to run the test.

Displaying test log details

1. Select **Configure > Diagnostics** from the Host Connectivity Manager.
2. Run any diagnostic test.
3. Select and double-click a row of the test results in the bottom pane.

   The **Test Log** details, listed in Table 16, displays. See Figure 27 and Figure 28 for examples of test log detail.

TABLE 16 Test log details

Field	Description
Time	The date and time the test was run.
Test	The name of the test.
Status	The status of the test, for example, executing or pending.
Configuration	The name of the test component and its corresponding value. For example: • Adapter world wide name • Data pattern • Frame count • Port world wide name
Result	The test result, for example, test started or test complete.

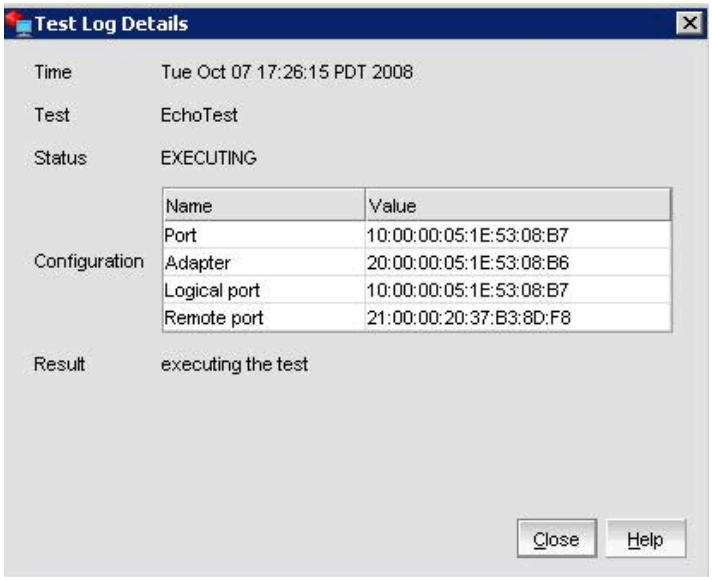


FIGURE 27 Test Log Details for Echo Test dialog box

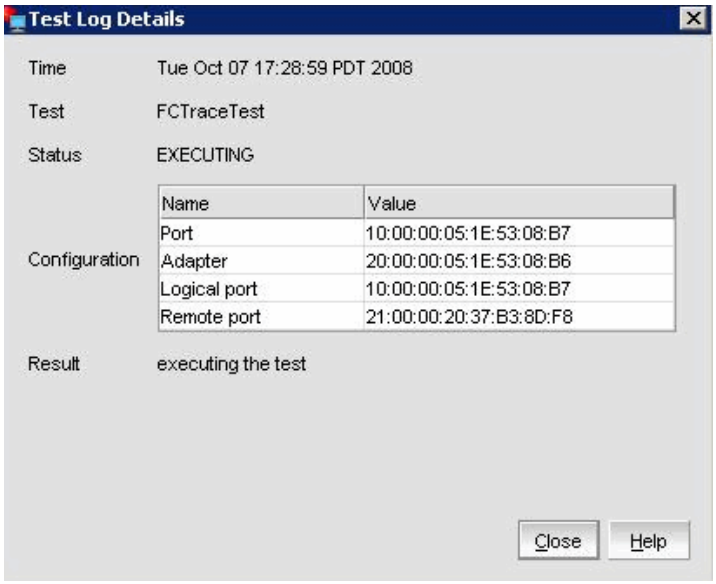


FIGURE 28 Test Log Details for FC trace test dialog box

Ethernet diagnostics

The Ethernet loopback test generates and sends out the desired number of packets and expects to receive the same number of packets through the loopback interface (Serdes or external). Each time a packet is sent it is selected from a different starting point of the data buffer so that any two consecutively transmitted packets will not be the same.

You must have the Ethernet card and the device driver installed and a loopback connector in place. The loopback connector is a standard RJ-45 connector.

NOTE
Windows 64-bit platforms only: You must first create a VLAN on the port before you perform an Ethernet loopback test. If the port does not have a VLAN, an error message displays.

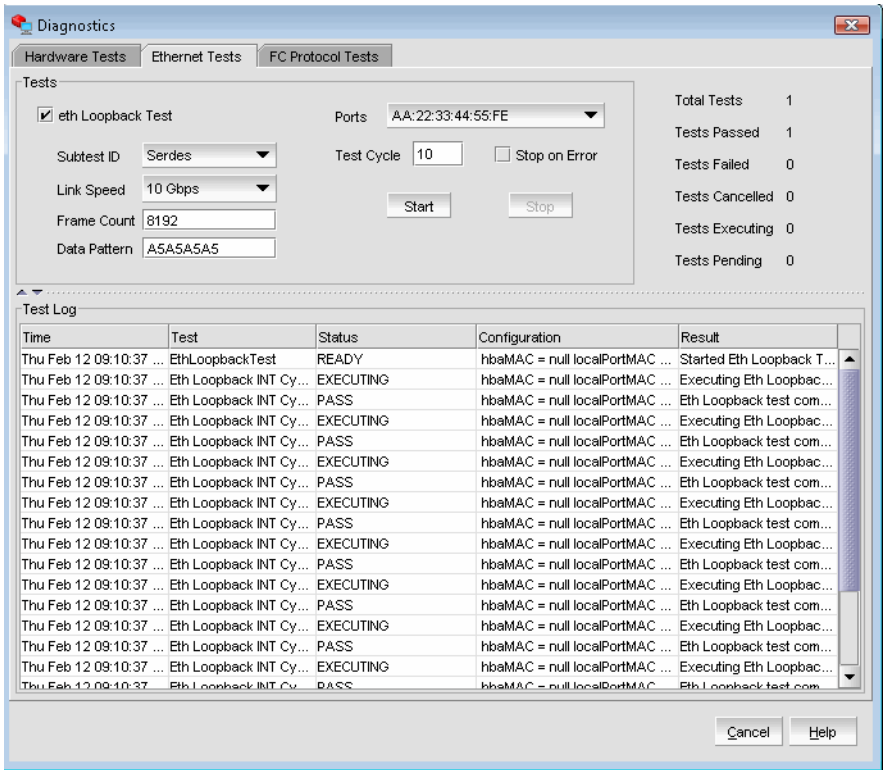
The following procedure explains how to run an Ethernet test.

1. Select an Ethernet port from the device tree.
2. Select **Configure > Diagnostics** from the main menu.

   OR

   Right-click the component and select **Diagnostics** from the list.

   The **Diagnostics** dialog box is displayed.
3. Click the **Ethernet Tests** tab.



The Ethernet Test options are described in Table 17.

TABLE 17 Ethernet Test parameters

Ethernet loopback test **NOTE:** For an External Loopback test, you must plug in the loopback connector.	Subtest ID	• External • Serdes
	Link Speed	10 Gbps
	Frame Count	Integer from 1-131072 (128K). The default value is 65536 (64K).
	Test Cycle	The number of times the test runs. The default value is 10.
	Data Pattern (hexadecimal)	Default value is A5A5A5A5.

Beaconing

Beaconing is a continuous signaling of error conditions on a LAN. Beaconing can occur either on the port or on one or both sides of the link (known as end-to-end beaconing). Link end-to-end beaconing provides a mechanism to start beaconing on both the adapter side and the switch side.

Configuring beaconing using the GUI

You can configure beaconing from an HBA port, an FCoE port, or an Ethernet port.

1. Select an HBA port, an FCoE port, or an Ethernet port from the device tree.
2. Select **Configure > Beacon** from the Host Connectivity Manager.
3. Click either the **Beacon Port** check box or the **Beacon Link** check box to enable the feature.

Configuring beaconing using the BCU

Enter the following command to blink the appropriate port LED for physical identification.

bcu diag - -**beacon** <*port_id*> {*on* | *off*} [-t <*secs*>]

where:

duration — Blinks the local port for the specified number of seconds. The default is 0, which means infinite blinking.

Refer to “diag” on page 165 for details about this command.

Enter the following command to blink the appropriate link for physical identification.

bcu fcdiag - -**linkbeacon** <*port_id*> {*on*|*off*}

Refer to “fcdiag” on page 175 for details about this command.

SFP Management

The **Port SFP** dialog box enables you to display the properties that are associated with a selected small form-factor pluggable (SFP) transceiver.

Displaying SFP information using the BCU

Enter the following command to view the SFP information. If the firmware detects a non-Brocade SFP, the port is disabled.

bcu diag - -**sfpshow** <*port_id*>

Refer to "diag" on page 165 for details about this command.

Displaying SFP information using the GUI

1. Select a port in the device tree.
2. Click the **SFP** tab in the right pane.
3. The SFP Properties panel displays.

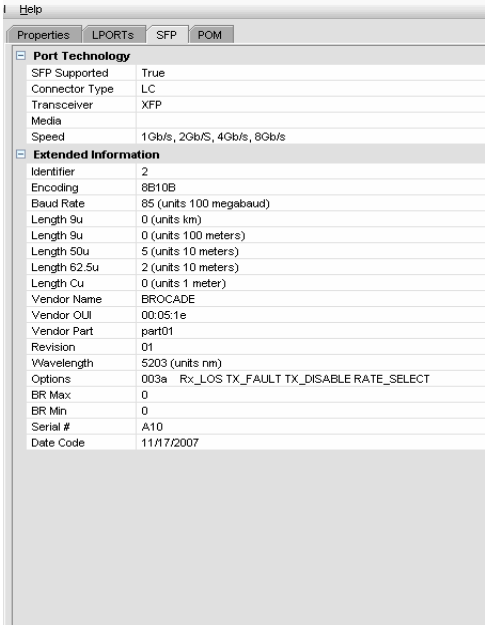


FIGURE 29 SFP Properties

Details about the port technology and extended link are described in Table 18.

TABLE 18 SFP management information

SFP category	SFP information displayed
Port technology	• SFP supported • Connector type • Transceiver • Media • Speed (in MBps)
Extended information	• Extended ID • Encoding • Baud rate • Length (9u, 50u, 62.5u, Cu) • Vendor (name, OUI, part) • Revision • Wavelength • Options • BR Max • BR Min • Serial number • Date code

Debugging

The following debug commands capture all the support information needed to diagnose suspected system issues:

- portlog

  Displays the log of FC frames and other main control messages that were sent out and received.

- portlogclear

  Clears the port's frame log.

- portlogctl

  Enables or disables the portlog.

Refer to "debug" on page 162 for details about these commands.

supportSave

The supportSave command collects debug information needed from the driver.

The captured debug information can be saved to the local filesystem and then sent to the supplier for further investigation. The information that is captured is detailed in Table 19.

TABLE 19 supportSave categories

supportSave level	Captured information
System (or Host)	HCM GUI-related engineering logs Events Configuration files Operating-specific information Environment information Data.xml file Vital CPU, memory, network resources HCM Agent (logs, configuration) Driver logs (bfa_supportSave output) Install logs Core files

The default location to where supportSave output is saved is under the IP address of the host from which it was collected, relative to the HCM installation directory. For example:

- HCM Installation DIR\data\10.32.116.1\supportSave
- C:\Program Files\BROCADE\FCHBA\client\data\10.32.116.1\supportSave

supportSave collection sources

Table 20 lists the sources from which you can gather supportSave information.

TABLE 20 supportSave collection sources

Source of supportSave information	supportSave information collected
BFA based supportSave[1]	Driver-related logs and config files
Browser-based supportSave	Driver-related logs and config files Agent log/config files
HCM-based supportsave	Agent log and config files HCM GUI log and config files

[1] bcu debug does not support the bcu debug --supportsave command.
bfa_supportsave, however, supports the following options:

- bfa_supportsave
  to create and save the supportsave at /tmp
- bfa_supportsave_dir
  to create and save the supportsave under <dir>
- bfa_supportsave <dir> <ss_file_name>
  to create and save the supportsave under <dir> as the file name <ss_file_name>. If <ss_file_name> already exists, it will be overwritten.

Automatic statistics collection

The port statistics log file is collected as part of the supportSave activity.

Port statistics collection occurs every eight hours and will be logged in to a rolling file under the `/log/` directory. There are a maximum of five backup files and each file has a 100 KB size limit. A new backup file overwrites the oldest file.

supportSave collection using the GUI

There are two ways to trigger a support save collection using the GUI, explained in this section.

1. Select **Tool > Support Save** from the Host Connectivity Manager.

   OR

   Right-click a host from the device tree and select **Support Save** from the list.

   NOTE
   If the agent is up, it will use the advanced configuration. If there is no agent, it will use the basic configuration.

   After the supportSave operation completes, the following message is displayed:

   Support Save Completed and is located at

   `<HCM HOME Dir>/data/localhost/supportSave_Basic_<file_name>.zip`

2. Click **OK** to close the dialog box.

supportSave collection on a port crash event

If the port crashes and triggers a port crash event, support save data is collected at a system-wide level. An application log message is generated with the following message:

```
Port Crash Support Save Completed
```

Port crash events have a CRITICAL severity and you can view the details in the Master Log and Application Log tables in HCM. For more information, refer to "Master Log" on page 55 and "Application log" on page 57.

supportSave collection using a command prompt

bcu debug does not support the bcu debug –supportsave command. bfa_supportsave, however, supports the following options:

- bfa_supportsave

  to create and save the supportsave at /tmp

- bfa_supportsave_dir

  to create and save the supportsave under <dir>

- bfa_supportsave <dir> <ss_file_name>

  to create and save the supportsave under <dir> as the file name <ss_file_name>. If <ss_file_name> already exists, it will be overwritten.

supportSave collection using a browser

You can use an Internet browser (Internet Explorer 6 or higher or Firefox 2.0 or higher) to collect and transfer supportSave information for the driver and the HCM agent.

Use a browser if you do not have root access, if you do not have access to file transfer methods such as FTP and SCP, or you do not have access to the Host Configuration Manager (HCM).

1. Open an Internet browser and type the following URL:

   `https://localhost:34568/JSONRPCServiceApp/SupportSaveController.do`

   where *localhost* is the IP address of the server from which you want to collect the supportSave information.

2. Type the agent's credentials using the factory default settings, `admin` and `password`.

   The File Download dialog box displays, prompting you to save the `supportSaveController.do` file.

3. Click **Save** and navigate to the location where you want to save the supportSave file.

Appendix

HCM Dialog Boxes

A

In this section

A In this section

Authentication Statistics dialog box (HBA and CNA)

The **Authentication Statistics** dialog box enables you to display statistical information related to transmitted and received DH-CHAP attempts for a selected port.

Opening the dialog box

1. Select a port from the device tree.
2. Select **Configure > FC_SP > Authentication Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
Date	The date the statistics were run.
Auth Failures	The number of times security authentication failed.
Auth Successes	The number of times security authentication succeeded.
Tx Auth Rjts	The number of rejected transmitted Fibre Channel authentication attempts.
Tx Negs	The number of transmitted Fibre Channel authentication negotiation attempts.
Tx Auth Dones	The number of completed Fibre Channel authentication negotiation attempts.
Tx DHCHAP Challenges	The number of transmitted DH-CHAP challenge attempts.
Tx DHCHAP Replies	The number of transmitted DH-CHAP replies.
Tx DHCHAP Successes	The number of times a transmitted Fibre Channel authentication attempt was successful.
Rx Auth Rjts	The number of rejected received Fibre Channel authentication attempts.
Rx Auth Negs	The number of received Fibre Channel authentication negotiation attempts.
Rx Auth Dones	The number of completed received Fibre Channel authentication attempts.
Rx DHCHAP Challenges	The number of received DH-CHAP challenge attempts.
Rx DHCHAP Replies	The number of received DH-CHAP replies.
Rx DHCHAP Successes	The number of times a received DH-CHAP challenge was successful.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Configuring security authentication using the GUI (Host and HBA)"
- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

Backup dialog box (HBA and CNA)

The **Backup** dialog box allows you to create a backup of data and configuration files.

Opening the dialog box

Select any device from the device tree and select **Tool > Backup Data** from the Host Connectivity Manager.

Fields and components

Field	Description
Output Directory text box	Enter the location of the directory in which you want to back up the data and configuration files.
Browse button	Click to browse to the location of the backup directory.
Start Backup button	Click to instruct the system to back up the data and configuration files to the designated location.
Close button	Click to close and exit the **Backup** dialog box.

Base Port Properties panel (HBA and CNA)

The **Base Port Properties** panel enables you to display the properties that are associated with the base port.

Opening the properties panel

1. From the device tree, select a base port.
2. In the right pane, click the **Base Port Properties** tab.

Fields and components

Field	Description
Base Port	The name of the base port.
FC Address	The Fibre Channel address of the base port.
Node WWN	The world wide name of the device.
Port WWN	The world wide name of the base port.
Roles	The role of the base port; for example, FCP Initiator.
State	Indicates whether the base port is online or offline.
Switch NWWN	The world wide name of the switch.
Switch IP Address	The IP address of the switch.
Symbolic Name	The symbolic name associated with the base port.

CEE properties panel (CNA only)

The **CEE properties** panel enables you to display the properties that are associated with a selected converged network adapter (CNA).

Operational CEE Configuration is displayed when the CEE Status is Active. The Remote CEE Configuration table is visible only when the CEE status is inactive and error reason is not one of the following.

- CEE_PHY_LINK_DOWN
- CEE_LLDP_SHUTDOWN_TLV_RCVD
- CEE_PROTOCOL_INIT
- CEE_LLDP_INFO_AGED_OUT

Opening the dialog box

1. Select a CNA in the device tree.
2. Click the **CEE** tab in the right pane.

Fields and components

Field	Description
FCoE Logical Link Status	The operational status of the FCoE logical link; for example, Up or Down.
DCBCXP Version	The DCBCXP version type; for example, CEE.
Priority Group ID	The priority group ID. Values are 0-7 and 15 (strict priority). When coupled with bandwidth percentage and CoS, you can manage traffic by grouping like traffic together and giving each type a different priority level.
% Bandwidth	The bandwidth percentage for a given priority group.
Priority Flow Control	Indicates whether priority flow control is turned on or off.
Ethernet Link Layer	Specifies a priority value between 0 (signifying best effort) and 7 (signifying real-time data) to differentiate traffic.
FCoE CoS	The Fibre Channel Class of Service that specifies a priority value.

CEE Port Properties panel (CNA only)

The **Port Properties** panel enables you to display the properties that are associated with a selected CEE port.

Opening the properties panel

1. Select a CEE port in the device tree.
2. Click the **Properties** tab in the right pane.

Fields and components

Field	Description
Port Parameters	
Port #	The port number: 0 or 1.
Port WWN	The port's world wide name.
Node WWN	The CNA's world wide name.
Physical Port Type	The port type (CEE).
Name	The name that is manually assigned to the port.
Local Port MAC	The local port's media access control (MAC) address.
Media	The type of media; for example, 10G-sw.
CEE State	The state of the converged ethernet (whether it is online or offline).
FCoE VLAN Properties	
VLAN ID	The VLAN identifier.
VLAN Name	The VLAN name.

Using the property panel

Refer to the following topics for specific procedures using this dialog box:

- "Configuring the port speed using the GUI"
- "Specifying the maximum frame size using the GUI"
- "Specifying the MPIO using the GUI"
- "Specifying Path Time Out using the GUI"
- "Configuring the HCM logging level using the GUI"
- "Configuring the queue depth using the GUI"
- "Enabling and disabling persistent binding using the GUI"
- "Enabling and disabling rate limiting on the adapter side using the GUI"

CEE Statistics dialog box (CNA only)

The **CEE Statistics** dialog box enables you to display the statistics that are associated with the link layer port.

Opening the CEE Statistics dialog box

1. From the device tree, select a physical port of a CNA.
2. Select **Monitor > Statistics > CEE Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
Keep Running Data checkbox	Click to continue running statistical data. This is useful if you want to see a trend.
Polling Frequency in Seconds text box	Type a number for polling frequency. The range is between five and 3600 seconds and the default is five seconds.
Start Polling button	Click to manually poll the CEE statistics.
Reset button	Click to reset all of the statistics to 0.
LLDP Frames Transmitted	Transmits the local network element (NE) data on a per-link basis to the remote NE at the other end of the link.
LLDP Frames Aged Out	The number of LLDP frames that timed out between the local and remote ends of the link.
LLDP Frames Discarded	The number of LLDP frames that were discarded between the local and remote ends of the link.
LLDP Frames with Error	The number of LLDP frames that were not transmitted because of errors.
Frames Received	Collects the data received over the network link from the transmitting network element (NE), resulting in both the local NE and the remote NE having the port discovery data at each end of the network link.
LLDP TLVs Discarded	The number of discarded type-length-value (TLV) elements for LLDP.
LLDP TLVs Unrecognized	The number of unrecognized type-length-value (TLV) elements for LLDP.
DCBX TLVs Unrecognized	The number of unrecognized type-length-value (TLV) elements for DCBX.
DCBX Negotiation Failed	The number of failed DCBX negotiation attempts.
DCBX Remote Config Changed	The number of times a remote configuration was changed for DCBX.
DCBX TLVs Received	The number of received type-length-value (TLV) elements for DCBX.
DCBX TLVs Invalid	The number of invalid type-length-value (TLV) elements for DCBX.
DCBX Sequence Numbers	The number of DCBX sequence numbers on the physical port of the CNA.
DCBX Acknowledgements	The number of DCBX acknowledgements on the physical port of the CNA.

Field	Description
DCBX Receive Sequence Numbers	The number of DCBX receive sequence numbers on the physical port of the CNA.
DCBX Receive Acknowledgements	The number of receive acknowledgements for DCBX.
CEE HW Config Changed	The number of times the physical port of the CNA changed.
CEE Status Down	The number of status down events on the physical port of the CNA.
CEE Status Up	The number of status up events on the physical port of the CNA.
CEE Received Invalid Configurations	The number of invalid configurations events received on the physical port of the CNA.

Change HCM Password dialog box (HBA and CNA)

The **Change HCM Password** dialog box enables you to change an existing password for the application.

Opening the dialog box

Select **Configure > Change HCM Password** from the Host Connectivity Manager.

Fields and components

Field	Description
User Name	Type your user name.
Old password	Type your existing password.
New password	Type a new password.
Confirm New password	Confirm your new password by retyping it.

Using the dialog box

Refer to the following topic for specific procedures using this dialog box:

- "Changing an HCM application password"

Change HCM Agent dialog box (HBA and CNA)

The **Change HCM Agent Password** dialog box enables you to change an existing password for the host.

Opening the dialog box

Select **Configure > Change Password > Change Agent Password** from the Host Connectivity Manager.

Fields and components

Field	Description
Host Name	Displays the IP address of the host.
User Name	Type your user name.
Old password	Type your existing password.
New password	Type a new password.
Confirm New password	Confirm your new password by retyping it.

Using the dialog box

Refer to the following topic for specific procedures using this dialog box:

- "Changing an HCM application password"

CNA Properties panel (CNA only)

The **CNA Properties** panel enables you to display the properties that are associated with a selected Converged network adapter (CNA).

Opening the properties panel

1. Select a CNA in the device tree.
2. Click the **Properties** tab in the right pane.

Fields and components

Field	Description
CNA Parameters	
MAC Address	The adapter's media access control address.
Name	The name representing the adapter.
Operating Status	Whether the CNA is enabled or disabled.
Manufacturer	The company that manufactured the CNA.
Model Description	The description of the CNA.
Max Speed Supported	The maximum speed supported on the CNA, which is 10 Gbps.
OEM Info	Information about the original equipment manufacturer, if applicable.
Card Type	The adapter card type; for example, CNA.
Hardware Path	The hardware path of the CNA.
Serial #	The serial number of the CNA.
Temperature	The temperature of the CNA, both in Celsius and Fahrenheit.
Chip Revision	The revision level of the chip.
Driver Parameters *It is possible to have multiple pairs of driver information, based on the number and types of drivers installed. The three driver possibilities include the CNA Network Driver, the FCoE Storage Driver, or a single, unified driver.*	
Driver Name	The name of the host adapter driver.
Driver Version	The version level of the host adapter driver.
Driver Name	The name of the second driver, if applicable.
Driver Version	The version level of the second driver, if applicable.
Firmware Parameters	
Firmware Version	The version level of the firmware.
BIOS Version	The version level of the BIOS.
Flash Status	The flash status; for example, GOOD.
PCI Registers	

Field	Description
Vendor ID	The identifier of the PCI Register's vendor.
Device ID	The device ID of the PCI Register.
Subsystem ID	The ID of the PCI subsystem.
Subsystem Vendor ID	The ID of the PCI subsystem vendor.
Current # of Lanes	The number of PCI lanes, in Gbps, each way between the PCI slot and the adapter.
PCIe Generation	The number of times the PCI Register is generated.
Initial Negotiated # of Lanes	The set number of PCI lanes that were initially negotiated.
OEM VPD Information (HP only)	
OEM	The name of the OEM (HP)
Part #	The part number of the adapter, preceded by HP. For example, HP:AXXXXA.
EDC	The identifier for the EDC type adapter.
MDC	The identifier for the MDC type adapter.
Misc	Miscellaneous information pertaining to the HP adapter.
Serial #	The serial number of the adapter, preceded by HP. For example, hp:aabbccddsss.
Product Description	An HP-specific description of the adapter.
IBM Information	
EC level	The adapter's EC level (IBM only).
FRU #	The adapter's FRU number (IBM only).

Configure Names dialog box (HBA and CNA)

The **Configure Names** dialog box enables you to add a world wide name and an associated name for an adapter, port, or storage device that is not yet discovered. You can also remove a device from the Name display list and import from or export properties to a file.

Opening the dialog box

1. Select any device from the device tree.
2. Select **Configure > Names** from the Host Connectivity Manager.

Fields and components

Field	Description
Display	Select a discovered host from the list. **Current Host** is the default.
Name	The name for all configured devices. **NOTE:** You can also search for a name by typing the name into the text box and clicking **OK**.
WWN/MAC	The world wide name for all configured devices. **NOTE:** You can also search for a name by typing the world wide name into the text box and clicking **OK**.
Type	The type of device; for example, Node or Port.
Description	Displays a description of the device.
Remove	Select a device to highlight it, then click the Remove button to remove the discovered device from the list.
Import	Click to import properties from a properties file for a selected device.
Export	Click to save properties to a properties file for a selected device.
Add button	For undiscovered devices, type in the name of the port's name or the WWN and click the **Add** button to add it to the Display list.
EFCM/DCFM/FM format	Select from the list to import properties in EFCM, DCFM (Data Center Fabric Manager) , or FM (Fabric Manager) format.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Name configuration"
- "Adding name entries"
- "Removing a name entry"
- "Exporting the properties for a WWN"
- "Importing the properties for a WWN"

Define Name dialog box (HBA and CNA)

The **Define Name** dialog box enables you to assign a name to an existing world wide name.

Opening the dialog box

1. Right-click on an HBA, a CNA or a port in the device tree.

   NOTE
   You can not define a name on an FCoE port or an Ethernet port.

2. Type a name that represents the adapter or port.

   NOTE
   The WWN and the Type are not editable.

3. Click **OK** to apply the change and close the window.

   The new component is added to the **Name** list.

Fields and components

Field	Description
WWN/MAC	The world wide name for the device.
Name	Enter a meaningful name for the device.
Type	Select the type of device from the list; for example, Node or Port.
Description	Enter a description of the device.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Name configuration"
- "Adding name entries"
- "Removing a name entry"
- "Exporting the properties for a WWN"
- "Importing the properties for a WWN"

Duplicated Names dialog box (HBA and CNA)

The **Duplicated Names** dialog box enables you to display configured names that are redundant.

Opening the dialog box

1. Select **Configure > Names** from the Host Connectivity Manager.
2. Click **Fix Duplicates**.

Fields and components

Field	Description
Append incremental numbers for all repetitive names button	Click to automatically add an incremental number to a duplicate name.
I will fix them myself button	Click if you want to manually fix a duplicate name.
Name	The port number with which the duplicated name is associated.
WWN	The world wide name with which the duplicated name is associated.
Operational Status	The operational status of the duplicate WWN (for example, Discovered).
Description	A description of the duplicate name.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Name configuration"
- "Adding name entries"
- "Removing a name entry"
- "Exporting the properties for a WWN"
- "Importing the properties for a WWN"

Eth IOC Statistics dialog box (CNA only)

The **Eth IOC Statistics** dialog box enables you to display statistical information related to the Ethernet IOC.

Opening the dialog box

1. Select an Ethernet port from the device tree.
2. Select **Monitor > Statistics > Eth IOC Statistics** from the main menu.

   OR

   Right-click the Ethernet port and select **Statistics > Eth IOC Statistics** from the list.

   The **Eth IOC Statistics** dialog at the host level displays.

Fields and components

Field	Description
Keep Running Data checkbox	Click to continue running statistical data. This is useful if you want to see a trend.
Polling Frequency in Seconds text box	Type a number for polling frequency. The range is between five and 3600 seconds and the default is five seconds.
Start Polling button	Click to manually poll the Ethernet IOC statistics.
Reset button	Click to reset all of the statistics to 0.
Date	The date the Eth IOC statistics were run.
Mailbox Interrupts	The number of mailbox interrupts that occurred on the Ethernet IOC.
Enable Events	The number of Enable events on the Ethernet IOC.
Disable Events	The number of Disable events on the Ethernet IOC.
Heartbeat Failures	The number of heartbeat failures on the Ethernet IOC.
Firmware Boots	The number of firmware boots on the Ethernet IOC.
Stats Timeouts	The number of times the Eth IOC statistics timed out.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Adding a VLAN"
- "Editing a VLAN"
- "Removing a VLAN"

Ethernet Port Properties panel (CNA only)

The **Ethernet Port Properties** panel enables you to display the properties that are associated with a selected Ethernet port.

Opening the properties panel

1. Select an Ethernet port in the device tree.
2. Click the **Properties** tab in the right pane.

Fields and components

Field	Description
Eth Dev	The name of the Ethernet device.
Port Type	The port type; for example, Ethernet.
Burnt-In MAC Address	The binding MAC address of the Ethernet port.
Current MAC address	The current MAC address of the Ethernet port.
IOC ID	The IOC ID of the Ethernet port.
Hardware Path	The world wide name of the hardware.
Status	The status of the Ethernet port; for example, Linkup.
Eth Log Level	The status of the Ethernet log; for example, Log Critical.

Eth Statistics dialog box (CNA only)

The **Eth Statistics** dialog box enables you to display statistical information related to the Ethernet port.

Opening the dialog box

1. Select an Ethernet port from the device tree.
2. Select **Monitor > Statistics > Eth Statistics** from the main menu.

   OR

   Right-click the Ethernet port and select **Statistics > Eth Statistics** from the list.

   The **Eth Statistics** dialog at the host level displays.

Fields and components

Field	Description
Keep Running Data checkbox	Click to continue running statistical data. This is useful if you want to see a trend.
Polling Frequency in Seconds text box	Type a number for polling frequency. The range is between five and 3600 seconds and the default is five seconds.
Start Polling button	Click to manually poll the Ethernet IOC statistics.
Reset button	Click to reset all of the statistics to 0.
Date	The date the Eth statistics were run.
Txf0 Unicast Octets	Total number of transmitted unicast octets.
Txf0 Unicast	Total number of transmitted unicast frames.
Txf0 Unicast Vlan	Total number of transmitted unicast VLANs.
Txf0 Multicast Octets	Total number of transmitted multicast octets.
Txf0 Multicast	Total number of transmitted multicast frames.
Txf0 Multicast Vlan	Total number of transmitted multicast VLANs.
Txfo Broadcast Octets	Total number of transmitted broadcast octets.
Txf0 Broadcast	Total number of transmitted broadcast frames.
Txf0 Broadcast Vlan	Total number of transmitted broadcast VLANs.
Txf0 Errors	Total number of transmitted errors.
Txf0 Filter Vlan	Total number of transmitted VLAN filters.
Txf0 Filter MAC SA	Total number of transmitted filter MAC source addresses.
Rxf0 Unicast Octets	Total number of received unicast octets.
Rxf0 Unicast	Total number of received unicast frames.
Rxf0 Unicast Vlan	Total number of received unicast VLANs.
Rxf0 Multicast Octets	Total number of received multicast octets.
Rxf0 Multicast	Total number of received multicast frames.

Field	Description
Rxf0 Multicast Vlan	Total number of received multicast VLANs.
Rxf0 Broadcast Octets	Total number of received broadcast octets
Rxf0 Broadcast	Total number of received broadcast frames.
Rrxf0 Broadcast Vlan	Total number of received broadcast VLANs.
Rxf0 frame drops	Total number of received frame drops.
Rx packets	Total number of received packets.
Tx packets	Total number of transmitted packets.
Rx bytes	Total number of received bytes.
Tx bytes	Total number of transmitted bytes.
Netif queue stop	Total number of Linux NetIf queue stops.
Netif queue wakeup	Total number of Linux NetIf queue wakups.
Ts04	Total number of Linux TSO IPv4 packets.
Ts06	Total number of Linux TSO IPv6 packets.
Tso Errors	Total number of Linux errors.
Tcpsum offload	Total number of TCP checksum offloads.
Udpcsum offload	Total number of UDP checksum offloads.
Csum help	Total number of checksum help requests.
Csum help error	Total number of checksum help errors.
HW stats updates	Total number of hardware statistics updates.

Event Properties dialog box (HBA and CNA)

The **Event Properties** dialog box displays the properties associated with a selected event from the Master Log.

Opening the dialog box

1. Click the **Master Log** tab, located on the bottom pane of the Host Connectivity Manager.

   A master summary of events on all discovered devices is displayed.

2. Double click an event.

Fields and components

Field	Description
Date/Time	The date when the event occurred.
Time	The time when the event occurred.
Severity	The event severity (informational, minor, major, or critical).
WWN/MAC	The world wide name (WWN) or media access control (MAC) of the device on which the event occurred.
Event ID	An identifier that corresponds to the event.
Category	The category of event; for example, Rport or ITNIM.
Description	A brief description of the event.
Root Cause	The root cause of the event.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Master Log"
- "Event severities"
- "Filtering event log entries"

Fabric Statistics dialog box (HBA and CNA)

The **Fabric Statistics** dialog box enables you to view statistics on a selected Fabric.

Opening the dialog box

1. Select a port from the device list.
2. Select **Monitor > Statistics > Fabric Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
FLOGI sent	The number of Fabric logins sent.
FLOGI rsp errors	The number of Fabric login response errors.
FLOGI accepts	The number of times Fabric login attempts are accepted.
FLOGI rejects	The number of times Fabric login attempts are rejected.
FLOGI unknown rsp	The number of unknown Fabric login responses.
FLOGI alloc waits	The number of delayed Fabric login allocations.
FLOGI received	The number of times Fabric logins are received.
FLOGI rejected	The number of times Fabric logins are rejected.
Fabric Offlines	The number of Fabrics that are offline.
Fabric Onlines	The number of Fabrics that are online.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

FCoE port properties (CNA only)

The **FCoE Port properties** panel enables you to display the properties that are associated with a selected FCoE port.

Opening the properties panel

Select an FCoE port in the device tree and click the **Properties** tab in the right pane.

Fields and components

Field	Description
FCoE Port information	
State	The state of the FCoE port (online or offline).
PWWN	The FCoE port's world wide name.
NWWN	The node's world wide name.
Supported Classes	The class that is supported on the selected FCoE port.
Symbolic Name	The nickname for the selected FCoE port.
MTU	The FCoE port's maximum transmission unit, based on the specified FC frame size.
Beacon State	Indicates whether beaconing is on or off.
Portlog	Indicates whether the port log is enabled or disabled.
FCoE information	
FIP state	The state of the Fibre Channel Initialization Protocol (online or offline).
Priorities	Lists the available priorities.
PG ID	The priority group ID. Values are 0-7 and 15 (strict priority).
Bandwidth	The bandwidth percentage for a given priority group.
Advanced Port Parameters	
Queue Depth	The number of I/O operations that can be run in parallel on a device.
Interrupt Control Coalesce	Indicates whether interrupt control is on or off. The value will be off, because Interrupt Control Coalesce is not supported on the CNA.
Interrupt Control Latency	Sets the interrupt control latency value.
Interrupt Control Delay	Sets the interrupt control delay value.
Fabric Parameters	
Port Type	The port type; for example, N_Port.
FC Address	The FCoE port's Fibre Channel address.
Local Port MAC	The media access control address of the local port.
Configured Port State	Indicates whether the FCoE port is enabled or disabled.
Operating Port State	Indicates whether the port is online or offline.

Field	Description
Operating Speed	The configured speed of the FCoE port.
Max Speed Supported	The maximum speed that is supported on the FCoE port.
Operating Topology	The topology setting. Options include auto, point-to-point, and loop.
Frame Data Field Size	The frame size, in bytes, of the FCoE port.
Hardware Path	The hardware path of the CNA.
# of Lports	The number of logical ports.
Operating Parameters	
MPIO Mode State	Indicates whether MPIO is on or off.
Path Time Out	The value between 0 and 60 that specifies the time-out session. Note: You can only enable or edit the path time out when MPIO is disabled.
Logging Level	The port logging level. Values include Log Critical, Log Error, Log Warning, and Log Info.
Target Rate Limit	Indicates that target rate limiting is disabled, because this feature is not supported on the FCoE port.
Default Rate Limit	The default rate limit, which is not applicable, because target rate limiting is not supported on the FCoE port.
FC-SP Parameters	
Authentication	Indicates whether FC-SP authentication is on or off.
Status	The status of FC-SP authentication.
Algorithm	The configured authentication algorithm.
Group	The DH group, which is DH-null (group 0) which is the only option.
Error Status	The health status of the Fibre Channel Security Protocol parameters.

Using the property panel

Refer to the following topics for specific procedures using this dialog box:

- “Enabling and disabling rate limiting on the adapter side using the GUI”
- “Enabling and disabling rate limiting on the adapter side using the BCU”
- “Configuring beaconing using the GUI”
- “Configuring beaconing using the GUI”

FCoE Statistics dialog box (CNA only)

The **FCoE Statistics** dialog box enables you to display statistical information related to the Fibre Channel over Ethernet (FCoE) port.

Opening the dialog box

1. Select an FCoE port from the device tree.
2. Select **Monitor > Statistics > FCoE Statistics** from the main menu.

   OR

   Right-click the FCoE port and select **Statistics > FCoE Statistics** from the list.

   The **FCoE Statistics** dialog at the host level displays.

Fields and components

Field	Description
Keep Running Data checkbox	Click to continue running statistical data. This is useful if you want to see a trend.
Polling Frequency in Seconds text box	Type a number for polling frequency. The range is between five and 3600 seconds and the default is five seconds.
Start Polling button	Click to manually poll the FCoE statistics.
Reset button	Click to reset all of the statistics to 0.
Date	The date the FCoE statistics were run.
rx_packets	The number of received packets.
tx_packets	The number of transmitted packets.
rx_bytes	The number of received bytes.
tx_bytes	The number of transmitted bytes

FCP IM Statistics dialog box (HBA and CNA)

The **FCP IM Statistics** dialog box enables you to display Fibre Channel Protocol Input Method (FCP IM) statistical information for initiators and targets.

Opening the dialog box

Select **Monitor > Statistics > Remote Port Statistics > FCP IM Statistics** from the Host Connectivity Manager.

OR

Right-click a remote port from the device tree and select **FCP IM Statistics**.

Fields and components

Field	Description
Date	The date and time of the most recent reset.
RPort Onlines	The number of online R_Ports.
RPort Offlines	The number of offline R_Ports.
PRLI Sent	The number of process login (PRLI) requests sent.
Fcxp Alloc Waits	The number of FCXP allocation waits.
PRLI Rsp Errors	The number of process login (PRLI) response errors.
PRLI Rsp Accepts	The number of process login (PRLI) response accepts.
Num Times in Initiator Mode	The number of times the RPort has been in initiator mode.
HAL Online Events	The number of hardware abstraction layer (HAL) online events.
HAL Offline Events	The number of hardware abstraction layer (HAL) offline events.
HAL Create Events	The number of hardware abstraction layer (HAL) create events.
HAL Delete Events	The number of hardware abstraction layer (HAL) delete events.
HAL Create Completions	The number of hardware abstraction layer (HAL) create completions.
HAL Delete Completions	The number of hardware abstraction layer (HAL) delete completions.
HAL SLER Events	The number of hardware abstraction layer (HAL) sequence layer error recovery (SLER) events.
HAL IOC Down Events	The number of hardware abstraction layer (HAL) IOC Down events.
HAL IO Cleanup Completions	The number of hardware abstraction layer (HAL) I/O cleanup completions.
HAL Task Management Commands	The number of hardware abstraction layer (HAL) task management commands.
HAL TM FirmwareResponses	The number of hardware abstraction layer (HAL) task management firmware responses.
HAL TM Successes	The number of hardware abstraction layer (HAL) task management successes.
HAL TM Failures	The number of hardware abstraction layer (HAL) task management failures.

Field	Description
HAL TM Related IO Cleanups	The number of hardware abstraction layer (HAL) TM-related I/O cleanups.
HAL TM Firmware Queue Resumed	The number of times the hardware abstraction layer (HAL) task management firmware queue is resumed.
HAL TM Affected by IOC Down Events	The number of times hardware abstraction layer (HAL) task management is affected by IOC down events.
HAL TM Affected by ITN Offline	The number of times hardware abstraction layer (HAL) task management is affected when ITN is offline.
HAL TM Offline Cleanup Completions	The number of hardware abstraction layer (HAL) task management offline cleanup completions.
HAL IO Requests	The number of hardware abstraction layer (HAL) I/O requests.
HAL IO Completions	The number of hardware abstraction layer (HAL) I/O completions.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

FCP IM Module Statistics dialog box (HBA and CNA)

The **FCP IM Module Statistics** dialog box enables you to display statistical information for each initiator target nexus (ITN).

Opening the dialog box

Select **Monitor > Statistics > FCP IM Module Statistics** from the Host Connectivity Manager.

OR

Right-click a port from the device tree and select **FCP IM Module Statistics**.

Fields and components

Field	Description
Keep Running Data checkbox	Click to continue running statistical data. This is useful if you want to see a trend.
Polling Frequency in Seconds text box	Type a number for polling frequency. The range is between five and 3600 seconds and the default is five seconds.
Start Polling button	Click to manually poll the FCP IM statistics.
Reset button	Click to reset all of the statistics to 0.
Date	The date and time of the most recent reset.
Total number of IOs	The total number of I/O operations on the port.
IO waiting for CQ space	The number of I/Os waiting for circular queue space.
NO IO contexts	Number of I/O context requests.
IO abort requests	The number of I/O abort requests.
NO task management contexts	Number of task management I/O context requests.
IO completions with OK status	The number of I/O operations that completed successfully.
IO underrun (good)	The number of successful firmware I/O underrun operations.
IO overrun (good)	The number of successful firmware I/O overrun operations.
Aborted IO requests	The number of aborted I/O requests.
IO timeouts	The number of times an I/O timed out.
IO selection timeouts	The number of I/O selection timeout occurrences.
IO protocol errors	The number of I/O protocol errors.
IO SBC-3 protection errors	Number of SCSI block data protection errors for SBC-3 (SCSI Block Command 3)
IO aborted by TM requests	The number of I/Os that were aborted because of target mode requests.
IO retry for SQ error recovery	The number of I/O retries for sequence level error recovery.
Delayed freeing of IO resources	The number of times I/O resource freeing was delayed.
IO with non-good SCSI status	The number of I/Os with SCSI status of non-good.
Host IO abort requests	The number of times the host aborted I/O requests.

Field	Description
IO comp with unknown tags	The number of I/Os with unknown tags.
IO implicitly aborted	The number of times an I/O was implicitly aborted.
IO aborted due to TM commands	The number of I/Os that were aborted because of target mode commands.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

Fibre Channel Security Protocol dialog box (HBA and CNA)

The **Fibre Channel Security Protocol (FC SP)** dialog box enables you to define security authentication on selected ports.

Opening the dialog box

1. Select a supported device in the device tree.

   The following devices support FC-SP: the host, HBA, HBA port, CNA, CEE port, and FCoE port.

2. Select **Configure > FC_SP > Authentication Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
Port #	The port number (0 or 1) for which you are configuring security authentication.
Port WWN	The world wide name of the port for which you are configuring security authentication.
Port Name	The name of the port (for example, Port 0 or Port 1) for which you are configuring security authentication.
Authentication	Check to enable port security authentication.
Status	Indicates whether authentication is used.
Algorithm	The configured algorithm. Options include md5, sha1, md5sha1, shamd5.
Group	Indicates the DH group value. DHNULL (group 0) is the only option.
Enable Authentication check box	Check to enable FC-SP authentication on the selected device.
CHAP Secret	Type the CHAP secret.
Retype Secret	Retype the CHAP secret to confirm.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Configuring security authentication using the GUI (Host and HBA)"
- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

Hardware Tests Diagnostics dialog box (HBA and CNA)

The **Port Tests diagnostics** dialog box enables you to run tests on the port and to configure parameters such as link speed and frame count.

Opening the dialog box

1. Select an HBA, CNA, HBA port, or CEE port from the device tree.
2. Select **Configure > Diagnostics** from the Host Connectivity Manager.
3. Click the **Hardware Tests** tab.

Fields and components

Field	Description
Ports list	Select a port from the list.
Memory Test check box	Check to run a Memory test on the port.
PCI Loopback Test check box	Check to run a PCI Loopback test on the port.
Data Pattern	Type a data pattern. The default value is A5A5A5A5.
Test Cycle text box	Specify the number of times the test runs. The default value is 100.
Loopback Test check box	Check to run a Loopback test on the port.
Subtest ID list	Select a subtest from the list. The default is Internal.
Link Speed list	Select a link speed from the list.
Frame Count	Type a frame count. The default value is 8192.
Stop on Error check box	Check to flag the system to stop running the test if an error occurs.
Test Log table	Displays the time the test was run, the status of the test, and the result of the test.
Start button	Click to run the selected test.
Stop button	Click to stop all pending tests.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- “Configuring beaconing using the GUI”
- “Displaying SFP information using the BCU”
- “supportSave collection sources”

HBA Properties panel (HBA only)

The **HBA Properties** panel enables you to display the properties that are associated with a selected 4 Gbps or 8 Gbps Brocade HBA.

Opening the properties panel

1. Select an HBA in the device tree.
2. Click the **Properties** tab in the right pane.

Fields and components

Field	Description
HBA Parameters	
Node WWN	The adapter's world wide name.
Name	The name representing the adapter.
Operating Status	Whether the HBA is enabled or disabled.
Manufacturer	The company that manufactured the HBA.
Model Description	The description of the HBA.
Max speed supported	The maximum speed supported on the HBA; for example, 8 Gbps.
OEM info	Information about the original equipment manufacturer.
Card Type	The HBA card type; for example, FC.
Hardware Path	The hardware path of the HBA.
Serial #	The serial number of the HBA.
Temperature	The temperature of the HBA, both in Celsius and Fahrenheit.
Chip Revision	The revision level of the chip.
Driver Parameters	
Driver Name	The name of the host adapter driver.
Driver Version	The version level of the host adapter driver.
Firmware Parameters	
Firmware Version	The version level of the firmware.
BIOS Version	The version level of the BIOS.
Flash Status	The flash status; for example, good.
PCI Registers	
Vendor ID	The identifier of the PCI Register's vendor.
Device ID	The device ID of the PCI Register.
Subsystem ID	The ID of the PCI subsystem.
Subsystem Vendor ID	The ID of the PCI subsystem vendor.

Field	Description
Current # of Lanes	The number of PCI lanes, in Gbps, each way between the PCI slot and the adapter.
PCIe Generation	The number of times the PCI Register is generated.
Initial Negotiated # of Lanes	The set number of PCI lanes that were initially negotiated.
OEM VPD Information	
OEM	The name of the original equipment manufacturer.
Part #	The OEM part number of the HBA.
EC level	The engineering change level.
FRU #	The OEM FRU number of the HBA.
Serial #	The OEM serial number of the HBA.

IOC Statistics dialog box (HBA and CNA)

The **IOC Statistics** dialog box enables you to view statistics related to the input/output controller (IOC).

Opening the dialog box

1. Select a physical port of the HBA or an FCoE port of a CNA from the device tree.
2. Select **Monitor > Statistics > IOC Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
aborted_cnt	The number of times an I/O abort has occurred.
abrt_fail_cnt	The number of times an I/O abort has failed.
arbf0_rx	The number of ARBF0 primitive events that occurred on the firmware port.
buf_waits	The number of buffer wait state entries.
busy_bufs	The number of failures that have occurred due to a busy buffer.
cfg_reqs	The number of IOC firmware configuration requests.
clrstats_reqs	The number of clear statistics (clrstats) events that have occurred on the IOC driver.
disable_reqs	The number of disable events that have occurred on the IOC driver.
div2_overflow	The number of div2 overflow events on the firmware port.
div2_underflow	The number of div2 underflow events on the firmware port.
edtov_timedout_cnt	The number of Error Detect Time Out events.
efifo_overflow	The number of elastic FIFO (EFIFO) overflow events on the firmware port.
efifo_underflow	The number of elastic FIFO (EFIFO) underflow events on the firmware port.
enable_reqs	The number of IOC firmware enable requests.
hb_count	The number of IOC firmware heartbeats.
hwsm_fails	The number of Hardware State Machine (HWSM) failures for the firmware port speed negotiation state machine.
hwsm_success	The number of Hardware State Machine (HWSM) successes for the firmware port speed negotiation state machine.
hwsm_wdtov	The timeout value for the Hardware State Machine (HWSM).
ic_reqs	The number of interrupt coalesce requests.
idle_rx	The number of IDLE receive primitive events that occurred on the firmware port.
imp_aborted	The number of times an implicit I/O abort has occurred.
intr	The number of firmware port interrupts.

Field	Description
intr_cause0	The number of 0 cause interrupts on the firmware port.
intr_evt	The number of event-type interrupts on the firmware port.
intr_other	The number of other-type interrupts on the firmware port.
intr_other_ign	The number of other_ign interrupts on the firmware port.
ioc_boots	The number of IOC boots.
ioc_disables	The number of times the IOC was disabled.
ioc_enables	The number of times the IOC was enabled.
ioc_hbfails	The number of heartbeat failures on the IOC driver.
ioc_starts	The number of times the IOC was started.
ioc_stops	The number of times the IOC was stopped.
link_fails	The number of link failures.
lip_rx	The number of loop initialization (LIP) receive events that occurred on the firmware port.
lr_tx	The number of times Link Reset Primitive (LR) transmits started.
lrr_rx	The number of times Link Reset Responsive Primitive (LRR) receives started.
lrr_tx	The number of times Link Reset Responsive Primitive (LRR) transmits started.
mrk_rx	The number of MRK receive events that occurred on the firmware port.
nos_rx	The number of not operational (link has failed) receives on the firmware port.
nos_tx	The number of not operational (link has failed) transmits on the firmware port.
ols_rx	The number of times Offline Sequence Primitive (OLS) receives were started.
ols_tx	The number of times Offline Sequence Primitive (OLS) transmits were started.
oor_cnt	The percent of data that is out of range.
over_run_cnt	The number of I/O overruns.
over_run_err	The number of I/O overrun errors.
physm_laser_faults	The number of laser fault events in the Physical Port State Machine (PHYSM).
physm_module_inserts	The number of module inserts in the Physical Port State Machine (PHYSM).
physm_module_invalids	The number of invalid module events in the Physical Port State Machine (PHYSM).
physm_module_read_ign	The number of module validation ignored events in the Physical Port State Machine (PHYSM).
physm_sync_lost	The number of sync loss events in the Physical Port State Machine (PHYSM).

Field	Description
prim_unknown	The number of unknown primitive events that occurred on the firmware port.
proto_err_cnt	The number of I/O protocol errors.
psp_errors	The number of primitive sequence protocol errors.
rectov_timedout_cnt	The number of Receiver Time Out events.
seq_cnt_frm_drop_cnt	The number of sequential frame drops.
seqr_fail_cnt	The number of sequential failures.
sig_lost	The number of times a signal was lost on the firmware port.
sig_regained	The number of times a signal was regained on the firmware port.
snsm_hwsm_fails	The number of Hardware State Machine (HWSM) failures for the firmware port speed negotiation state machine (SNSM).
snsm_hwsm_success	The number of Hardware State Machine (HWSM) successes for the firmware port speed negotiation state machine (SNSM).
snsm_hwsm_wdtov	The Hardware State Machine (HWSM) timeout value for the firmware port speed negotiation state machine (SNSM).
sync_lost	The number of times loss of sync on the firmware port has occurred.
sync_regained	The number of synchronizations that were regained on the firmware port.
sync_to	The number of times sync timeout on the firmware port has occurred.
tgt_aborted_io	The number of times the target I/O aborts.
timed_out_cnt	The number of times the target I/O times out.
under_run_cnt	The number of I/O underruns.
unexp_bad_fcp_rsp	The number of unexpected frames on the firmware I/O that resulted in a bad response.
unexp_frame_recv_cnt	The number of received unexpected frames on the firmware I/O.
unexp_good_fcp_rsp	The number of unexpected frames on the firmware I/O that resulted in a good response.
unknown_reqs	The number of unknown requests on the firmware I/O.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

LLDP Properties panel (CNA only)

The **LLDP Properties** panel enables you to display the link layer properties that are associated with the selected converged network adapter (CNA), both locally and remotely.

Opening the properties panel

1. Select a CNA in the device tree.
2. Click the **LLDP** tab in the right pane.

Fields and components

Field	Description
Chassis ID	The MAC address associated with the local system.
Port Description	The user-configured port description.
Port ID	The port identification associated with the transmitting LLDP agent.
System Name	The user-configured name of the local system.
System Description	The system description containing information about the software and current image running on the system.
System Capabilities	The primary functions performed by the system. The capabilities that the system supports are not configurable, but are based on the model of the product.
Time to Live	The age of the information propogated in LLDP frames. Time to live (TTL) values are measured in seconds.

Logical Port Statistics dialog box (HBA and CNA)

The **Logical Port Statistics** dialog box enables you to display statistics that are related to a selected logical port.

Opening the dialog box

Select **Monitor > Statistics > Logical Port Statistics** from the Host Connectivity Manager

OR

Right-click a logical port (LPORT) from the device tree and select **Logical Port Statistics**.

Fields and components

Field	Description
Date	The date and time of the most recent reset.
WWN	The world wide name of the logical port.
ns_plogin_sent	The number of Name Server port logins sent.
ns_plogin_accepts	The number of times Name Server port logins are accepted.
ns_plogin_rsp_errors	The number of Name Server response errors.
ns_plogin_accept_errors	The number of Name Server port login accept errors.
ns_plogin_rejects	The number of Name Server port login rejects.
ns_plogin_unknown_rsp	The number of unknown Name Server port login response errors.
ns_plogin_alloc_wait	The number of delayed Name Server port login response errors.
ns_rspn_ID_rsp_errors	The number of Name Server Register Symbolic Port Name identifier response errors.
ns_rspn_ID_rejects	The number of Name Server Register Symbolic Port Name identifier rejects.
ns_rspn_ID_alloc_wait	The number of Name Server Register Symbolic Port Name identifier allocations.
ns_rspn_ID_sent	The number of times the Name Server Register Symbolic Port Name identifier was sent.
ns_rspn_ID_accepts	The number of times the Name Server Register Symbolic Port Name identifier was accepted.
ns_rft_ID_sent	The number of Name Server Register FC4 Type identifier requests sent.
ns_rft_ID_accepts	The number of times the system accepted Name Server Register FC4 Type identifier requests.
ns_rft_ID_rsp_errors	The number of Name Server Register FC4 Type identifier response errors.
ns_rft_ID_rejects	The number of times the system rejected Name Server Register FC4 Type identifier requests.
ns_rft_ID_alloc_wait	The number of delayed Name Server Register FC4 Type identifier allocations.

Field	Description
ns_gid_ft_sent	The number of times a Name Server Get all Port ID request for a given FC4 type is sent.
ns_gid_ft_accepts	The number of times a Name Server Get all Port ID request for a given FC4 type is accepted.
ns_gid_ft_rsp_errors	The number of response errors associated with a Name Server Get all Port ID request for a given FC4 type.
ns_gid_ft_rejects	The number of times a Name Server Get all Port ID request for a given FC4 type is rejected.
ns_gid_ft_unknown_rsp	The number of unknown responses associated with a Name Server Get all Port ID request for a given FC4 type.
ns_gid_ft_alloc_wait	The number of delayed Name Server Get all Port ID requests for a given FC4 type allocations.
ns_rejects	The number of times a Name Server request is rejected.
ns_timeouts	The number of Name Server timeouts.
ns_retries	The number of Name Server retries.
num_port_ID_rscns	The number of Fibre Channel's Registered State Change Notifications by port ID.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

LPORT Properties panel (HBA and CNA)

The **LPORT Properties** panel enables you to display the properties that are associated with a logical port.

Opening the properties panel

1. From the device tree, select a physical port.
2. Click the **LPORTs Properties** tab in the right pane.

Fields and components

Field	Description
Base Port	Indicates whether the logical port is used as the base port.
FC Address	The Fibre Channel address of the logical port.
Node WWN	The adapter's world wide name.
Port WWN	The port's world wide name.
Roles	The role of the logical port; for example, FCP Initiator.
State	Displays whether the logical port is online or offline.
Switch IP Addr	The switch's IP address.
Switch NWWN	The switch node's world wide name.
Symbolic Name	The symbolic name associated with the logical port.

Master Log tab (HBA and CNA)

The **Master Log** enables you to display a list of all events that have occurred.

Opening the Master Log

Click the **Master Log** tab, located on the bottom pane of the Host Connectivity Manager.

A master summary of events on all discovered devices is displayed.

Fields and components

Field	Description
Filter button	Click to launch the **Master Log Filter** dialog box.
Clear Filter button	Click to clear the Master Log Filter parameters.
Refresh button	Click to refresh the Master Log.
Sr No column	Displays a numbering sequence in ascending order.
Severity column	The event severity (informational, minor, major, or critical).
WWN/MAC column	The world wide name or the media access control (MAC) address of the device on which the event occurred.
Category column	The event categories are as follows: • ADAPTER - Events pertaining to the adapter. • CEE - Events pertaining to Converged Enhanced Ethernet. • ETHPORT - Events pertaining to the Ethernet port. • IOC - Events pertaining to the IO Controller. • IP over FC - Events pertaining to IP over Fibre Channel. • VLAN - Events pertaining to a virtual LAN. • PORT - Events pertaining to a physical port. • LPORT - Events pertaining to a specific logical port (one logical port always exists per physical port). • RPORT - Events pertaining to a specific remote port (could be an initiator or target). • ITNIM - Events pertaining to an initiator-target nexus. • RSVD - Reserved. • AUDIT - Audit events.
Subcategory column	The subcategory of the main event; for example, offline, online, disabled, or enabled.
Description column	Displays a brief description of the event.
Date/Time column	The date and time when the event occurred.
Clear Filter button	Click to clear the Master Log filter.
Refresh button	Click to refresh the screen.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Master Log"
- "Event severities"
- "Filtering event log entries"

Master Log Filter dialog box (HBA and CNA)

The **Master Log Filter** dialog box enables you to filter the events you receive by time, severity, category, or world wide name.

Opening the dialog box

1. Select the **Master Log** tab, located at the bottom pane of the Host Connectivity Manager,
2. Click the **Filter** button.

Fields and components

Field	Description
Event Time	Type in a From and To value to represent the time during which events will be logged.
Event Severity	Select one or all of the following values: Major, Minor, Critical, Info.
Category	Select an event category, for example, Rport or ITNIM, from the list.
WWN/MAC	Select a world wide name (WWN) or media access control (MAC) address from the list.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Master Log"
- "Event severities"
- "Filtering event log entries"

Persistent Binding dialog box (HBA and CNA)

The **Persistent Binding** dialog box enables target port world wide name binding to a persistent target ID for the OS stack. You can view the **Persistent Binding** dialog box at the host level, the CNA level, or the port level.

Opening the dialog box

1. Select a device that supports persistent binding from the device tree.

   Devices that support persistent binding include the local host, the HBA, CNA, CEE port, and the FCoE port.

2. Select **Configure > Basic Port Configuration** from the Host Connectivity Manaager.
3. Click the **Enable Persistent Binding** check box.

   Persistent Binding is enabled.

4. Select **Configure > Persistent Binding**.

Fields and components

Field	Description
At the host or CNA level	
Serial Number	The serial number of the CNA.
Port #	The port number of the CNA.
Port WWN	The port's world wide name.
Name	The port name; for example, Port 0 or Port 1.
Persistent Type	The type of binding; for example, Port WWN.
Target Name	The SCSI target name.
Remote Port WWN	The world wide name of the remote port.
SCSI Target ID	The SCSI target identifier.
At the port level	
HBA or CNA Node	The world wide node name of the HBA or CNA node.
HBA or CEE port	The world wide name of the HBA or CEE port.
Persistent type	The type of binding; for example, Port WWN.
Target Name	The SCSI target name.
Remote Port WWN	The world wide name of the remote port.
SCSI Target ID	The SCSI target identifier.

Using the dialog box

Refer to the following topic for specific procedures using this dialog box:

- "Basic port configuration"

Port POM Properties panel (HBA and CNA)

The **Port POM Properties** panel enables you to monitor the SFP attributes. A notification is given for any parameters that are not within the configured power, temperature, voltage, and current specification policy.

NOTE
Only Brocade-branded SFPs are supported with the 8 Gbps FC HBAs and 10 Gbps CNAs.

The 4 Gbps SFP (bundled with the Brocade 415 or 425) is referred to as "SFP," the 8 Gbps SFP (bundled with the Brocade 815 or 825), is referred to as "SFP+," and the 10 Gbps SFP (bundled with the BR-1010 and BR-1020) is referred to as "XFP."

Opening the properties panel

1. Select a port in the device tree.
2. Click the **POM** tab in the right pane.

Fields and components

Field	Description
Temperature(C)	The port temperature, measured in Celsius.
Bias Current (mA)	The low-level DC current (the Bias Current), measured in mA.
Tx Power (mW)	The transmitted power, measured in mW.
Rx Power (mW)	The received power, measured in mW.
Voltage	The voltage; for example, 1.8V, 3.3V, or 5.0V.

Port Properties panel (HBA only)

The **Port Properties** panel enables you to display the properties that are associated with a selected HBA port.

NOTE
QoS properties apply only to the HBA.

Opening the properties panel

1. Select a port in the device tree.
2. Click the **Properties** tab in the right pane.

Fields and components

Field	Description
Port Parameters	
Port #	The port number: 0 or 1.
Port WWN	The port's world wide name.
Node WWN	The HBA's world wide name.
Port Type	The port type; for example, N_Port.
Name	The name that is manually assigned to the port.
Media	Type of software; for example, 4G-sw.
FC Address	The port's Fibre Channel address.
Configured Port State	Indicates whether the port is enabled or disabled.
Operating State	Indicates whether the link is online or offline.
Configured Speed	The configured speed of the port.
Operating Speed	The speed at which the port is operating.
Max Speed Supported	The maximum port speed that is supported on the port.
Configured Topology	The topology setting. Options include auto, point-to-point, and loop.
Operating Topology	The topology setting at which the port is operating.
Receive BB Credit	The maximum number of receive buffers.
Transmit BB Credit	The maximum number of transmit buffers.
Frame Data Field Size	The frame size, in bytes, of the port. The default is 2112. Select auto to set the frame data field size automatically.
Hardware Path	Indicates whether MPIO is enabled or disabled.
# of LPorts	The number of logical ports.
Boot over SAN	Indicates whether the boot over SAN configuration is enabled or disabled.
Advanced Port Parameters	

Field	Description
Queue Depth	The number of I/O operations that can be run in parallel on a device.
Interrupt Control Coalesce	Indicates whether interrupt control is on or off.
Interrupt Control Latency	Sets the interrupt control latency value.
Interrupt Control Delay	Sets the interrupt control delay value.
Operating Parameters	
Beacon State	Indicates whether beaconing is on or off.
Link Beacon State	Indicates whether link beaconing is on or off.
MPIO Mode State	Indicates whether multipathing mode is on or off.
Path Time Out	The value between 0 to 60 that specifies the time out session. Note you can only enable or edit the path time out when MPIO is disabled.
Logging Level	The port logging level. Values include Log Critical, Log Error, Log Warning, and Log Info.
Persistent Binding	Indicates whether persistent binding is on or off.
Target Rate Limit	Indicates whether target rate limiting is on or off.
Default Rate Limit	Select the target rate limit from the list. Options include 1 Gbps (the default), 2 Gbps, and 4 Gbps.
FC-SP Parameters	
Authentication	Indicates whether FC-SP authentication is on or off.
Status	The status of FC-SP authentication.
Algorithm	The configured authentication algorithm.
Group	The DH Group (DH Null, group 0 is the only option).
Error Status	The health status of the Fibre Channel Security Protocol parameters.
QoS Parameters	
Configured QoS State	Indicates whether QoS is enabled or disabled.
Operating QoS State	Indicates whether QoS is online or offline.
Total BB Credit	The number of receive buffers.
Priority Levels	QoS priority levels. Values include High, Medium, and Low.

Using the property panel

Refer to the following topics for specific procedures using this dialog box:

- "Configuring the port speed using the GUI"
- "Specifying the maximum frame size using the GUI"
- "Specifying the maximum frame size using the GUI"
- "Specifying Path Time Out using the GUI"
- "Configuring the HCM logging level using the GUI"
- "Configuring the queue depth using the GUI"

Port Statistics dialog box (HBA and CNA)

The **Port Statistics** dialog box enables you to monitor the performance of the CNA and the traffic between the CNA and the LUNs. You can use the information to isolate and troubleshoot areas that affect application performance.

Opening the dialog box

Select **Monitor > Statistics > Port Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
Date	The date and time of the most recent reset.
Port WWN	The world wide name of the port about which statistics are displayed.
TX Frames	The number of total transmitted Fibre Channel frames across all protocols and classes.
RX Frames	The number of total received Fibre Channel frames across all protocols and classes.
TX Words	The number of total transmitted Fibre Channel words across all protocols and classes.
RX Words	The number of total received Fibre Channel words across all protocols and classes.
LIP Count	The number of loop initialization (LIP) events.
NOS Count	The number of not operational (link has failed) events.
Error Frames	The number of frames that have been received in error.
Dropped Frames	The number of frames that were lost due to a lack of host buffers available.
Link Failure Count	The number of times a link error has occurred.
Loss Of Sync Count	The number of times loss of sync has occurred.
Loss Of Signal Count	The number of times loss of signal has occurred.
Primitive Seq Protocol Err Count	The number of primitive sequence protocol errors.
Undersized Frame	The number of undersized frame errors.
Bad EOF Frame	The number of end of frame (EOF) errors.
Oversized Frame	The number of oversized frame errors.
Invalid CRC	The number of frames received with invalid CRC.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

Protocol Tests dialog box (HBA and CNA)

The **Protocol Tests** dialog box enables you to run diagnostic tests on Fibre Channel components.

Opening the dialog box

1. Select **Configure > Diagnostics** from the Host Connectivity Manager.
2. Click the **FC Protocol Tests** tab.

Fields and components

Field	Description
Echo Test check box	Check to run an Echo Test on the selected port.
FC Ping Test check box	Check to run an FC Ping Test on the selected port.
FC Traceroute check box	Check to run an FC Traceroute on the selected port.
Add button	Click to add a selected port, logical port, or target to the test list.
Remove button	Click to remove a selected port, logical port, or target from the test list.
Remove All button	Click to remove all ports, logical ports, and targets from the test list.
Test Cycle text box	Specify the number of times the test runs. The default value is 100.
Test Log table	Displays the time the test was run, type of test run, status of the test, configuration, and the results.
Port list	Select a port on which the test will be run from the list.
Target list	Select a target on which the test will be run from the list.
Logical Port list	Select a logical port on which the test will be run from the list.
Stop on Error check box	Check to flag the system to stop running the test if an error occurs.
Start button	Click to run the selected test.
Stop button	Click to stop all pending tests.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- “Configuring beaconing using the GUI”
- “Displaying SFP information using the BCU”
- “supportSave collection sources”

QoS Statistics dialog box (HBA only)

The **QoS Statistics** dialog box enables you to view statistics related to Quality of Service (QoS).

Opening the dialog box

Select **Monitor > Statistics > QoS Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
ELP accepted	The number of ELPs (Exchange Link Parameters) accepts sent.
ELP dropped	The number of ELPs dropped.
ELP received	The number of ELPs successfully received.
ELP rejected	The number of ELPs rejected.
QoS Flogi acc_received	The number of QoS Fabric login (Flogi) accept requests received.
QoS Flogi_sent	The number of QoS Fabric login (Flogi) requests sent.
QoS_RSCN_received	The number of Registered State Change Notifications (RSCN) received.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

Remote Port Properties panel (HBA and CNA)

The **Remote Port Properties** panel enables you to display the properties that are associated with the remote port.

Opening the properties panel

1. From the device tree, select a remote port (target or initiator).
2. Click the **Remote Port Properties** tab in the right pane.

NOTE
If it is a target port, there are two tabs in the right pane: **Properties** and **LUNs**.

Fields and components

Field	Description
Fibre Channel Properties	
Port WWN	The world wide name of the device's port.
Node WWN	The world wide name of the device.
Symbolic Name	The symbolic name associated with the remote port.
Name	The name associated with the device.
Role	The role of the device (target or initiator).
Target Rate Limiting Enforced	The status of traffic rate limiting, either on or off.
QoS Priority	The traffic priority (high, medium, or low) for a given source and destination traffic flow, assigned by the Fabric operating system (FOS). By default, all flows are marked as medium.
Bus #	The unique identifying number for each PCI bus, assigned during system initialization.
Target ID	The identifier of the target device.

SFP Properties panel

The **SFP Properties** panel enables you to display the properties that are associated with a selected small form-factor pluggable (SFP) transceiver.

Opening the properties panel

1. Select a port in the device tree.
2. Click the **SFP** or **SFP+** tab in the right pane.

NOTE
Only Brocade-branded SFPs are supported with the 8 Gbps FC HBAs and 10 Gbps CNAs.

The 4 Gbps SFP (bundled with the Brocade 415 or 425) is referred to as "SFP," the 8 Gbps SFP (bundled with the Brocade 815 or 825), is referred to as "SFP+," and the 10 Gbps SFP (bundled with the BR-1010 and BR-1020) is referred to as "XFP."

Fields and components

Field	Description
Port Technology	
SFP Supported	The name of the supported SFP.
Connector Type	The type of port connector; for example, LC. SC, or Cu (copper cable).
Transceiver	The type of transceiver; for example, XFP or GBIC.
Media	The type of media for the transceiver; for example, single mode.
Speed	The port speed. For the HBA, the options are 1 Gbps, 2 Gbps, 4 Gbps, or 8 Gbps. For the 10 Gbps CNA, the only speed option is auto-negotiate.
Extended Information	
Identifier	The identifier for the extended link.
Encoding	Displays how the extended link is encoded, for example, 8B10B.
Baud Rate	The transmission rate, roughly equivalent to the number of bits per second.
Length 9u	The length of the single-mode fiber optic cable, used in situations where gigabit performance is not required (for distances greater than 100 meters).
Length 50u	The length of the fiber optic cable (for distances greater than 10 meters).
Length 62.5u	The length of the fiber optic cable (for distances greater than 10 meters).
Length Cu	The length of the copper cable (for distances greater than 1 meter, where optimum performance is required).
Vendor Name	The vendor of the extended link.
Vendor OUI	The vendor's organizational unique identifier (OUI).

Field	Description
Vendor Part	The part number of the extended link.
Revision	The revision level of the extended link.
Wavelength	The wavelength translation, which enables longer reach through lower attenuation.
Options	Displays details about the transceiver; for example, the type of port connector, type of transceiver, and enable/disable status.
BR Max	The upper bit rate limit at which the SFP transceiver meets its specifications.
BR Min	The lower bit rate limit at which the SFP transceiver meets its specifications.
Serial #	The serial number of the SFP.
Date Code	The date the SFP was manufactured.

Syslog Server Configuration dialog box (HBA and CNA)

The **Syslog Server Configuration** dialog box enables you to configure the host connectivity manager (HCM) to send Syslog messages to other computers through port 514. You can configure the HCM agent to forward events to a maximum of three Syslog destinations.

Opening the dialog box

1. Select a CNA from the device tree.
2. Select **Configure > Syslog** from the main menu.

Fields and components

Field	Description
Hostname / IP Address text box	Enter the host name or IP address of the destination device.
Set this IP in all discovered agents in future check box	Click to set the device as a Syslog destination in all future discovered agents.
Add button	Click to register the host as a Syslog destination.
Remove button	Click to remove the host as a Syslog destination.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Syslog support"
- "Registering a host server"
- "Removing a host server"

Target Statistics dialog box (HBA and CNA)

The **Target Statistics** dialog box enables you to display statistical information for a selected remote port (R_Port) or FCoE port.

Opening the dialog box

Select **Monitor > Statistics > Remote port statistics > Target Statistics** from the Host Connectivity Manager.

OR

Right-click a remote port and select **Target Statistics**.

Fields and components

Field	Description
Date	The date and time of the most recent reset.
WWN	The world wide name of the selected remote port.
Offlines	The remote ports that are offline.
RSCNs	The number of Fibre Channel Registered State Change Notifications (RSCNs) received.
PLOGI Sent	The number of times port logins (when two node ports in the SAN establish a connection between each other) occur.
PLOGI Accepts	The number of times port logins are accepted.
PLOGI Timeouts	The number of times port logins time out.
PLOGI Failed	The number of times port logins fail.
PLOGI Rejects	The number of times port logins are rejected.
PLOGI Received	The number of times port logins are received.
PRLI Received	The number of times PRLIs are received.
ADISC Sent	The number of discover address (ADISC) requests sent.
ADISC Accepts	The number of times discover address (ADISC) requests are accepted.
ADISC Failed	The number of times discover address (ADISC) requests fail.
ADISC Rejects	The number of times discover address (ADISC) rejects.
ADISC Received	The number of times discover address (ADISC) requests are received.
ADISC Rejected	The number of times discover address (ADISC) requests are rejected.
LOGO Sent	The number of times logouts occur.
LOGO Accepts	The number of times logouts are accepted.
LOGO Failed	The number of times logouts fail.
LOGO Rejected	The number of times logouts are rejected.

Field	Description
LOGO Received	The number of times logouts are received.
HAL uninit Create Events	The number of hardware abstraction layer (HAL) uninit create events.
HAL uninit Exception Events	The number of hardware abstraction layer (HAL) uninit exception events.
HAL Created Online Events	The number of hardware abstraction layer (HAL)-created online events.
HAL Created Delete Events	The number of hardware abstraction layer (HAL)-created delete events.
HAL Created IOC Down	The number of times hardware abstraction layer (HAL)-created I/O controllers were down.
HAL Created Exception Events	The number of hardware abstraction layer (HAL)-created exception events.
HAL fw Create f/w Responses	The number of hardware abstraction layer (HAL) firmware-create responses.
HAL fw Create Delete Events	The number of hardware abstraction layer (HAL) firmware-created delete events.
HAL fw Create Offline Events	The number of hardware abstraction layer (HAL) firmware created offline events.
HAL fw Create IOC Down	The number of times hardware abstraction layer (HAL) firmware-created I/O controllers were down.
HAL fw Create Exception Events	The number of hardware abstraction layer (HAL) firmware-created exception events.
HAL Online Offline Events	The number of hardware abstraction layer (HAL) online and offline events.
HAL Online Delete Events	The number of hardware abstraction layer (HAL) online delete events.
HAL Online IOC down Events	The number of hardware abstraction layer (HAL) online IOC down events.
HAL Online Exception Events	The number of hardware abstraction layer (HAL) online exception events.
HAL fw Delete f/w Responses	The number of hardware abstraction layer (HAL) fw Delete f/w responses.
HAL fw Delete Delete Events	The number of hardware abstraction layer (HAL) fw Delete Delete events.
HAL fw Delete IOC down Events	The number of hardware abstraction layer (HAL) fw Delete IOC down events.
HAL fw Delete Exception Events	The number of hardware abstraction layer (HAL) fw Delete Exception events.
HAL Offline Delete Events	The number of hardware abstraction layer (HAL) Offline Delete events.
HAL Offline Online Events	The number of hardware abstraction layer (HAL) Offline Online events.
HAL Offline IOC down Events	The number of hardware abstraction layer (HAL) offline IOC down events.

Field	Description
HAL Offline exception events	The number of hardware abstraction layer (HAL) offline exception events.
HAL Delete f/w Responses	The number of hardware abstraction layer (HAL) delete f/w responses.
HAL Delete IOC down Events	The number of hardware abstraction layer (HAL) Delete IOC down events.
HAL Delete Exception Events	The number of hardware abstraction layer (HAL) delete exception events.
HAL Delete Pend f/w Responses	The number of hardware abstraction layer (HAL) delete pend f/w responses.
HAL Delete Pend IOC downs	The number of hardware abstraction layer (HAL) delete pending IOC downs.
HAL Delete Pend Exceptions	The number of hardware abstraction layer (HAL) delete pending exceptions.
HAL Off-Pending f/w Responses	The number of hardware abstraction layer (HAL) off-pending f/w responses.
HAL Off-Pending Deletes	The number of hardware abstraction layer (HAL) off-pending deletes.
HAL Off-Pending IOC downs	The number of hardware abstraction layer (HAL) off-pending IOC downs.
HAL Off-Pending Exceptions	The number of hardware abstraction layer (HAL) off-pending exceptions.
HAL IOC Down Offline Events	The number of hardware abstraction layer (HAL) IOC down offline events.
HAL IOC Down Delete Events	The number of hardware abstraction layer (HAL) IOC down delete events.
HAL IOC down Online Events	The number of hardware abstraction layer (HAL) IOC down online events.
HAL IOC Down Exception Events	The number of hardware abstraction layer (HAL) IOC down exception events.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

Test Log Details dialog box (HBA and CNA)

The **Test Log Details** dialog box enables you to view details about a selected port or protocol test.

Opening the dialog box

1. Select **Configure > Diagnostics** from the Host Connectivity Manager.
2. Run any diagnostic test.
3. Select and double-click a row of the test results in the bottom pane.

Fields and components

Field	Description
Time	The date and time the test was run.
Test	The name of the test.
Status	The status of the test, for example, executing or pending.
Configuration	The name of the test component and its corresponding value. For example: • Adapter world wide name • Data pattern • Frame count • Port world wide name
Result	The test result, for example, test started or test complete.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Running a hardware-level test using the GUI"
- "Running a Fibre Channel protocol-level test using the GUI"

Virtual Port Creation dialog box (HBA and CNA)

The **Virtual Port Creation** dialog box enables you to create a new virtual port from a physical port or FCoE port.

Opening the dialog box

1. Select a physical port from the device tree.
2. Select **Configure > Virtual Port > Create** from the main menu.

   OR

   Right-click the physical port and select **Virtual Port > Create** from the list.

Fields and components

Field	Description
Virtual Port WWN text box	Enter a unique world wide name for the virtual port. **NOTE:** The default node WWN is the physical port node WWN. You must manually change it to a unique WWN for the virtual port.
Use auto-generated check box	Click to auto-generate the virtual port world wide name. By default, auto-generate is selected.
Generate Again button	Click to regenerate the virtual port WWN and the virtual node WWN.
Virtual Node WWN text box	Enter a unique world wide name for the virtual node. **NOTE:** The default node WWN is the physical port node WWN. You must manually change it to a unique WWN for the virtual port.
Symbolic Name text box	Enter the symbolic name associated with the virtual port.
Name text box	Enter the name for the virtual port.
Description text box	Enter a description for the virtual port.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Virtual Port configuration"
- "Creating a Virtual Port"
- "Deleting a Virtual Port"

Virtual Port Deletion dialog box (HBA and CNA)

The **Virtual Port Deletion** dialog box enables you to delete an existing virtual port or FCoE port.

Opening the dialog box

1. Select a virtual port from the device tree.
2. Select **Configure > Virtual Port > Delete** from the main menu.

   OR

   Right-click the virtual port and select **Virtual Port > Delete** from the list.

   A warning message displays, asking for confirmation.
3. Click **OK** to continue.

NOTE
You can also select a base port from the device tree and delete it the same way you delete a virtual port.

Fields and components

Field	Description
Deletion check box	Check to select the virtual port to be deleted.
WWN	The virtual port's world wide name.
Node WWN	The virtual node's world wide name.
Symbolic Name	The symbolic name that is associated with the virtual port.
Delete Selected button	Click to delete the selected virtual port.
Delete All button	Click to delete all virtual ports that are displayed.
Cancel button	Click to abort the operation.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Virtual Port configuration"
- "Creating a Virtual Port"
- "Deleting a Virtual Port"

Virtual Port Properties panel (HBA and CNA)

The **Virtual Port Parameters** properties panel enables you to display the properties that are associated with a virtual port or FCoE port.

Opening the properties panel

Select a virtual port from the device tree and click the **Properties** tab.

Fields and components

Field	Description
Port WWN	The port's world wide name.
Node WWN	The adapter's world wide name.
FC Address	The Fibre Channel address of the virtual port.
State	Indicates whether the virtual port is online or offline.
Roles	The role of the virtual port; for example, FCP Initiator.
Base Port	Indicates whether the virtual port is used as the base port.
Switch NWWN	The world wide name of the switch.
Symbolic name	The switch's symbolic name.
Switch IP address	The switch's IP address.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Virtual Port configuration"
- "Creating a Virtual Port"
- "Deleting a Virtual Port"

Virtual Port Statistics dialog box (HBA and CNA)

The **Virtual Port Statistics** dialog box enables you to view statistical information related to a selected virtual port or FCoE port.

Opening the dialog box

1. Select a virtual port from the device tree.
2. Select **Monitor > Statistics > Virtual Port Statistics** from the Host Connectivity Manager.

Fields and components

Field	Description
Keep Running Data checkbox	Click to continue running statistical data. This is useful if you want to see a trend.
Polling Frequency in Seconds text box	Type a number for polling frequency. The range is between five and 3600 seconds and the default is five seconds.
Start Polling button	Click to manually poll the V_Port statistics.
Reset button	Click to reset all of the statistics to 0.
Date	The date and time of the most recent reset.
WWN	The world wide name of the virtual port.
fdisc_sent	The number of Fabric discoveries sent.
fdisc_accepts	The number of times the system accepts Fabric discoveries.
fdisc_retries	The number of times a Fabric discovery is attempted.
fdisc_timeouts	The time that is required for a Fabric discovery.
fdisc_rsp_err	The number of Fabric discovery response errors.
fdisc_acc_bad	The number of bad accepts.
fdisc_rejects	The number of times the system rejects Fabric discoveries.
fdisc_unknown	The number of unknown Fabric discovery occurrences.
fdisc_alloc_waits	The number of delayed Fabric discovery allocations.
logo_sent	The number of times logouts occur.
logo_accepts	The number of times logouts are accepted.
logo_rejects	The number of times logouts are rejected.
logo_rsp_err	The number of logout response errors.
logo_unknown_rsp	The number of unknown logout occurrences.
logo_alloc_waits	The number of delayed logout allocations.
fab_no_npiv	Indicates if there is no NPIV support.
fab_offline	The number of fabrics that are offline.
fab_online	The number of fabrics that are online.
fab_cleanup	The number of fabric cleanups.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "Port Statistics dialog box (HBA and CNA)"
- "Polling frequency rate"
- "Resetting statistics"
- "Performance monitoring"

VLAN Configuration dialog box (CNA only)

The **VLAN Configuration** dialog box enables you to create a logical work group consisting of up to 64 VLANs. You can also add, edit, or remove VLANs using the **VLAN Configuration** dialog box.

Opening the dialog box

1. Select an Ethernet port from the device tree.
2. Select **Configure > VLAN Configuration** from the main menu.

   OR

   Right-click the host and select **VLAN Configuration** from the list.

   The **VLAN Configuration** dialog displays.

Fields and components

Field	Description
VLAN ID	Displays a list of configured VLAN identifiers.
VLAN Name	Displays a list of configured VLAN names.
Add button	Click to launch the **Add VLAN** dialog box, which enables you to add a VLAN.
Edit button	Click to launch the **Edit VLAN** dialog box, which enables you to edit the VLAN name.
Remove button	Click to remove a VLAN. A confirmation error message displays.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "VLAN configuration"
- "Adding a VLAN"
- "VLAN configuration conflicts"
- "Editing a VLAN"
- "Removing a VLAN"

VLAN configuration - Add a VLAN dialog box (CNA only)

The **Add VLAN** dialog box allows you to create a VLAN. You can create a VLAN by selecting an Ethernet port.

Opening the dialog box

1. Select an Ethernet port from the device tree.
2. Select **Configure > VLAN Configuration** from the main menu.

   OR

   Right-click the host and select **VLAN Configuration** from the list.

Fields and components

Field	Description
Port MAC	The media access control address of the Ethernet port.
VLAN ID text box	The VLAN identifier.
VLAN Name text box	The VLAN name.
Create Passthru checkbox	Check to create a pass-through VLAN.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "VLAN configuration"
- "Adding a VLAN"
- "VLAN configuration conflicts"
- "Editing a VLAN"
- "Removing a VLAN"

VLAN configuration - Edit a VLAN dialog box (CNA only)

The **Edit VLAN** dialog box allows you to edit an existing VLAN.

Opening the dialog box

1. Select an Ethernet port from the device tree.
2. Select **Configure > VLAN Configuration** from the main menu.

   OR

   Right-click the host and select **VLAN Configuration** from the list.
3. Click **Edit** on the **VLAN Configuration** dialog box.

Fields and components

Field	Description
Port MAC	The media access control address of the Ethernet port.
VLAN ID text box	The VLAN identifier.
VLAN Name text box	The VLAN name.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "VLAN configuration"
- "Adding a VLAN"
- "VLAN configuration conflicts"
- "Editing a VLAN"
- "Removing a VLAN"

VLAN Statistics dialog box (CNA only)

The **VLAN Statistics** dialog box enables you to display statistics related to a selected virtual LAN.

NOTE
If a PORT VLAN exists in the VLAN configuration, you cannot perform any add, delete, or edit operations on any VLAN. In addition, you cannot view statistical information on any VLAN.

Opening the dialog box

1. Select an Ethernet port from the device tree.
2. Select **Monitor > Statistics > VLAN Statistics** from the main menu.

   The **VLAN Statistics** dialog box displays.

Fields and components

Field	Description
Keep Running Data checkbox	Click to continue running statistical data. This is useful if you want to see a trend.
Polling Frequency in Seconds text box	Type a number for polling frequency. The range is between five and 3600 seconds and the default is five seconds.
Start Polling button	Click to manually poll the VLAN statistics.
Reset button	Click to reset all of the statistics to 0.
Date	The date the VLAN statistics were run.
VLAN ID	The VLAN identifier.
VLAN Name	The VLAN name.
TxBytes	The number of transmitted bytes.
RxBytes	The number of received bytes.
Duration	The length of time between byte transmission and reception.
Status	The connection status.

Using the dialog box

Refer to the following topics for specific procedures using this dialog box:

- "VLAN configuration"
- "Adding a VLAN"
- "VLAN configuration conflicts"
- "Editing a VLAN"
- "Removing a VLAN"

Appendix

Brocade Command Utility

B

In this appendix

About the BCU

This appendix provides reference documentation for the Brocade Command Line Utility (BCU) supporting the Brocade Fibre Channel components.

BCU runs in two modes:

- Direct mode, where you type the command at the command prompt. For example:

  `bcu port --topology <port_id> <auto|p2p|loop>`

- Shell mode, accessed using the bcu shell; for example, `bcu> port --topology <port_id> <auto|p2p|loop>`.
  - To access the shell mode, type `bcu shell`.
  - To exit out of shell mode, type `exit`.

All the commands in this appendix are shown in the direct mode. For example:

`bcu port --topology <port_id> <auto|p2p|loop>`

To use the CLI help, type the following command:

`bcu --help`

BCU commands

The following table alphabetically lists the Brocade Command Line Utility (BCU) commands that are available for configuring the devices in a SAN environment that use a Brocade CNA.

Command	Operands	Synopsis
Help commands		
bcu --help		Lists all available sub-commands.
bcu <sub_command> --help		Lists all details about the specific subcommand.
Adapter commands		
bcu adapter	--list	
	--name	<ad_id> <adapter_name>
	--query	<ad_id>
	--enable	<ad_id>
	--disable	<ad_id>
Authentication commands		
bcu auth	--show	<port_id>
	--policy	<port_id> <on | off>
	--algo	<port_id> <md5 | sha1 | ms | sm>
	--secret	<port_id> “secret string”
	--stats	<port_id>
	--statsclr	<port_id>

Boot commands		
boot over SAN commands apply to the 8 Gbps HBA only.		
bcu boot	--blunZone	-c <cfg> -p <port_wwn> -r <rport_wwn> -l <lun_id | lun#>
	--upload	[adapter_id] <image_file> [-a]
Converged Enhanced Ethernet (CEE) commands		
bcu cee	--query	<port_id>
	--stats	<port_id>
	--statsclr	<port_id>
Debug commands		
bcu debug	--portlog	<port_id>
	--portlogclear	<port_id>
	--portlogctl	<port_id> <enable | disable>
Diagnostic commands		
bcu diag	--sfpshow	<port_id>
	--tempshow	<ad_id>
	--beacon	<port_id> {on | off} [<duration>]
	--pciloopback	<port_id> [-p <pattern>] [-c <frame_count>]
	--loopback	<port_id> [-t <loopback_type>] [-s <speed>] [-c <frame_count>] [-p <pattern>]
	--memtest	<ad_id>
	--queuetest	<port_id>
Windows driver configuration commands		
bcu drvconf	--key	<key_name>
	--val	<value>
	Possible key_name and value ranges are: • key = bfa_ioc_queue_depth, value range [>0] default = 2048 • key = bfa_lun_queue_depth, value range [>0] default = 32 • key = ioc_auto_recover, value range [0-1] default = 1 • key = rport_del_timeout, value range [>0] default = 90 • key = msix_disable, value range [0-1] default = 1	
Ethernet diagnostic commands		
bcu ethdiag	--loopback	<port_id> [-t <loopback-type>] [-c <frame_count>] [-p pattern]
Ethernet IOC commands		
bcu ethioc	--enable	<port_id>
	--disable	<port_id>
	--stats	<port_id>
	--statsclr	<port_id>
	--query	<port_id>
Ethernet Log command		

bcu ethlog	--level	<port_id>
Ethernet Port commands		
bcu ethport	--stats	<port_id>
	--statsclr	<port_id>
FC diagnostic commands		
bcu fcdiag	--fcping	<port_id> <rpwwn> [-l lpwwn]
	--fctraceroute	<port_id> <rpwwn> [-l lpwwn]
	--fcecho	<port_id> <rpwwn> [-l lpwwn]
	--linkbeacon	<port_id> {on|off}
	--scsitest	<port_id> <rpwwn> [-l lpwwn]
FCP initiator mode commands *Note: fcpim - -mpiomode is not supported on Solaris platforms.*		
bcu fcpim	--query	<port_id> <rpwwn> [-l <lpwwn>]
	--stats	<port_id> <
	--statsclr	<port_id>
	--modstats	<port_id>
	--modstatsclr	<port_id>
	--pathtov	<port_id> tov
	--qdepth	<port_id> <q_depth_value>
IO Controller (IOC) commands		
bcu ioc	--stats	<port_id>
	--statsclr	<port_id>
	--enable	<port_id>
	--disable	<port_id>
	--query	<ioc_id>
	--intr	<ioc_id> <-coalesce | c> {on | off} [<Latency> <Delay>]
Log commands		
bcu log	--level	<port_id> [<critical | error | warning | info>] [-m <fw | ha1 | fcs | drv | aen | all>]
Logical port (lport) commands		
bcu lport	--list	<port_id>
	--query	<port_id> [-l <lpwwn>]
	--stats	<port_id> [-l <lpwwn>]
	--statsclr	<port_id> [-l <lpwwn>]
Port commands (physical port)		
bcu port	--list	
	--name	<port_id> [port_name]
	--enable	<port_id>

	--disable	<port_id>
	--stats	<port_id>
	--statsclr	<port_id>
	--query	<port_id>
	--topology	<port_id> {auto | p2p|loop}
	--speed	<port_id> <speed>
	--dfsize	<port_id> [dfsize]
Remote port (rport) commands		
bcu rport	--list	<port_id> [-l <lpwwn>]
	--query	<port_id> <rpwwn> [-l <lpwwn>]
	--stats	<port_id> <rpwwn> [-l <lpwwn>]
	--statsclr	<port_id> <rpwwn> [-l <lpwwn>]
	--osname	<port_id> [-l <lpwwn>]
Target persistent binding commands *Note: Target persistent binding is available in Windows operating systems only. It is not supported in other operating systems.*		
bcu pbind	--list	<port_id> [<pwwn>]
	--clear	<port_id>
QoS commands *Note: QoS commands apply to the 8 Gbps HBA only.*		
bcu qos	--enable	<port_id>
	--disable	<port_id>
	--query	<port_id>
	--stats	<port_id>
	--statsclr	<port_id>
Target rate limiting commands *Note: Target rate limiting commands apply to the 8 Gbps HBA only.*		
bcu ratelim	--enable	<port_id>
	--disable	<port_id>
	--query	<port_id>
	--defspeed	<port_id> [<1|2|4>]
Ethernet VLAN (Windows only) commands		
bcu vlan	--add	<port-id> <vlan-id> [<vlan-name>]
	--remove	<port-id> <vlan-id>
	--edit	<port_id> <vlan_id> <new_vlan_name>
	--list	<port_id>
	--query	<port-id> <vlan-id>

Virtual port (vport) commands *Note: vport commands are not supported on Solaris platforms.*		
bcu vport	--create	<port_id> <vpwwn> [-n <nwwn>] [-s <sname>]
	--delete	<port_id> <vpwwn>
	--query	<port_id> <vpwwn>
	--stats	<port_id> <vpwwn>
	--statsclr	<port_id> <vpwwn>

adapter

Displays and sets adapter parameters. The adapters are HBA models 415, 425, 815, and 825 and CNA single-port models BR-1010 and BR-1020.

NOTE
When trunking is enabled, multiple physical ports are trunked together to form a logical Fibre Channel port.

Synopsis

bcu adapter --**enable** <*ad_id*>

bcu adapter --**disable** <*ad_id*>

bcu adapter --**list**

bcu adapter --**name** <*serial-no* | *adapter-index*> <*adapter-name*>

bcu adapter --**query** <*ad_id*>

Description

Displays and sets commands that apply to the physical adapter. There can be one or more PCI functions per adapter, which are referred to as *ports*. Each port exposes a logical Fibre Channel port, which typically equates to a physical Fibre Channel port.

Operands

When invoked without operands, this command displays the usage.

--enable Enables the adapter.

ad_id Specifies the ID of the adapter you want to enable.

--disable Disables the adapter.

ad_id Specifies the ID of the adapter you want to disable.

--list Lists all adapters in the system. For each adapter in the system, a brief summary line is displayed.

--name Displays or specifies the name of the adapter.

Note: Use an empty string (“ “) to clear a previous adapter name. Adapter names are stored persistently.

serial-no | *adapter-index*

Specifies the serial number or the ID of the adapter for which you want to display information.

adapter-name Specifies the adapter name. The name can include up to 15 characters, must begin with a letter, can consist of letters, digits, hyphens, and underscore characters, but must not contain spaces. This operand is optional; if you do not specify an adapter name, the current adapter name displays.

--query Queries or displays adapter information.

ad_id Specifies the ID of the adapter for which you want to query.

Example

```
bcu adapter --list
```

AD #	NP	HW-path	Type	Model-Info	Serial-num	Name
1	2	0000:01:00	FC	Brocade-825	ALX0303D01C	--
2	2	0000:09:00	FC	Brocade-825	ALX0301D06D	--
3	2	0000:14:00	CNA	BR-1010	ALX0714D05R	--

```
bcu adapter --query 1
Example:# bcu adapter --query 1
Adapter Information:
        model info: BR-1020
        OEM info: N/A
        num ports: 2
        max speed: 10 Gbps
        chip revision:  Rev-X
        hw path:        0000:0a:00
        Serial Num:     ARZ0351D00L
        name:
PCI Information:
        vendor id:      0x1657
        device id:      0x0014
        ssid:           0x0014
        ssvid:          0x1657
        revid: ASIC revision

        PCIe Gen:       Gen1
        PCIe lanes:     8 (Initial number of lanes = 8)
Port Information:
        Port 0:
               pwwn:   10:00:00:05:1e:55:1d:5c
               nwwn:   20:00:00:05:1e:55:1d:5c
               IOC ID: 0
               hwpath: 0000:0a:00.2
               Eth name: eth2
        Port 1:
               port type: FC/FCoE
               pwwn:   10:00:00:05:1e:55:1d:5d
               nwwn:   20:00:00:05:1e:53:1d:5d
               IOC ID: 1
               hwpath: 0000:0a:00.3
               Eth name: eth3
```

```
Flash Information:
        status: good
        fw version: FCHBA2.0.0.0
        bios version: brocade_adapter_boot_fw_v2-0-0-0

bcu adapter --query 3
Adapter Information:
        model info: BR-1010
        card type: CNA
        num ports:      2
        max speed:      10 Gbps
        chip revision:  Rev-X
        hw path:        0000:14:00
        Serial Num:     ALX0714D05R
        name:
PCI Information:
        vendor id:      1657
        device id:      0014
        ssid:           0015
        ssvid:          1657
        revid: ASIC revision

        PCIe Gen:       Gen2
        PCIe lanes:     8 (Initial number of lanes = 8)
Port Information:
        Port 0:
                pwwn:   10:00:00:05:1e:53:39:63
                nwwn:   20:00:00:05:1e:53:39:63
                hwpath: 0000:01:00.0
                name:
        Port 1:
                pwwn:   10:00:00:05:1e:53:39:64
                nwwn:   20:00:00:05:1e:53:39:64
                hwpath: 0000:01:00.0
                name: user-assigned port name
Flash Information:
        status: good
        fw version: FCHBA2.0
        bios version: FCHBA2.0

bcu adapter --name 1 emc-fab3_ad5
        adapter BRCD1234567's name set to emc_fab3_ad5

bcu adapter --name 1
        adapter BRCD1234567's name is emc_fab3_ad5
```

See Also "IOC", "port"

auth

Enables authentication configuration on a per-port basis and the ability to display authentication status and statistics.

Synopsis

bcu auth --**algo** <*port_id*> <*md*|*sha1*|*ms*|*sm*>

bcu auth --**policy** <*port_id*> {*on*|*off*}

bcu auth --**secret** <*port_id*> "*secret_string*"

bcu auth --**show** <*port_id*>

bcu auth --**statsclr** <*port_id*>

Description

Configure and display authentication settings and status.

Operands

--**algo** Sets the authentication algorithm.

port_id Specifies the ID of the port for which you want to display information.

md|*sha1*|*ms*|*sm*

- **MD5** - A hashing algorithm that verifies a message's integrity using Message Digest version 5. MD5 produces a 128-bit digest and is the required authentication mechanism for LDAP v3 servers.
- **SHA1** - A secure hashing algorithm that computes a 160-bit message digest for a data file that is provided as input.
- **MD5SH1** - Similar to the MD5 hashing algorithm, but used for DH-CHAP authentication
- **SHA1MD5** - Similar to the SHA1 hashing algorithm, but used for DH-CHAP authentication

--**policy** Turns authentication on or off. By default, the authentication policy is disabled. If authentication is enabled, the port attempts to negotiate with the switch. If the switch side does not participate in the authentication process, the port skips the authentication process. If the switch participates in the authentication and authentication fails, the port is placed in a link down state.

port_id Specifies the ID of the port for which you want to set the authentication policy.

on|*off* Specifies the state of the authentication policy: "policy 2/1 on" means authentication is turned on, "policy 2/1 off" means authentication is turned off.

--**secret** Sets the shared secret.

Note: You cannot clear the secret.

port_id Specifies the ID of the port for which you want to set the shared secret.

secret string Specifies the secret string. The maximum length of the secret is 63 bytes. The default secret for each interface is its pwwn without the colons; for example, 0102030405060708.

--**show** Displays the authentication settings and current status.

port_id	Specifies the ID of the port for which you want to display information.
–stats	Displays the authentication statistics.
port_id	Specifies the ID of the port for which you want to display information.
–statsclr	Clears the authentication statistics.
port_id	Specifies the ID of the port for which you want to clear statistical information.

Example Here is an example of the output when authentication is successful:

```
bcu auth --show 1/0
```

port	Port Status	Auth	Hash Type	Group Type
1/0	Linkdown	success	MD5	DH-NULL

Here is an example of the output when authentication failed:

```
bcu auth --show 1/0
```

port	Port Status	Auth	Hash Type	Group Type
1/0	Linkdown	failed	MD5	DH-NULL

Here is an example of the output when authentication is not enabled:

```
bcu auth --show 1/0
```

port	Port Status	Auth	Hash Type	Group Type
1/0	Linkup	no_auth		

```
bcu auth -- policy 2/1 on
Authentication turned on

bcu auth -- policy 2/1 off
Authentication turned off

bcu auth -- secret 5/0 “mypasswd”
Authentication secret set

bcu auth -- reinit 4/1
Authentication restarted

bcu auth -- stats 4/1
successes: 1
failures: 0

auth_rx_stats:
auth_rjts: 0
auth_negs: 0
auth_dones: 0
dhchap_challenges: 2
dhchap_replies: 0
dhchap_successes: 1
```

```
auth_tx_stats:
auth_rjts: 0
auth_negs: 2
auth_dones: 0
dhchap_challenges: 0
dhchap_replies: 2
dhchap_successes: 0

auth --statsclr 4/1
Successfully cleared auth stats
```

See Also None.

bios

Enables the basic input/output system (BIOS) in preparation for Boot Over SAN. The BIOS is the firmware code that, when first powered on, is a type of boot loader.

NOTE
Refer to the *Brocade Fibre Channel CNA Installation and Reference Manual* for more information about configuring BIOS.

Synopsis

bcu bios --**query** <*port_id*>

bcu bios --**enable** <*port_id*> [-*s speed*] [-*o auto*|*flash*|*firstlun*] [-*p pos*] {-*b pwwn,lun*}*

bcu bios --**disable** <*port_id*>

Description

You must enable BIOS to support boot over SAN for a CEE port. If disabled, the host system cannot boot from Fibre Channel disk drives. The default setting for the CNA boot BIOS is enabled. BIOS must be enabled on only one adapter port per host in order to boot from SAN.

The port ID can be any of the following:

- Adapter ID
- Port ID
- Port WWN
- Port name
- Port hardware path

Operands

--query Queries the boot-over-SAN configuration.

port_id Specifies the ID of the port for which you want to display information.

--enable Enables the boot over SAN configuration.

port_id Specifies the ID of the port for which you want to set the port's boot from SAN attributes.

s *speed* Specifies the port speed as auto-negotiate.

o *auto*|*flash*|*firstlun*

Specifies the following options for obtaining boot LUN information:

- auto - Enables auto-discovery. When enabled, the boot LUN identification is provided by the fabric.
- flash - The CNA obtains the boot LUN information from flash memory. Values are saved to flash when you configure them and save them through the BIOS Configuration Utility, HCM, and BCU.
- firstlun - The host boots from the first LUN visible to the CNA that is discovered in the fabric.

p *pos* Specifies the position for storing the boot LUN information in the -b pwwn, lun operand. The range is 0-3. The LUN information specified in position 0 is used first to boot from SAN, then information specified for positions 1, 2, and 3.

b *pwwn,lun*	Specifies the host boots from the LUN information defined by the target port world wide name (PWWN) and LUN value (lun*). Specify the PWWN as a colon-separated value and the LUN as a 64-bit decimal value. The LUN must be the same LUN that you bound to the CEE port using the storage system's management or configuration utility.
–disable	Disables boot over SAN for the specified port, if enabled.
port_id	Specifies the ID of the port for which you want to disable the boot over SAN configuration.

See Also "boot (HBA only)"

boot (HBA only)

Updates the boot code in flash. The boot-over-SAN feature is not supported on the converged network adapter (CNA).

The adapter id could be any one of the following:

- <adapter_id>
- <adapter_sn>
- <adapter_name>
- <adapter_hwpath>

NOTE
On Solaris systems, the Boot Code Image Upload menu is disabled if the host does not have a Fibre Channel HBA card or if the driver version is 1.1.0.7 or lower.

Synopsis

bcu boot --**blunZone** -c <cfg> -p <port_wwn> -r <rport_wwn> -l <lun_id | lun#>

bcu boot --**upload** [adapter_id] <image_file> [-a]

Description

Boot commands enable you to query a boot configuration and set or disable the boot over SAN configuration.

Operands

--blunZone	Creates the zonecreate command to be run on the switch.
-c cfg	Specifies the boot LUN (BLUN) of the boot command.
-p port_wwn	Specifies the world wide name of the port.
-r rport_wwn	Specifies the world wide name of the rport.
lun_id	Specifies the ID of the logical unit. The LUN ID is specified as a hexadecimal byte; for example, FF.
lun#	Specifies the number of the logical unit. The LUN number is specified as a hexadecimal, eight-byte string; for example, 09AABBCCDDEEFF00.
--upload	Updates the boot code in flash.
adapter_id	Specifies the ID of the adapter on which boot code is updated.
image_file	Specifies the name of the boot code image file.
-a	Indicates the boot code is uploaded to all the Brocade adapters found on the host. The adapter_id is not specified if -a is specified.

Example

```
bcu boot --blunZone -c BLUN -p 10:00:00:05:1e:41:9a:cb -r 50:00:00:05:1e:41:9a:ca
-l 09AABBCCDDEEFF00
```

See Also

“bios”

cee

Queries the Converged Enhanced Ethernet information on the port and displays statistics. The port_id could be any of the following:

- Adapter ID or port ID
- Port name
- Port hardware path

NOTE
All switches must be in non-willing mode.

Synopsis bcu cee --**query** <*port_id*>

bcu cee --**stats** <*port_id*>

bcu cee --**statsclr** <*port_id*>

Operands

--**query**		Queries the CEE port information.
	port_id	Specifies the ID of the adapter (CNA).
--**stats**		Displays the CEE port statistics.
	port_id	Specifies the ID of the converged network adapter for which you will print the statistics.
--**statsclr**		Clears the CEE port statistics.
	port_id	Specifies the ID of the port for which you want to clear statistical information.

-Example

```
cee --query <port_id>

CEE status: Active
_____________________________
LLDP-Attributes
_____________________________
Time to Live 120
Chassis ID 00:05:1e:53:ea:a6
Port ID Te 0/3
Port Desc --
System Name --
System Desc --
System Cap BRIDGE, ROUTER

Operational CEE Map:
_____________________________
Priority Group Table

0: Weight 0, PFC Disabled
1: Weight 80, PFC Disabled
2: Weight 20, PFC Enabled
3: Weight 0, PFC Enabled
4: Weight 0, PFC Enabled
5: Weight 0, PFC Disabled
6: Weight 0, PFC Disabled
7: Weight 0, PFC Disabled
```

```
Priority Table

CoS: 0 1 2 3 4 5 6 7
_____________________
PGID 2 2 1 1 1 2 2 2

FCoE Priority Table
2

# bcu cee --stats 1/0
_____________________________
CEE Statistics
_____________________________

LLDP Frames Transmitted  29
LLDP Frames Aged Out     0
LLDP Frames Discarded    0
LLDP Frames with Error   0
LLDP Frames Received     29
LLDP TLVs Discarded      0
LLDP TLVs Unrecognized   0
DCBX TLVs Unrecognized   0
DCBX Negotiation Failed  0
DCBX Remote cfg Changed  4
DCBX TLVs Received       29
DCBX TLVs Invalid        0
CEE HW Config Changed    2
CEE Status Down          1
CEE Status Up            2
CEE recvd invalid cfg    2
----------------------------------
DCBX protocol state Info
----------------------------------
DCBX seqno               1
DCBX ackno               1
DCBX recvd seqno         1
DCBX recvd ackno         1
```

See Also None

debug

The debug commands gather support information on Fibre Channel components.

Synopsis

bcu debug --**portlog** <*port_id*>

bcu debug --**portlogclear** <*port_id*>

bcu debug --**portlogctl** <*port_id*> <*enable* | *disable*>

bcu debug does not support the bcu debug --supportsave command. bfa_supportsave, however, supports the following options:

- bfa_supportsave

  to create and save the supportsave at /tmp
- bfa_supportsave_dir

  to create and save the supportsave under <dir>
- bfa_supportsave <dir> <ss_file_name>

  to create and save the supportsave under <dir> as the file name <ss_file_name>. If <ss_file_name> already exists, it will be overwritten.

Description

Captures all the support information needed to diagnose suspected system issues.

Operands

--portlog	Displays the log of FC frames and other main control messages that were sent out and received. If the port log is disabled, the following message displays as the first line: Refer to the **portlogctl** command for more information: WARNING: port log is disabled.
port_id	Specifies the ID of the port for which you want to display the FC frame logs and other control messages.
--portlogclear	Clears the port's frame log.
port_id	Specifies the ID of the port for which you want to clear the port's frame log.
--portlogctl	Enables or disables the portlog.
port_id	Specifies the ID of the port for which you want to enable or disable the portlog.
enable	Enables the **portlogclear** command.
disable	Disables the **portlogclear** command.

Example

```
bcu debug --portlog 10/0
--------------------------------------------------------------------------
time     event port code args
--------------------------------------------------------------------------
08:35:28.430  fwm    10/0   00     00001234, 00050001
08:35:28.431  mbox   10/0   01     00001234, 00050001
08:35:28.433  ioctl  10/0   90     101d9910,0
08:35:28.433  Tx     10/0   164    02ffffd, 00ffffd, 0005ffff, 10000000
08:35:28.433  Rx     10/0   0      c0ffffd, 00ffffd, 00050006
08:35:28.433  Rx     10/0   164    03ffffd, 00ffffd, 00050006, 02000000
08:35:28.433  Tx     10/0   0      c0ffffd, 00ffffd, 00050006
08:35:28.433  ioctl  10/0   91     103646d8, 0
08:35:28.466  ioctl  10/0   a7     3c, 1
08:35:28.483  Tx     10/0   96     02ffffd, 00ffffd, 0006ffff, 11100060
08:35:28.483  Rx     10/0   0      c0ffffd, 00ffffd, 00060007
08:35:28.483  Rx     10/0   96     03ffffd, 00ffffd, 00060007, 02100060
08:35:28.483  Tx     10/0   0      c0ffffd, 00ffffd, 00060007
08:35:28.483  ioctl  10/0   a1     0,0
--------------------------------------------------------------------------

bcu debug --portlogclear 1/0
portlog cleared

bcu debug --portlogctl 1/0 enable
portlog enabled

bcu debug --portlogctl 1/0 disable
portlog disabled

bcu debug --portlogctl 1/0 disable
portlog disabled

bfa_supportsave

====================== Fetching Driver trace for port 1/0 ======================
        Done.
====================== Fetching Driver trace for port 1/1 ======================
        Done.
====================== Fetching Driver trace for port 2/0 ======================
        Done.
====================== Fetching Driver trace for port 2/1 ======================
        Done.
====================== Fetching Driver trace for port 3/0 ======================
        Done.
====================== Fetching Driver trace for port 3/1 ======================
        Done.
====================== Fetching Firmware trace for port 1/0 ====================
Warning: No saved firmware trace
        Done.
====================== Fetching Firmware trace for port 1/1 ====================
Warning: No saved firmware trace
        Done.
====================== Fetching Firmware trace for port 2/0 ====================
Warning: No saved firmware trace
        Done.
====================== Fetching Firmware trace for port 2/1 ====================
Warning: No saved firmware trace
        Done.
====================== Fetching Firmware trace for port 3/0 ====================
```

```
Warning: No saved firmware trace
        Done.
==================== Fetching Firmware trace for port 3/1 ====================
Warning: No saved firmware trace
        Done.
========================= Fetching supportshow details =========================
Done.
============================== Creating a tar ball ==============================
==================================== Done ====================================
```

See Also None

diag

Lists the non-destructive group of diagnostic commands.

Synopsis

bcu diag --**sfpshow** <*port_id*>

bcu diag --**tempshow** [*ad_id*]

bcu diag --**beacon** <*port_id*> {*on* | *off*} [-t <*secs*>]

bcu diag --**pciloopback** <*port_id*> <*pattern*>

bcu diag --**loopback** <*port_id*> [-t <*sub_test_id*>] [-s <*speed*>] [-c <*count*>]

[-p <*pattern*>]

bcu diag --**memtest** <*port_id*>

bcu diag --**queuetest** <*port_id*>

Description

Displays the group of diagnostic commands that are non-destructive and indicates when the adapter is running at a normal operation state.

NOTE
You must disable the port prior to executing the loopback test. You must disable the adapter prior to executing the memtest.

Operands

--**sfpshow**	Monitors the attributes of the SFP. This is an online diagnostic test. Note: A notification occurs for any parameter that is not within the configured power, temperature, and voltage policies.
port_id	Specifies the ID of the port on which you want to monitor the SFP attributes.
--**tempshow**	Reads the adapter's temperature sensor registers. This is an online diagnostic test.
ad_id	Specifies the ID of the adapter for which you want to display temperature sensor registers. Values include below the minimum, normal, above the maximum, and sensor fault.
--**beacon**	Controls the port and link end-to-end beaconing. This is an online diagnostic test.
port_id	Specifies the ID of the port for which you want to beacon.
on | *off*	Turns end-to-end beaconing on or off.
-t *secs*	Displays the beacon time duration in seconds. Beaconing is automatically turned off after the specified duration. If the duration is set to 0, beaconing continues until it is explicitly turned off.
--**pciloopback**	Sends a health check message from the host to firmware through message queues memory mapped over the PCI. This is an online diagnostic test.
port_id	Specifies the ID of the port for which you want to send a health check message.
pattern	Displays the data pattern.

–loopback	Sends a health check message from the host to the firmware through message queues memory-mapped over the PCI. This is an offline diagnostic test.
port_id	Specifies the ID of the port on which you want to run a loopback test.
-t *sub_test_id*	Specifies the loopback test type. Possible values are int (internal loopback, the default), serdes (SerDes loopback), and ext (external loopback). If <sub_test_id> is not specified, all loopback tests run.
-s *speed*	Specifies the link speed as auto-negotiate.
-c *frame count*	Specifies the frame count.
-p *pattern*	Specifies the pattern (must be one hex word).
–memtest	Performs a generic memory test using different algorithms.
port_id	Specifies the ID of the port on which you want to run a memory test.
–queuetest	Tests the CPE/RME queue.
port_id	Specifies the ID of the port on which you want to run a queuetest.

Example To display detailed information about a specific port:

```
bcu diag --sfpshow 1/0
Identifier: 3 SFP
Connector: 7 LC
Transceiver: 050c402000000000 100, 200_MB/s M5, M6 sw Inter-dist
Encoding: 1 8B10B
Baud Rate: 21 (units 100 megabaud)
Length 9u: 0 (units 100 meters)
Length 50u: 30 (units 10 meters)
Length 62.5u: 15 (units 10 meters)
Length Cu: 0 (units 1 meter)
Vendor Name: BROCADE
Vendor OUI: 00:05:1E
Vendor PN: BRCD-8519-7D-2.5
Vendor Rev:
Options: 0012 Loss_of_Sig, Tx_Disable
BR Max: 0
BR Min: 0
Serial No: H11QET9
Date Code: 020429
Temperature: 50 Centigrade
Current: 10634 mAmps
Voltage: 3164.8 mVolts
RX Power: 199.6 uWatts
Tx Power: 235.2 uWatts
```

```
bcu diag --tempshow 1
temperature: 43.131800 C


bcu diag --beacon 1/1 on
Port beacon turned on


To turn on the first LED with green color:
bcu diag --ledtest 1/0 1 on green
led turned on
```

See Also “fcdiag”

drvconf

Sets the basic parameters for the driver to function properly.

Note: The **drvconf** commands are supported on Windows platforms only.

Synopsis bcu drvconf - -key <key_name> [- -val <value>]

Description Changes the values for basic Windows registry entry parameters.

NOTE
You can directly change these values by editing the Windows registry entries for these values, or you can use the drvconf commands for the same purpose.

Possible key name and value ranges are as follows:

- key = bfa_lun_queue_depth, value range [>0] default = 32
- key = ioc_auto_recover, value range [0-1] default = 1
- key = rport_del_timeout, value range [>0] default = 90
- key = reqq_size, value range [64-8192] default = 512
- key = rspq_size, value range [64-8192] default = 512
- key = msix_disable, value range [0-1] default = 1
- key = pbind_enable, value range [0-1] default = 0

See Also None

ethdiag

The Ethernet Port Loopback Test that tests the Ethernet data path from the host to Serdes or external loopback based on your selection.

Synopsis bcu ethdiag --**loopback** <*port_id*> [-t <*loopback_type*] [-c <*frame_count*>] [-p *pattern*]

Description Runs the Ethernet diagnostic loopback test and indicates when the adapter is running at a normal operation state.

Operands

–loopback	Runs the port loopback test. You must disable the Ethernet port prior to executing the loopback test.
port_id	Specifies the ID of the port on which you want to run a loopback test.
-t l*oopback-type*	Specifies the loopback type. Possible values are int, serdes, and ext.
-c *frame count*	Specifies the frame count.
-p *pattern*	Specifies the pattern (must be one hex word).

See Also None

ethioc

Displays or clears Ethernet IOC statistics. The port_id could be any of the following:

- Adapter ID or port ID
- Port name
- Port hardware path

Synopsis

bcu ethioc --**enable** <port_id>

bcu ethioc --**disable** <port_id>

bcu ethioc --**query** <port_id>

bcu ethioc --**stats** <*port_id*>

bcu ethioc --**statsclr** <*port_id*>

Description

Enables or disables Ethernet IOC on the port and displays and clears Ethernet IOC statistics.

Operands

–enable	Enables the Ethernet IOC, if it is currently disabled.
port_id	Specifies the ID of the Ethernet port you want to enable.
–disable	Disables the Ethernet IOC, if it is currently enabled.
port_id	Specifies the ID of the Ethernet port you want to disable.
–query	Queries the attributes of the Ethernet IOC.
port_id	Specifies the ID of the Ethernet port you want to query.
–stats	Displays the Ethernet IOC statistics.
port_id	Specifies the ID of the Ethernet port for which you will display the statistics.
–statsclr	Clears the Ethernet IOC level statistics.
port_id	Specifies the ID of the Ethernet port for which you will reset the statistics.

Examples

```
bcu ethioc --stats 1/0
IOC host statistics:

mailbox interrupts: 40771
enable events: 1
disable events: 0
heartbeat failures: 0
firmware boots: 0
stats timeouts: 0

bcu ethioc --statsclr 1/0
Successfully reset the ioc level stats
```

See Also

None

ethlog

Sets the log level for each Ethernet driver. The port_id could be any of the following:

- Adapter ID or port ID
- Port name
- Port hardware path

Synopsis bcu ethlog --**level** <*port_id*> [<*level*>]

Description The number of messages logged by the host depends on the predetermined logging level. Although the CNA might generate many messages, only certain types of messages are logged based on the specified logging level.

Operands

–level	Sets the log level of the Ethernet driver.
port_id	Specifies the ID of the Ethernet port for which you will set the log level. Options include Critical, Error, Warning, or Info. If no level is set, the default setting is used, which is Error.

Examples

```
bcu ethlog --level <port_id>
Log level is Info

bcu ethlog --level <port_id> Warning
Log level set to Warning
```

See Also None

ethport

Displays or clears statistical information on the Ethernet port. An Ethernet port is a logical Ethernet that uses CNA's physical port as a transport.

Synopsis bcu ethport --**stats** <*port_id*>

bcu ethport --**statsclr** <*port_id*>

Description Displays or clears Ethernet port statistics.

Operands

--stats		Displays Ethernet port statistics.
	port_id	Specifies the ID of the Ethernet port for which you want to display statistics.
--statsclr		Clears Ethernet port statistics.
	port_id	Specifies the ID of the Ethernet port for which you want clear statistics.

Examples

```
bcu ethport --stats 1/0
Ethernet port statistics:
        txf0_ucast_octets    : 0
        txf0_ucast           : 0
        txf0_ucast_vlan      : 0
        txf0_mcast_octets    : 1224
        txf0_mcast           : 16
        txf0_mcast_vlan      : 0
        txf0_bcast_octets    : 1368
        txf0_bcast           : 4
        txf0_bcast_vlan      : 0
        txf0_errors          : 0
        txf0_filter_vlan     : 0
        txf0_filter_mac_sa   : 0
        rxf0_ucast_octets    : 0
        rxf0_ucast           : 0
        rxf0_ucast_vlan      : 0
        rxf0_mcast_octets    : 0
        rxf0_mcast           : 0
        rxf0_mcast_vlan      : 0
        rxf0_bcast_octets    : 57195744
        rxf0_bcast           : 96395
        rxf0_bcast_vlan      : 0
        rxf0_frame_drops     : 0
        netif_queue_stop     : 0
        netif_queue_wakeup   : 1
        tso4                 : 0
        tso6                 : 0
        tso_err              : 0
        tcpcsum_offload      : 0
        udpcsum_offload      : 0
        csum_help            : 0
        csum_help_err        : 0
        hw_stats_updates     : 8547
```

```
bcu ethport --statsclr 1/0
Successfully reset the ethernet port stats
```

See Also None

fabric

Prints and resets Fabric statistics.

Synopsis bcu fabric --**stats** <*port_id*>

bcu fabric --**statsclr** <*port_id*>

Description Displays or clears Fabric statistics.

Operands

--stats	Prints the fabric statistics.
port_id	Specifies the ID of the fabric port for which you will print the statistics.
--statsclr	Resets the fabric statistics.
port_id	Specifies the ID of the fabric port for which you will reset the statistics.

Example

```
bcu fabric --stats 1/0
Fabric Stats:
FLOGI sent: 114
FLOGI rsp errors: 0
FLOGI accept errors: 0
FLOGI accepts: 58
FLOGI rejects: 0
FLOGI unknown rsp: 0
FLOGI alloc wait: 0
FLOGI received: 0
FLOGI rejected: 0
fabric offlines: 57
fabric onlines: 58
```

See Also None

fcdiag

Runs diagnostic tests on Fibre Channel components.

Synopsis

bcu fcdiag --**fcping** <*port_id*> <*rpwwn*> [-l <*lpwwn*>]

bcu fcdiag --**fctraceroute** <*port_id*> <*rpwwn*> [-l <*lpwwn*>]

bcu fcdiag --**fcecho** <*port_id*> <*rpwwn*> [-l <*lpwwn*>]

bcu fcdiag --**linkbeacon** <*port_id*> {*on*|*off*}

bcu fcdiag --**scsitest** <*port_id*> <*rpwwn*> [-l <*lpwwn*>]

Description

Fibre Channel diagnostic tests evaluate the integrity of Fibre Channel components.

Operands

--fcping		Determines the basic connectivity between two Fibre Channel network points and monitors and measures network latency.
	port_id	Specifies the ID of the port to which you want to issue a ping command.
	rpwwn	Specifies the remote port world wide name to which you want to issue a ping command.
	lpwwn	Specifies the logical port world wide name. This is an optional argument. The base port is specified as 0; otherwise, the port is a virtual port.
--fctraceroute		Reports on a SAN path, including node hops and latency data.
	port_id	Specifies the ID of the port on which you want to run the fctraceroute command.
	rpwwn	Specifies the remote port world wide name.
	lpwwn	Specifies the logical port world wide name. This is an optional argument. The base port is specified as 0; otherwise, the port is a virtual port.
--fcecho		Sends an FC Echo Extended Link Services (ELS) request to a remote port.
	port_id	Specifies the ID of the port from which you want to run the fcecho command.
	rpwwn	Specifies the remote port world wide name on which you want to run the fcecho diagnostic test.
	lpwwn	Specifies the logical port world wide name. This is an optional argument. The base port is specified as 0; otherwise, the port is a virtual port.
--linkbeacon		Blinks (toggles) the link beacon.
	port_id	Specifies the ID of the port for which you want to run the linkbeacon command.
	on | *off*	Specifies if the linkbeacon test is on or off.
--scsitest		Tests the SCSI components.
	port_id	Specifies the ID of the port for which you want to run the scsitest command.
	rpwwn	Specifies the remote port world wide name.
	lpwwn	Specifies the logical port world wide name. This is an optional argument. The base port is specified as 0; otherwise, the port is a virtual port.

Examples

```
bcu fcdiag --fctraceroute 2/0 50:05:07:63:04:13:46:eb
Error: Reject from attached fabric

bcu fcdiag --fctraceroute 2/0 50:05:07:63:04:13:46:eb
FC Traceroute completed successfully. Path Info:
```

Switch WWN	Switch Domain ID	Ingress Port #	Egress Port #
10:00:08:00:88:03:31:8b	127	5	11
10:00:08:00:88:03:31:8b	127	11	5

```
bcu fcdiag --fctraceroute 2/0 50:05:07:63:04:13:46:e1
FC Traceroute Failed. Reason : Destination Port not in Fabric

bcu fcdiag --fcecho 2/0 50:05:07:63:04:13:46:eb
FC ECHO completed successfully
```

See Also “diag”

fcpim

Enables or disables fast failover of initiator mode I/O. The default setting is off.

Synopsis

bcu fcpim --**stats** <*port_id*>

bcu fcpim --**statsclear** <*port_id*>

bcu fcpim --**qdepth** <*port_id*> <*q_depth_value*>

bcu fcpim --**query** <*port_id*> <rpwwn> [-l <lpwwn>]

bcu fcpim --**modstats** <*port_id*>

bcu fcipim **–modstatsclr** <port_id>

bcu fcpim --**pathtov** <*port_id*> tov

Description

Enables or disables fast failover of the Fibre Channel Port (FCP) initiator mode I/O and displays or clears statistics.

NOTE
The **fcpim** - -**mpiomode** command is not available on the Solaris operating system.

Operands

–stats	Displays statistics related to the Fibre Channel port initiator mode.
port_id	Specifies the ID of the port for which you want to display statistical information.
–statsclr	Clears statistics related to the Fibre Channel port initiator mode.
port_id	Specifies the ID of the port for which you want to clear statistical information.
–qdepth	Specifies the per-target SCSI queue depth value.
port_id	Specifies the ID of the port for which you want to enable or disable the FCP initiator mode.
q_depth_value	Specifies the queue depth value, per target. The maximum value is 1024. If 0 is specified, no maximum limit is enforced.
–query	Queries the fcpim attributes.
port_id	Specifies the ID of the port for which you want to query.
–modstats	Displays statistics related to the Fibre Channel port initiator mode.
port_id	Specifies the ID of the module for which you want to display statistical information.
–modstatsclr	Clears statistics related to the Fibre Channel port initiator mode.
port_id	Specifies the ID of the module for which you want to clear statistical information.
–pathtov	Sets the device path timeout value [tov] in seconds (1..60).
port_id	Specifies the ID of the port for which you want to enable or disable the FCP initiator mode.
tov	Specifies the optional path time out value (TOV) in seconds (1 to 60). A value of 0 triggers the default timeout value. The default TOV is 10 seconds.

Example

```
bcu fcpim --stats 1/0 50:00:1f:e1:50:0d:da:a9
rport onlines:                  4
rport offlines:                 3
PRLI sent:                      4
PRLI Accepts:                   4
PRLI error responses:           0
PRLI responses parse err:       0
fcxp alloc waits:               0
Second level err recovery:      0
Num times in initiator mode:    0

HAL fcpim statistics
    online events:                  4
    offline events:                 3
    create events:                  1
    delete events:                  0
    create completions:             4
    delete completions:             2
    SLER events:                    0
    IOC down events:                1
    IO cleanup completions:         3
    task management commands:       0
    TM firmware responses:          0
    TM successes:                   0
    TM failures:                    0
    TM related IO cleanups:         0
    TM firmware queue resumed:      0
    TM affected by IOC down events: 0
    TM affected by ITN offline:     0
    TM offline cleanup completions: 0
    IO requests:                    456026
    IO completions:                 456026
```

See Also "IOC"
"vport"

IOC

Enables or disables the IO Controller (IOC), which refers to the combination of port and the firmware controlling it.

NOTE
The Interrupt Control Coalesce feature is not supported on the converged network adapter (CNA).

Synopsis

bcu ioc --**stats** <*port_id*>

bcu ioc --**statsclr** <*port_id*>

bcu ioc --**enable** <*port_id*>

bcu ioc --**disable** <*port_id*>

bcu ioc --**query** <*ioc_id*>

bcu ioc --**intr** <*ioc_id*> <-coalesce | -c> {on|off} [<Latency> <Delay>]

Description

The IOC commands allow you to enable or disable the IOC, display the IOC statistics, or clear the statistics.

CAUTION
Disabling the IOC is a destructive operation.

Operands

--stats	Displays the IOC level statistics on the specified port.
port_id	Specifies the ID of the port for which you want to display information.
--statsclr	Clears the IOC level statistics on the specified port.
port_id	Specifies the ID of the port for which you want to clear statistical information.
--enable	Enables the IO Controller (IOC). If the IOC is already enabled, the command is ignored.
port_id	Specifies the port of the IO Controller (IOC) you want to enable.
--disable	Caution: Disabling the IOC is a destructive operation. Disables the port of the IO Controller (IOC). If the IOC is already disabled, the command is ignored.
port_id	Specifies the ID of the port you want to disable.
--query	Queries the attributes of the IOC with the IOC ID.
ioc_id	Specifies the port of the IO Controller (IOC) you want to enable.
--intr	Sets the interrupt attributes for the port.
ioc_id	Specifies the ID of the port on which you want to set interrupt attributes.
-c coalesce	Sets the coalesce flag. Possible values are on or off.
latency	Sets the latency monitor timeout value. Latency can be between 0 to 225 microseconds. A latency value of 0 disables latency monitor timeout interrupt.

delay Sets the delay timeout interrupt value. A delay can be between 0 to 1125 microseconds. A delay value of 0 disables the delay timeout interrupt.

Example

```
# bcu ioc --stats 1/0
Num suspends: 7

bcu ioc --statsclr 1/0
ioc stats cleared.

bcu ioc --enable 1/0
ioc is enabled

bcu ioc --enable ad1_p0
ioc is already enabled

bcu ioc --disable 1/0
ioc is disabled

bcu ioc --disable ad1_p0
ioc is already disabled
bcu port --intr 1/0 --coalesce off
interrupt coalescing has been turned off

bcu ioc --intr 1/0 --coalesce on
interrupt coalescing has been turned on

bcu ioc --intr 1/0 --coalesce on --latency xxx --delay xxx
interrupt coalescing has been turned on

bcu ioc --intr 1/0 --coalesce on --latency xxx --delay xxx
interrupt coalescing parameter set failed. Latency/delay value out of range
```

See Also “adapter”
“lport”

log

Sets the log level for each module. If no log level is specified, the current level is used.

Synopsis bcu log –**level** <*port_id*> [<*level*>] [-m <fw|ha1|fcs|drv|aen|all>]

Description The number of messages logged by the host depends on the predetermined logging level. Although the CNA might generate many messages, only certain types of messages are logged based on the specified logging level.

Operands

–level	Specifies the number of messages logged by the host, which depends on the predetermined logging level.
port_id	Specifies the ID of the port for which you want to set the log level.
level	Critical | Error | Warning | Info Specifies the severity level. Error is the default setting.

See Also None

lport

Lists the logical port (lport) commands.

Synopsis bcu lport --**list** <*port_id*>

bcu lport --**query** <*port_id*> [*-l lpwwn*]

bcu lport --**stats** <*port_id*> [*-l lpwwn*]

bcu lport --**statsclr** <*port_id*> [*-l lpwwn*]

Description Lists all the logical ports (lports) under a given port ID. A logical port is a port that is logged into a fabric. Possible logical port type values are the following:

- Base port
- Virtual port
- Logical port PWWN - logical port's port world wide name
- Logical port NWWN - logical port's port node world wide name
- FC addr - FC address of the logical port

Possible roles supported by the logical port are FCP initiator mode (IM), FCP target mode (FCPTM), and IP over FC support (IP).

Operands

--list	Lists all the lports for a specified port.
port_id	Specifies the ID of the port for which you want to display information.
--query	Lists the attributes of the logical port.
port_id	Specifies the ID of the port for which you want to display information.
lpwwn	Specifies the logical port's world wide name for which you want to display information. If the lpwwn is not specified, the base port is used.
--stats	Displays the logical port's statistics.
port_id	Specifies the ID of the port for which you want to display statistical information.
lpwwn	Specifies the logical port's world wide name for which you want to display statistical information. If the lpwwn is not specified, the base port is used.
--statsclr	Clears the logical port's statistics.
port_id	Specifies the ID of the port for which you want to clear statistical information.
lpwwn	Specifies the logical port's port world wide name for which you want to clear statistical information. If the lpwwn is not specified, the base port is used.

Example

```
bcu lport --list 5/1
Port ID: 5/1
Port Name: ad5_p1
Port PWWN: 11:22:33:44:55:66:77:88
Port NWWN: 10:22:33:44:55:66:77:88
Port HW Path: 1.5.3.0
Num LPORTs: 4
```

PT	Logical Port PWWN	Logical Port NWWN	FC Addr	FC4 Roles
BP	aa:bb:cc:dd:ee:ff:00:01	aa:bb:cc:dd:ee:ff:00:02	645500	IM
VP	01:bb:cc:dd:ee:ff:00:01	01:bb:cc:dd:ee:ff:00:00	645501	IM, IP
VP	02:bb:cc:dd:ee:ff:00:01	02:bb:cc:dd:ee:ff:00:00	645502	IM
VP	04:bb:cc:dd:ee:ff:00:01	04:bb:cc:dd:ee:ff:00:00	645503	IM

```
# bcu lport --query hba5_port0
State:        Online
FC address:   0c0100
Port wwn:     aa:bb:cc:dd:ee:ff:aa:bb
Node wwn:     cc:dd:cc:aa:ff:cc:aa:ff
Symbolic name:
FC4 Role:     fcpim ipfc

# bcu lport --query hba5_port0 - 1 01:bb:cc:dd:ee:ff:00:01
State:        Online
FC address:   0c0101
Port wwn:     01:bb:cc:dd:ee:ff:00:01
Node wwn:     01:bb:cc:dd:ee:ff:00:00


# bcu lport --statsclr hba5_port0
lport stats cleared
```

See Also None

pbind

Enables target port world wide name (WWN) binding to a persistent target ID for an operating system (OS) stack.

Synopsis bcu pbind --**list** <*port_id*> [<*pwwn*>]

bcu pbind --**clear** <*port_id*>

Description Queries the list of mappings or clears existing persistent binding settings.

NOTE
The **pbind** command is only supported on the Windows platform.

Operands

–list	Queries the list of mappings from the persistent binding module.
port_id	Specifies the ID of the port for which you want to display information.
–clear	Clears existing persistent binding settings.
port_id	Specifies the ID of the port on which you want to clear existing persistent binding settings.

See Also None

port

Lists the port commands (the physical ports on the CNA).

Synopsis

bcu port --**list**

bcu port --**name** <*port_id*> [*port_name*]

bcu port --**enable** <*port_id*>

bcu port --**disable** <*port_id*> [*-f*]

bcu port --**stats** <*port_id*>

bcu port --**statsclr** <*port_id*>

bcu port --**query** <*port_id*>

bcu port --**topology** <*port_id*> [{*auto*|*p2p*|*loop*}]

bcu port --**speed** <*port_id*> [<*speed*>]

bcu port --**dfsize** <*port_id*> [<*dfsize*>]

Description

Lists all the physical ports for a given port identifier. Possible port identifiers could be any one of the following:

- Adapter ID
- Port ID
- Port WWN
- Port name (user assigned)
- Port hardware path

Operands

--**list**		Lists all the physical ports along with their basic attributes.
--**name**		Queries or sets the port name. You can clear the port name using an empty string (“ “).
	port_id	Specifies the ID of the port for which you want to display information.
	port_name	Specifies a new name for the port. The name can include up to 15 characters, must begin with an alphabetic letter, can consist of letters, digits, hyphens, and underscore characters, but no spaces. Naming a port is optional; if you do not specify a port name, the current port name displays.
--**enable**		Enables the physical port if it is disabled.
	port_id	Specifies the ID of the port you want to enable.
--**disable**		Disables the physical port, if currently enabled. This is a destructive operation and affects normal operation of the port. The port is taken offline, all remote FCP sessions are logged out, and all outstanding I/Os are terminated. You are prompted before disabling occurs.
	port_id	Specifies the ID of the port you want to disable.
	-f	Forces the operation for scripting.

--stats	Displays the physical port-level statistics.
port_id	Specifies the ID of the port for which you want to display statistical information.
--statsclr	Clears port-level statistics.
port_id	Specifies the ID of the port for which you want to clear statistical information.
--query	Queries and displays port-related information for a port.
port_id	Specifies the ID of the port for which you want to display information.
--speed	Queries or sets the port speed. The port speed can be changed dynamically (when the port is enabled). If the port is disabled, the new port speed setting takes effect when the port is re-enabled.
port_id	Specifies the ID of the port for which you want to set the port speed.
speed	Specifies the port speed. Auto-negotiate is the only supported speed value.
--dfsize	Queries or sets the port's maximum receive data field size. If you do not specify a value, the current receive buffer size displays. Note: The new receive data field size takes effect when the port is re-enabled.
port_id	Specifies the ID of the port for which you want to set the data field size.
df_size	Indicates the maximum supported receive data field size, in decimal value. If set to auto, the driver default value displays. Possible values are 512, 1024, 2048, and 2112.
--topology	Queries or sets the port topology.
port_id	Specifies the ID of the port for which you want to display or set the topology.
auto|p2p|loop	Specifies the topology type. Supported topology modes are as follows: • auto - auto-discovers the topology • p2p - point-to-point • loop Note: The topology setting will take effect after the **port** - -**disable** and **port** - -**enable** commands are executed.

Example

```
bcu port --list
Port#  Type  PWWN/MAC                FC Addr/  Media  State       Spd
                                     Eth dev
-------------------------------------------------------------------------
 1/0   cee  00:05:1e:8e:b6:02         --       sw     CEE Linkup  10G
       fcoe 10:00:00:05:1e:8e:b6:02   860b03          Linkup
       eth  00:05:1e:8e:b6:04         eth2            Linkup
 1/1   cee  00:05:1e:8e:b6:03         --       sw     CEE Linkup  10G
       fcoe 10:00:00:05:1e:8e:b6:03   860d03          Linkup
       eth  00:05:1e:8e:b6:05         eth3            Linkup
 2/0   fc   10:00:00:05:1e:0f:1a:b1   8c0e00   sw     Linkup      4G *
```

```
bcu  port --name 1/0 emc_fab3_ad5_p0
Port 1/0’s name set to emc_fab3_ad5_p0

bcu  port --name 1/0
Port 1/0’s name is emc_fab3_ad5_p0

bcu port --enable 2/1
port enabled

bcu port --enable 2/1
port is already enabled

bcu port --disable 2/1
port disabled

bcu port --disable 2/1
port is already disabled

bcu port --stats 4/0
tx_frames: 4096
tx_words: 202448224
rx_frames: 1024
rx_words: 10224844
lip_count: 2096
nos_count: 64
error_frames: 2
dropped_frames: 12
link_failures: 6
loss_of_syncs: 2
loss_of_signals: 8
primseq_errs: 2
invalid_tx_words: 4
invalid_crcs: 32

bcu port --statsclr dell_s1_ad0_p1
port stats cleared

bcu port --query 1/0
port id:                1/0
port type:              CNA
port instance:          0
port name:
Media:                  sw
Speed:                  10G
CNA/CEE status:         CEE Linkup
FCoE:
        MAC:                    00:05:1e:8e:b6:02
        pwwn:                   10:00:00:05:1e:8e:b6:02
        nwwn:                   20:00:00:05:1e:8e:b6:02
        state:                  Linkup
        Topology:
                current:        P2P
                configured:     P2P
        SNIA port type:         N
        supported classes:      Class-3
        symbolic name:          BR-1020 | 2.0.0.0 |  |  |
        maximum frame size:     2112
        receive bb credits:     48
        transmit bb credits:    74
        QOS:                    Disabled
```

```
        TRL:                    Disabled
        TRL default speed:      1G
        Path TOV:               30 seconds
        SCSI queue Depth:       0
        Beacon status:          Off
        Portlog:                Enabled
        Vlans:                  --
Eth:
        Burnt-in MAC:           00:05:1e:8e:b6:04
        Currently used MAC:     00:05:1e:8e:b6:04
        state:                  Linkup
        OS Eth Device:          eth2

#bcu port --query 1/1
port id: 1/1
port type: CNA
port instance: 1
port name:
Media: 10G-sw
State: Linkup
Speed: 10G

FCoE:

MAC: 00:05:1e:12:34:56
pwwn: 10:00:00:05:1e:0d:60:6b
nwwn: 20:00:00:05:1e:0d:60:6b
supported classes: Class-3
symbolic name: BR-1010
maximum frame size: 2112
receive bb credits: 50
transmit bb credits: 8
QoS: Disabled
TRL: Disabled
TRL default speed:

fcpim MPIO mode: Disabled (Path TOV = 30 seconds)
SCSI queue depth: 0
Beacon status: Off
Portlog: Enabled
Vlans: 0
eth:
MAC: 00:05:1e:12:34:57
OS eth device: eth0

bcu port --topology 1/1
Current topology: auto

bcu port --topology 1/1 p2p
Topology set to p2p

bcu port --topology 1/1 auto
Topology set to auto

bcu port --speed 1/0 auto
Port speed set

bcu port --speed 1/0
Current port speed is: 10G
Configured port speed is: Auto
```

```
bcu port --dfsize 1/1 2112
Setting will be enforced after port --disable and --enable

bcu port --dfsize 1/1 auto
Setting will be enforced after port --disable and --enable

bcu port --dfsize 1/1 2112
Port maximum receive data field size met

bcu port --dfsize 1/1 auto
Port maximum receive data field size set to driver default.
```

See Also “adapter”
“IOC”

qos (HBA only)

NOTE
The QoS feature is not supported on the converged network adapter (CNA).

Quality of Service (QoS) works in conjunction with the QoS feature on Brocade switch F_ports. The Fabric operating system (FOS) provides a mechanism to assign traffic priority (high, medium, or low) for a given source and destination traffic flow. By default, all flows are marked as medium.

Synopsis

bcu qos --**enable** <*port_id*>

bcu qos --**disable** <*port_id*>

bcu qos --**query** <*port_id*>

bcu qos --**stats** <*port_id*>

bcu qos --**statsclr** <*port_id*>

Description

Enables or disables Quality of Service (QoS). The QoS commands apply to the 8 Gbps HBA only. QoS is not supported on the CNA.

Operands

--**enable**	Enables Quality of Service (QoS).
port_id	Specifies the ID of the port on which QoS is enabled.
--**disable**	Disables Quality of Service (QoS).
port_id	Specifies the ID of the port on which QoS is disabled.
--**query**	Queries the QoS details.
port_id	Specifies the ID of the port for which you want to display information.
--**stats**	Displays the QoS statistics.
port_id	Specifies the ID of the port for which you want to display statistical information.
--**statsclr**	Clears the QoS statistics.
port_id	Specifies the ID of the port for which you want to clear statistical information.

Example

```
bcu qos --query 1/0
```

See Also

None

ratelim (HBA only)

Enables or disables target rate limiting support on the HBA side.

NOTE
.The target rate limiting feature is not supported on the converged network adapter (CNA).

Synopsis

bcu ratelim --**enable** <*port_id*> [-s <*default_speed*>]

bcu ratelim --**disable** <*port_id*>

bcu ratelim **--query** <port_id>

bcu ratelim **--defspeed** <port_id> [<1|2|4>]

Description

The target rate limiting feature is used to minimize congestion at the HBA port due to a slow drain device operating in the fabric at a slower speed. A remote port's operating speed is determined from the fabric. Traffic destined to the remote port is limited to its current operating speed.

The default rate limit is 1 Gbps. Target rate limiting (TRL) is supported only when the HBA port is connected to the fabric. Therefore, TRL is not supported when the port is directly connected with another device.

NOTE
You must first enter the bcu port -disable <port_id> command, followed by the **port** - -**enable** command, before the **ratelim** - -**enable** or **ratelim** - -**disable** commands take effect.

Operands

--enable	Enables target rate limiting.
port_id	Specifies the ID of the port you want to enable.
--disable	Disables target rate limiting on the HBA.
port_id	Specifies the ID of the port you want to disable.
--query	Queries the target rate limiting details.
port_id	Specifies the ID of the port for which you want to display information.
--defspeed	Sets the default target rate limiting speed. The default TRL speed must be supported and less than the maximum speed at which the card can operate.
port_id	Specifies the ID of the port on which you want to set the speed.
speed 1|2|4	Sets the default target rate limiting speed on the HBA. Options are 1 Gbps, 2 Gbps, and 4 Gbps

See Also

None

rport

Lists the commands that apply to a remote port in a fabric. A remote port is a port that is physically separated from the adapter.

Synopsis

bcu rport --**list** <*port_id*> [-l <*lpwwn*>]

bcu rport --**osname** <port_id> [-l <lpwwn>]

bcu rport --**query** <*port_id*> <*rpwwn*> [-l <*lpwwn*>]

bcu rport --**stats** <*port_id*> <*rpwwn*> [-l <*lpwwn*>]

bcu rport --**statsclr** <*port_id*> <*rpwwn*> [-l <*lpwwn*>]

Description

Lists all the remote ports (rports) under a given port ID.

Operands

--list	Lists all remote ports accessible for a given logical port.
port_id	Specifies the ID of the port for which you want to display rport information.
lpwwn	Specifies the logical port world wide name. This is an optional argument.
	Note: If the -l lpwwn argument is not specified, the base port is used.
--osname	Lists all the osnames of the remote ports that are visible through the local port.
port_id	Specifies the ID of the port for which you want to display osnames.
lpwwn	Specifies the logical port world wide name. This is an optional argument.
--query	Displays detailed attributes of a remote port.
port_id	Specifies the ID of the port for which you want to query attributes of a remote port.
rpwwn	Specifies the remote port world wide name for which you want to query attributes.
lpwwn	Specifies the logical port world wide name for which you want to query attributes of a remote port. This is an optional argument.
	Note: If the -l lpwwn argument is not specified, the base port is used.
--stats	Displays remote port statistics.
port_id	Specifies the ID of the port for which you want to display information.
rpwwn	Displays the remote port's port world wide name.
lpwwn	Displays the logical port world wide name. This is an optional argument.
	Note: If the -l lpwwn argument is not specified, the base port is used.
--statsclr	Clears the remote port statistics.
port_id	Specifies the ID of the port for which you want to clear remote port statistics.
rpwwn	Specifies the remote port's port world wide name for which you want to clear remote port statistics
lpwwn	Displays the logical port world wide name. This is an optional argument.

Examples

```
bcu rport --list 2/0
Num RPORTs = 3
--------------------------------------------------------------------------
FC Addr Remote Port PWWN Remote Port NWWN State df_sz
--------------------------------------------------------------------------
010ada 21:00:00:04:cf:75:6a:04 20:00:00:04:cf:75:6a:04 online 2048
010adc 21:00:00:04:cf:75:5b:3b 20:00:00:04:cf:75:5b:3b online 2048
010ae1 21:00:00:04:cf:75:6d:44 20:00:00:04:cf:75:6d:44 online 2048

bcu rport --query 1/0 21:00:00:04:cf:75:6a:04
RPORT FC Address:               01f701
RPORT port wwn:                 50:06:01:68:41:e0:68:c0
RPORT node wwn:                 50:06:01:60:c1:e0:68:c0
Status:                         online
Class of Service:               Class-3
Function:                       Target
Data Field size:                2048
Cont.Incr.seq_cnt(CISC):        Not Supported
Current Speed:                  ---
symbolic name:                  DGC     LUNZ            0324
Vendor:                         DGC
Product ID:                     DISK
Product Rev:                    0324
QOS priority:                   Unknown
QOS flow id:                    0
TRL enforced:                   No

bcu rport --stats 1/0 aa:bb;cc:dd:ee:ff:00:01
offlines:       1
onlines:        2
RSCN :          0
PLOGI sent:     2
PLOGI accepts : 2
PLOGI timeouts: 0
PLOGI failed:   0
PLOGI rejects : 0
PLOGI received: 0
PRLI  received: 0
ADISC sent:     0
ADISC received: 0
ADISC rejects : 0
ADISC accepts : 0
ADISC failed:   0
ADISC rejected: 0
LOGO sent:      0
LOGO accepts:   0
LOGO failed:    0
LOGO rejected:  0
LOGO received:  0
RPSC received:  0
RPSC rejects:   0
RPSC sent:      8
RPSC accepts:   0
RPSC failed:    8
RPSC rejected:  0
```

```
HAL rport statistics:
    uninit: create events:       1
    uninit: exception events:    0
    created: online events:      1
    created: delete events:      0
    created: IOC down:           0
    created: exception events:   0
    fw create: f/w responses:    2
    fw create: delete events:    0
    fw create: offline events:   0
    fw create: IOC down:         0
    fw create: exception events: 0
    online: offline events:      1
    online: delete events:       0
    online: IOC down events:     0
    online: exception events:    0
    fw delete: fw responses:     1
    fw delete: delete events:    0
    fw delete: IOC down events:  0
    fw delete: exception events: 0
    offline: delete events:      0
    offline: online events:      1
    offline: IOC down events:    0
    offline: exception events:   0
    delete: fw responses:        0
    delete: IOC down events:     0
    delete: exception events:    0
    delete pend: fw responses:   0
    delete pend: IOC downs:      0
    delete pend: exceptions:     0
    off-pending: fw responses:   0
    off-pending: deletes:        0
    off-pending: IOC downs:      0
    off-pending: exceptions:     0
    IOC down: offline events:    0
    IOC down: delete events:     0
    IOC down: online events:     0
    IOC down: exceptions:        0

bcu rport -- statsclr 1/0 aa:bb:cc:dd:ee:ff:00:01
Successfully reset the rport level stats
```

See Also None.

vlan

Lists the commands that apply to an Ethernet virtual LAN (Windows only). The port ID can be either the adapter ID or the port ID.

Synopsis bcu vlan --**add** <*port_id*> <*vlan_id*> | [<*vlan_name*>]

bcu vlan --**remove** {<*vlan_id*> {<*port_id*>

bcu vlan --**edit** <*port_id*> <*vlan_id*> <*new_vlan_name*>

bcu vlan --**list** <*port_id*>

bcu vlan --**query** <*port_id*> <*vlan_id*>

Description Configures a VLAN on a port.

Operands

--add	Configures a new VLAN on the port.
port_id	Specifies the Ethernet port associated with the VLAN.
vlan_id	Specifies the VLAN identifier. The range for the VLAN ID is 1 to 4049.
vlan_name	Specifies the VLAN name. The VLAN name must not exceed 31 characters.
--remove	Removes a VLAN configuration from a port.
port_id	Specifies the Ethernet port associated with the VLAN.
vlan_id	Specifies the VLAN identifier. The range for the VLAN ID is 1 to 4049.
--edit	Modifies the VLAN configuration on a port.
port_id	Specifies the Ethernet port associated with the VLAN.
vlan_id	Specifies the VLAN identifier. The range for the VLAN ID is 1 to 4049.
new_vlan_name	Specifies the new VLAN name. The VLAN name must not exceed 31 characters.
--list	Lists the configured VLANs on the port.
port_id	Specifies the Ethernet port associated with the VLAN.
--query	Queries the VLAN information on the port.
port_id	Specifies the Ethernet port associated with the VLAN.
vlan_id	Specifies the VLAN identifier. The range for the VLAN ID is 1 to 4049.

Examples

```
bcu vlan --list 1/0
```

Vlan id	Vlan Name
1	VLAN0001
3000	VLAN3000

```
bcu vlan --query 1
```

vlan id: 1
vlan name: VLAN0001
vlan statistics: Tx Bytes: 200 Rx Bytes: 100 Duration: 2:30:32 [Hr:Min:sec] /*rolls up and shows days also* Status: Connected

See Also None.

vport

Lists the commands that apply to a virtual port.

Synopsis

bcu vport –**create** <*port_id*> <*vpwwn*> [*-n* <*nwwn*>] [-s <*sname*>]

bcu vport –**delete** <*port_id*> <*vpwwn*>

bcu vport –**query** <*port_id*> <*vpwwn*>

bcu vport –**stats** <*port_id*> <*vpwwn*>

bcu vport –**statsclr** <*port_id*> <*vpwwn*>

Description

The **vport** commands enable you to create and delete vports and display statistics about them.

NOTE
The **vport** commands are not supported on Solaris platforms.

Operands

–**create**	Adds a new V_Port in the base fabric. If the virtual fabric ID is not specified, the V_Port is created in the base fabric. FCP initiator mode is supported.
port_id	Specifies the ID of the port for which you want to add a new V_Port.
vpwwn	Adds the virtual port by its world wide name. The V_Port WWN is a required argument.
n *nwwn*	Adds the virtual port by the node's world wide name for the V_Port. This is an optional argument. If not specified, the base port node's world wide name is used.
s *sname*	Adds the symbolic name for the virtual port. This is an optional argument.
–**delete**	Deletes the specified V_Port. This deletes all associated objects, such as any associated login sessions and active I/O requests.
port_id	Specifies the ID of the port for which you want to delete a V_Port.
vpwwn	Deletes the virtual port by its world wide name. The V_Port WWN is a required argument.
–**query**	Queries information about the V_Port. This provides the V_Port's status and information associated with FC-4s. If no port WWN is specified, the information provided is for the base V_Port.
port_id	Specifies the ID of the port for which you want to query V_Port information.
vpwwn	Queries the virtual port by its world wide name. The V_Port WWN is a required argument.
–**stats**	Displays the statistics that are associated with the V_Port. If you do not specify the port's world wide name, the statistics listed are for the base V_Port.
port_id	Specifies the ID of the port for which you want to display statistical information.
vpwwn	Displays the statistics for the virtual port by its world wide name. The V_Port WWN is a required argument.

–statsclr	Clears the statistics that are associated with the V_Port. If you do not specify the port's world wide name, the statistics listed are for the base V_Port.
port_id	Specifies the ID of the port for which you want to clear statistical information.
vpwwn	Clears the statistics for the virtual port by its world wide name. The V_Port WWN is a required argument.

Example

```
bcu vport --query hba5_port0
State: Online
FC address: 0c0101
Port wwn: aa:bb:cc:dd:ee:ff:aa:bb
Node wwn: cc:dd:cc:aa:ff:cc:aa:ff
Symbolic name: “Test VPort”
FC4 Role: fcpim

bcu vport --stats hba5_port0
fdisc sent: 15
fdisc accepts: 7
fdisc retries: 8
fdisc timeouts: 2
fdisc rsp err: 18
fdisc acc bad: 9
fdisc rejects: 3
fdisc unknown: 0
fdisc alloc waits: 6
logo sent: 12
logo accepts: 8
logo rejects: 4
logo rsp err: 4
logo unknown rsp: 6
logo alloc waits: 6
no npiv: 7
fab offline: 5
fab online: 8
fab cleanup: 9

bcu vport --statsclr hba5_port0
vport stats cleared
```

See Also None

Appendix

HCM Troubleshooting

C

This section discusses known problems with HCM usability features and the workaround.

HCM tab navigation

Problem There are various places within the Host Connectivity Manager (HCM) where you cannot navigate without using the mouse on the KDE GUI on the Linux operating system. If you use the tab key to enter any of the fields listed below, you cannot exit the field without using the mouse.

The problem includes any of the following right pane properties:

Host > Properties fields

Host > Adapter fields

Adapter > Properties fields

Adapter > Ports fields

Port > Properties fields

Port > LPORT fields

Port > SFP fields

Port > POM fields

Base Port > Properties

Base Port > Remote Properties

Target > Properties

Target > LUNs

LUN > Properties

Master Log Details

Application Log Details

Workaround The Ctrl + Tab combination is the default in KDE GUI on Linux platforms. Therefore, the Ctrl + Tab combination is intercepted by the KDE shell. To navigate HCM using the keyboard, you must manually disable the Ctrl+ Tab shortcut.

Appendix

Glossary and acronyms

D

Address assignment

A process whereby addresses are assigned to switches and switch ports.

Address identifier

A 24-bit address value used to uniquely identify the source (S_ID) and destination (D_ID) of Fibre Channel frames.

Available BB_Credit

A value used by a transmitter to determine permission to transmit frames and, if so, how many. The transmitter may transmit a frame when the available BB_Credit is greater than zero.

Available_receive_buffers

The current number of buffers in a receiving port that are available for receiving frames at link rate.

Arbitration Wait Timeout Value (AW_TOV)

The minimum time that an L_Port waits while arbitrating before originating a loop initialization.

Bandwidth

The maximum information-carrying capacity of a system.

Baud

The encoded bit rate per second.

BCU

Brocade Command Line Utility (BCU).

Beaconing

A continuous signaling of error conditions on a LAN. Beaconing can occur either on the port or on one or both sides of the link (known as end-to-end beaconing).

Bit error rate (BER)

The probability that a transmitted bit will be received in error. The bit error rate is expressed as the ratio of error bits to total number of bits.

Block

Upper-level application data assigned a single information category and transferred within a single sequence.

Bridge Port (B_Port)

A fabric inter-element port used to connect bridge devices with E_Ports.

Byte

A group of eight data bits.

CDM

Common Diagnostic Model.

CEE

Converged Enhanced Ethernet.

CIM

Common Information Model.

CIMOM

Common Information Model Object Manager.

Class of service

A frame delivery scheme exhibiting a specified set of delivery characteristics and attributes.

Class-1

A class of service providing a dedicated connection between two ports with confirmed delivery or notification of non-deliverability.

Class-2

A class of service providing a frame-switching service between two ports with confirmed delivery or notification of non-deliverability.

Class-F service

A connectionless, frame-multiplexed service used between Fibre Channel E_Ports and B_Ports for coordination of the internal behavior of the fabric.

Class-N service

A generic reference to any class of service other than Class-F.

CNA

Converged Network Adapter.

Connection initiator

The node port that initiates a Class-1 dedicated connection and receives a valid response.

Connection recipient

The node port that receives a Class-1 dedicated connection request and transmits a valid response.

Credit

Permission given by a receiving port to a sending port to send a specified number of frames.

DCB

Data Center Bridging.

DCBX

DCB Capability Exchange Protocol.

DCFM

Data Center Fabric Manager

Distributed Services Timeout Value (D_S_TOV)

The maximum time that a requestor will wait for a response to an FC-CT distributed services request.

Domain_ID

An eight-bit value that identifies a domain.

ELM

Ethernet Link Manager.

Error Detect Timeout Value (E_D_TOV)

The minimum time that a node port waits for sequence completion before initiating recovery.

Fabric Port (F_Port)

A switch port that is not capable of arbitrated loop operations and is connected to a single N_Port.

Fabric Stability Timeout Value (F_S_TOV)

A timeout value used for fabric initialization and switch selection.

FCoE

Fibre Channel over Ethernet.

FCP

The Fibre Channel Protocol for mapping SCSI-3 operations to Fibre Channel.

FLOGI

FC Fabric Login request.

FL_Port

A switch port that is capable of arbitrated loop operations and is connected to one or more NL_Ports in an arbitrated loop topology.

FOS

Fabric Operating System.

FPMA

Fabric Provided MAC Address.

F_Port

Fabric Port. A port on a switch to which an N_Port connects.

HBA

Host Bus Adapter.

HCM

Host Connectivity Manager.

Host Bus Adapter (HBA)

A hardware facility in a node that provides an interface attachment.

IOC

I/O Controller.

ITL

Initiator-Target-LUN. An Initiator Port (HBA controller) talks to one Target Port addressing one LUN.

LLDP

Link Layer Discovery Protocol.

Login BB_Credit

On an arbitrated loop, a value equal to the number of receive buffers that a receiving NL_Port guarantees to have available when a loop circuit is established. Login BB_Credit is communicated in the FLOGI, PLOGI, or pDISC link services.

Loop Initialization Primitive Sequence

A primitive sequence used to begin the arbitrated loop initialization process.

Lossless Ethernet MAC

A full duplex Ethernet MAC supporting at least 2.5KB jumbo frames and implementing extensions to avoid Ethernet frame loss resulting from congestion.

LUN

Logical unit number. An address for an individual disk drive or virtual partition (volume) within a storage device.

LUN mapping

A process that makes a LUN available to some hosts and unavailable to other hosts.

MAC

Media Access Control.

MIB

Management Information Base.

MTU

Maximum Transfer Unit.

N_Port

A node port (a Fibre Channel host or storage port in a fabric or point-to-point connection) that is assumed to be incapable of arbitrated loop operations.

NL_Port

A port within a node that is capable of arbitrated loop operations.

NPIV

N_Port ID Virtualization (NPIV) enables a single Fibre Channel protocol port to appear as multiple, distinct ports, providing separate port identification within the fabric for each operating system image behind the port (as if each operating system image had its own unique physical port).

Persistent binding

A Fibre Channel (FC) host bus adapter (HBA) feature that enables you to permanently assign a system SCSI target ID to a specific FC device, even though the device's ID on the FC loop may be different each time the FC loop initializes.

PFC

Priority Flow Control.

Port

A generic reference to an N_Port, NL_Port, F_Port, FL_Port, E_Port, or other type of Fibre Channel port.

Port name

A 64-bit unique identifier assigned to each Fibre Channel port. The port name is communicated during the login and port discovery processes.

Resource Allocation Timeout Value (R_A_TOV)

The maximum amount of time that a frame may be in transit in the topology. If a frame has not been delivered within this amount of time, the topology guarantees that it will never be delivered.

R_Port

Remote port in a fabric. A remote port is a port that is physically separated from the adapter.

Simple Network Management Protocol (SNMP)

A protocol defined for providing network management and monitoring functions.

SMI-S

Storage Management Initiative Specification.

Storage Area Network (SAN)

A configuration allowing multiple systems and storage devices to be interconnected using storage command protocols.

Switch_Name

A 64-bit unique Fibre Channel name assigned to a switch.

TLV

Type Length Value, where:

- *Type* is a numeric code that indicates the kind of field this part of the message represents.
- *Length* is the size of the value field, typically measured in bytes.
- *Value* is a variable-sized set of bytes that contain data for this part of the message.

Topology

An interconnection scheme that allows multiple Fibre Channel ports to communicate. For example, point-to-point and arbitrated loop are Fibre Channel topologies.

VF

Virtual Fabric.

VLAN

Virtual Local Area Network.

WMI

Windows Management Instrumentation.

WWNN

World Wide Node Name. The unique name for any particular node in the fabric; for example, an HBA.

WWPN

World Wide Port Name. The unique name for any particular port in the fabric. A WWNN can have multiple associated WWPNs.

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