



Fabric OS

MIB Reference Manual

**Supporting Fabric OS v3.1.x, v3.2.x, v4.1.x, v4.2.x, v4.4.x,
v5.0.x, v5.1.x**

**Supporting SilkWorm 200E, 3014, 3016, 3200, 3250, 3800, 3850,
3900, 4012, 4100, 4900, 7500, 12000, 24000, 48000**

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<i>Brocade MIB Reference Manual v2.3</i>	53-0000069-02		December 2000
<i>Brocade MIB Reference Manual v3.0</i>	53-0000134-03		July 2001
<i>Brocade MIB Reference Manual v3.0, 4.0</i>	53-0000184-02		March 2002
<i>Brocade MIB Reference Manual (v4.1, v4.0.x, v3.1, v3.0.x, v2.6.x)</i>	53-0000521-02	Added Brocade-specific Entity and HA-MIBs.	April 2003
<i>Brocade MIB Reference Manual (v4.1.2, v4.1, v4.0.x, v3.1, v3.0.x, v2.6.x)</i>	53-0000521-03	Added FICON information.	May 2003
<i>Brocade MIB Reference Manual (v4.1.2, v4.1, v4.0.x, v3.1, v3.0.x, v2.6.x)</i>	53-0000521-04	Revised FICON information.	October 2003
<i>Brocade MIB Reference Manual (v4.2.0, v4.1.2, v4.1, v4.0.x, v3.1, v3.0.x, v2.6.x)</i>	53-0000521-06	Update to support the SilkWorm 3250, 3850, and 24000 switches.	December 2003
<i>Brocade Fabric OS MIB Reference Manual</i>	53-0000521-08	Updated to support the SilkWorm 4100.	September 2004
<i>Brocade Fabric OS MIB Reference Manual</i>	53-0000521-09	Updated to support the SilkWorm 48000 and 200E.	April 2005
<i>Brocade Fabric OS MIB Reference Manual</i>	53-1000045-01	Updated to support the SilkWorm 4900, 7500, and FR4-18i blade.	January 2006

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About This Document

This document is a reference manual written for SNMP administrators to help configure and administer the SNMP interface to manage a fabric. “About This Document” contains the following sections:

- [“How This Document Is Organized,”](#) next
- [“Supported Hardware and Software”](#) on page xii
- [“What’s New in This Document”](#) on page xii
- [“Document Conventions”](#) on page xiii
- [“Additional Information”](#) on page xiv
- [“Getting Technical Help”](#) on page xvi
- [“Document Feedback”](#) on page xvii

How This Document Is Organized

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

The document contains the following components:

- [Chapter 1, “Understanding Brocade SNMP”](#) provides an introduction to Brocade SNMP and MIBs.
- [Chapter 2, “MIB-II \(RFC1213-MIB\)”](#) provides information for MIB-II.
- [Chapter 3, “FE MIB Objects”](#) provides information for FE MIB object types.
- [Chapter 4, “Entity MIB Objects”](#) provides information for Entity MIB object types.
- [Chapter 5, “SW-MIB Objects”](#) provides information for FC Switch MIB (SW-MIB) object types.
- [Chapter 6, “High-Availability MIB Objects”](#) provides information for High-Availability MIB object types.
- [Chapter 7, “FICON MIB Objects”](#) provides information for FICON MIB (LINK-INCIDENT-MIB) object types.
- [Chapter 8, “FibreAlliance MIB Objects”](#) provides information for FibreAlliance MIB (FCMGMT-MIB) object types.
- [Appendix A, “MIB Object Groupings”](#) is a function-based listing of MIB objects.
- [Appendix B, “MIB OIDs and Their Matching Object Names”](#) provides a listing of the MIB object names and the corresponding MIB Object ID (OID) associated with each.

Supported Hardware and Software

This document supports Brocade Fabric OS versions Fabric OS v3.1.x, v3.2.x, v4.1.x, v4.2.x, v4.4.0, 5.0.x, and v5.1.x and all switches supporting these Fabric OS versions, including:

- Brocade SilkWorm 200E switch
- Brocade SilkWorm 3014 switch
- Brocade SilkWorm 3016 switch
- Brocade SilkWorm 3200 switch
- Brocade SilkWorm 3250 switch
- Brocade SilkWorm 3800 switch
- Brocade SilkWorm 3850 switch
- Brocade SilkWorm 3900 switch
- Brocade SilkWorm 4012 switch
- Brocade SilkWorm 4100 switch
- Brocade SilkWorm 4900 switch
- Brocade SilkWorm 7500 switch
- Brocade SilkWorm 12000 director
- Brocade SilkWorm 24000 director
- Brocade SilkWorm 48000 director (including the FR4-18i blade)

Although many different software and hardware configurations are tested and supported by Brocade Communications Systems, Inc. for the Fabric OS v4.4.0 release, documenting all possible configurations and scenarios is beyond the scope of this document. This document supports only the Fabric OS versions and switches listed above.

What's New in This Document

The following changes have been made since this document was last released:

- Information that was changed:
 - Added support for the SilkWorm 4900, 7500, and FR4-18i blade.
 - Added the OID to the header for each MIB object.
 - Firmware download and config upload and download are no longer supported through SNMP.

Document Conventions

This section describes text formatting conventions and important notices formats.

Text Formatting

The narrative-text formatting conventions that are used in this document 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
<i>italic text</i>	Provides emphasis Identifies variables Identifies paths and Internet addresses Identifies document titles
code text	Identifies CLI output Identifies 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 appear in this document.



Note

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



Caution

A caution alerts you to potential damage to hardware, firmware, software, or data.



Warning

A warning alerts you to potential danger to personnel.

Special Term Uses

For definitions of SAN-specific terms, visit the Storage Networking Industry Association online dictionary at <http://www.snia.org/education/dictionary>.

Additional Information

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

Brocade Resources

The following related documentation is provided on the Brocade Documentation CD-ROM and on the Brocade Web site, through Brocade Connect.



Note

Go to <http://www.brocade.com> and click **Brocade Connect** to register at no cost for a user ID and password.

Fabric OS

- *Fabric OS Administrator's Guide*
- *Fabric OS Command Reference Manual*
- *Fabric OS System Error Message Reference Manual*
- *Brocade Glossary*

Fabric OS Optional Features

- *Web Tools Administrator's Guide*
- *Fabric Watch Administrator's Guide*
- *Fabric Manager Administrator's Guide*
- *Secure Fabric OS Administrator's Guide*

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 SAN Info Center and click the Resource Library location:

<http://www.brocade.com>

Optional Brocade Features

Optional Brocade features include:

Advanced Performance Monitoring

Enables more effective end-to-end SAN performance analysis to enhance performance tuning, increase productivity, optimize resource utilization, and reduce costs.

Extended Fabrics

Supports the reliable, high-speed connectivity of SilkWorm switches over dark fiber or Dense Wave Division Multiplexing (DWDM) equipment at distances up to 500 kilom to enhance business continuance operations.

Fabric Watch

Continuously monitors SAN fabrics for potential faults based on thresholds set for a variety of SAN fabric elements and events—automatically alerting administrators to potential problems before they become costly failures.

ISL Trunking

Optimizes the performance and availability of SAN fabrics while simplifying ISL management. Two 4 Gbit/sec SilkWorm switches can automatically group up to eight ISLs into a single logical "trunk" with a total throughput of up to 32 Gbit/sec.

Advanced Zoning

Automatically groups SAN fabric-connected devices into logical zones that restrict access to "member" devices in the zone. Advanced Zoning uses hardware enforcement at both the port and WWN level to provide more robust data protection.

Secure Fabric OS

Provides a comprehensive security solution to help protect mission-critical data. Key features include centralized policy-based security management, management data encryption, and authentication to create a fabric-wide trusted environment with control over all levels of fabric access and communication.

FICON® CUP

Enables IBM host-based management programs to manage FICON fabric switches in-band by sending commands to the Fabric OS emulated control device.

Other Industry Resources

In addition to this manual, the following information about fabric security and the Secure Fabric OS product is available:

- White papers, online demos, and data sheets are available through the Brocade Web site at:
[http:// www.brocade.com/products/software.jhtml](http://www.brocade.com/products/software.jhtml)
- Best practice guides, including the SAN Security Best Practice Guide, white papers, online demos, data sheets, and other documentation is available through the Brocade Partner Web site.
- The CERT® Coordination Center of Carnegie Mellon University provides industry-level information about certification at:
<http://www.cert.org>

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>

Getting Technical Help

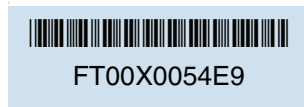
Contact your switch support supplier for hardware, firmware, and software support, including product repairs and part ordering. To expedite your call, have the following information available:

1. General Information

- Technical Support contract number, if applicable
- Switch model
- Switch operating system version
- Error numbers and messages received
- **supportSave** command output
- Detailed description of the problem and specific questions
- Description of any troubleshooting steps already performed and results
- Serial console and telnet session logs
- syslog message logs

2. Switch Serial Number

The switch serial number and corresponding bar code are provided on the serial number label, as shown here:



The serial number label is located as follows:

- *SilkWorm 2000-series switches*: Bottom of chassis.
- *SilkWorm 3014 switches*: Top of chassis, under the insertion arm.
- *SilkWorm 3016 and 4012 switches*: Side of switch module.
- *SilkWorm 200E, 3200, and 3800 switches*: nonport side of chassis.
- *SilkWorm 3250, 3850, 3900, 4100, 4900, and 7500 switches*: Bottom of chassis.
- *SilkWorm 24000, and 48000 directors*: Inside the front of the chassis, on the wall to the left of the ports.
- *SilkWorm Multiprotocol Router Model AP7420*: On the bottom of the chassis and on the back of the chassis.

3. World Wide Name (WWN)

- *SilkWorm 200E, 3014, 3016, 3250, 3600, 3850, 3900, 4012, 4100, 4900, 7500 switches and SilkWorm 24000, and 48000 directors*: Provide the license ID. Use the **licenseIdShow** command to display the license ID.
- *SilkWorm Multiprotocol Router Model AP7420*: Provide the switch WWN. Use the **switchShow** command to display the switch WWN.
- *All other SilkWorm switches*: Provide the switch WWN. Use the **wwn** command to display the switch WWN.

Document Feedback

Because quality is our first concern at Brocade, 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 and as much detail as possible about your comment, including the topic heading and page number and your suggestions for improvement.

Understanding Brocade SNMP

The Simple Network Management Protocol (SNMP) is an industry-standard method for monitoring and managing network devices. This protocol promotes interoperability, as SNMP-capable systems must adhere to a common set of framework and language rules. Understanding the components of SNMP makes it possible to use third-party tools to view, browse, and manipulate Brocade switch variables (MIBs) remotely as well as to set up an enterprise-level management process. Every Brocade switch or director supports SNMP.

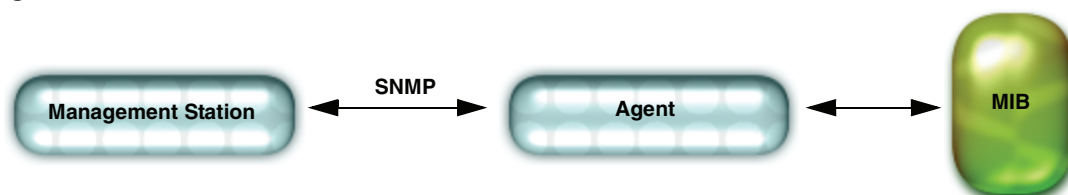
This chapter discusses the following:

- “Understanding SNMP Basics,” next
- “Loading Brocade MIBs” on page 1-6

Understanding SNMP Basics

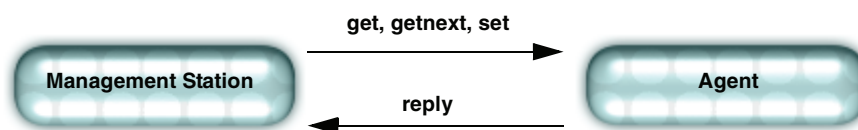
Every Brocade SilkWorm switch carries an *agent* and management information base (MIB), as shown in Figure 1-1. The agent accesses information about a device and makes it available to an SNMP network management station.

Figure 1-1 SNMP Structure



When active, the management station can **get** information or **set** information when it queries an agent. SNMP commands, such as - **get**, **set**, **getnext**, **setnext**, and **getresponse** - are sent from the management station, and the agent replies once the value is obtained or modified (see Figure 1-2). Agents use variables to report such data as the number of bytes and packets in and out of the device, or the number of broadcast messages sent and received. These variables are also known as *managed objects*. All managed objects are contained in the MIB.

Figure 1-2 SNMP Query



The management station can also receive *traps*, unsolicited messages from the switch agent if an unusual event occurs. See “Understanding SNMP Traps” on page 1-4 for more information.

Figure 1-3 SNMP Trap

The agent can receive queries from one or more management stations and can send traps to up to *six* management stations.

Understanding MIBs

The management information base (MIB) is a database of monitored and managed information on a device, in this case a Brocade switch. The MIB structure can be represented by a tree hierarchy. The root splits into three main *branches*: International Organization for Standardization (ISO), Consultative Committee for International Telegraph and Telephone (CCITT), and joint ISO/CCITT. These branches have short text strings and integers (OIDs) to identify them. Text strings describe *object names*, while integers allow software to create compact, encoded representations of the names.

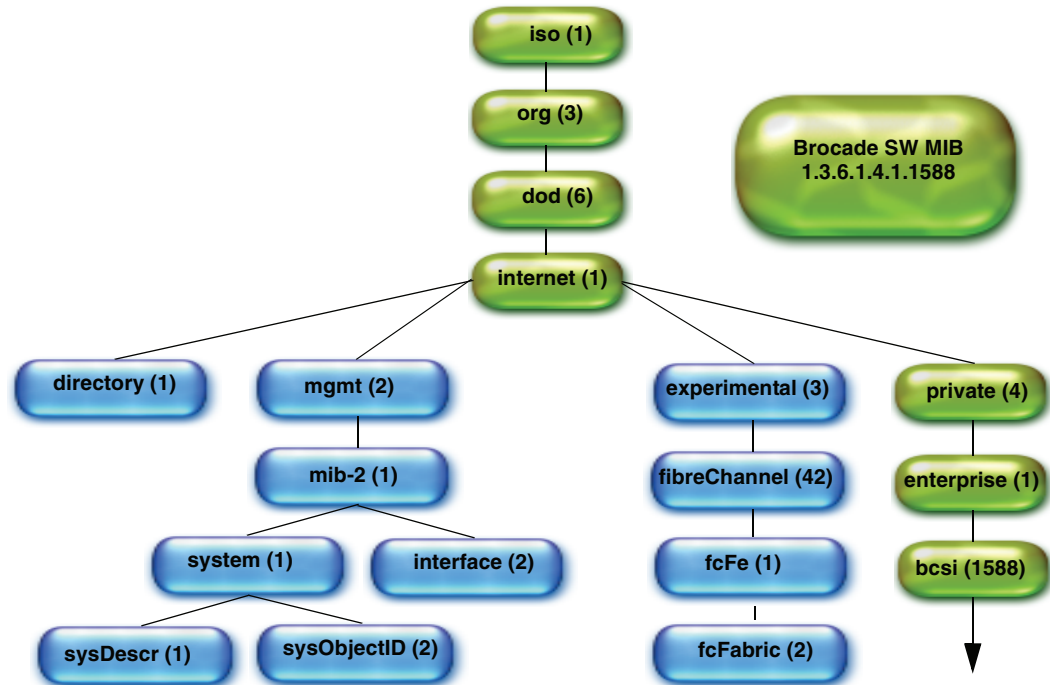
Each MIB variable is assigned an object identifier (OID). The OID is the sequence of numeric labels on the nodes along a path from the root to the object. For example, as shown in [Figure 1-4](#), the Brocade SW.MIB OID is:

```
1.3.6.1.4.1.1588
```

The corresponding name is:

```
iso.org.dod.internet.private.enterprise.bsci
```

The other branches are part of the standard MIBs, and the portions relevant to configuring SNMP on a Brocade switch are referenced in the remainder of this manual.

Figure 1-4 Brocade MIB Tree Location

Use a MIB browser to access the MIB variables; all MIB browsers perform queries and load MIBs.

Since different vendors vary the information in their private enterprise MIBs, it is necessary to verify their information. The Fibre Channel MIB standards dictate certain information be included in all MIBs, it is the vendors responsibility to follow the standards. The standards are:

- *FibreAlliance* (FA) MIB: Brocade supports version 3.0.
- *Fabric Element* (FE) MIB: accepted by the Internet Engineering Task Force (IETF).

Brocade supports FE_RCF2837.mib under the MIB-II branch in Fabric OS v4.x, 3.2.0, and v3.1.x and the experimental version, FE_EXP.mib, in Fabric OS v2.6.x and 3.0.x. This latest version of the FE MIB references the FRAMEWORK.MIB and, based on the MIB browser, it is necessary to load this MIB before the FE.MIB. See [“Loading Brocade MIBs” on page 1-6](#) for more information.

Once loaded, the MAX-ACCESS provides access levels between the agent and management station. The access levels are as follows:

- not-accessible
You cannot read or write to this variable.
- read-create
Specifies a tabular object that can be read, modified, or created as a new row in a table.
- read-only - *Public*
You can only monitor information.
- read-write - *Private*
You can read or modify this variable.

Understanding SNMP Traps

An unsolicited message that comes to the management station from the SNMP agent on the device is called a *trap*. Brocade switches send traps out on UDP port 162 only, therefore, an SNMP management application must be running on UDP port 162. In order to receive traps, the management station IP address and severity level must be configured on the switch. Up to six trap recipients can be configured using Web Tools or the **snmpConfig** command. You can define a different message severity level for each of the recipients, so that some recipients receive all trap messages and others receive only the most critical.

There are two main MIB trap choices:

- FibreAlliance MIB trap - Associated with the Fibre Alliance MIB (FA-MIB), this MIB manages SAN switches and devices from any company that complies with Fibre Alliance specifications.
- Brocade-specific MIB trap - Associated with the Brocade-specific SilkWorm MIB (SW-MIB), manages Brocade switches only.

The functionality of these MIBs have some overlap. If you enable both SW-MIB and FA-MIB traps, you might receive duplicate messages for switch events that trigger the trap.

You can also use these additional MIBs and their associated traps: HA-MIB; FICON-MIB; and SW-EXTTRA. You can use the **snmpConfig** command to disable the FA-MIB, HA-MIB, FICON-MIB, and SW_EXTTRA; but neither the SW-MIB or the FE-MIB can be disabled.

An event trap (swEventTrap, connUnitEventTrap, or swFabricWatchTrap) is basically an error message (**errShow** output) that is SNMP formatted and delivered.

FA Traps

Consider enabling this trap if you want to use SNMP to monitor multiple connectivity units including Brocade switches.

The **switchStatusPolicySet** command determines the FA-TRAP switch status related outputs:

- connUnitStatusChange
- connUnitSensorStatusChange
- connUnitPortStatusChange

The MIB-II system description swEventTrapLevel will determine the output for the connUnitEventTrap. Events in the Error Log of a severity at or above the configured threshold will generate SNMP traps.

The Fibre Alliance Trap (FA-TRAP) can be configured to send traps using the **snmpConfig** command. See the *Fabric OS Command Reference Manual* for more information on this command.

HA Traps

Consider enabling these traps to monitor FRU status and CP status when you have a SilkWorm director in your environment:

- `fruStatusChanged`
This trap is generated by a FRU status change, such as a switch reboot or adding or removing a FRU component.
- `cpStatusChanged`
This trap is generated by a change in the status of a CP, including a reboot, or firmware download.
- `fruHistoryTrap`
This trap is generated when a FRU is added or removed.

The high availability trap (HA-TRAP) can be configured to send traps using the **snmpConfig** command. See the *Fabric OS Command Reference Manual* for more information on this command.

SW Traps

There are six specific traps defined in Brocade SW-TRAP:

1. `swfault` (no longer supported)
2. `swSensorScn` (no longer supported)
3. `swFCPortScn`
This trap is generated by a port state change.
4. `swEventTrap`
This trap is generated by any switch event reported to the system error log.
5. `swFabricWatchTrap`
This trap is generated when any Fabric Watch threshold is reached.
6. `swTrackChangesTrap`
This trap is generated by a login or a logout.

The SilkWorm trap (SW-TRAP) can be configured to send traps using the **snmpConfig** command. See the *Fabric OS Command Reference Manual* for more information on this command.

Object Instances

MIB objects are defined by the OID, which is the type of object, and by the instance number, which is an instance of that MIB object. A Fibre Channel port is a MIB object, and port 0 is an instance of that object. The following is an OID number and an instance number:

1.3.6.1.4.1.1588.2.1.1.1.6.2.1.11.5

where:

1.3.6.1.4.1.1588.2.1.1.1.6.2.1.11 is the OID (of `swFCPortTxWords`) and 5 is the instance ID for port 4.

You must add 1 to the port number to get its instance number in SNMP because SNMP numbering starts at 1; switch port numbering starts at 0.

Loading Brocade MIBs

The Brocade MIB is a set of variables that are private extensions to the Internet standard MIB-II. The Brocade agents support many other Internet-standard MIBs. These standard MIBs are defined in RFC publications. To find specific MIB information, examine the Brocade proprietary MIB structure and the standard RFC MIBs supported by Brocade.

Brocade MIB Files

The Brocade MIB files are as follows:

- BRCD_v5_0.mib
- SW_v5_3.mib
- FA_v3_0.mib
- FE_RFC2837.mib
- ENTITY_RFC2737.mib
- HA_v5_1.mib
- FICON_v5_0.mib
- CPQ_HOST.mib
- CPQ_RACK.mib

Before Loading MIBs

Before loading Brocade MIB files, ensure that you have the correct version of SNMP for your Fabric OS version (see [Table 1-1](#)).

Table 1-1 Fabric OS Supported SNMP Versions

Firmware	SNMPv1	SNMPv2	SNMPv3
Fabric OS v2.6.2 and previous	Yes	Yes ¹	No
Fabric OS v3.2.0 and previous	Yes	Yes ¹	No
Fabric OS v4.2.0 and previous	Yes	No	No
Fabric OS v4.4.0	Yes	No ²	Yes ³
Fabric OS v5.0	Yes	No ²	Yes ³



Note

¹ The corresponding Fabric OS has SNMPv2 capabilities, but it is not officially supported by Brocade.

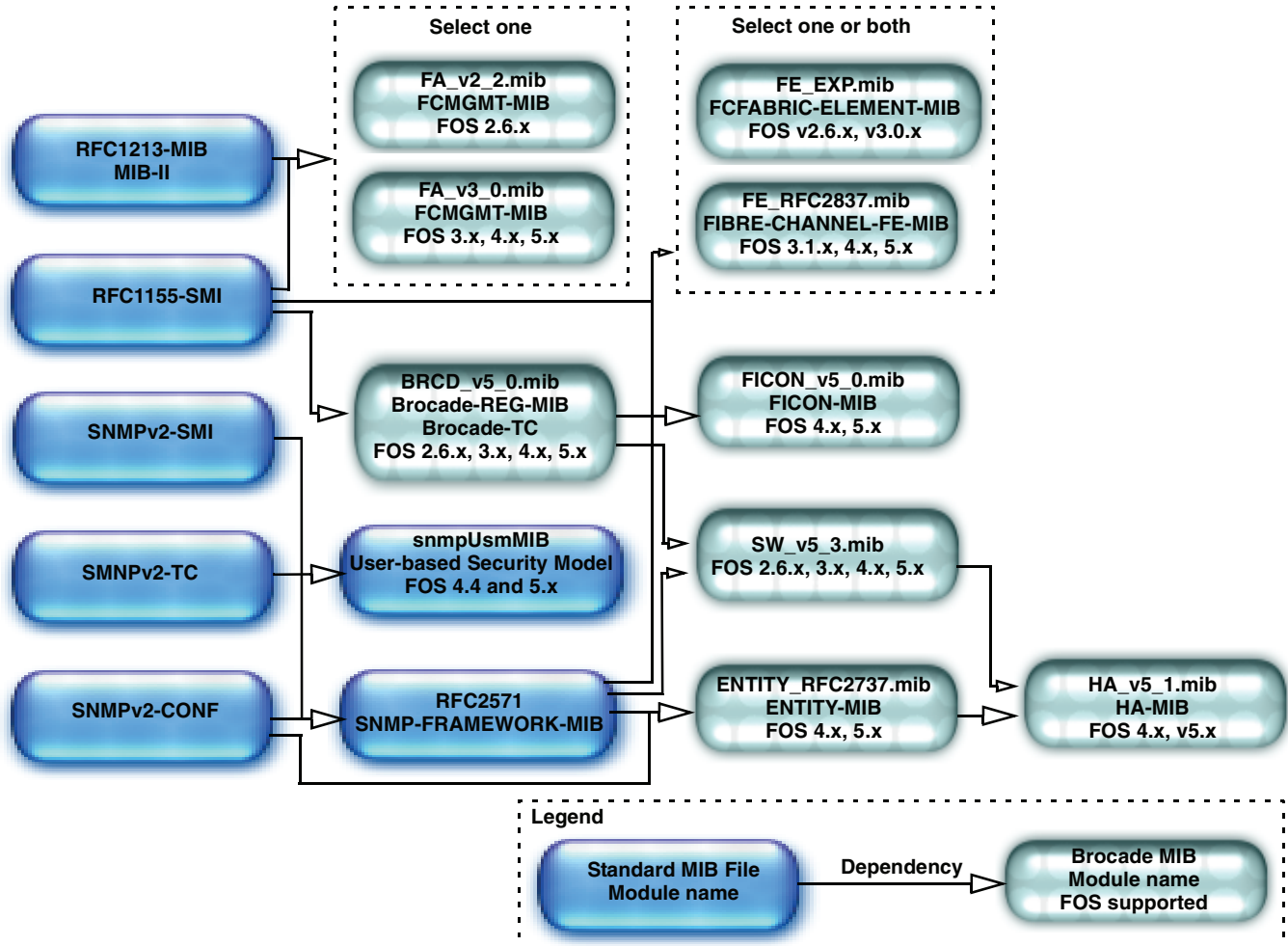
² The Structure of Management Information version 2 (SMIv2) framework is used in defining the MIBs

³ Fabric OS v4.4.0 and v5.0 support SNMPv3-USM (snmpUsmMIB) MIB, which is available as RFC 3414.

MIB Loading Order

Many MIBs use definitions that are defined in other MIBs. These definitions are listed in the IMPORTS section near the top of the MIB. When loading the Brocade MIBs, see [Figure 1-5](#) to ensure any MIB dependencies are loading in the correct order.

Figure 1-5 Brocade SNMP MIB Dependencies and Advised Installation Order



Note: FA_v3_0.mib obsoletes the use of the connUnitPortStatFabricTable used in the FA_v2_2.mib. FA_v3_0.mib now uses the connUnitPortStatTable for port statistics. The FA_v3_0.mib and the FA_v2_2.mib cannot be loaded concurrently on the same SNMP management system.

The FE_RFC2837.mib and the FE_EXP.mib can be loaded concurrently on the same SNMP management system. The FE_EXP.mib was listed in the experimental OID section. The FE_RFC2837.mib has subsequently been ratified by the standards organizations.

All versions of Fabric OS support SNMPv1. Fabric v2.6.x and v3.2.x partially support SNMPv2. Fabric OS v4.4.0 and v5.0.1 support SNMPv3-USM (snmpUsmMIB) MIB.

SilkWorm 7500 / FR4-18i and Brocade MIBs

EX_Ports, VEX_Ports, or VE_Ports display as “other” through SNMP. There are no statistics available from VE_Ports.

Information about the GbE port type is not supported.

The changes in the sensor details for FR4-18i Blade has been incorporated into SNMP. The “[connUnitSensorTable 1.3.6.1.3.94.1.8](#)” on page 8-17 and “[swSensorTable 1.3.6.1.4.1.1588.2.1.1.1.1.22](#)” on page 5-23 display information consistent with the Fabric OS `sensorShow` command.

Firmware Upgrades and Enabled Traps

Prior to Fabric OS v4.4, traps were turned on and off as a group (for example, the SW-Trap, or FA-Trap). In these versions of the Fabric OS it was not possible to set individual traps (such as, `swSensorStatusChangeTrap`, `swTrackChangesTrap`, or `connUnitEventTrap`).

In Fabric OS v4.4 or above you can to turn on and off traps individually within a trap group. The individual traps need to be enabled explicitly after the corresponding trap group is enabled.

Because the pre- Fabric OS v4.4 firmware only has trap group level settings, when you upgrade to the Fabric OS v4.4 firmware or above, individual traps are turned off by default even if the corresponding trap group was enabled before upgrading. When moving from a downlevel version to Fabric OS v4.4 or above you must use either `snmpmibcapset` or `snmpconfig` command to turn on explicitly the individual traps within each trap group.

Fabric OS Commands for Configuring SNMP

Use the following commands to configure MIBs in the Fabric OS. See the *Fabric OS Administrator's Guide* for on procedures on configuring SNMP on the SilkWorm switches.

Table 1-2 Commands for Configuring SNMP

Command	Description
<code>snmpConfig</code>	Introduced in Fabric OS v4.4.0, this command has all the features of the existing the <code>agtcfg*</code> commands; in addition, it has SNMPv3 configuration parameters.
<code>snmpMibCapSet</code>	Enhanced in Fabric OS v4.4 to provide a filter facility at the trap level (previously the filter facility was at MIB level for traps).

Table 1-2 Commands for Configuring SNMP

Command	Description
snmpMibCapShow	Displays the settings in the snmpMibCapSet command.
agtcfgDefault	Resets the traps to the default values. This command is retained for legacy reasons but is replaced functionally by the snmpConfig command.
agtcfgSet	Used to set the trap values for SNMP. This command is retained for legacy reasons but is replaced functionally by the snmpMibCapSet command.
agtcfgShow	Used to display the configuration of the SNMP values. This command is retained for legacy reasons but is replaced functionally by the snmpMibCapShow command.

MIB-II (RFC1213-MIB)

This chapter provides descriptions and other information specific to MIB-II, including the following sections:

- “MIB II Overview” next
- “System Group” on page 2-8
- “Interfaces Group” on page 2-10
- “AT Group” on page 2-14
- “IP Group” on page 2-14
- “ICMP Group” on page 2-21
- “TCP Group” on page 2-24
- “UDP Group” on page 2-28
- “EGP Group” on page 2-29
- “Transmission Group” on page 2-29
- “SNMP Group” on page 2-29

MIB II Overview

The descriptions of each of the MIB variables in this chapter come directly from the MIB-II itself. The notes that follow the descriptions refer to Brocade-specific information and are provided by Brocade.

MIB-II Object Hierarchy

Figure 2-1 through Figure 2-10 depicts the organization and structure of MIB-II.

Figure 2-1 MIB-II Overall Hierarchy

```
- iso
  - org
    - dod
      - internet
        - directory
          - mgmt
            - mib-2
              - system
              - interfaces
              - at
              - ip
              - icmp
              - tcp
              - udp
              - egp
              - transmission
              - snmp
```

Figure 2-2 System Hierarchy

```
- system (1.3.6.1.2.1.1)
  - sysDescr 1.3.6.1.2.1.1.1
  - sysObjectID 1.3.6.1.2.1.1.2
  - sysUpTime 1.3.6.1.2.1.1.3
  - sysContact 1.3.6.1.2.1.1.4
  - sysName 1.3.6.1.2.1.1.5
  - sysLocation 1.3.6.1.2.1.1.6
  - sysServices 1.3.6.1.2.1.1.7
```

Figure 2-3 Interfaces Hierarchy

```

- interfaces (1.3.6.1.2.1.2)
  - ifNumber 1.3.6.1.2.1.2.1
  - ifTable 1.3.6.1.2.1.2.2
    - ifEntry 1.3.6.1.2.1.2.2.1
      - ifIndex 1.3.6.1.2.1.2.2.1.1
      - ifDescr 1.3.6.1.2.1.2.2.1.2
      - ifType 1.3.6.1.2.1.2.2.1.3
      - ifMtu 1.3.6.1.2.1.2.2.1.4
      - ifSpeed 1.3.6.1.2.1.2.2.1.5
      - ifPhysAddress 1.3.6.1.2.1.2.2.1.6
      - ifAdminStatus 1.3.6.1.2.1.2.2.1.7
      - ifOperStatus 1.3.6.1.2.1.2.2.1.8
      - ifLastChange 1.3.6.1.2.1.2.2.1.9
      - ifInOctets 1.3.6.1.2.1.2.2.1.10
      - ifInUcastPkts 1.3.6.1.2.1.2.2.1.11
      - ifInNUcastPkts 1.3.6.1.2.1.2.2.1.12
      - ifInDiscards 1.3.6.1.2.1.2.2.1.13
      - ifInErrors 1.3.6.1.2.1.2.2.1.14
      - ifInUnknownProtos 1.3.6.1.2.1.2.2.1.15
      - ifOutOctets 1.3.6.1.2.1.2.2.1.16
      - ifOutUcastPkts 1.3.6.1.2.1.2.2.1.17
      - ifOutNUcastPkts 1.3.6.1.2.1.2.2.1.18
      - ifOutDiscards 1.3.6.1.2.1.2.2.1.19
      - ifOutErrors 1.3.6.1.2.1.2.2.1.20
      - ifOutQLen 1.3.6.1.2.1.2.2.1.21
      - ifSpecific 1.3.6.1.2.1.2.2.1.22
      - ifOutUcastPkts 1.3.6.1.2.1.2.2.1.17
      - ifOutNUcastPkts 1.3.6.1.2.1.2.2.1.18
      - ifOutDiscards 1.3.6.1.2.1.2.2.1.19
      - ifOutErrors 1.3.6.1.2.1.2.2.1.20
      - ifOutQLen 1.3.6.1.2.1.2.2.1.21
      - ifSpecific 1.3.6.1.2.1.2.2.1.22

```

Figure 2-4 AT Hierarchy

```

- at (1.3.6.1.2.1.3)
  - atTable 1.3.6.1.2.1.3.1
    - atEntry 1.3.6.1.2.1.3.1.1
      - atIfIndex 1.3.6.1.2.1.3.1.1.1
      - atPhysAddress 1.3.6.1.2.1.3.1.1.2
      - atNetAddress 1.3.6.1.2.1.3.1.1.3

```

Figure 2-5 IP Hierarchy

```

- ip (1.3.6.1.2.1.4)
  - ipForwarding 1.3.6.1.2.1.4.1
  - ipDefaultTTL 1.3.6.1.2.1.4.2
  - ipInReceives 1.3.6.1.2.1.4.3
  - ipInHdrErrors 1.3.6.1.2.1.4.4
  - ipInAddrErrors 1.3.6.1.2.1.4.5
  - ipForwDatagrams 1.3.6.1.2.1.4.6
  - ipInUnknownProtos 1.3.6.1.2.1.4.7
  - ipInDiscards 1.3.6.1.2.1.4.8
  - ipInDelivers 1.3.6.1.2.1.4.9
  - ipOutRequests 1.3.6.1.2.1.4.10
  - ipOutDiscards 1.3.6.1.2.1.4.11
  - ipOutNoRoutes 1.3.6.1.2.1.4.12
  - ipReasmTimeout 1.3.6.1.2.1.4.13
  - ipReasmReqds 1.3.6.1.2.1.4.14
  - ipReasmOKs 1.3.6.1.2.1.4.15
  - ipReasmFails 1.3.6.1.2.1.4.16
  - ipFragOKs 1.3.6.1.2.1.4.17
  - ipFragFails 1.3.6.1.2.1.4.18
  - ipFragCreates 1.3.6.1.2.1.4.19
  - ipAddrTable 1.3.6.1.2.1.4.20
    - ipAddrEntry 1.3.6.1.2.1.4.20.1
      - ipAdEntAddr 1.3.6.1.2.1.4.20.1.1
      - ipAdEntIfIndex 1.3.6.1.2.1.4.20.1.2
      - ipAdEntNetMask 1.3.6.1.2.1.4.20.1.3
      - ipAdEntBcastAddr 1.3.6.1.2.1.4.20.1.4
      - ipAdEntReasmMaxSize 1.3.6.1.2.1.4.20.1.5
  - ipRouteTable 1.3.6.1.2.1.4.21
    - ipRouteEntry 1.3.6.1.2.1.4.21.1
      - ipRouteDest 1.3.6.1.2.1.4.21.1.1
      - ipRouteIfIndex 1.3.6.1.2.1.4.21.1.2
      - ipRouteMetric1 1.3.6.1.2.1.4.21.1.3
      - ipRouteMetric2 1.3.6.1.2.1.4.21.1.4
      - ipRouteMetric3 1.3.6.1.2.1.4.21.1.5
      - ipRouteMetric4 1.3.6.1.2.1.4.21.1.6
      - ipRouteNextHop 1.3.6.1.2.1.4.21.1.7
      - ipRouteType 1.3.6.1.2.1.4.21.1.8
      - xipRouteProto 1.3.6.1.2.1.4.21.1.9
      - ipRouteAge 1.3.6.1.2.1.4.21.1.10
      - ipRouteMask 1.3.6.1.2.1.4.21.1.11
      - ipRouteMetric5 1.3.6.1.2.1.4.21.1.12
      - ipRouteInfo 1.3.6.1.2.1.4.21.1.13
  - ipNetToMediaTable 1.3.6.1.2.1.4.22
    - ipNetToMediaEntry 1.3.6.1.2.1.4.22.1
      - ipNetToMediaIfIndex 1.3.6.1.2.1.4.22.1.1
      - ipNetToMediaPhysAddress 1.3.6.1.2.1.4.22.1.2
      - ipNetToMediaNetAddress 1.3.6.1.2.1.4.22.1.3
      - ipNetToMediaType 1.3.6.1.2.1.4.22.1.4
  - ipRoutingDiscards 1.3.6.1.2.1.4.23

```


Figure 2-6 ICMP Hierarchy

```

- icmp (1.3.6.1.2.1.5)
  - icmpInMsgs 1.3.6.1.2.1.5.1
  - icmpInErrors 1.3.6.1.2.1.5.2
  - icmpInDestUnreaches 1.3.6.1.2.1.5.3
  - icmpInTimeExcds 1.3.6.1.2.1.5.4
  - icmpInParmProbs 1.3.6.1.2.1.5.5
  - icmpInSrcQuenchs 1.3.6.1.2.1.5.6
  - icmpInRedirects 1.3.6.1.2.1.5.7
  - icmpInEchos 1.3.6.1.2.1.5.8
  - icmpInEchoReps 1.3.6.1.2.1.5.9
  - icmpInTimestamps 1.3.6.1.2.1.5.10
  - icmpInTimestampReps 1.3.6.1.2.1.5.11
  - icmpInAddrMasks 1.3.6.1.2.1.5.12
  - icmpInAddrMaskReps 1.3.6.1.2.1.5.13
  - icmpOutMsgs 1.3.6.1.2.1.5.14
  - icmpOutErrors 1.3.6.1.2.1.5.15
  - icmpOutDestUnreaches 1.3.6.1.2.1.5.16
  - icmpOutTimeExcds 1.3.6.1.2.1.5.17
  - icmpOutParmProbs 1.3.6.1.2.1.5.18
  - icmpOutSrcQuenchs 1.3.6.1.2.1.5.19
  - icmpOutRedirects 1.3.6.1.2.1.5.20
  - icmpOutEchos 1.3.6.1.2.1.5.21
  - icmpOutEchoReps 1.3.6.1.2.1.5.22
  - icmpOutTimestamps 1.3.6.1.2.1.5.23
  - icmpOutTimestampReps 1.3.6.1.2.1.5.24
  - icmpOutAddrMasks 1.3.6.1.2.1.5.25
  - icmpOutAddrMaskReps 1.3.6.1.2.1.5.26
  - icmpOutSrcQuenchs 1.3.6.1.2.1.5.19
  - icmpOutRedirects 1.3.6.1.2.1.5.20
  - icmpOutEchos 1.3.6.1.2.1.5.21
  - icmpOutEchoReps 1.3.6.1.2.1.5.22
  - icmpOutTimestamps 1.3.6.1.2.1.5.23
  - icmpOutTimestampReps 1.3.6.1.2.1.5.24
  - icmpOutAddrMasks 1.3.6.1.2.1.5.25
  - icmpOutAddrMaskReps 1.3.6.1.2.1.5.26

```

Figure 2-7 TCP Hierarchy

```

- tcp (1.3.6.1.2.1.6)
  - tcpRtoAlgorithm 1.3.6.1.2.1.6.1
  - tcpRtoMin 1.3.6.1.2.1.6.2
  - tcpRtoMax 1.3.6.1.2.1.6.3
  - tcpMaxConn 1.3.6.1.2.1.6.4
  - tcpActiveOpens 1.3.6.1.2.1.6.5
  - tcpPassiveOpens 1.3.6.1.2.1.6.6
  - tcpAttemptFails 1.3.6.1.2.1.6.7
  - tcpEstabResets 1.3.6.1.2.1.6.8
  - tcpCurrEstab 1.3.6.1.2.1.6.9
  - tcpInSegs 1.3.6.1.2.1.6.10
  - tcpOutSegs 1.3.6.1.2.1.6.11
  - tcpRetransSegs 1.3.6.1.2.1.6.12
  - tcpConnTable 1.3.6.1.2.1.6.13
    - tcpConnEntry 1.3.6.1.2.1.6.13.1
      - tcpConnState 1.3.6.1.2.1.6.13.1.1
      - tcpConnLocalAddress 1.3.6.1.2.1.6.13.1.2
      - tcpConnLocalPort 1.3.6.1.2.1.6.13.1.3
      - tcpConnRemAddress 1.3.6.1.2.1.6.13.1.4
      - tcpConnRemPort 1.3.6.1.2.1.6.13.1.5
  - tcpInErrs 1.3.6.1.2.1.6.14
  - tcpOutRsts 1.3.6.1.2.1.6.15

```

Figure 2-8 udp Hierarchy

```
- udp (1.3.6.1.2.1.7)
  - udpInDatagrams 1.3.6.1.2.1.7.1
  - udpNoPorts 1.3.6.1.2.1.7.2
  - udpInErrors 1.3.6.1.2.1.7.3
  - udpOutDatagrams 1.3.6.1.2.1.7.4
  - udpTable 1.3.6.1.2.1.7.5
    - udpEntry 1.3.6.1.2.1.7.5.1
      - udpLocalAddress 1.3.6.1.2.1.7.5.1.1
      - udpLocalPort 1.3.6.1.2.1.7.5.1.2
```

Figure 2-9 egp Hierarchy

```

- egp (1.3.6.1.2.1.8)
  - Transmission Group
  - egpInErrors
  - egpOutMsgs
  - egpOutErrors
  - egpNeighTable
    - egpNeighEntry
      - egpNeighState
      - egpNeighAddr
      - egpNeighAs
      - egpNeighInMsgs
      - egpNeighInErrs
      - egpNeighOutMsgs
      - egpNeighOutErrs
      - egpNeighInErrMsgs
      - egpNeighOutErrMsgs
      - egpNeighStateUps
      - egpNeighStateDowns
      - egpNeighIntervalHello
      - egpNeighIntervalPoll
      - egpNeighMode
      - egpNeighEventTrigger
  - egpAs

```

Figure 2-10 snmp Hierarchy

```

- snmp (1.3.6.1.2.1.11)
  - snmpInPkts 1.3.6.1.2.1.11.1
  - snmpOutPkts 1.3.6.1.2.1.11.2
  - snmpInBadVersions 1.3.6.1.2.1.11.3
  - snmpInBadCommunityNames 1.3.6.1.2.1.11.4
  - snmpInBadCommunityUses 1.3.6.1.2.1.11.5
  - snmpInASNParseErrs 1.3.6.1.2.1.11.6
  - snmpInTooBigs 1.3.6.1.2.1.11.8
  - snmpInNoSuchNames 1.3.6.1.2.1.11.9
  - snmpInBadValues 1.3.6.1.2.1.11.10
  - snmpInReadOnly 1.3.6.1.2.1.11.11
  - snmpInGenErrs 1.3.6.1.2.1.11.12
  - snmpInTotalReqVars 1.3.6.1.2.1.11.13
  - snmpInTotalSetVars 1.3.6.1.2.1.11.14
  - snmpInGetRequests 1.3.6.1.2.1.11.15
  - snmpInGetNexts 1.3.6.1.2.1.11.16
  - snmpInSetRequests 1.3.6.1.2.1.11.17
  - snmpInGetResponses 1.3.6.1.2.1.11.18
  - snmpInTraps 1.3.6.1.2.1.11.19
  - snmpOutTooBigs 1.3.6.1.2.1.11.20
  - snmpOutNoSuchNames 1.3.6.1.2.1.11.21
  - snmpOutBadValues 1.3.6.1.2.1.11.22

  - snmpOutGenErrs 1.3.6.1.2.1.11.24
  - snmpOutGetRequests 1.3.6.1.2.1.11.25
  - snmpOutGetNexts 1.3.6.1.2.1.11.26
  - snmpOutSetRequests 1.3.6.1.2.1.11.27
  - snmpOutGetResponses 1.3.6.1.2.1.11.28
  - snmpOutTraps 1.3.6.1.2.1.11.29
  - snmpEnableAuthenTraps 1.3.6.1.2.1.11.30

```

Textual Conventions

Table 2-1 lists the textual conventions used for MIB-II.

Table 2-1 MIB-II Textual Conventions

Type Definition	Value
DisplayString	Octet String of size 0 to 255
PhysAddress	Octet String

Objects and Types Imported

The following objects and types are imported from RFC1155-SMI:

- mgmt
- NetworkAddress
- IpAddress
- Counter
- Gauge
- TimeTicks

System Group

All systems must implement the System Group. If an agent is not configured to have a value for any of the System Group variables, a string of length 0 is returned.

sysDescr 1.3.6.1.2.1.1.1

A textual description of the entity. This value should include the full name and version identification of the hardware type, software operating system, and networking software.

Format This must contain only printable ASCII characters.

Set command Set this value using the **agtCfgSet** command.

Default Fibre Channel Switch

sysObjectID 1.3.6.1.2.1.1.2

The vendor's authoritative identification of the network management subsystem contained in the entity. This value is allocated within the SMI enterprises subtree (1.3.6.1.4.1) and provides an easy and unambiguous means for determining what kind of device is being managed.

Example If a vendor "NetYarn, Inc." was assigned the subtree 1.3.6.1.4.1.4242, it could assign the identifier 1.3.6.1.4.1.4242.1.1 to its "Knit Router".

Default iso.org.dod.internet.private.enterprises.bcsi.commDev.fibrechannel.fcSwitch.sw

sysUpTime 1.3.6.1.2.1.1.3

The time (in hundredths of a second) since the network management portion of the system was last reinitialized.

sysContact 1.3.6.1.2.1.1.4

The textual identification of the contact person for this managed node, together with information on how to contact this person.

Default Field Support

Set command Set this value using the **agtCfgSet** command.

sysName 1.3.6.1.2.1.1.5

An administratively assigned name for this managed node. By convention, this is the node's fully qualified domain name.

Default Preassigned name of the switch

sysLocation 1.3.6.1.2.1.1.6

The physical location of this node (for example, telephone closet, 3rd floor).

Default End User Premise

Set command Set this value using the **agtCfgSet** command.

sysServices 1.3.6.1.2.1.1.7

A value that indicates the set of services that this entity primarily offers. The value is a sum. This sum initially takes the value 0. Then, for each layer, L, in the range 1 through 7, for which this node performs transactions, 2 raised to (L - 1) is added to the sum. For example, a node that primarily performs routing functions has a value of 4 (2^{3-1}). In contrast, a node that is a host and offers application services has a value of 72 ($2^{4-1} + 2^{7-1}$).

Calculate In the context of the Internet suite of protocols, values should be calculated accordingly:

- Layer functionality
- 1 = physical (for example, repeaters)
- 2 = datalink/subnetwork (for example, bridges)
- 3 = internet (for example, IP gateways)
- 4 = end-to-end (for example, IP hosts)
- 7 = applications (for example, mail relays)

For systems including OSI protocols, layers 5 and 6 also can be counted. The return value is always 79.

Interfaces Group

Implementation of the Interfaces group is mandatory for all systems.

ifNumber 1.3.6.1.2.1.2.1

The number of network interfaces (regardless of their current state) present on this system.

The return value is 5 for the SilkWorm 12000, 24000, and 48000 (single domain), 7 for the SilkWorm 12000 and 24000 (dual-domain). All non-bladed systems will have a value of 3.

ifTable 1.3.6.1.2.1.2.2

A list of interface entries. The number of entries is given by the value of ifNumber.

The Interfaces table contains information on the entity's interfaces. Each interface is thought of as being attached to a subnetwork. Note that this term should not be confused with *subnet*, which refers to an addressing partitioning scheme used in the Internet suite of protocols.

ifEntry 1.3.6.1.2.1.2.2.1

An interface entry containing objects at the subnetwork layer and below, for a particular interface.

Index	ifIndex
--------------	---------

ifIndex 1.3.6.1.2.1.2.2.1.1

A unique value for each interface.

The values range between 1 and the value of ifNumber. The value for each interface must remain constant, at least from one reinitialization of the entity's network management system to the next reinitialization.

The number of entries inside the SilkWorm 12000, 24000, and 48000 directors is 1 to 3 for FCIP; otherwise, the value is 1 or 2.

ifDescr 1.3.6.1.2.1.2.2.1.2

A textual string containing information about the interface. The ifDescr for non-bladed switches includes: lo, eth0, and fc0. The ifDescr for SilkWorm 12000, 24000, and 48000 directors includes: lo, eth0, and fc0, as well as fc1, eth0:1, and eth0:2.

ifType 1.3.6.1.2.1.2.2.1.3

The type of interface, designated by the physical/link protocol(s) immediately below the network layer in the protocol stack.

- Values**
- eth0 maps to 6 (Ethernet-csmacd)
 - lo maps to 24 (softwareLoopback)
 - fc0 maps to 56

ifMtu 1.3.6.1.2.1.2.2.1.4

The size of the largest datagram that can be sent/received on the interface, specified in octets.

- Values** For interfaces that are used to transmit network datagrams, the value is the size of the largest network datagram that can be sent on the interface (these values are different for Fabric OS v4.x).
- eth0 returns 1500
 - lo returns 16436
 - fc0 returns 2024

ifSpeed 1.3.6.1.2.1.2.2.1.5

An estimate (in bits per second) of the interface's current bandwidth.

- Values** For interfaces that do not vary in bandwidth or interfaces for which no accurate estimation can be made, this object should contain the nominal bandwidth. For Fabric OS v4.x, 2 Gbit/sec returns.
- eth0 returns 107
 - lo returns 0
 - fc0 returns 2000000000

ifPhysAddress 1.3.6.1.2.1.2.2.1.6

The interface's address at the protocol layer immediately below the network layer in the protocol stack.

- Values** For interfaces that do not have such an address (for example, a serial line), this object should contain an octet string of zero length.
- eth0 returns the MAC address of the Ethernet
 - lo returns null
 - fc0 returns the MAC address of the Fibre Channel

ifAdminStatus 1.3.6.1.2.1.2.2.1.7

The desired state of the interface.

Note

The 3 state (testing) indicates that no operational packets can be passed. This object is read-only in Fabric OS v4.x and above.

ifOperStatus 1.3.6.1.2.1.2.2.1.8

The current operational state of the interface.

Note

The 3 state (testing) indicates that no operational packets can be passed.

ifLastChange 1.3.6.1.2.1.2.2.1.9

The value of sysUpTime at the time the interface entered its current operational state. If the current state was entered prior to the last re-initialization of the local network management subsystem, then this object contains a zero value.

ifInOctets 1.3.6.1.2.1.2.2.1.10

The total number of octets received on the interface, including framing characters.

ifInUcastPkts 1.3.6.1.2.1.2.2.1.11

The number of subnetwork-unicast packets delivered to a higher-layer protocol.

ifInNUcastPkts 1.3.6.1.2.1.2.2.1.12

The number of nonunicast packets (for example, subnetwork-broadcast or subnetwork-multicast) delivered to a higher-layer protocol.

ifInDiscards 1.3.6.1.2.1.2.2.1.13

The number of inbound packets that were chosen to be discarded (even though no errors had been detected) to prevent their being deliverable to a higher-layer protocol.

One possible reason for discarding such a packet could be to free buffer space.

ifInErrors 1.3.6.1.2.1.2.2.1.14

The number of inbound packets that contained errors, which thereby prevented them from being deliverable to a higher-layer protocol.

ifInUnknownProtos 1.3.6.1.2.1.2.2.1.15

The number of packets received by way of the interface that were discarded because of an unknown or unsupported protocol.

ifOutOctets 1.3.6.1.2.1.2.2.1.16

The total number of octets transmitted out of the interface, including framing characters.

ifOutUcastPkts 1.3.6.1.2.1.2.2.1.17

The total number of packets that were requested, by higher-level protocols, to be transmitted to a subnetwork-unicast address, including those that were discarded or not sent.

ifOutNUcastPkts 1.3.6.1.2.1.2.2.1.18

The total number of packets that were requested, by higher-level protocols, to be transmitted to a nonunicast address (for example, a subnetwork-broadcast or subnetwork-multicast), including those that were discarded or not sent.

ifOutDiscards 1.3.6.1.2.1.2.2.1.19

The number of outbound packets that were chosen to be discarded (even though no errors had been detected) to prevent their being transmitted. One possible reason for discarding such a packet could be to free buffer space.

ifOutErrors 1.3.6.1.2.1.2.2.1.20

The number of outbound packets that could not be transmitted because of errors.

ifOutQLen 1.3.6.1.2.1.2.2.1.21

The length of the output packet queue (in packets).

ifSpecific 1.3.6.1.2.1.2.2.1.22

A reference to MIB definitions specific to the particular media being used to realize the interface.

If the interface is realized by an Ethernet, then the value of this object refers to a document defining objects specific to Ethernet. If this information is not present, its value should be set to the Object Identifier 0 0, which is a syntactically valid object identifier, and any conformant implementation of ASN.1 and BER must be able to generate and recognize this value.

- Returns**
- eth0 returns null OID
 - lo returns null OID
 - fc0 returns null OID

AT Group

Implementation of the Address Translation group is mandatory for all systems. Note, however, that this group is deprecated by MIB-II. From MIB-II onward, each network protocol group contains its own address translation tables.

atTable 1.3.6.1.2.1.3.1

The Address Translation group contains one table, which is the union across all interfaces of the translation tables for converting a network address (for example, an IP address) into a subnetwork-specific address. This document refers to such a subnetwork-specific address as a *physical address*.

For example, for broadcast media, where ARP is in use, the translation table is equivalent to the ARP cache; on an X.25 network, where non-algorithmic translation to X.121 addresses is required, the translation table contains the network address to X.121 address equivalences.

The Address Translation tables contain the network address to physical address equivalences. Some interfaces do not use translation tables for determining address equivalences (for example, DDN-X.25 has an algorithmic method); if all interfaces are of this type, then the Address Translation table is empty.

atEntry 1.3.6.1.2.1.3.1.1

Each entry contains one network address to physical address equivalence.

Index atIfIndex, atNetAddress

atIfIndex 1.3.6.1.2.1.3.1.1.1

The interface on which this entry's equivalence is effective. The interface identified by a particular value of this index is the same interface as identified by the same value of ifIndex.

atPhysAddress 1.3.6.1.2.1.3.1.1.2

The media-dependent physical address.

atNetAddress 1.3.6.1.2.1.3.1.1.3

The network address (for example, the IP address) corresponding to the media-dependent physical address.

IP Group

Implementation of the IP group is mandatory for all systems.

ipForwarding 1.3.6.1.2.1.4.1

The indication of whether this entity is acting as an IP gateway in respect to the forwarding of datagrams received by, but not addressed to, this entity. IP gateways forward datagrams; IP hosts do not (except those source-routed through the host).

ipDefaultTTL 1.3.6.1.2.1.4.2

The default value inserted into the time-to-live field of the IP header of datagrams originated at this entity, whenever a TTL value is not supplied by the transport layer protocol.

ipInReceives 1.3.6.1.2.1.4.3

The total number of input datagrams received from interfaces, including those received in error.

ipInHdrErrors 1.3.6.1.2.1.4.4

The number of input datagrams discarded due to errors in their IP headers, including bad checksums, version number mismatch, other format errors, time-to-live exceeded, errors discovered in processing their IP options, and so on.

ipInAddrErrors 1.3.6.1.2.1.4.5

The number of input datagrams discarded because the IP address in their IP header's destination field was not a valid address to be received at this entity. This count includes invalid addresses (for example, 0.0.0.0) and addresses of unsupported classes (for example, Class E). For entities that are not IP gateways and therefore do not forward datagrams, this counter includes datagrams discarded because the destination address was not a local address.

ipForwDatagrams 1.3.6.1.2.1.4.6

The number of input datagrams for which this entity was not final IP destination, as a result of which an attempt was made to find a route to forward them to that final destination. In entities that do not act as IP gateways, this counter includes only those packets that were source-routed through this entity, and the Source-Route option processing was successful.

ipInUnknownProtos 1.3.6.1.2.1.4.7

The number of locally addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.

ipInDiscards 1.3.6.1.2.1.4.8

The number of input IP datagrams for which no problems were encountered to prevent their continued processing, but which were discarded (for example, for lack of buffer space).

This counter does not include any datagrams discarded while awaiting reassembly.

ipInDelivers 1.3.6.1.2.1.4.9

The total number of input datagrams successfully delivered to IP user protocols (including ICMP).

ipOutRequests 1.3.6.1.2.1.4.10

The total number of IP datagrams that local IP user protocols (including ICMP) supplied to IP in requests for transmission. Note that this counter does not include any datagrams counted in ipForwDatagrams.

ipOutDiscards 1.3.6.1.2.1.4.11

The number of output IP datagrams for which no problem was encountered to prevent their transmission to their destination, but which were discarded (for example, for lack of buffer space).

Note

This counter would include datagrams counted in ipForwDatagrams if any such packets met this (discretionary) discard criterion.

ipOutNoRoutes 1.3.6.1.2.1.4.12

The number of IP datagrams discarded because no route could be found to transmit them to their destination.

Note

This counter includes any packets counted in ipForwDatagrams that meet this “no-route” criterion. Note that this includes any datagrams that a host cannot route because all of its default gateways are down.

ipReasmTimeout 1.3.6.1.2.1.4.13

The maximum number of seconds that received fragments are held while they are awaiting reassembly at this entity.

ipReasmReqds 1.3.6.1.2.1.4.14

The number of IP fragments received that needed to be reassembled at this entity.

ipReasmOKs 1.3.6.1.2.1.4.15

The number of IP datagrams successfully reassembled.

ipReasmFails 1.3.6.1.2.1.4.16

The number of failures detected by the IP reassembly algorithm (for whatever reason: timed out, errors, and so on).

Note

This is not necessarily a count of discarded IP fragments, because some algorithms (notably the algorithm in RFC 815) can lose track of the number of fragments by combining them as they are received.

ipFragOKs 1.3.6.1.2.1.4.17

The number of IP datagrams that have been successfully fragmented at this entity.

ipFragFails 1.3.6.1.2.1.4.18

The number of IP datagrams that have been discarded because they needed to be fragmented at this entity but could not be (for example, because their Don't Fragment flag was set).

ipFragCreates 1.3.6.1.2.1.4.19

The number of IP datagram fragments that have been generated as a result of fragmentation at this entity.

ipAddrTable 1.3.6.1.2.1.4.20

The table of addressing information relevant to this entity's IP addresses.

ipAddrEntry 1.3.6.1.2.1.4.20.1

The addressing information for one of this entity's IP addresses.

Index	ipAdEntAddr
--------------	-------------

ipAdEntAddr 1.3.6.1.2.1.4.20.1.1

The IP address to which this entry's addressing information pertains.

ipAdEntIfIndex 1.3.6.1.2.1.4.20.1.2

The index value which uniquely identifies the interface to which this entry is applicable. The interface identified by a particular value of this index is the same interface as identified by the same value of ifIndex.

ipAdEntNetMask 1.3.6.1.2.1.4.20.1.3

The subnet mask associated with the IP address of this entry. The value of the mask is an IP address with all the network bits set to 1 and all the host bits set to 0.

ipAdEntBcastAddr 1.3.6.1.2.1.4.20.1.4

The value of the least-significant bit in the IP broadcast address used for sending datagrams on the (logical) interface associated with the IP address of this entry. For example, when the Internet standard all-ones broadcast address is used, the value will be 1. This value applies to both the subnet and network broadcasts addresses used by the entity on this (logical) interface.

ipAdEntReasmMaxSize 1.3.6.1.2.1.4.20.1.5

The size of the largest IP datagram that this entity can reassemble from incoming IP fragmented datagrams received on this interface.

ipRouteTable 1.3.6.1.2.1.4.21

The IP routing table contains an entry for each route currently known to this entity.

ipRouteEntry 1.3.6.1.2.1.4.21.1

A route to a particular destination.

Index ipRouteDest

ipRouteDest 1.3.6.1.2.1.4.21.1.1

The destination IP address of this route.

An entry with a value of 0.0.0.0 is considered a default route. Multiple routes to a single destination can appear in the table, but access to such multiple entries is dependent on the table-access mechanisms defined by the network management protocol in use.

ipRouteIfIndex 1.3.6.1.2.1.4.21.1.2

The index value that uniquely identifies the local interface through which the next hop of this route should be reached.

The interface identified by a particular value of this index is the same interface identified by the same value of ifIndex.

ipRouteMetric1 1.3.6.1.2.1.4.21.1.3

The primary routing metric for this route.

The semantics of this metric are determined by the routing protocol specified in the route's ipRouteProto value. If this metric is not used, its value should be set to -1.

ipRouteMetric2 1.3.6.1.2.1.4.21.1.4

An alternate routing metric for this route.

The semantics of this metric are determined by the routing protocol specified in the route's ipRouteProto value. If this metric is not used, its value should be set to -1.

ipRouteMetric3 1.3.6.1.2.1.4.21.1.5

An alternate routing metric for this route.

The semantics of this metric are determined by the routing protocol specified in the route's ipRouteProto value. If this metric is not used, its value should be set to -1.

ipRouteMetric4 1.3.6.1.2.1.4.21.1.6

An alternate routing metric for this route.

The semantics of this metric are determined by the routing protocol specified in the route's ipRouteProto value. If this metric is not used, its value should be set to -1.

ipRouteNextHop 1.3.6.1.2.1.4.21.1.7

The IP address of the next hop of this route. (In the case of a route bound to an interface that is realized via a broadcast media, the value of this field is the agent's IP address on that interface.)

ipRouteType 1.3.6.1.2.1.4.21.1.8

The type of route. Setting this object to 2 (invalid) has the effect of invalidating the corresponding entry in the ipRouteTable object. That is, it effectively disassociates the destination identified with said entry from the route identified with said entry. It is an implementation-specific matter as to whether the agent removes an invalidated entry from the table. Accordingly, management stations must be prepared to receive tabular information from agents that corresponds to entries not currently in use. Proper interpretation of such entries requires examination of the relevant ipRouteType object.

The values direct (3) and indirect (4) refer to the notion of direct and indirect routing in the IP architecture.

Valid values	other (1)	None of the following
	invalid (2)	An invalidated route—route to directly
	direct (3)	Connected (sub)network—route to a non-local
	indirect (4)	Host/network/subnetwork

xipRouteProto 1.3.6.1.2.1.4.21.1.9

The routing mechanism via which this route was learned.

Inclusion of values for gateway routing protocols is not intended to imply that hosts should support those protocols.

ipRouteAge 1.3.6.1.2.1.4.21.1.10

The number of seconds since this route was last updated or otherwise determined to be correct.

Older semantics cannot be implied except through knowledge of the routing protocol by which the route was learned.

ipRouteMask 1.3.6.1.2.1.4.21.1.11

The mask to be logical-ANDed with the destination address before being compared to the value in the ipRouteDest field. For those systems that do not support arbitrary subnet masks, an agent constructs the value of the ipRouteMask by determining whether the value of the correspondent ipRouteDest field belong to a class-A, B, or C network, and then using one of the following:

mask	network
255.0.0.0	class-A
255.255.0.0	class-B
255.255.255.0	class-C

Note

If the value of the ipRouteDest is 0.0.0.0 (default route), then the mask value is also 0.0.0.0.

All IP routing subsystems implicitly use this mechanism.

ipRouteMetric5 1.3.6.1.2.1.4.21.1.12

An alternate routing metric for this route.

The semantics of this metric are determined by the routing protocol specified in the route's ipRouteProto value. If this metric is not used, its value should be set to -1.

ipRouteInfo 1.3.6.1.2.1.4.21.1.13

A reference to MIB definitions specific to the particular routing protocol that is responsible for this route, as determined by the value specified in the route's ipRouteProto value. If this information is not present, its value should be set to the Object Identifier { 0 0 }, which is a syntactically valid object identifier; any conformant implementation of ASN.1 and BER must be able to generate and recognize this value.

ipNetToMediaTable 1.3.6.1.2.1.4.22

The IP Address Translation table used for mapping from IP addresses to physical addresses.

Note The IP address translation table contains the IP address to physical address equivalences. Some interfaces do not use translation tables for determining address equivalences. For example, DDN-X.25 has an algorithmic method; if all interfaces are of this type, then the Address Translation table is empty.

ipNetToMediaEntry 1.3.6.1.2.1.4.22.1

Each entry contains one IP address to physical address equivalence.

Index ipNetToMediaIfIndex, ipNetToMediaNetAddress

ipNetToMediaIfIndex 1.3.6.1.2.1.4.22.1.1

The interface on which this entry's equivalence is effective.

The interface identified by a particular value of this index is the same interface identified by the same value of ifIndex.

ipNetToMediaPhysAddress 1.3.6.1.2.1.4.22.1.2

The media-dependent physical address.

ipNetToMediaNetAddress 1.3.6.1.2.1.4.22.1.3

The IPAddress corresponding to the media-dependent physical address.

ipNetToMediaType 1.3.6.1.2.1.4.22.1.4

The type of mapping.

ipRoutingDiscards 1.3.6.1.2.1.4.23

The number of routing entries discarded even though they are valid. One possible reason for discarding such an entry could be to free buffer space for other routing entries.

ICMP Group

Implementation of the ICMP group is mandatory for all systems.

icmpInMsgs 1.3.6.1.2.1.5.1

The total number of ICMP messages that the entity received.

This counter includes all ICMP messages counted by icmpInErrors.

icmpInErrors 1.3.6.1.2.1.5.2

The number of ICMP messages that the entity received but determined to have ICMP-specific errors (bad ICMP checksums, bad length, and so on).

icmpInDestUnreachs 1.3.6.1.2.1.5.3

The number of ICMP Destination Unreachable messages received.

icmpInTimeExcds 1.3.6.1.2.1.5.4

The number of ICMP Time Exceeded messages received.

icmpInParmProbs 1.3.6.1.2.1.5.5

The number of ICMP Parameter Problem messages received.

icmpInSrcQuenchs 1.3.6.1.2.1.5.6

The number of ICMP Source Quench messages received.

icmpInRedirects 1.3.6.1.2.1.5.7

The number of ICMP Redirect messages received.

icmpInEchos 1.3.6.1.2.1.5.8

The number of ICMP Echo (request) messages received.

icmpInEchoReps 1.3.6.1.2.1.5.9

The number of ICMP Echo Reply messages received.

icmpInTimestamps 1.3.6.1.2.1.5.10

The number of ICMP Timestamp (request) messages received.

icmpInTimestampReps 1.3.6.1.2.1.5.11

The number of ICMP Timestamp Reply messages received.

icmpInAddrMasks 1.3.6.1.2.1.5.12

The number of ICMP Address Mask Request messages received.

icmpInAddrMaskReps 1.3.6.1.2.1.5.13

The number of ICMP Address Mask Reply messages received.

icmpOutMsgs 1.3.6.1.2.1.5.14

The total number of ICMP messages that this entity attempted to send.

Note

This counter includes all those counted by icmpOutErrors.

icmpOutErrors 1.3.6.1.2.1.5.15

The number of ICMP messages that this entity did not send due to problems discovered within ICMP such as a lack of buffers. This value should not include errors discovered outside the ICMP layer such as the inability of IP to route the resultant datagram. In some implementations there might be no types of error that contribute to this counter's value.

icmpOutDestUnreachs 1.3.6.1.2.1.5.16

The number of ICMP Destination Unreachable messages sent.

icmpOutTimeExcds 1.3.6.1.2.1.5.17

The number of ICMP Time Exceeded messages sent.

icmpOutParmProbs 1.3.6.1.2.1.5.18

The number of ICMP Parameter Problem messages sent.

icmpOutSrcQuenchs 1.3.6.1.2.1.5.19

The number of ICMP Source Quench messages sent.

icmpOutRedirects 1.3.6.1.2.1.5.20

The number of ICMP Redirect messages sent. For a host, this object is always 0, since hosts do not send redirects.

icmpOutEchos 1.3.6.1.2.1.5.21

The number of ICMP Echo (request) messages sent.

icmpOutEchoReps 1.3.6.1.2.1.5.22

The number of ICMP Echo Reply messages sent.

icmpOutTimestamps 1.3.6.1.2.1.5.23

The number of ICMP Timestamp (request) messages sent.

icmpOutTimestampReps 1.3.6.1.2.1.5.24

The number of ICMP Timestamp Reply messages sent.

icmpOutAddrMasks 1.3.6.1.2.1.5.25

The number of ICMP Address Mask Request messages sent.

icmpOutAddrMaskReps 1.3.6.1.2.1.5.26

The number of ICMP Address Mask Reply messages sent.

TCP Group

Implementation of the TCP group is mandatory for all systems that implement the TCP.

Instances of object types that represent information about a particular TCP connection are transient; they persist only as long as the connection in question.

tcpRtoAlgorithm 1.3.6.1.2.1.6.1

The algorithm used to determine the time-out value used for retransmitting unacknowledged octets.

tcpRtoMin 1.3.6.1.2.1.6.2

The minimum value permitted by a TCP implementation for the retransmission time-out, measured in milliseconds.

More refined semantics for objects of this type depend upon the algorithm used to determine the retransmission time-out. In particular, when the time-out algorithm is 3 (rsre), an object of this type has the semantics of the LBOUND quantity described in RFC 793.

tcpRtoMax 1.3.6.1.2.1.6.3

The maximum value permitted by a TCP implementation for the retransmission time-out, measured in milliseconds.

More refined semantics for objects of this type depend upon the algorithm used to determine the retransmission time-out. In particular, when the time-out algorithm is 3 (rsre), an object of this type has the semantics of the UBOUND quantity described in RFC 793.

tcpMaxConn 1.3.6.1.2.1.6.4

The limit on the total number of TCP connections the entity can support. In entities where the maximum number of connections is dynamic, this object should contain the value -1.

tcpActiveOpens 1.3.6.1.2.1.6.5

The number of times TCP connections have made a direct transition to the SYN-SENT state from the CLOSED state.

tcpPassiveOpens 1.3.6.1.2.1.6.6

The number of times TCP connections have made a direct transition to the SYN-RCVD state from the LISTEN state.

tcpAttemptFails 1.3.6.1.2.1.6.7

The number of times TCP connections have made a direct transition to the CLOSED state from either the SYN-SENT state or the SYN-RCVD state, plus the number of times TCP connections have made a direct transition to the LISTEN state from the SYN-RCVD state.

tcpEstabResets 1.3.6.1.2.1.6.8

The number of times TCP connections have made a direct transition to the CLOSED state from either the ESTABLISHED state or the CLOSE-WAIT state.

tcpCurrEstab 1.3.6.1.2.1.6.9

The number of TCP connections for which the current state is either ESTABLISHED or CLOSE-WAIT.

tcpInSegs 1.3.6.1.2.1.6.10

The total number of segments received, including those received in error. This count includes segments received on currently established connections.

tcpOutSegs 1.3.6.1.2.1.6.11

The total number of segments sent, including those on current connections but excluding those containing only retransmitted octets.

tcpRetransSegs 1.3.6.1.2.1.6.12

The total number of segments retransmitted; that is, the number of TCP segments transmitted containing one or more previously transmitted octets.

TCP Connection Table

The TCP connection table contains information about this entity's existing TCP connections.

tcpConnTable 1.3.6.1.2.1.6.13

A table containing TCP connection-specific information.

tcpConnEntry 1.3.6.1.2.1.6.13.1

Information about a particular current TCP connection. An object of this type is transient, in that it ceases to exist when (or soon after) the connection makes the transition to the CLOSED state.

Index tcpConnLocalAddress, tcpConnLocalPort, tcpConnRemAddress, tcpConnRemPort

tcpConnState 1.3.6.1.2.1.6.13.1.1

The state of this TCP connection.

The only value that might be set by a management station is deleteTCB (12). Accordingly, it is appropriate for an agent to return a badValue response if a management station attempts to set this object to any other value.

If a management station sets this object to the value delete12 (TCB), then this has the effect of deleting the TCB (as defined in RFC 793) of the corresponding connection on the managed node, resulting in immediate termination of the connection.

As an implementation-specific option, a RST segment might be sent from the managed node to the other TCP endpoint (note, however, that RST segments are not sent reliably).

Values Possible values are:

- closed
- listen
- synSent (3)
- synReceived (4)
- established (5)
- finWait1 (6)
- finWait2 (7)
- closeWait (8)
- lastAck (9)
- closing (10)
- timeWait (11)
- deleteTCB (12)

Note

Fabric OS v3.1.x and v4.x do not allow the SET operation on this variable.

tcpConnLocalAddress 1.3.6.1.2.1.6.13.1.2

The local IP address for this TCP connection. In the case of a connection in the listen state that is willing to accept connections for any IP interface associated with the node, the value 0.0.0.0 is used.

tcpConnLocalPort 1.3.6.1.2.1.6.13.1.3

The local port number for this TCP connection.

tcpConnRemAddress 1.3.6.1.2.1.6.13.1.4

The remote IP address for this TCP connection.

tcpConnRemPort 1.3.6.1.2.1.6.13.1.5

The remote port number for this TCP connection.

tcpInErrs 1.3.6.1.2.1.6.14

The total number of segments received in error (for example, bad TCP checksums).

tcpOutRsts 1.3.6.1.2.1.6.15

The number of TCP segments sent containing the RST flag.

UDP Group

Implementation of the UDP group is mandatory for all systems that implement the UDP.

udpInDatagrams 1.3.6.1.2.1.7.1

The total number of UDP datagrams delivered to UDP users.

udpNoPorts 1.3.6.1.2.1.7.2

The total number of received UDP datagrams for which there was no application at the destination port.

udpInErrors 1.3.6.1.2.1.7.3

The number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port.

udpOutDatagrams 1.3.6.1.2.1.7.4

The total number of UDP datagrams sent from this entity.

udpTable 1.3.6.1.2.1.7.5

The UDP listener table contains information about this entity's UDP end-points on which a local application is currently accepting datagrams.

udpEntry 1.3.6.1.2.1.7.5.1

Information about a particular current UDP listener.

Index udpLocalAddress, udpLocalPort

udpLocalAddress 1.3.6.1.2.1.7.5.1.1

The local IP address for this UDP listener. In the case of a UDP listener that is willing to accept datagrams for any IP interface associated with the node, the value 0.0.0.0 is used.

udpLocalPort 1.3.6.1.2.1.7.5.1.2

The local port number for this UDP listener.

EGP Group

Brocade does not support the EGP Group. This section is not applicable. Refer to the RFC1213 for complete information regarding the EGP Group.

Transmission Group

Brocade does not support the Transmission Group. This section is not applicable. Refer to the RFC1213 for complete information regarding the Transmission Group.

SNMP Group

Implementation of the SNMP group is mandatory for all systems that support an SNMP protocol entity. Some of the objects defined next are zero-valued in those SNMP implementations that are optimized to support only those functions specific to either a management agent or a management station. All of the objects that follow refer to an SNMP entity, and there might be several SNMP entities residing on a managed node (for example, if the node is acting as a management station).

snmpInPkts 1.3.6.1.2.1.11.1

The total number of messages delivered to the SNMP entity from the transport service.

snmpOutPkts 1.3.6.1.2.1.11.2

The total number of SNMP messages that were passed from the SNMP protocol entity to the transport service.

snmpInBadVersions 1.3.6.1.2.1.11.3

The total number of SNMP messages that were delivered to the SNMP protocol entity and were for an unsupported SNMP version.

snmpInBadCommunityNames 1.3.6.1.2.1.11.4

The total number of SNMP messages delivered to the SNMP protocol entity that used a SNMP community name not known to said entity.

snmplnBadCommunityUses 1.3.6.1.2.1.11.5

The total number of SNMP messages delivered to the SNMP protocol entity that represented an SNMP operation that was not allowed by the SNMP community named in the message.

snmplnASNParseErrs 1.3.6.1.2.1.11.6

The total number of ASN.1 or BER errors encountered by the SNMP protocol entity when decoding received SNMP messages.

Note

1.3.6.1.2.1.11.7 is not used.

snmplnTooBig 1.3.6.1.2.1.11.8

The total number of SNMP PDUs that were delivered to the SNMP protocol entity and for which the value of the error-status field is “tooBig.”

snmplnNoSuchNames 1.3.6.1.2.1.11.9

The total number of SNMP PDUs that were delivered to the SNMP protocol entity and for which the value of the error-status field is “noSuchName.”

snmplnBadValues 1.3.6.1.2.1.11.10

The total number of SNMP PDUs that were delivered to the SNMP protocol entity and for which the value of the error-status field is “badValue.”

snmplnReadOnly 1.3.6.1.2.1.11.11

The total number valid SNMP PDUs that were delivered to the SNMP protocol entity and for which the value of the error-status field is “readOnly.”

It is a protocol error to generate an SNMP PDU that contains the value “readOnly” in the error-status field; as such, this object is provided as a means of detecting incorrect implementations of the SNMP.

snmplnGenErrs 1.3.6.1.2.1.11.12

The total number of SNMP PDUs that were delivered to the SNMP protocol entity and for which the value of the error-status field is “genErr.”

snmplnTotalReqVars 1.3.6.1.2.1.11.13

The total number of MIB objects that have been retrieved successfully by the SNMP protocol entity as the result of receiving valid SNMP Get-Request and Get-Next PDUs.

snmplnTotalSetVars 1.3.6.1.2.1.11.14

The total number of MIB objects that have been altered successfully by the SNMP protocol entity as the result of receiving valid SNMP Set-Request PDUs.

snmplnGetRequests 1.3.6.1.2.1.11.15

Status Mandatory

The total number of SNMP Get-Request PDUs that have been accepted and processed by the SNMP protocol entity.

snmplnGetNexts 1.3.6.1.2.1.11.16

The total number of SNMP Get-Next PDUs that have been accepted and processed by the SNMP protocol entity.

snmplnSetRequests 1.3.6.1.2.1.11.17

The total number of SNMP Set-Request PDUs that have been accepted and processed by the SNMP protocol entity.

snmplnGetResponses 1.3.6.1.2.1.11.18

The total number of SNMP Get-Response PDUs that have been accepted and processed by the SNMP protocol entity.

snmplnTraps 1.3.6.1.2.1.11.19

The total number of SNMP Trap PDUs that have been accepted and processed by the SNMP protocol entity.

snmpOutTooBigs 1.3.6.1.2.1.11.20

The total number of SNMP PDUs that were generated by the SNMP protocol entity and for which the value of the error-status field is too large.

snmpOutNoSuchNames 1.3.6.1.2.1.11.21

The total number of SNMP PDUs that were generated by the SNMP protocol entity and for which the value of the error-status field is "noSuchName."

snmpOutBadValues 1.3.6.1.2.1.11.22

The total number of SNMP PDUs that were generated by the SNMP protocol entity and for which the value of the error-status field is “badValue.”

Note

1.3.6.1.2.1.11.23 is not used.

snmpOutGenErrs 1.3.6.1.2.1.11.24

The total number of SNMP PDUs that were generated by the SNMP protocol entity and for which the value of the error-status field is “genErr.”

snmpOutGetRequests 1.3.6.1.2.1.11.25

The total number of SNMP Get-Request PDUs that have been generated by the SNMP protocol entity.

snmpOutGetNexts 1.3.6.1.2.1.11.26

The total number of SNMP Get-Next PDUs that have been generated by the SNMP protocol entity.

snmpOutSetRequests 1.3.6.1.2.1.11.27

The total number of SNMP Set-Request PDUs that have been generated by the SNMP protocol entity.

snmpOutGetResponses 1.3.6.1.2.1.11.28

The total number of SNMP Get-Response PDUs that have been generated by the SNMP protocol entity.

snmpOutTraps 1.3.6.1.2.1.11.29

The total number of SNMP Trap PDUs that have been generated by the SNMP protocol entity.

snmpEnableAuthenTraps 1.3.6.1.2.1.11.30

Indicates whether the SNMP agent process is permitted to generate authentication-failure traps. The value of this object overrides any configuration information; as such, it provides a means whereby all authentication-failure traps might be disabled.

Values Possible values are:

- enabled (1)
- disabled (2)

This object is stored in nonvolatile memory so that it remains constant between reinitializations of the switch. This value can be changed with the **agtCfgSet** command.

FE MIB Objects

This chapter provides descriptions and other information specific to FE MIB object types and includes the following information:

- [“FE MIB Overview”](#) next
- [“FIBRE-CHANNEL-FE-MIB \(MIB-II branch\)”](#) on page 3-1
- [“FCFABRIC-ELEMENT-MIB \(Experimental Branch\)”](#) on page 3-24

FE MIB Overview

Brocade supports two versions of the FE MIB:

- **FIBRE-CHANNEL-FE-MIB (RFC2837)** in the **MIB-II** branch.
- **FCFABRIC-ELEMENT-MIB** in the **experimental** branch.

The version of the FE MIB supported depends on the version of the Fabric OS. [Table 3-1](#) lists which FE MIB is supported in which Fabric OS version.

Table 3-1 FE MIBs and supported Fabric OS versions

MIB	v5.x	v4.x	v3.1.x	v3.0.x	v2.6.x
FIBRE-CHANNEL-FE-MIB (MIB-II branch)	Yes	Yes	Yes	Yes	No
FCFABRIC-ELEMENT-MIB (experimental branch)	No	No	No	Yes	Yes

FIBRE-CHANNEL-FE-MIB (MIB-II branch)

This section contains descriptions and other information specific to FIBRE-CHANNEL-FE-MIB (*in the MIB-II branch*), including:

- [“FIBRE-CHANNEL-FE-MIB Organization”](#) on page 3-2
- [“Definitions for FIBRE-CHANNEL-FE-MIB”](#) on page 3-5
- [“fcFeConfig Group”](#) on page 3-8
- [“fcFeStatus Group”](#) on page 3-13
- [“fcFeError Group”](#) on page 3-17
- [“feFcAccounting Group”](#) on page 3-19

- “fcFeCapability Group” on page 3-22

The descriptions of each of the MIB variables in this chapter come directly from the FIBRE-CHANNEL-FE-MIB itself. The notes that follow the descriptions typically pertain to Brocade-specific information and are provided by Brocade.



Note

Brocade does not support the settable “Write” function for any of the Fibre Channel FE MIB objects except fcFxPortPhyAdminStatus.

The object types in FIBRE-CHANNEL-FE-MIB are organized into the following groupings:

- Configuration
- Operational
- Error
- Accounting
- Capability

FIBRE-CHANNEL-FE-MIB Organization

Figure 3-1 through Figure 3-5 depict the organization and structure of FIBRE-CHANNEL-FE-MIB.

Figure 3-1 fcFeMIB Hierarchy

```
- iso
  - org
    - dod
      - internet
        - mgmt
          - mib-2
            - fcFeMIB
              - fcFeMIBObjects
                - fcFeConfig
                - fcFeStatus
                - fcFeError
                - fcFeAccounting
                - fcFeCapabilities
              - fcFeMIBConformance
                - fcFeMIBCompliances
                - fcFeMIBGroups
```


Figure 3-2 fcFeConfig Hierarchy

```

- fcFeConfig
  - fcFeFabricName 1.3.6.1.2.1.75.1.1.1
  - fcFeElementName 1.3.6.1.2.1.75.1.1.2
  - fcFeModuleCapacity 1.3.6.1.2.1.75.1.1.3
  - fcFeModuleTable 1.3.6.1.2.1.75.1.1.4
    - fcFeModuleEntry 1.3.6.1.2.1.75.1.1.4.1
      - fcFeModuleIndex 1.3.6.1.2.1.75.1.1.4.1.1
      - fcFeModuleDescr 1.3.6.1.2.1.75.1.1.4.1.2
      - fcFeModuleObjectID 1.3.6.1.2.1.75.1.1.4.1.3
      - fcFeModuleOperStatus 1.3.6.1.2.1.75.1.1.4.1.4
      - fcFeModuleLastChange 1.3.6.1.2.1.75.1.1.4.1.5
      - fcFeModuleFxpPortCapacity 1.3.6.1.2.1.75.1.1.4.1.6
      - fcFeModuleName 1.3.6.1.2.1.75.1.1.4.1.7
  - fcFxpPortTable 1.3.6.1.2.1.75.1.1.5
    - fcFxpPortEntry 1.3.6.1.2.1.75.1.1.5.1
      - fcFxpPortIndex 1.3.6.1.2.1.75.1.1.5.1.1
      - fcFxpPortName 1.3.6.1.2.1.75.1.1.5.1.2
      - fcFxpPortFcphVersionHigh 1.3.6.1.2.1.75.1.1.5.1.3
      - fcFxpPortFcphVersionLow 1.3.6.1.2.1.75.1.1.5.1.4
      - fcFxpPortBbCredit 1.3.6.1.2.1.75.1.1.5.1.5
      - fcFxpPortRxBufSize 1.3.6.1.2.1.75.1.1.5.1.6
      - fcFxpPortRatov 1.3.6.1.2.1.75.1.1.5.1.7
      - fcFxpPortEdtov 1.3.6.1.2.1.75.1.1.5.1.8
      - fcFxpPortCosSupported 1.3.6.1.2.1.75.1.1.5.1.9
      - fcFxpPortIntermixSupported 1.3.6.1.2.1.75.1.1.5.1.10
      - fcFxpPortStackedConnMode 1.3.6.1.2.1.75.1.1.5.1.11
      - fcFxpPortClass2SeqDeliv 1.3.6.1.2.1.75.1.1.5.1.12
      - fcFxpPortClass3SeqDeliv 1.3.6.1.2.1.75.1.1.5.1.13
      - fcFxpPortHoldTime 1.3.6.1.2.1.75.1.1.5.1.14

```

Figure 3-3 fcFeStatus Hierarchy

```

- fcFeStatus
- fcFxpPortStatusTable 1.3.6.1.2.1.75.1.2.1
- fcFxpPortStatusEntry 1.3.6.1.2.1.75.1.2.1.1
- fcFxpPortID 1.3.6.1.2.1.75.1.2.1.1.1
- fcFxpPortBbCreditAvailable 1.3.6.1.2.1.75.1.2.1.1.2
- fcFxpPortOperMode 1.3.6.1.2.1.75.1.2.1.1.3
- fcFxpPortAdminMode 1.3.6.1.2.1.75.1.2.1.1.4
- fcFxpPortPhysTable 1.3.6.1.2.1.75.1.2.2
- fcFxpPortPhysEntry 1.3.6.1.2.1.75.1.2.2.1
- fcFxpPortPhysAdminStatus 1.3.6.1.2.1.75.1.2.2.1.1
- fcFxpPortPhysOperStatus 1.3.6.1.2.1.75.1.2.2.1.2
- fcFxpPortPhysLastChange 1.3.6.1.2.1.75.1.2.2.1.3
- fcFxpPortPhysRttov 1.3.6.1.2.1.75.1.2.2.1.4
- fcFxploginTable 1.3.6.1.2.1.75.1.2.3
- fcFxploginEntry 1.3.6.1.2.1.75.1.2.3.1
- fcFxpPortNxLoginIndex 1.3.6.1.2.1.75.1.2.3.1.1
- fcFxpPortFcphVersionAgreed 1.3.6.1.2.1.75.1.2.3.1.2
- fcFxpPortNxPortBbCredit 1.3.6.1.2.1.75.1.2.3.1.3
- fcFxpPortNxPortRxDataFieldSize 1.3.6.1.2.1.75.1.2.3.1.4
- fcFxpPortCosSuppAgreed 1.3.6.1.2.1.75.1.2.3.1.5
- fcFxpPortIntermixSuppAgreed 1.3.6.1.2.1.75.1.2.3.1.6
- fcFxpPortStackedConnModeAgreed 1.3.6.1.2.1.75.1.2.3.1.7
- fcFxpPortClass2SeqDelivAgreed 1.3.6.1.2.1.75.1.2.3.1.8
- fcFxpPortClass3SeqDelivAgreed 1.3.6.1.2.1.75.1.2.3.1.9
- fcFxpPortNxPortName 1.3.6.1.2.1.75.1.2.3.1.10
- fcFxpPortConnectedNxPort 1.3.6.1.2.1.75.1.2.3.1.11
- fcFxpPortBbCreditModel 1.3.6.1.2.1.75.1.2.3.1.12

```

Figure 3-4 fcFeError Hierarchy

```

- fcFeError
- fcFxpPortErrorTable 1.3.6.1.2.1.75.1.3.1
- fcFxpPortErrorEntry 1.3.6.1.2.1.75.1.3.1.1
- fcFxpPortLinkFailures 1.3.6.1.2.1.75.1.3.1.1.1
- fcFxpPortSyncLosses 1.3.6.1.2.1.75.1.3.1.1.2
- fcFxpPortSigLosses 1.3.6.1.2.1.75.1.3.1.1.3
- fcFxpPortPrimSeqProtoErrors 1.3.6.1.2.1.75.1.3.1.1.4
- fcFxpPortInvalidTxWords 1.3.6.1.2.1.75.1.3.1.1.5
- fcFxpPortInvalidCrcs 1.3.6.1.2.1.75.1.3.1.1.6
- fcFxpPortDelimiterErrors 1.3.6.1.2.1.75.1.3.1.1.7
- fcFxpPortAddressIdErrors 1.3.6.1.2.1.75.1.3.1.1.8
- fcFxpPortLinkResetIns 1.3.6.1.2.1.75.1.3.1.1.9
- fcFxpPortLinkResetOuts 1.3.6.1.2.1.75.1.3.1.1.10
- fcFxpPortOlsIns 1.3.6.1.2.1.75.1.3.1.1.11
- fcFxpPortOlsOuts 1.3.6.1.2.1.75.1.3.1.1.12

```

Figure 3-5 fcFeAccounting Hierarchy

```

- fcFeAccounting
  - fcFxpPortC1AccountingTable 1.3.6.1.2.1.75.1.4.1
    - fcFxpPortC1AccountingEntry 1.3.6.1.2.1.75.1.4.1.1
      - fcFxpPortC1InFrames 1.3.6.1.2.1.75.1.4.1.1.1
      - fcFxpPortC1OutFrames 1.3.6.1.2.1.75.1.4.1.1.2
      - fcFxpPortC1InOctets 1.3.6.1.2.1.75.1.4.1.1.3
      - fcFxpPortC1OutOctets 1.3.6.1.2.1.75.1.4.1.1.4
      - fcFxpPortC1Discards 1.3.6.1.2.1.75.1.4.1.1.5
      - fcFxpPortC1FbsyFrames 1.3.6.1.2.1.75.1.4.1.1.6
      - fcFxpPortC1FrjtFrames 1.3.6.1.2.1.75.1.4.1.1.7
      - fcFxpPortC1InConnections 1.3.6.1.2.1.75.1.4.1.1.8
      - fcFxpPortC1OutConnections 1.3.6.1.2.1.75.1.4.1.1.9
      - fcFxpPortC1ConnTime 1.3.6.1.2.1.75.1.4.1.1.10
    - fcFxpPortC2AccountingTable 1.3.6.1.2.1.75.1.4.2
      - fcFxpPortC2AccountingEntry 1.3.6.1.2.1.75.1.4.2.1
        - fcFxpPortC2InFrames 1.3.6.1.2.1.75.1.4.2.1.1
        - fcFxpPortC2OutFrames 1.3.6.1.2.1.75.1.4.2.1.2
        - fcFxpPortC2InOctets 1.3.6.1.2.1.75.1.4.2.1.3
        - fcFxpPortC2OutOctets 1.3.6.1.2.1.75.1.4.2.1.4
        - fcFxpPortC2Discards 1.3.6.1.2.1.75.1.4.2.1.5
        - fcFxpPortC2FbsyFrames 1.3.6.1.2.1.75.1.4.2.1.6
        - fcFxpPortC2FrjtFrames 1.3.6.1.2.1.75.1.4.2.1.7
      - fcFxpPortC3AccountingTable 1.3.6.1.2.1.75.1.4.3
        - fcFxpPortC3AccountingEntry 1.3.6.1.2.1.75.1.4.3.1
          - fcFxpPortC3InFrames 1.3.6.1.2.1.75.1.4.3.1.1
          - fcFxpPortC3OutFrames 1.3.6.1.2.1.75.1.4.3.1.2
          - fcFxpPortC3InOctets 1.3.6.1.2.1.75.1.4.3.1.3
          - fcFxpPortC3OutOctets 1.3.6.1.2.1.75.1.4.3.1.4
          - fcFxpPortC3Discards 1.3.6.1.2.1.75.1.4.3.1.5

```

Figure 3-6 fcFeCapabilities Hierarchy

```

- fcFeCapabilities
  - fcFxpPortCapTable 1.3.6.1.2.1.75.1.5.1
    - fcFxpPortCapEntry 1.3.6.1.2.1.75.1.5.1.1
      - fcFxpPortCapFcphVersionHigh 1.3.6.1.2.1.75.1.5.1.1.1
      - fcFxpPortCapFcphVersionLow 1.3.6.1.2.1.75.1.5.1.1.2
      - fcFxpPortCapBbCreditMax 1.3.6.1.2.1.75.1.5.1.1.3
      - fcFxpPortCapBbCreditMin 1.3.6.1.2.1.75.1.5.1.1.4
      - fcFxpPortCapRxDataFieldSizeMax 1.3.6.1.2.1.75.1.5.1.1.5
      - fcFxpPortCapRxDataFieldSizeMin 1.3.6.1.2.1.75.1.5.1.1.6
      - fcFxpPortCapCos 1.3.6.1.2.1.75.1.5.1.1.7
      - fcFxpPortCapIntermix 1.3.6.1.2.1.75.1.5.1.1.8
      - fcFxpPortCapStackedConnMode 1.3.6.1.2.1.75.1.5.1.1.9
      - fcFxpPortCapClass2SeqDeliv 1.3.6.1.2.1.75.1.5.1.1.10
      - fcFxpPortCapClass3SeqDeliv 1.3.6.1.2.1.75.1.5.1.1.11
      - fcFxpPortCapHoldTimeMax 1.3.6.1.2.1.75.1.5.1.1.12
      - fcFxpPortCapHoldTimeMin 1.3.6.1.2.1.75.1.5.1.1.13

```

Definitions for FIBRE-CHANNEL-FE-MIB

The following definitions are used for fcFeMIB.

Table 3-2 FIBRE-CHANNEL-FE-MIB Definitions

Type Definition	Value	Description
Display string	Octet string of size 0 to 255	Represents textual information taken from the NVT ASCII character set, as defined in pages 4, 10-11 of RFC 854.
Milliseconds	Integer from 0 to 2147383647	Represents time unit value in milliseconds.
Microseconds	Integer from 0 to 2147383647	Represents time unit value in microseconds.
FcNameId	Octet string of size 8	World Wide Name or Fibre Channel name associated with an FC entity. It is a Network_Destination_ID or Network_Source_ID composed of a value up to 60 bits wide, occupying the remaining 8 bytes while the first nibble identifies the format of the Name_Identifier. Name_Identifier hex values: 0 (ignored) 1 (IEEE 48-bit address) 2 (IEEE extended) 3 (locally assigned) 4 (32-bit IP address)
FabricName	Octet string of size 8	The name identifier of a fabric. Each fabric provides a unique fabric name. Valid formats include: IEEE 48 Local
FcPortName	Octet string of size 8	The name identifier associated with a port. Valid formats include: IEEE 48 IEEE extended Local
FcAddressId	Octet string of size 3	A 24-bit value unique within the address space of a fabric.
FcRxDataFieldSize	Integer from 128 to 2112	Receive data field size of an Nx_Port or Fx_Port.
FcBbCredit	Integer from 0 to 32767	Buffer-to-buffer credit of an Nx_Port or Fx_Port.
FcphVersion	Integer from 0 to 255	Version of FC-PH supported by an Nx_Port or Fx_Port.
FcStackedConnMode	Integer from 1 to 3	Indicates the Class 1 Stacked Connect Mode supported by an Nx_Port or Fx_Port. 1 (none) 2 (transparent) 3 (lockedDown)

Table 3-2 FIBRE-CHANNEL-FE-MIB Definitions (Continued)

Type Definition	Value	Description
FcCosCap	Integer from 1 to 127	Class of service capability of an Nx_Port or Fx_Port. bit 0 (Class F) bit 1 (Class 1) bit 2 (Class 2) bit 3 (Class 3) bit 4 (Class 4) bit 5 (Class 5) bit 6 (Class 6) bit 7 (reserved for future)
Fc0BaudRate	Integer according to FC-0 baud rates	1 (other) None of below 2 (one-eighth) 155 Mbaud (12.5 MB/s) 4 (quarter) 266 Mbaud (25.0 MB/s) 8 (half) 532 Mbaud (50.0 MB/s) 16 (full) 1 Gbaud (100 MB/s) 32 (double) 2 Gbaud (200 MB/s) 64 (quadruple) 4 Gbaud (400 MB/s)
Fc0BaudRateCap	Integer from 0 to 127	bit 0 (other) bit 1 (one-eighth) bit 2 (quarter) bit 3 (half) bit 4 (full) bit 5 (double) bit 6 (quadruple) bit 7 (Reserved for future)
Fc0MediaCap	Integer from 0 to 65535	bit 0 (unknown) bit 1 (single mode fibre (sm)) bit 2 (multimode fibre 50 micron (m5)) bit 3 (multimode fibre 62.5 micron (m6)) bit 4 (video cable (tv)) bit 5 (miniature cable (mi)) bit 6 (shielded twisted pair (stp)) bit 7 (twisted wire (tw)) bit 8 (long video (lv)) bits 9-15 (Reserved for future use)
Fc0Medium	Integer	1 (unknown) 2 (sm) 4 (m5) 8 (m6) 16 (tv) 32 (mi) 64 (stp) 128 (tw) 256 (lv)

Table 3-2 FIBRE-CHANNEL-FE-MIB Definitions (Continued)

Type Definition	Value	Description
Fc0TxType	Integer	1 (unknown) 2 (longWaveLaser (LL)) 3 (shortWaveLaser (SL)) 4 (longWaveLED (LE)) 5 (electrical (EL)) 6 (shortWaveLaser-noOFC (SN))
Fc0Distance	Integer	The FC-0 distance range associated with a port transmitter: 1 (unknown) 2 (long) 3 (intermediate) 4 (short)
FcFeModuleCapacity	Integer from 1 to 256	Maximum number of modules within a fabric element; returns 1 for all devices.
FcFeFxPortCapacity	Integer from 1 to 256	Maximum number of Fx_Ports within a module. For the SilkWorm 3250, this value is 8. For the SilkWorm 4012, this value is 12. For the SilkWorm 200E, 3850, this value is 16. For the SilkWorm 3900 and 4100, this value is 32. For the SilkWorm 4900, this value is 64. For the SilkWorm 12000, this value is 128. For the SilkWorm 24000, this value is 128. For the SilkWorm 48000, this value is 256.
FcFeModuleIndex	Integer from 1 to 256	Module index within a conceptual table.
FcFeFxPortIndex	Integer from 1 to 256	Fx_Port index within a conceptual table.
FcFeNxPortIndex	Integer from 1 to 256	Nx_Port index within a conceptual table.
FcFxPortMode	Integer	1 (unknown) 2 (F_Port) 3 (FL_Port)
FcBbCreditModel	Integer	BB_Credit model of an Fx_Port. 1 (regular) 2 (alternate)

fcFeConfig Group

This group consists of scalar objects and tables. It contains the configuration and service parameters of the fabric element and the Fx_Ports.

The group represents a set of parameters associated with the fabric element or an Fx_Port to support its Nx_Ports.

fcFeFabricName 1.3.6.1.2.1.75.1.1.1

The Name_Identifier of the Fabric to which this Fabric Element belongs.

Returns Displays the WWN of the primary switch in the fabric.

fcFeElementName 1.3.6.1.2.1.75.1.1.2

The Name_Identifier of the fabric element.

Returns Displays the WWN of the switch.

fcFeModuleCapacity 1.3.6.1.2.1.75.1.1.3

The maximum number of modules in the fabric element, regardless of their current state.

Value The valid value for all SilkWorm switches is 1.

fcFeModuleTable 1.3.6.1.2.1.75.1.1.4

A table that contains information about the modules, one entry for each module in the fabric element.

fcFeModuleEntry 1.3.6.1.2.1.75.1.1.4.1

An entry containing the configuration parameters of a module.

Index 1: fcFeModuleIndex

fcFeModuleIndex 1.3.6.1.2.1.75.1.1.4.1.1

Identifies the module within the fabric element for which this entry contains information. This value is never greater than fcFeModuleCapacity.

fcFeModuleDescr 1.3.6.1.2.1.75.1.1.4.1.2

A textual description of the module. This value should include the full name and version identification of the module. It should contain printable ASCII characters.

See “[sysDescr 1.3.6.1.2.1.1.1](#)” on page 2-8.

fcFeModuleObjectID 1.3.6.1.2.1.75.1.1.4.1.3

The vendor's authoritative identification of the module. This value might be allocated within the SMI enterprises subtree (1.3.6.1.4.1) and provides a straightforward and unambiguous means for determining what kind of module is being managed.

For example, this object could take the value 1.3.6.1.4.1.99649.3.9 if vendor "Neufe Inc." was assigned the subtree 1.3.6.1.4.1.99649 and had assigned the identifier 1.3.6.1.4.1.99649.3.9 to its "FeFiFo-16 PlugInCard."

See "[sysObjectID 1.3.6.1.2.1.1.2](#)" on page 2-8.

fcFeModuleOperStatus 1.3.6.1.2.1.75.1.1.4.1.4

Indicates the operational status of the module.

Values Valid values are:

- 1: online(1)
- 2: offline(2)
- 3: testing(3)
- 4: faulty(4)

fcFeModuleLastChange 1.3.6.1.2.1.75.1.1.4.1.5

Contains the value of sysUpTime when the module entered its current operational status. A value of 0 indicates that the operational status of the module has not changed since the agent last restarted.

fcFeModuleFxPortCapacity 1.3.6.1.2.1.75.1.1.4.1.6

The number of Fx_Ports that can be contained within the module. Within each module, the ports are uniquely numbered in the range from 1 to fcFeModuleFxPortCapacity, inclusive. However, the numbers are not required to be contiguous.

Values Valid values are:

SilkWorm 3200, 3250	8 ports
SilkWorm 4012	12 ports
SilkWorm 200E, 3800, 3850	16 ports
SilkWorm 3900, 4100	32 ports
SilkWorm 4900	64 ports
SilkWorm 7500	32 ports
SilkWorm 12000 / 24000	128 ports
SilkWorm 48000	256 ports

fcFeModuleName 1.3.6.1.2.1.75.1.1.4.1.7

The Name_Identifier of the module.

Return Displays the WWN of the switch.

fcFxPortTable 1.3.6.1.2.1.75.1.1.5

A table that contains configuration and service parameters of the Fx_Ports, one entry for each Fx_Port in the fabric element.

fcFxPortEntry 1.3.6.1.2.1.75.1.1.5.1

An entry containing the configuration and service parameters of an Fx_Port.

Index 1: fcFeModuleIndex
2: fcFxPortIndex

fcFxPortIndex 1.3.6.1.2.1.75.1.1.5.1.1

Identifies the Fx_Port within the module. This number ranges from 1 to the value of fcFeModulePortCapacity for the associated module. The value remains constant for the identified Fx_Port until the module is reinitialized.

fcFxPortName 1.3.6.1.2.1.75.1.1.5.1.2

The World Wide Name of this Fx_Port. Each Fx_Port has a unique port World Wide Name within the fabric.

Return Displays the WWN of the port.

fcFxPortFcphVersionHigh 1.3.6.1.2.1.75.1.1.5.1.3

The highest or most recent version of FC-PH that the Fx_Port is configured to support.

fcFxPortFcphVersionLow 1.3.6.1.2.1.75.1.1.5.1.4

The lowest or earliest version of FC-PH that the Fx_Port is configured to support.

fcFxPortBbCredit 1.3.6.1.2.1.75.1.1.5.1.5

The total number of receive buffers available for holding Class 1 connect-request, and Class 2 or 3 frames from the attached Nx_Port. It is for buffer-to-buffer flow control in the direction from the attached Nx_Port (if applicable) to Fx_Port.

fcFxpPortRxBufSize 1.3.6.1.2.1.75.1.1.5.1.6

The largest Data_Field Size (in octets) for an FT_1 frame that can be received by the Fx_Port.

fcFxpPortRatov 1.3.6.1.2.1.75.1.1.5.1.7

The Resource_Allocation_Timeout value configured for the Fx_Port. This is used as the time-out value for determining when to reuse an Nx_Port resource such as a Recovery_Qualifier. It represents E_D_TOV (see “[fcFxpPortEdtov 1.3.6.1.2.1.75.1.1.5.1.8](#)” on page 3-12) plus twice the maximum time that a frame might be delayed within the fabric and still be delivered.

fcFxpPortEdtov 1.3.6.1.2.1.75.1.1.5.1.8

The E_D_TOV value configured for the Fx_Port. The Error_Detect_Timeout value is used as the time-out value for detecting an error condition.

fcFxpPortCosSupported 1.3.6.1.2.1.75.1.1.5.1.9

A value indicating the set of Classes of Service supported by the Fx_Port.

fcFxpPortIntermixSupported 1.3.6.1.2.1.75.1.1.5.1.10

A flag indicating whether the Fx_Port supports an Intermixed Dedicated Connection.

fcFxpPortStackedConnMode 1.3.6.1.2.1.75.1.1.5.1.11

A value indicating the mode of Stacked Connect supported by the Fx_Port.

fcFxpPortClass2SeqDeliv 1.3.6.1.2.1.75.1.1.5.1.12

A flag indicating whether Class 2 Sequential Delivery is supported by the Fx_Port.

fcFxpPortClass3SeqDeliv 1.3.6.1.2.1.75.1.1.5.1.13

A flag indicating whether Class 3 Sequential Delivery is supported by the Fx_Port.

fcFxpPortHoldTime 1.3.6.1.2.1.75.1.1.5.1.14

The maximum time (in microseconds) that the Fx_Port holds a frame before discarding the frame if it is unable to deliver the frame. The value 0 means that the Fx_Port does not support this parameter.

fcFeStatus Group

This group consists of tables that contain operational status and established service parameters for the fabric element and the attached Nx_Ports.

fcFxpPortStatusTable 1.3.6.1.2.1.75.1.2.1

A table that contains operational status and parameters of the Fx_Ports, one entry for each Fx_Port in the fabric element.

fcFxpPortStatusEntry 1.3.6.1.2.1.75.1.2.1.1

An entry containing operational status and parameters of an Fx_Port.

Augments 1: fcFxpPortEntry

fcFxpPortID 1.3.6.1.2.1.75.1.2.1.1.1

The address identifier by which this Fx_Port is identified within the fabric. The Fx_Port might assign its address identifier to its attached Nx_Port(s) during fabric login.

fcFxpPortBbCreditAvailable 1.3.6.1.2.1.75.1.2.1.1.2

The number of buffers currently available for receiving frames from the attached port in the buffer-to-buffer flow control. The value should be less than or equal to fcFxpPortBbCredit.

fcFxpPortOperMode 1.3.6.1.2.1.75.1.2.1.1.3

The current operational mode of the Fx_Port.

Values Possible values are:

- 1: unknown(1)
- 2: fPort(2)
- 3: flPort(3)

fcFxpPortAdminMode 1.3.6.1.2.1.75.1.2.1.1.4

The desired operational mode of the Fx_Port.

Fx_Port Physical Level Table

This table contains the physical level status and parameters of the Fx_Ports, one entry for each Fx_Port in the fabric element.

fcFxPortPhysTable 1.3.6.1.2.1.75.1.2.2

A table that contains the physical level status and parameters of the Fx_Ports, one entry for each Fx_Port in the fabric element.

fcFxPortPhysEntry 1.3.6.1.2.1.75.1.2.2.1

An entry containing physical level status and parameters of an Fx_Port.

fcFxPortPhysAdminStatus 1.3.6.1.2.1.75.1.2.2.1.1

The desired state of the Fx_Port. A management station might place the Fx_Port in a desired state by setting this object accordingly.

Values Possible values are:

- 1: online(1)
- 2: offline(2)
- 3: testing(3)

The testing state (3) indicates that no operational frames can be passed. When a fabric element initializes, all Fx_Ports start with fcFxPortPhysAdminStatus in the offline state (2). As the result of either explicit management action or per configuration information accessible by the fabric element, fcFxPortPhysAdminStatus is then changed to either the online (1) or testing (3) states or remains in the offline state (2).

fcFxPortPhysOperStatus 1.3.6.1.2.1.75.1.2.2.1.2

The current operational status of the Fx_Port.

Values Possible values are:

- 1: online(1)
- 2: offline(2)
- 3: testing(3)
- 4: linkFailure(4)

The testing state (3) indicates that no operational frames can be passed. If fcFxPortPhysAdminStatus is offline (2), then fcFxPortPhysOperStatus should be offline (2). If fcFxPortPhysAdminStatus is changed to online (1), then fcFxPortPhysOperStatus should change to online (1) if the Fx_Port is ready to accept fabric login request from the attached Nx_Port; it should proceed and remain in the linkFailure (4) state only if there is a fault that prevents it from going to the online state (1).

fcFxPortPhysLastChange 1.3.6.1.2.1.75.1.2.2.1.3

The value of sysUpTime at the time the Fx_Port entered its current operational status. A value of 0 indicates that the Fx_Port operational status has not changed since the agent last restarted.

fcFxPortPhysRttov 1.3.6.1.2.1.75.1.2.2.1.4

The Receiver_Transmitter_Timeout value of the Fx_Port. This is used by the receiver logic to detect loss of synchronization. This value is displayed in milliseconds.

Note

This object is read-only. It is listed incorrectly in the MIB definition as read-write.

Fx_Port Fabric Login Table

This table contains one entry for each Fx_Port in the fabric element and the service parameters that have been established from the most recent fabric login, whether implicit or explicit.

fcFxloginTable 1.3.6.1.2.1.75.1.2.3

A table that contains services parameters established from the most recent fabric login, explicit or implicit, one entry for each Fx_Port in the fabric element.

fcFxloginEntry 1.3.6.1.2.1.75.1.2.3.1

An entry containing service parameters established from a successful fabric login.

Indexes	1: fcFeModuleIndex
	2: fcFxPortIndex
	3: fcFxPortNxLoginIndex

fcFxPortNxLoginIndex 1.3.6.1.2.1.75.1.2.3.1.1

The associated Nx_Port in the attachment for which the entry contains information.

fcFxPortFcphVersionAgreed 1.3.6.1.2.1.75.1.2.3.1.2

The version of FC-PH that the Fx_Port has agreed to support from the fabric login.

fcFxPortNxPortBbCredit 1.3.6.1.2.1.75.1.2.3.1.3

The total number of buffers available for holding Class 1 connect-request, and Class 2 or Class 3 frames to be transmitted to the attached Nx_Port. It is for buffer-to-buffer flow control in the direction from Fx_Port to Nx_Port. The buffer-to-buffer flow control mechanism is indicated in the respective fcFxPortBbCreditModel.

fcFxpPortNxPortRxDataFieldSize 1.3.6.1.2.1.75.1.2.3.1.4

The Receive Data Field Size of the attached Nx_Port. This is a binary value that specifies the largest Data Field Size for an FT_1 frame that can be received by the Nx_Port. The value is a number of bytes in the range 128 to 2112, inclusive.

fcFxpPortCosSuppAgreed 1.3.6.1.2.1.75.1.2.3.1.5

Indicates that the attached Nx_Port has requested the Fx_Port for the support of classes of services and the Fx_Port has granted the request.

fcFxpPortIntermixSuppAgreed 1.3.6.1.2.1.75.1.2.3.1.6

A variable indicating that the attached Nx_Port has requested the Fx_Port for Intermix support, and the Fx_Port has granted the request. This flag is only valid if Class 1 service is supported.

fcFxpPortStackedConnModeAgreed 1.3.6.1.2.1.75.1.2.3.1.7

Indicates whether the Fx_Port has agreed to support stacked connect from the fabric login. This is only meaningful if Class 1 service has been agreed to.

fcFxpPortClass2SeqDelivAgreed 1.3.6.1.2.1.75.1.2.3.1.8

Indicates whether the Fx_Port has agreed to support Class 2 sequential delivery from the fabric login. This is only meaningful if Class 2 service has been agreed to.

Values Possible values are:

- yes (1) The Fx_Port has agreed to support Class 2 sequential delivery from the fabric login.
- no (2) The Fx_Port has not agreed to support Class 2 sequential delivery from the fabric login.

fcFxpPortClass3SeqDelivAgreed 1.3.6.1.2.1.75.1.2.3.1.9

A flag indicating whether the Fx_Port has agreed to support Class 3 sequential delivery from the fabric login. This is only meaningful if Class 3 service has been agreed to.

Values Possible values are:

- yes (1) The Fx_Port has agreed to support Class 3 sequential delivery from the fabric login.
- no (2) The Fx_Port has not agreed to support Class 3 sequential delivery from the fabric login.

fcFxpPortNxPortName 1.3.6.1.2.1.75.1.2.3.1.10

The port name of the attached Nx_Port, if applicable. If the value of this object is '0000000000000000'H, this Fx_Port has no Nx_Port attached to it.

fcFxpPortConnectedNxPort 1.3.6.1.2.1.75.1.2.3.1.11

The address identifier of the destination Fx_Port with which this Fx_Port is currently engaged in either a Class 1 or loop connection. If the value of this object is '000000'H, this Fx_Port is not engaged in a connection.

fcFxpPortBbCreditModel 1.3.6.1.2.1.75.1.2.3.1.12

Identifies the BB_Credit model used by the Fx_Port. The regular model refers to the buffer-to-buffer flow control mechanism defined in FC-PH [1] used between the F_Port and the N_Port. For FL_Ports, the alternate buffer-to-buffer flow control mechanism as defined in FC-AL [4] is used between the FL_Port and any attached NL_Ports.

fcFeError Group

This group consists of tables that contain information about the various types of errors detected. The management station might use the information in this group to determine the quality of the link between the Fx_Port and its attached Nx_Port.

Implementation of this group is optional.

fcFxpPortErrorTable 1.3.6.1.2.1.75.1.3.1

A table that contains counters that record the numbers of errors detected, one entry for each Fx_Port.

This table contains counters recording numbers of errors detected since the management agent reinitialized, one entry for each Fx_Port in the fabric element.

The first six columnar objects after the port index correspond to the counters in the link error status block.

fcFxpPortErrorEntry 1.3.6.1.2.1.75.1.3.1.1

An entry containing error counters of a Fx_Port.

Augments 1: fcFxpPortEntry

fcFxpPortLinkFailures 1.3.6.1.2.1.75.1.3.1.1.1

The number of link failures detected by this Fx_Port.

fcFxpPortSyncLosses 1.3.6.1.2.1.75.1.3.1.1.2

The number of loss of synchronization errors detected by the Fx_Port.

fcFxPortSigLosses 1.3.6.1.2.1.75.1.3.1.1.3

The number of loss of signal errors detected by the Fx_Port.

fcFxPortPrimSeqProtoErrors 1.3.6.1.2.1.75.1.3.1.1.4

The number of primitive sequence protocol errors detected by the Fx_Port.

fcFxPortInvalidTxWords 1.3.6.1.2.1.75.1.3.1.1.5

The number of invalid transmission word errors detected by the Fx_Port.

fcFxPortInvalidCrcs 1.3.6.1.2.1.75.1.3.1.1.6

The number of invalid cyclic redundancy checks (CRC) detected by this Fx_Port.

fcFxPortDelimiterErrors 1.3.6.1.2.1.75.1.3.1.1.7

The number of delimiter errors detected by this Fx_Port.

fcFxPortAddressIdErrors 1.3.6.1.2.1.75.1.3.1.1.8

The number of address identifier errors detected by this Fx_Port.

fcFxPortLinkResetIns 1.3.6.1.2.1.75.1.3.1.1.9

The number of Link Reset Protocol errors received by this Fx_Port from the attached Nx_Port.

fcFxPortLinkResetOuts 1.3.6.1.2.1.75.1.3.1.1.10

The number of Link Reset Protocol errors issued by this Fx_Port to the attached Nx_Port.

fcFxPortOlsIns 1.3.6.1.2.1.75.1.3.1.1.11

The number of Offline Sequence errors received by this Fx_Port.

fcFxPortOlsOuts 1.3.6.1.2.1.75.1.3.1.1.12

The number of Offline Sequence issued by this Fx_Port.

feFcAccounting Group

The Accounting group is supported only in Fabric OS v4.x.

The Accounting group consists of the following tables:

- Class 1 accounting table
- Class 2 accounting table
- Class 3 accounting table

Each table contains accounting information for the Fx_Ports in the fabric element.

fcFxPortC1AccountingTable 1.3.6.1.2.1.75.1.4.1

A table that contains Class 1 accounting information recorded since the management agent reinitialized, one entry for each Fx_Port in the fabric element.

fcFxPortC1AccountingEntry 1.3.6.1.2.1.75.1.4.1.1

An entry containing Class 1 accounting information for each Fx_Port.

Augments: 1: fcFxPortEntry

fcFxPortC1InFrames 1.3.6.1.2.1.75.1.4.1.1.1

The number of Class 1 frames (other than Class 1 connect-request) received by this Fx_Port from its attached Nx_Port.

fcFxPortC1OutFrames 1.3.6.1.2.1.75.1.4.1.1.2

The number of Class 1 frames (other than Class 1 connect-request) delivered through this Fx_Port to its attached Nx_Port.

fcFxPortC1InOctets 1.3.6.1.2.1.75.1.4.1.1.3

The number of Class 1 frame octets, including the frame delimiters, received by this Fx_Port from its attached Nx_Port.

fcFxPortC1OutOctets 1.3.6.1.2.1.75.1.4.1.1.4

The number of Class 1 frame octets, including the frame delimiters, delivered through this Fx_Port its attached Nx_Port.

fcFxPortC1Discards 1.3.6.1.2.1.75.1.4.1.1.5

The number of Class 1 frames discarded by this Fx_Port.

fcFxpPortC1FbsyFrames 1.3.6.1.2.1.75.1.4.1.1.6

The number of F_BSY frames generated by this Fx_Port against Class 1 connect-request.

fcFxpPortC1FrjtFrames 1.3.6.1.2.1.75.1.4.1.1.7

The number of F_RJT frames generated by this Fx_Port against Class 1 connect-request.

fcFxpPortC1InConnections 1.3.6.1.2.1.75.1.4.1.1.8

The number of Class 1 connections successfully established in which the attached Nx_Port is the source of the connect-request.

fcFxpPortC1OutConnections 1.3.6.1.2.1.75.1.4.1.1.9

The number of Class 1 connections successfully established in which the attached Nx_Port is the destination of the connect-request.

fcFxpPortC1ConnTime 1.3.6.1.2.1.75.1.4.1.1.10

The cumulative time that this Fx_Port has been engaged in Class 1 connection. The amount of time is counted from after a connect-request has been accepted until the connection is disengaged, either by an EOFdt or Link Reset.

fcFxpPortC2AccountingTable 1.3.6.1.2.1.75.1.4.2

A table that contains Class 2 accounting information recorded since the management agent has reinitialized, one entry for each Fx_Port in the fabric element.

fcFxpPortC2AccountingEntry 1.3.6.1.2.1.75.1.4.2.1

An entry containing Class 2 accounting information for each Fx_Port.

Augments: 1: fcFxpPortEntry

fcFxpPortC2InFrames 1.3.6.1.2.1.75.1.4.2.1.1

The number of Class 2 frames received by this Fx_Port from its attached Nx_Port.

fcFxpPortC2OutFrames 1.3.6.1.2.1.75.1.4.2.1.2

The number of Class 2 frames delivered through this Fx_Port to its attached Nx_Port.

fcFxpPortC2InOctets 1.3.6.1.2.1.75.1.4.2.1.3

The number of Class 2 frame octets, including the frame delimiters, received by this Fx_Port from its attached Nx_Port.

fcFxpPortC2OutOctets 1.3.6.1.2.1.75.1.4.2.1.4

The number of Class 2 frame octets, including the frame delimiters, delivered through this Fx_Port to its attached Nx_Port.

fcFxpPortC2Discards 1.3.6.1.2.1.75.1.4.2.1.5

The number of Class 2 frames discarded by this Fx_Port.

fcFxpPortC2FbsyFrames 1.3.6.1.2.1.75.1.4.2.1.6

The number of F_BSY frames generated by this Fx_Port against Class 2 frames.

fcFxpPortC2FrjtFrames 1.3.6.1.2.1.75.1.4.2.1.7

The number of F_RJT frames generated by this Fx_Port against Class 2 frames.

fcFxpPortC3AccountingTable 1.3.6.1.2.1.75.1.4.3

A table that contains Class 3 accounting information recorded since the management agent has reinitialized, one entry for each Fx_Port in the fabric element.

fcFxpPortC3AccountingEntry 1.3.6.1.2.1.75.1.4.3.1

An entry containing Class 3 accounting information for each Fx_Port.

Augments: 1: fcFxpPortEntry

fcFxpPortC3InFrames 1.3.6.1.2.1.75.1.4.3.1.1

The number of Class 3 frames received by this Fx_Port from its attached Nx_Port.

fcFxpPortC3OutFrames 1.3.6.1.2.1.75.1.4.3.1.2

The number of Class 3 frames delivered through this Fx_Port to its attached Nx_Port.

fcFxpPortC3InOctets 1.3.6.1.2.1.75.1.4.3.1.3

The number of Class 3 frame octets, including the frame delimiters, received by this Fx_Port from its attached Nx_Port.

fcFxpPortC3OutOctets 1.3.6.1.2.1.75.1.4.3.1.4

The number of Class 3 frame octets, including the frame delimiters, delivered through this Fx_Port to its attached Nx_Port.

fcFxpPortC3Discards 1.3.6.1.2.1.75.1.4.3.1.5

The number of Class 3 frames discarded by this Fx_Port.

fcFeCapability Group

This group consists of a table describing information about what each Fx_Port is inherently capable of operating or supporting. A capability might be used, as expressed in its respective object value in the Configuration group.

Implementation of this group is optional.

fcFxpPortCapTable 1.3.6.1.2.1.75.1.5.1

A table that contains the capabilities of the port within the fabric element, one entry for each Fx_Port.

fcFxpPortCapEntry 1.3.6.1.2.1.75.1.5.1.1

An entry containing the capabilities of a Fx_Port.

Augments: 1: fcFxpPortEntry

fcFxpPortCapFcphVersionHigh 1.3.6.1.2.1.75.1.5.1.1.1

The highest or most recent version of FC-PH that the Fx_Port is capable of supporting.

fcFxpPortCapFcphVersionLow 1.3.6.1.2.1.75.1.5.1.1.2

The lowest or earliest version of FC-PH that the Fx_Port is capable of supporting.

fcFxpPortCapBbCreditMax 1.3.6.1.2.1.75.1.5.1.1.3

The maximum number of receive buffers available for holding Class 1 connect-request, and Class 2 or Class 3 frames from the attached Nx_Port.

fcFxPortCapBbCreditMin 1.3.6.1.2.1.75.1.5.1.1.4

The minimum number of receive buffers available for holding Class 1 connect-request, and Class 2 or Class 3 frames from the attached Nx_Port.

fcFxPortCapRxDataFieldSizeMax 1.3.6.1.2.1.75.1.5.1.1.5

The maximum size (in bytes) of the data field in a frame that the Fx_Port is capable of receiving from its attached Nx_Port.

fcFxPortCapRxDataFieldSizeMin 1.3.6.1.2.1.75.1.5.1.1.6

The minimum size (in bytes) of the data field in a frame that the Fx_Port is capable of receiving from its attached Nx_Port.

fcFxPortCapCos 1.3.6.1.2.1.75.1.5.1.1.7

A value indicating the set of Classes of Service that the Fx_Port is capable of supporting.

fcFxPortCapIntermix 1.3.6.1.2.1.75.1.5.1.1.8

A flag indicating whether the Fx_Port is capable of supporting the intermixing of Class 2 and Class 3 frames during a Class 1 connection. This flag is only valid if the port is capable of supporting Class 1 service.

fcFxPortCapStackedConnMode 1.3.6.1.2.1.75.1.5.1.1.9

A value indicating the mode of Stacked Connect request that the Fx_Port is capable of supporting.

fcFxPortCapClass2SeqDeliv 1.3.6.1.2.1.75.1.5.1.1.10

A flag indicating whether the Fx_Port is capable of supporting Class 2 Sequential Delivery.

fcFxPortCapClass3SeqDeliv 1.3.6.1.2.1.75.1.5.1.1.11

A flag indicating whether the Fx_Port is capable of supporting Class 3 Sequential Delivery.

fcFxPortCapHoldTimeMax 1.3.6.1.2.1.75.1.5.1.1.12

The maximum holding time (in microseconds) that the Fx_Port is capable of supporting.

fcFxPortCapHoldTimeMin 1.3.6.1.2.1.75.1.5.1.1.13

The minimum holding time (in microseconds) that the Fx_Port is capable of supporting.

FCFABRIC-ELEMENT-MIB (Experimental Branch)



Note

The FCFABRIC-ELEMENT-MIB is supported only in Fabric OS v2.6.x and v3.0.x.

This section contains descriptions and other information that is specific to FCFABRIC-ELEMENT-MIB (*in the experimental branch*), including the following:

- “FCFABRIC-ELEMENT-MIB Organization” on page 3-24
- “Definitions for FCFABRIC-ELEMENT-MIB” on page 3-28
- “fcFeConfig Group” on page 3-31
- “fcFeOp Group” on page 3-36
- “fcFeError Group” on page 3-41
- “fcFeAcct Group” on page 3-43
- “fcFeCap Group” on page 3-43



Note

Brocade does not support the settable “Write” function for any of the Fibre Channel FE MIB objects except “fcFxPortPhysAdminStatus 1.3.6.1.2.1.75.1.2.2.1.1”.

The descriptions of each of the MIB variables in this chapter come directly from the FCFABRIC-ELEMENT-MIB itself. The notes that follow the descriptions typically pertain to Brocade-specific information and are provided by Brocade.

The object types in FCFABRIC-ELEMENT-MIB are organized into the following groups:

- Configuration
- Operational
- Error
- Accounting (not supported)
- Capability

FCFABRIC-ELEMENT-MIB Organization

Figure 3-7 through Figure 3-12 depict the organization and structure of FCFABRIC-ELEMENT-MIB.

Figure 3-7 FCFABRIC-ELEMENT-MIB Overall Tree Structure

```
- iso
  - org
    - dod
      - internet
        - experimental
          - fibreChannel
            - fcFabric
              - fcFe
                - fcFeConfig
                  - fcFabricName
                  - fcElementName
                  - fcFeModuleCapacity
                  - fcFeModuleTable
                  - fcFxConfTable
                - fcFeOp
                  - fcFxPortOperTable
                  - fcFxPortPhysTable
                  - fcFxlogiTable
                - fcFeError
                  - fcFxPortErrorTable
                - fcFeAcct
                  - fcFxPortC1AcctTable
                  - fcFxPortC2AcctTable
                  - fcFxPortC3AcctTable
                - fcFeCap
                  - fcFxPortCapTable
```

Figure 3-8 fcFeConfig Hierarchy

```

- fcFeConfig
  - fcFabricName 1.3.6.1.3.42.2.1.1.1
  - fcElementName 1.3.6.1.3.42.2.1.1.2
  - fcFeModuleCapacity 1.3.6.1.3.42.2.1.1.3
  - fcFeModuleTable 1.3.6.1.3.42.2.1.1.4
    - fcFeModuleEntry 1.3.6.1.3.42.2.1.1.4.1
      - fcFeModuleIndex 1.3.6.1.3.42.2.1.1.4.1.1
      - fcFeModuleDescr 1.3.6.1.3.42.2.1.1.4.1.2
      - fcFeModuleObjectID 1.3.6.1.3.42.2.1.1.4.1.3
      - fcFeModuleOperStatus 1.3.6.1.3.42.2.1.1.4.1.4
      - fcFeModuleLastChange 1.3.6.1.3.42.2.1.1.4.1.5
      - fcFeModuleFxpPortCapacity 1.3.6.1.3.42.2.1.1.4.1.6
      - fcFeModuleName 1.3.6.1.3.42.2.1.1.4.1.7
  - fcFxCnfTable 1.3.6.1.3.42.2.1.1.5
    - fcFxCnfEntry 1.3.6.1.3.42.2.1.1.5.1
      - fcFxCnfModuleIndex 1.3.6.1.3.42.2.1.1.5.1.1
      - fcFxCnfFxpPortIndex 1.3.6.1.3.42.2.1.1.5.1.2
      - fcFxpPortName 1.3.6.1.3.42.2.1.1.5.1.3
      - fcFxpPortFcphVersionHigh 1.3.6.1.3.42.2.1.1.5.1.4
      - fcFxpPortFcphVersionLow 1.3.6.1.3.42.2.1.1.5.1.5
      - fcFxpPortBbCredit 1.3.6.1.3.42.2.1.1.5.1.6
      - fcFxpPortRxBufSize 1.3.6.1.3.42.2.1.1.5.1.7
      - fcFxpPortRatov 1.3.6.1.3.42.2.1.1.5.1.8
      - fcFxpPortEdtov 1.3.6.1.3.42.2.1.1.5.1.9
      - fcFxpPortCosSupported 1.3.6.1.3.42.2.1.1.5.1.10
      - fcFxpPortIntermixSupported 1.3.6.1.3.42.2.1.1.5.1.11
      - fcFxpPortStackedConnMode 1.3.6.1.3.42.2.1.1.5.1.12
      - fcFxpPortClass2SeqDeliv 1.3.6.1.3.42.2.1.1.5.1.13
      - fcFxpPortClass3SeqDeliv 1.3.6.1.3.42.2.1.1.5.1.14
      - fcFxpPortHoldTime 1.3.6.1.3.42.2.1.1.5.1.15
      - fcFxpPortBaudRate 1.3.6.1.3.42.2.1.1.5.1.16
      - fcFxpPortMedium 1.3.6.1.3.42.2.1.1.5.1.17
      - fcFxpPortTxType 1.3.6.1.3.42.2.1.1.5.1.18
      - fcFxpPortDistance 1.3.6.1.3.42.2.1.1.5.1.19

```


Figure 3-9 fcFeOp Hierarchy

```

- fcFeOp
  - fcFxpPortOperTable 1.3.6.1.3.42.2.1.2.1
    - fcFxpPortOperEntry 1.3.6.1.3.42.2.1.2.1.1
      - fcFxpPortOperModuleIndex 1.3.6.1.3.42.2.1.2.1.1.1
      - fcFxpPortOperFxpPortIndex 1.3.6.1.3.42.2.1.2.1.1.2
      - fcFxpPortID 1.3.6.1.3.42.2.1.2.1.1.3
      - fcFPortAttachedPortName 1.3.6.1.3.42.2.1.2.1.1.4
      - fcFPortConnectedPort 1.3.6.1.3.42.2.1.2.1.1.5
      - fcFxpPortBbCreditAvailable 1.3.6.1.3.42.2.1.2.1.1.6
      - fcFxpPortOperMode 1.3.6.1.3.42.2.1.2.1.1.7
      - fcFxpPortAdminMode 1.3.6.1.3.42.2.1.2.1.1.8
    - fcFxpPortPhysTable 1.3.6.1.3.42.2.1.2.3
      - fcFxpPortPhysEntry 1.3.6.1.3.42.2.1.2.3.1
        - fcFxpPortPhysModuleIndex 1.3.6.1.3.42.2.1.2.3.1.1
        - fcFxpPortPhysFxpPortIndex 1.3.6.1.3.42.2.1.2.3.1.2
        - fcFxpPortPhysAdminStatus 1.3.6.1.3.42.2.1.2.3.1.3
        - fcFxpPortPhysOperStatus 1.3.6.1.3.42.2.1.2.3.1.4
        - fcFxpPortPhysLastChange 1.3.6.1.3.42.2.1.2.3.1.5
        - fcFxpPortPhysRttov 1.3.6.1.3.42.2.1.2.3.1.6
      - fcFxplogiTable 1.3.6.1.3.42.2.1.2.4
        - fcFxplogiEntry 1.3.6.1.3.42.2.1.2.4.1
          - fcFxplogiModuleIndex 1.3.6.1.3.42.2.1.2.4.1.1
          - fcFxplogiFxpPortIndex 1.3.6.1.3.42.2.1.2.4.1.2
          - fcFxplogiNxPortIndex 1.3.6.1.3.42.2.1.2.4.1.3
          - fcFxpPortFcphVersionAgreed 1.3.6.1.3.42.2.1.2.4.1.4
          - fcFxpPortNxPortBbCredit 1.3.6.1.3.42.2.1.2.4.1.5
          - fcFxpPortNxPortRxDataFieldSize 1.3.6.1.3.42.2.1.2.4.1.6
          - fcFxpPortCosSuppAgreed 1.3.6.1.3.42.2.1.2.4.1.7
          - fcFxpPortIntermixSuppAgreed 1.3.6.1.3.42.2.1.2.4.1.8
          - fcFxpPortStackedConnModeAgreed 1.3.6.1.3.42.2.1.2.4.1.9
          - fcFxpPortClass2SeqDelivAgreed 1.3.6.1.3.42.2.1.2.4.1.10
          - fcFxpPortClass3SeqDelivAgreed 1.3.6.1.3.42.2.1.2.4.1.11
          - fcFxpPortNxPortName 1.3.6.1.3.42.2.1.2.4.1.12
          - fcFxpPortConnectedNxPort 1.3.6.1.3.42.2.1.2.4.1.13
          - fcFxpPortBbCreditModel 1.3.6.1.3.42.2.1.2.4.1.14

```

Figure 3-10 fcFeError Hierarchy

```

- fcFeError (1.3.6.1.3.42.2.1.3)
  - fcFxpPortErrorTable 1.3.6.1.3.42.2.1.3.1
    - fcFxpPortErrorEntry 1.3.6.1.3.42.2.1.3.1.1
      - fcFxpPortErrorModuleIndex 1.3.6.1.3.42.2.1.3.1.1.1
      - fcFxpPortErrorFxpPortIndex 1.3.6.1.3.42.2.1.3.1.1.2
      - fcFxpPortLinkFailures 1.3.6.1.3.42.2.1.3.1.1.3
      - fcFxpPortSyncLosses 1.3.6.1.3.42.2.1.3.1.1.4
      - fcFxpPortSigLosses 1.3.6.1.3.42.2.1.3.1.1.5
      - fcFxpPortPrimSeqProtoErrors 1.3.6.1.3.42.2.1.3.1.1.6
      - fcFxpPortInvalidTxWords 1.3.6.1.3.42.2.1.3.1.1.7
      - fcFxpPortInvalidCrcs 1.3.6.1.3.42.2.1.3.1.1.8
      - fcFxpPortDelimiterErrors 1.3.6.1.3.42.2.1.3.1.1.9
      - fcFxpPortAddressIdErrors 1.3.6.1.3.42.2.1.3.1.1.10
      - fcFxpPortLinkResetIns 1.3.6.1.3.42.2.1.3.1.1.11
      - fcFxpPortLinkResetOuts 1.3.6.1.3.42.2.1.3.1.1.12
      - fcFxpPortOlsIns 1.3.6.1.3.42.2.1.3.1.1.13
      - fcFxpPortOlsOuts 1.3.6.1.3.42.2.1.3.1.1.14

```

Figure 3-11 fcFeAcct Hierarchy

```

- fcFeAcct
  (-- Not Supported --)

```

Figure 3-12 fcFeCap Hierarchy

```

- fcFeCap
  - fcFxpPortCapTable 1.3.6.1.3.42.2.1.5.1
    - fcFxpPortCapEntry 1.3.6.1.3.42.2.1.5.1.1
      - fcFxpPortCapModuleIndex 1.3.6.1.3.42.2.1.5.1.1.1
      - fcFxpPortCapFxpPortIndex 1.3.6.1.3.42.2.1.5.1.1.2
      - fcFxpPortCapFcphVersionHigh 1.3.6.1.3.42.2.1.5.1.1.3
      - fcFxpPortCapFcphVersionLow 1.3.6.1.3.42.2.1.5.1.1.4
      - fcFxpPortCapBbCreditMax 1.3.6.1.3.42.2.1.5.1.1.5
      - fcFxpPortCapBbCreditMin 1.3.6.1.3.42.2.1.5.1.1.6
      - fcFxpPortCapRxDataFieldSizeMax 1.3.6.1.3.42.2.1.5.1.1.7
      - fcFxpPortCapRxDataFieldSizeMin 1.3.6.1.3.42.2.1.5.1.1.8
      - fcFxpPortCapCos 1.3.6.1.3.42.2.1.5.1.1.9
      - fcFxpPortCapIntermix 1.3.6.1.3.42.2.1.5.1.1.10
      - fcFxpPortCapStackedConnMode 1.3.6.1.3.42.2.1.5.1.1.11
      - fcFxpPortCapClass2SeqDeliv 1.3.6.1.3.42.2.1.5.1.1.12
      - fcFxpPortCapClass3SeqDeliv 1.3.6.1.3.42.2.1.5.1.1.13
      - fcFxpPortCapHoldTimeMax 1.3.6.1.3.42.2.1.5.1.1.14
      - fcFxpPortCapHoldTimeMin 1.3.6.1.3.42.2.1.5.1.1.15
      - fcFxpPortCapBaudRates 1.3.6.1.3.42.2.1.5.1.1.16
      - fcFxpPortCapMedia 1.3.6.1.3.42.2.1.5.1.1.17

```

Definitions for FCFABRIC-ELEMENT-MIB

The following definitions are used for FCFABRIC-ELEMENT-MIB.

Table 3-3 FCFABRIC-ELEMENT-MIB Definitions

Type Definition	Value	Description
Display string	Octet string of size 0 to 255	Represents textual information taken from the NVT ASCII character set, as defined in pages 4, 10-11 of RFC 854.
Milliseconds	Integer from 0 to 2147383647	Represents time unit value in milliseconds.
Microseconds	Integer from 0 to 2147383647	Represents time unit value in microseconds.
FcNameId	Octet string of size 8	World Wide Name or Fibre Channel name associated with an FC entry. This is a Network_Destination_ID or Network_Source_ID composed of a value up to 60 bits wide, occupying the remaining 8 bytes while the first nibble identifies the format of the Name_Identifier. Name_Identifier hex values: 0 (Ignored) 1 (IEEE 48-bit address) 2 (IEEE extended) 3 (Locally assigned) 4 (32-bit IP address)
FabricName	FcNameId	The name identifier of a fabric. Each fabric provides a unique fabric name. Only the following formats are allowed: IEEE48 Local
FcPortName	FcNameId	The name identifier associated with a port. Only the following formats are allowed: IEEE48 IEEE extended Local
FcAddressId	Octet string of size 3	A 24-bit value unique within the address space of a fabric.
FcRxDataFieldSize	Integer from 128 to 2112	Receive Data_Field size.
FcBbCredit	Integer from 0 to 32767	Buffer-to-buffer credit.
FcphVersion	Integer from 0 to 255	Represents the version of FC-PH supported by an NxPort or FxPort.
FcStackedConnMode	Integer from 1 to 3	1 (none) 2 (transparent) 3 (lockedDown)

Table 3-3 FCFABRIC-ELEMENT-MIB Definitions (Continued)

Type Definition	Value	Description
FcCosCap	Integer from 1 to 127	bit 0 (Class F) bit 1 (Class 1) bit 2 (Class 2) bit 3 (Class 3) bit 4 (Class 4) bit 5 (Class 5) bit 6 (Class 6) bit 7 (reserved for future)
Fc0BaudRate	Integer according to FC-0 baud rates	1 (other) None of below 2 (one-eighth) 155 Mbaud (12.5 MB/s) 4 (quarter) 266 Mbaud (25.0 MB/s) 8 (half) 532 Mbaud (50.0 MB/s) 16 (full) 1 Gbaud (100 MB/s) 32 (double) 2 Gbaud (200 MB/s) 64 (quadruple) 4 Gbaud (400 MB/s)
Fc0BaudRateCap	Integer from 0 to 127	bit 0 (other) bit 1 (one-eighth) bit 2 (quarter) bit 3 (half) bit 4 (full) bit 5 (double) bit 6 (quadruple) bit 7 (reserved for future)
Fc0MediaCap	Integer from 0 to 65535	bit 0 (unknown) bit 1 (single mode fibre (sm)) bit 2 (multimode fiber 50 micron (m5)) bit 3 (multimode fiber 62.5 micron (m6)) bit 4 (video cable (tv)) bit 5 (miniature cable (mi)) bit 6 (shielded twisted pair (stp)) bit 7 (twisted wire (tw)) bit 8 (long video (lv)) bits 9-15 (reserved for future use)
Fc0Medium	Integer	1 (unknown) 2 (sm) 4 (m5) 8 (m6) 16 (tv) 32 (mi) 64 (stp) 128 (tw) 256 (lv)

Table 3-3 FCFABRIC-ELEMENT-MIB Definitions (Continued)

Type Definition	Value	Description
Fc0TxType	Integer	1 (unknown) 2 (longWaveLaser (LL)) 3 (shortWaveLaser (SL)) 4 (longWaveLED (LE)) 5 (electrical (EL)) 6 (shortWaveLaser-noOFC (SN))
Fc0Distance	Integer	The FC-0 distance range associated with a port transmitter: 1 (unknown) 2 (long) 3 (intermediate) 4 (short)
FcFeModuleCapacity	Integer from 1 to 256	Represents the maximum number of modules within a Fabric Element.
FcFeFxPortCapacity	Integer from 1 to 256	Represents the maximum number of FxPorts within a module.
FcFeModuleIndex	Integer from 1 to 256	Represents the module index within a conceptual table.
FcFeFxPortIndex	Integer from 1 to 256	Represents the FxPort index within a conceptual table.
FcFeNxPortIndex	Integer from 1 to 256	Represents the NxPort index within a conceptual table.
FcFxPortMode	Integer	1 (unknown) 2 (fPort) 3 (flPort)
FcBbCreditModel	Integer	1 (regular) 2 (alternate)

fcFeConfig Group

This group consists of scalar objects and tables. It contains the configuration and service parameters of the fabric element and the Fx_Ports.

The group represents a set of parameters associated with the fabric element or an Fx_Port to support its Nx_Ports.

Implementation of this group is mandatory.

fcFabricName 1.3.6.1.3.42.2.1.1.1

The Name_Identifier of the fabric to which this fabric element belongs.

Return Returns the WWN of the primary switch in the fabric.

fcElementName 1.3.6.1.3.42.2.1.1.2

The Name_Identifier of the fabric element.

Return Returns the WWN of the switch.

fcFeModuleCapacity 1.3.6.1.3.42.2.1.1.3

The maximum number of modules in the fabric element, regardless of their current state.

The SilkWorm 12000, 24000, and 48000 directors do not support this MIB variable.

fc Fabric Element Module Table

This table contains one entry for each module, information of the modules.

fcFeModuleTable 1.3.6.1.3.42.2.1.1.4

A table that contains, one entry for each module in the fabric element, information of the modules.

fcFeModuleEntry 1.3.6.1.3.42.2.1.1.4.1

An entry containing the configuration parameters of a module.

Status Mandatory

Index fcFeModuleIndex

fcFeModuleIndex 1.3.6.1.3.42.2.1.1.4.1.1

Identifies the module within the fabric element for which this entry contains information. This value is never greater than fcFeModuleCapacity.

fcFeModuleDescr 1.3.6.1.3.42.2.1.1.4.1.2

A textual description of the module. This value should include the full name and version identification of the module. It should contain printable ASCII characters.

See “[sysDescr 1.3.6.1.2.1.1.1](#)” on page 2-8.

fcFeModuleObjectID 1.3.6.1.3.42.2.1.1.4.1.3

The vendor’s authoritative identification of the module. This value might be allocated within the SMI enterprises subtree (1.3.6.1.4.1) and provides a straight-forward and unambiguous means for determining what kind of module is being managed.

For example, this object could take the value 1.3.6.1.4.1.99649.3.9 if vendor “Neufe Inc.” was assigned the subtree 1.3.6.1.4.1.99649, and had assigned the identifier 1.3.6.1.4.1.99649.3.9 to its ‘FeFiFo-16 PlugInCard.’

See “[sysObjectID 1.3.6.1.2.1.1.2](#)” on page 2-8.

fcFeModuleOperStatus 1.3.6.1.3.42.2.1.1.4.1.4

Indicates the operational status of the module:

- online (1) The module is functioning properly.
- offline (2) The module is not available.
- testing (3) The module is under testing.
- faulty (4) The module is defective in some way.

fcFeModuleLastChange 1.3.6.1.3.42.2.1.1.4.1.5

Contains the value of “[sysUpTime 1.3.6.1.2.1.1.3](#)” when the module entered its current operational status. A value of 0 indicates that the operational status of the module has not changed since the agent last restarted.

fcFeModuleFxpPortCapacity 1.3.6.1.3.42.2.1.1.4.1.6

The number of Fx_Port that can be contained within the module. Within each module, the ports are uniquely numbered in the range from 1 to fcFeModuleFxpPortCapacity, inclusive; however, the numbers are not required to be contiguous.

fcFeModuleName 1.3.6.1.3.42.2.1.1.4.1.7

The Name_Identifier of the module.

The return value is the WWN of the switch.

Fx_Port Configuration Table

This table contains, one entry for each Fx_Port, the configuration parameters of the ports.

fcFxpConfTable 1.3.6.1.3.42.2.1.1.5

A table that contains, one entry for each Fx_Port in the fabric element, configuration and service parameters of the Fx_Ports.

fcFxpConfEntry 1.3.6.1.3.42.2.1.1.5.1

An entry containing the configuration and service parameters of an Fx_Port.

Index FcFxConfModuleIndex, fcFxConfFxPortIndex

fcFxConfModuleIndex 1.3.6.1.3.42.2.1.1.5.1.1

Identifies the module containing the Fx_Port for which this entry contains information.

fcFxConfFxPortIndex 1.3.6.1.3.42.2.1.1.5.1.2

Identifies the Fx_Port within the module. This number ranges from 1 to the value of fcFeModulePortCapacity for the associated module. The value remains constant for the identified Fx_Port until the module is reinitialized.

fcFxPortName 1.3.6.1.3.42.2.1.1.5.1.3

The name identifier of this Fx_Port. Each Fx_Port has a unique port name within the address space of the fabric.

The return value is the WWN of the port.

fcFxPortFcphVersionHigh 1.3.6.1.3.42.2.1.1.5.1.4

The highest or most recent version of FC-PH that the Fx_Port is configured to support.

fcFxPortFcphVersionLow 1.3.6.1.3.42.2.1.1.5.1.5

The lowest or earliest version of FC-PH that the Fx_Port is configured to support.

fcFxPortBbCredit 1.3.6.1.3.42.2.1.1.5.1.6

The total number of receive buffers available for holding Class 1 connect-request Class 2 or 3 frames from the attached Nx_Port. It is for buffer-to-buffer flow control in the direction from the attached Nx_Port (if applicable) to Fx_Port.

fcFxPortRxBufSize 1.3.6.1.3.42.2.1.1.5.1.7

The largest Data_Field Size (in octets) for an FT_1 frame that can be received by the Fx_Port.

fcFxPortRatov 1.3.6.1.3.42.2.1.1.5.1.8

The Resource_Allocation_Timeout Value configured for the Fx_Port. This is used as the time-out value for determining when to reuse an Nx_Port resource such as a Recovery_Qualifier. It represents E_D_TOV (see “[fcFxPortEdtov 1.3.6.1.2.1.75.1.1.5.1.8](#)” on page 3-12) plus twice the maximum time that a frame might be delayed within the fabric and still be delivered.

fcFxPortEdtov 1.3.6.1.3.42.2.1.1.5.1.9

The E_D_TOV value configured for the Fx_Port. The Error_Detect_Timeout Value is used as the time-out value for detecting an error condition.

fcFxPortCosSupported 1.3.6.1.3.42.2.1.1.5.1.10

A value indicating the set of Classes of Service supported by the Fx_Port.

fcFxPortIntermixSupported 1.3.6.1.3.42.2.1.1.5.1.11

A flag indicating whether the Fx_Port supports an Intermixed Dedicated Connection.

Values Possible values are:

- yes (1)
- no (2)

fcFxPortStackedConnMode 1.3.6.1.3.42.2.1.1.5.1.12

A value indicating the mode of stacked connect supported by the Fx_Port.

fcFxPortClass2SeqDeliv 1.3.6.1.3.42.2.1.1.5.1.13

A flag indicating whether Class 2 sequential delivery is supported by the Fx_Port.

Values Possible values are:

- yes (1)
- no (2)

fcFxPortClass3SeqDeliv 1.3.6.1.3.42.2.1.1.5.1.14

A flag indicating whether Class 3 sequential delivery is supported by the Fx_Port.

Values Possible values are:

- yes (1)
- no (2)

fcFxPortHoldTime 1.3.6.1.3.42.2.1.1.5.1.15

The maximum time (in microseconds) that the Fx_Port holds a frame before discarding the frame if it is unable to deliver the frame. The value 0 means that the Fx_Port does not support this parameter.

fcFxPortBaudRate 1.3.6.1.3.42.2.1.1.5.1.16

The FC-0 baud rate of the Fx_Port.

The SilkWorm 12000, 24000, and 48000 directors do not support this MIB variable.

fcFxPortMedium 1.3.6.1.3.42.2.1.1.5.1.17

The FC-0 medium of the Fx_Port.

fcFxPortTxType 1.3.6.1.3.42.2.1.1.5.1.18

The FC-0 transmitter type of the Fx_Port.

fcFxPortDistance 1.3.6.1.3.42.2.1.1.5.1.19

The FC-0 distance range of the Fx_Port transmitter.

fcFeOp Group

This group consists of tables that contain operational status and established service parameters for the fabric element and the attached Nx_Ports.



Note

Implementation of this group is mandatory.

fcFxPortOperTable 1.3.6.1.3.42.2.1.2.1

A table that contains one entry for each Fx_Port in the fabric element, operational status, and parameters of the Fx_Ports.

fcFxPortOperEntry 1.3.6.1.3.42.2.1.2.1.1

An entry containing operational status and parameters of an Fx_Port.

Index fcFxPortOperModuleIndex, fcFxPortOperFxPortIndex

fcFxPortOperModuleIndex 1.3.6.1.3.42.2.1.2.1.1.1

Identifies the module containing the Fx_Port for which this entry contains information.

fcFxpPortOperFxpPortIndex 1.3.6.1.3.42.2.1.2.1.1.2

Identifies the Fx_Port within the module. This number ranges from 1 to the value of fcFeModulePortCapacity for the associated module. The value remains constant for the identified Fx_Port until the module is reinitialized.

fcFxpPortID 1.3.6.1.3.42.2.1.2.1.1.3

The address identifier by which this Fx_Port is identified within the fabric. The Fx_Port might assign its address identifier to its attached Nx_Port(s) during fabric login.

fcFPortAttachedPortName 1.3.6.1.3.42.2.1.2.1.1.4

The port name of the attached N_Port, if applicable. If the value of this object is '0000000000000000'H, this Fx_Port has no Nx_Port attached to it. This variable has been deprecated and might be implemented for backward compatibility.

fcFPortConnectedPort 1.3.6.1.3.42.2.1.2.1.1.5

The address identifier of the destination Fx_Port with which this Fx_Port is currently engaged in either a Class 1 or loop connection. If the value of this object is '000000'H, this Fx_Port is not engaged in a connection. This variable has been deprecated and might be implemented for backward compatibility.

fcFxpPortBbCreditAvailable 1.3.6.1.3.42.2.1.2.1.1.6

The number of buffers currently available for receiving frames from the attached port in the buffer-to-buffer flow control. The value should be less than or equal to fcFxpPortBbCredit.

fcFxpPortOperMode 1.3.6.1.3.42.2.1.2.1.1.7

The current operational mode of the Fx_Port.

fcFxpPortAdminMode 1.3.6.1.3.42.2.1.2.1.1.8

The desired operational mode of the Fx_Port.

fcFxpPortPhysTable 1.3.6.1.3.42.2.1.2.3

A table that contains, one entry for each Fx_Port in the fabric element, physical level status and parameters of the Fx_Ports.

fcFxpPortPhysEntry 1.3.6.1.3.42.2.1.2.3.1

An entry containing physical level status and parameters of an Fx_Port.

Index fcFxPortPhysModuleIndex, fcFxPortPhysFxPortIndex

fcFxPortPhysModuleIndex 1.3.6.1.3.42.2.1.2.3.1.1

Identifies the module containing the Fx_Port for which this entry contains information.

fcFxPortPhysFxPortIndex 1.3.6.1.3.42.2.1.2.3.1.2

Identifies the Fx_Port within the module. This number ranges from 1 to the value of fcFeModulePortCapacity for the associated module. The value remains constant for the identified Fx_Port until the module is reinitialized.

fcFxPortPhysAdminStatus 1.3.6.1.3.42.2.1.2.3.1.3

The desired state of the Fx_Port:

- online (1) Place port online
- offline (2) Take port offline
- testing (3) Initiate test procedures

A management station might place the Fx_Port in a desired state by setting this object accordingly. The testing state (3) indicates that no operational frames can be passed. When a fabric element initializes, all Fx_Ports start with fcFxPortPhysAdminStatus in the offline state (2). As the result of either explicit management action or per configuration information accessible by the fabric element, fcFxPortPhysAdminStatus is then changed to either the online (1) or testing (3) states or remains in the offline state (2).

fcFxPortPhysOperStatus 1.3.6.1.3.42.2.1.2.3.1.4

The current operational status of the Fx_Port:

- online (1) Login might proceed.
- offline (2) Login cannot proceed.
- testing (3) Port is under test.
- link-failure (4) Failure after online/testing.

The testing state (3) indicates that no operational frames can be passed. If fcFxPortPhysAdminStatus is offline (2), then fcFxPortPhysOperStatus should be offline (2). If fcFxPortPhysAdminStatus is changed to online (1), then fcFxPortPhysOperStatus should change to 1 (online) if the Fx_Port is ready to accept fabric login request from the attached Nx_Port; it should proceed and remain in the link-failure state (4) if and only if there is a fault that prevents it from going to the online state (1).

fcFxPortPhysLastChange 1.3.6.1.3.42.2.1.2.3.1.5

The value of sysUpTime at the time the Fx_Port entered its current operational status. A value of 0 indicates that the Fx_Port's operational status has not changed since the agent last restarted.

fcFxPortPhysRttov 1.3.6.1.3.42.2.1.2.3.1.6

The Receiver_Transmitter_Timeout value of the Fx_Port. This is used by the receiver logic to detect Loss of Synchronization.

Fx_Port Fabric Login Table

This table contains one entry for each Fx_Port in the fabric element, and the Service Parameters that have been established from the most recent fabric login, whether implicit or explicit.

fcFxlogiTable 1.3.6.1.3.42.2.1.2.4

A table that contains, one entry for each Fx_Port in the fabric element, services parameters established from the most recent fabric login, explicit or implicit.

fcFxlogiEntry 1.3.6.1.3.42.2.1.2.4.1

An entry containing service parameters established from a successful fabric login.

Index fcFxloginModuleIndex, fcFxloginFxPortIndex, fcFxloginNxPortIndex

fcFxlogiModuleIndex 1.3.6.1.3.42.2.1.2.4.1.1

Identifies the module containing the Fx_Port for which this entry contains information.

fcFxlogiFxPortIndex 1.3.6.1.3.42.2.1.2.4.1.2

Identifies the Fx_Port within the module. This number ranges from 1 to the value of fcFeModulePortCapacity for the associated module. The value remains constant for the identified Fx_Port until the module is reinitialized.

fcFxlogiNxPortIndex 1.3.6.1.3.42.2.1.2.4.1.3

The object identifies the associated Nx_Port in the attachment for which the entry contains information.

fcFxPortFcphVersionAgreed 1.3.6.1.3.42.2.1.2.4.1.4

The version of FC-PH that the Fx_Port has agreed to support from the fabric login.

fcFxpPortNxPortBbCredit 1.3.6.1.3.42.2.1.2.4.1.5

The total number of buffers available for holding Class 1 connect-request Class 2 or Class 3 frames to be transmitted to the attached Nx_Port. It is for buffer-to-buffer flow control in the direction from Fx_Port to Nx_Port. The buffer-to-buffer flow control mechanism is indicated in the respective fcFxpPortBbCreditModel.

fcFxpPortNxPortRxDataFieldSize 1.3.6.1.3.42.2.1.2.4.1.6

The Receive Data Field Size of the attached Nx_Port. This is a binary value that specifies the largest Data Field Size for an FT_1 frame that can be received by the Nx_Port. The value is a number of bytes in the range 128 to 2112, inclusive.

fcFxpPortCosSuppAgreed 1.3.6.1.3.42.2.1.2.4.1.7

Indicates that the attached Nx_Port has requested the Fx_Port for the support of classes of services and the Fx_Port has granted the request.

fcFxpPortIntermixSuppAgreed 1.3.6.1.3.42.2.1.2.4.1.8

A variable indicating that the attached Nx_Port has requested the Fx_Port for Intermix support and the Fx_Port has granted the request. This flag is only valid if Class 1 service is supported.

Values Possible values are:

- yes (1)
- no (2)

fcFxpPortStackedConnModeAgreed 1.3.6.1.3.42.2.1.2.4.1.9

Indicates whether the Fx_Port has agreed to support stacked connect from the fabric login. This is only meaningful if Class 1 service has been agreed to.

fcFxpPortClass2SeqDelivAgreed 1.3.6.1.3.42.2.1.2.4.1.10

A variable indicating whether the Fx_Port has agreed to support Class 2 sequential delivery from the fabric login. This is only meaningful if Class 2 service has been agreed.

Values Possible values are:

- yes (1)
- no (2)

fcFxpPortClass3SeqDelivAgreed 1.3.6.1.3.42.2.1.2.4.1.11

A flag indicating whether the Fx_Port has agreed to support Class 3 sequential delivery from the fabric login. This is only meaningful if Class 3 service has been agreed to.

Values Possible values are:

- yes (1)
- no (2)

fcFxPortNxPortName 1.3.6.1.3.42.2.1.2.4.1.12

The port name of the attached Nx_Port, if applicable. If the value of this object is '0000000000000000'H, this Fx_Port has no Nx_Port attached to it.

fcFxPortConnectedNxPort 1.3.6.1.3.42.2.1.2.4.1.13

The address identifier of the destination Fx_Port with which this Fx_Port is currently engaged in either a Class 1 or loop connection. If the value of this object is '000000'H, this Fx_Port is not engaged in a connection.

fcFxPortBbCreditModel 1.3.6.1.3.42.2.1.2.4.1.14

Identifies the BB_Credit model used by the Fx_Port. The regular model refers to the buffer-to-buffer flow control mechanism defined in FC-PH [1] used between the F_Port and the N_Port. For FL_Ports, the alternate buffer-to-buffer flow control mechanism as defined in FC-AL [4] is used between the FL_Port and any attached NL_Ports.

fcFeError Group

This group consists of tables that contain information about the various types of errors detected. The management station might use the information in this group to determine the quality of the link between the Fx_Port and its attached Nx_Port.

Implementation of this group is optional.

fcFxPortErrorTable 1.3.6.1.3.42.2.1.3.1

This table contains one entry for each Fx_Port in the fabric element, and counters recording numbers of errors detected since the management agent reinitialized.

The first six columnar objects after the port index correspond to the counters in the Link ErrorStatus Block.

fcFxPortErrorEntry 1.3.6.1.3.42.2.1.3.1.1

An entry containing error counters of an Fx_Port.

Index fcFxPortErrorModuleIndex, fcFxPortErrorFxPortIndex

fcFxpPortErrorModuleIndex 1.3.6.1.3.42.2.1.3.1.1.1

Identifies the module containing the Fx_Port for which this entry contains information.

fcFxpPortErrorFxPortIndex 1.3.6.1.3.42.2.1.3.1.1.2

Identifies the Fx_Port within the module. This number ranges from 1 to the value of fcFeModulePortCapacity for the associated module. The value remains constant for the identified Fx_Port until the module is reinitialized.

fcFxpPortLinkFailures 1.3.6.1.3.42.2.1.3.1.1.3

The number of link failures detected by this Fx_Port.

fcFxpPortSyncLosses 1.3.6.1.3.42.2.1.3.1.1.4

The number of loss of synchronization errors detected by the Fx_Port.

fcFxpPortSigLosses 1.3.6.1.3.42.2.1.3.1.1.5

The number of loss of signal errors detected by the Fx_Port.

fcFxpPortPrimSeqProtoErrors 1.3.6.1.3.42.2.1.3.1.1.6

The number of primitive sequence protocol errors detected by the Fx_Port.

fcFxpPortInvalidTxWords 1.3.6.1.3.42.2.1.3.1.1.7

The number of invalid transmission word errors detected by the Fx_Port.

fcFxpPortInvalidCrcs 1.3.6.1.3.42.2.1.3.1.1.8

The number of invalid Cyclic Redundancy Checks (CRCs) detected by this Fx_Port.

fcFxpPortDelimiterErrors 1.3.6.1.3.42.2.1.3.1.1.9

The number of Delimiter errors detected by this Fx_Port.

fcFxpPortAddressIdErrors 1.3.6.1.3.42.2.1.3.1.1.10

The number of address identifier errors detected by this Fx_Port.

fcFxpPortLinkResetIns 1.3.6.1.3.42.2.1.3.1.1.11

The number of Link Reset Protocol errors received by this Fx_Port from the attached Nx_Port.

fcFxpPortLinkResetOuts 1.3.6.1.3.42.2.1.3.1.1.12

The number of Link Reset Protocol errors issued by this Fx_Port to the attached Nx_Port.

fcFxpPortOlsIns 1.3.6.1.3.42.2.1.3.1.1.13

The number of Offline Sequence errors received by this Fx_Port.

fcFxpPortOlsOuts 1.3.6.1.3.42.2.1.3.1.1.14

The number of Offline Sequence errors issued by this Fx_Port.

fcFeAcct Group

Brocade does not support Accounting tables; this section is not applicable.

fcFeCap Group

This group consists of a table describing information about what each Fx_Port is inherently capable of operating or supporting. A capability might be used or not, as expressed in its respective object value in the Configuration group.

Implementation of this group is optional.

fcFxpPortCapTable 1.3.6.1.3.42.2.1.5.1

A table that contains one entry for each Fx_Port, and the capabilities of the port within the fabric element.

fcFxpPortCapEntry 1.3.6.1.3.42.2.1.5.1.1

An entry containing the capabilities of a Fx_Port.

Index fcFxpPortCapModuleIndex, fcFxpPortCapFxPortIndex

fcFxpPortCapModuleIndex 1.3.6.1.3.42.2.1.5.1.1.1

Identifies the module containing the Fx_Port for which this entry contains information.

fcFxPortCapFxPortIndex 1.3.6.1.3.42.2.1.5.1.1.2

Identifies the Fx_Port within the module. This number ranges from 1 to the value of fcFeModulePortCapacity for the associated module. The value remains constant for the identified Fx_Port until the module is reinitialized.

fcFxPortCapFcphVersionHigh 1.3.6.1.3.42.2.1.5.1.1.3

The highest or most recent version of FC-PH that the Fx_Port is capable of supporting.

fcFxPortCapFcphVersionLow 1.3.6.1.3.42.2.1.5.1.1.4

The lowest or earliest version of FC-PH that the Fx_Port is capable of supporting.

fcFxPortCapBbCreditMax 1.3.6.1.3.42.2.1.5.1.1.5

The maximum number of receive buffers available for holding Class 1 connect-request Class 2 or Class 3 frames from the attached Nx_Port.

fcFxPortCapBbCreditMin 1.3.6.1.3.42.2.1.5.1.1.6

The minimum number of receive buffers available for holding Class 1 connect-request Class 2 or Class 3 frames from the attached Nx_Port.

fcFxPortCapRxDataFieldSizeMax 1.3.6.1.3.42.2.1.5.1.1.7

The maximum size (in bytes) of the Data Field in a frame that the Fx_Port is capable of receiving from its attached Nx_Port.

fcFxPortCapRxDataFieldSizeMin 1.3.6.1.3.42.2.1.5.1.1.8

The minimum size (in bytes) of the Data Field in a frame that the Fx_Port is capable of receiving from its attached Nx_Port.

fcFxPortCapCos 1.3.6.1.3.42.2.1.5.1.1.9

A value indicating the set of Classes of Service that the Fx_Port is capable of supporting.

fcFxPortCapIntermix 1.3.6.1.3.42.2.1.5.1.1.10

A flag indicating whether the Fx_Port is capable of supporting the intermixing of Class 2 and Class 3 frames during a Class 1 connection. This flag is only valid if the port is capable of supporting Class 1 service.

Values Possible values are:

- yes (1)
- no (2)

fcFxpPortCapStackedConnMode 1.3.6.1.3.42.2.1.5.1.1.11

A value indicating the mode of Stacked Connect request that the Fx_Port is capable of supporting.

fcFxpPortCapClass2SeqDeliv 1.3.6.1.3.42.2.1.5.1.1.12

A flag indicating whether the Fx_Port is capable of supporting Class 2 Sequential Delivery.

Values Possible values are:

- yes (1)
- no (2)

fcFxpPortCapClass3SeqDeliv 1.3.6.1.3.42.2.1.5.1.1.13

A flag indicating whether the Fx_Port is capable of supporting Class 3 Sequential Delivery.

Values Possible values are:

- yes (1)
- no (2)

fcFxpPortCapHoldTimeMax 1.3.6.1.3.42.2.1.5.1.1.14

The maximum holding time (in microseconds) that the Fx_Port is capable of supporting.

fcFxpPortCapHoldTimeMin 1.3.6.1.3.42.2.1.5.1.1.15

The minimum holding time (in microseconds) that the Fx_Port is capable of supporting.

fcFxpPortCapBaudRates 1.3.6.1.3.42.2.1.5.1.1.16

A value indicating the set of baud rates that the Fx_Port is capable of supporting. This variable has been deprecated and might be implemented for backward compatibility.

fcFxpPortCapMedia 1.3.6.1.3.42.2.1.5.1.1.17

A value indicating the set of media that the Fx_Port is capable of supporting. This variable has been deprecated and might be implemented for backward compatibility.

Entity MIB Objects

This chapter provides descriptions and other information specific to Entity MIB object types and includes the following information:

- “Entity MIB Overview” next
- “Textual Conventions” on page 4-4
- “Entity MIB Objects” on page 4-6
- “Physical Entity Group” on page 4-6
- “Logical Entity Group” on page 4-13
- “Entity Mapping Group” on page 4-15
- “General Group” on page 4-17
- “Entity MIB Trap” on page 4-18
- “Entity MIB Conformance Information” on page 4-18

Entity MIB Overview

Entity MIB is the module for representing multiple logical entities supported by a single SNMP agent. This MIB is supported only in Fabric OS v4.x.

The descriptions of each of the MIB variables in this chapter come directly from Entity MIB itself. The notes that follow the descriptions typically pertain to Brocade-specific information and are provided by Brocade.

The object types in Entity MIB are organized into the following groupings:

- “Entity MIB Objects” on page 4-6
- “Entity MIB Trap” on page 4-18
- “Entity MIB Conformance Information” on page 4-18

Entity MIB System Organization of MIB Objects

Figure 4-1 through Figure 4-8 depict the organization and structure of the Entity MIB file system.

Figure 4-1 Overall Tree Structure for Entity MIB

```

- iso
  - org
    - dod
      - internet
        - mgmt
          - mib-2
            - entityMIB
              - entityMIBObjects
                - entityPhysical
                - entityLogical
                - entityMapping
                - entityGeneral
              - entityMIBTraps
                - entityMIBTrapPrefix
              - entityConformance
                - entityCompliances
                - entityGroups

```

Figure 4-2 entityPhysical Hierarchy

```

- entityPhysical
  - entPhysicalTable 1.3.6.1.2.1.47.1.1.1
    - entPhysicalEntry 1.3.6.1.2.1.47.1.1.1.1
      - entPhysicalIndex 1.3.6.1.2.1.47.1.1.1.1.1
      - entPhysicalDescr 1.3.6.1.2.1.47.1.1.1.1.2
      - entPhysicalVendorType 1.3.6.1.2.1.47.1.1.1.1.3
      - entPhysicalContainedIn 1.3.6.1.2.1.47.1.1.1.1.4
      - entPhysicalClass 1.3.6.1.2.1.47.1.1.1.1.5
      - entPhysicalParentRelPos 1.3.6.1.2.1.47.1.1.1.1.6
      - entPhysicalName 1.3.6.1.2.1.47.1.1.1.1.7
      - entPhysicalHardwareRev 1.3.6.1.2.1.47.1.1.1.1.8
      - entPhysicalFirmwareRev 1.3.6.1.2.1.47.1.1.1.1.9
      - entPhysicalSoftwareRev 1.3.6.1.2.1.47.1.1.1.1.10
      - entPhysicalSerialNum 1.3.6.1.2.1.47.1.1.1.1.11
      - entPhysicalMfgName 1.3.6.1.2.1.47.1.1.1.1.12
      - entPhysicalModelName 1.3.6.1.2.1.47.1.1.1.1.13
      - entPhysicalAlias 1.3.6.1.2.1.47.1.1.1.1.14
      - entPhysicalAssetID 1.3.6.1.2.1.47.1.1.1.1.15
      - entPhysicalIsFRU 1.3.6.1.2.1.47.1.1.1.1.16

```

Figure 4-3 entityLogical Hierarchy

```

- entityLogical
  - entLogicalTable 1.3.6.1.2.1.47.1.2.1
    - entLogicalEntry 1.3.6.1.2.1.47.1.2.1.1
      - entLogicalIndex 1.3.6.1.2.1.47.1.2.1.1.1
      - entLogicalDescr 1.3.6.1.2.1.47.1.2.1.1.2
      - entLogicalType 1.3.6.1.2.1.47.1.2.1.1.3
      - entLogicalCommunity 1.3.6.1.2.1.47.1.2.1.1.4
      - entLogicalTAddress 1.3.6.1.2.1.47.1.2.1.1.5
      - entLogicalTDomain 1.3.6.1.2.1.47.1.2.1.1.6
      - entLogicalContextEngineID 1.3.6.1.2.1.47.1.2.1.1.7
      - entLogicalContextName 1.3.6.1.2.1.47.1.2.1.1.8

```

Figure 4-4 entityMapping Hierarchy

```

- entityMapping
  - entLPMappingTable 1.3.6.1.2.1.47.1.3.1
    - entLPMappingEntry 1.3.6.1.2.1.47.1.3.1.1
      - entLPPhysicalIndex 1.3.6.1.2.1.47.1.3.1.1.1
  - entAliasMappingTable 1.3.6.1.2.1.47.1.3.2
    - entAliasMappingEntry 1.3.6.1.2.1.47.1.3.2.1
      - entAliasLogicalIndexOrZero 1.3.6.1.2.1.47.1.3.2.1.1
      - entAliasMappingIdentifier 1.3.6.1.2.1.47.1.3.2.1.2
  - entPhysicalContainsTable 1.3.6.1.2.1.47.1.3.3
    - entPhysicalContainsEntry 1.3.6.1.2.1.47.1.3.3.1
      - entPhysicalChildIndex 1.3.6.1.2.1.47.1.3.3.1.1

```

Figure 4-5 entityGeneral Hierarchy

```

- entityGeneral
  - entLastChangeTime 1.3.6.1.2.1.47.1.4.1

```

Figure 4-6 entityMIBTrapPrefix Hierarchy

```

- entityMIBTraps
  - entityMIBTrapPrefix (1.3.6.1.2.1.47.2.0)
    - entConfigChange 1.3.6.1.2.1.47.2.0.1

```

Figure 4-7 entityConformance Hierarchy

```

- entityConformance
  - entityCompliances (1.3.6.1.2.1.47.3.1)
    - entityCompliance 1.3.6.1.2.1.47.3.1.1
    - entity2Compliance 1.3.6.1.2.1.47.3.1.2
  - entityGroups (1.3.6.1.2.1.47.3.2)
    - entityPhysicalGroup 1.3.6.1.2.1.47.3.2.1
    - entityLogicalGroup 1.3.6.1.2.1.47.3.2.2
    - entityMappingGroup 1.3.6.1.2.1.47.3.2.3
    - entityGeneralGroup 1.3.6.1.2.1.47.3.2.4
    - entityNotificationsGroup 1.3.6.1.2.1.47.3.2.5
    - entityPhysical2Group 1.3.6.1.2.1.47.3.2.6
    - entityLogical2Group 1.3.6.1.2.1.47.3.2.7

```

Definitions for Entity MIB

Table 4-1 lists the objects or definitions that are imported into the Entity MIB and the modules from which they are imported.

Table 4-1 Objects Imported into the Entity MIB

Object	Imported from this module
MODULE-IDENTITY	SNMPv2-SMI
OBJECT-TYPE	
NOTIFICATION-TYPE	
mib-2	
TDomain	SNMPv2-TC
TAddress	
TEXTUAL-CONVENTION	
AutonomousType	
RowPointer	
TimeStamp	
TruthValue	
MODULE-COMPLIANCE	SNMPv2-CONF
OBJECT-GROUP	
NOTIFICATION-GROUP	
SnmpAdminString	SNMP-FRAMEWORK-MIB

Textual Conventions

PhysicalIndex

Arbitrary value that uniquely identifies the physical entity. Value should be a small positive integer; index values for different physical entities are not necessarily contiguous.

Syntax Integer (1... 2147483647)

PhysicalClass

An enumerated value that provides an indication of the general hardware type of a particular physical entity. There are no restrictions as to the number of entPhysicalEntries of each entPhysicalClass, which must be instantiated by an agent.

Syntax Integer

Table 4-2 Possible Values for PhysicalClass

Values	Description
other (1)	The physical entity class is known but does not match any of the supported values.
unknown (2)	The physical entity class is unknown to the agent.
chassis (3)	The physical entity class is an overall container for networking equipment. Any class of physical entity except a stack can be contained within a chassis, and a chassis might be contained only within a stack.
backplane (4)	The physical entity class is a device for aggregating and forwarding networking traffic, such as a shared backplane in a modular Ethernet switch. Note that an agent might model a backplane as a single physical entity, which is actually implemented as multiple discrete physical components (within a chassis or stack).
container (5)	The physical entity class is capable of containing one or more removable physical entities, possibly of different types (such as a chassis slot or daughter-card holder). For example, each (empty or full) slot in a chassis is modeled as a container. Note that all removable physical entities should be modeled within a container entity, such as field-replaceable modules, fans, or power supplies. Note that all known containers, including empty containers, should be modeled by the agent.
powerSupply (6)	The physical entity class is a power-supplying component.
fan (7)	The physical entity class is a fan or other heat-reduction component.
sensor (8)	The physical entity class is a sensor, such as a temperature sensor within a router chassis.
module (9)	The physical entity class is a self-contained subsystem (such as a plug-in card or daughter-card). If it is removable, then it should be modeled within a container entity; otherwise, it should be modeled directly within another physical entity (for example, a chassis or another module).
port (10)	The physical entity class is a networking port, capable of receiving or transmitting networking traffic.
stack (11)	The physical entity class is a super-container (possibly virtual), intended to group together multiple chassis entities (such as a stack of multiple chassis entities). A stack might be realized by a virtual cable or a real interconnect cable attached to multiple chassis, or it can comprise multiple interconnect cables. A stack should not be modeled within any other physical entities, but a stack might be contained within another stack. Only chassis entities should be contained within a stack.

SnmpEngineIdOrNone

A specially formatted SnmpEngineID string for use with the Entity MIB.

If an instance of an object with syntax SnmpEngineIdOrNone has a non-zero length, then the object encoding and semantics are defined by the SnmpEngineID textual convention (see RFC 2571 [RFC2571]).

If an instance of an object with syntax SnmpEngineIdOrNone contains a zero-length string, then no appropriate SnmpEngineID is associated with the logical entity (that is, SNMPv3 not supported).

Syntax OCTET STRING (SIZE(0..32)) Empty string or SnmpEngineID

Entity MIB Objects

The Entity MIB objects are divided into the following groups:

- “Physical Entity Group” on page 4-6
- “Logical Entity Group” on page 4-13
- “Entity Mapping Group” on page 4-15
- “General Group” on page 4-17

The following sections list the MIBs in each group.

Physical Entity Group

entPhysicalTable 1.3.6.1.2.1.47.1.1.1

This table contains one row per physical entity (see [Figure 4-8](#)). The table always contains at least one row for an “overall” physical entity.

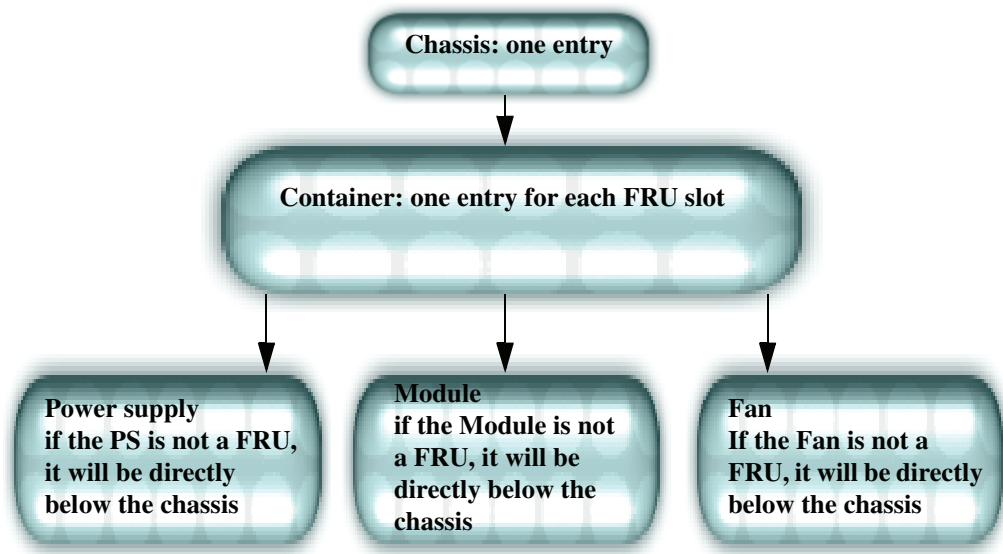
This object is implemented for Fabric OS v4.1 and above. The “overall” physical entry for Brocade is the chassis, and in Fabric OS v4.4 and above it is marked as a FRU.

Table 4-3 entPhysicalTable Entries for SilkWorm Switches

Platform	Blades	Fans	Power Supply	WWN Card
SilkWorm 200E	1	3 fans not a FRU	1 PS not a FRU	1 WWN unit not a FRU
SilkWorm 3016	1	NA	NA	1 WWN unit not a FRU
SilkWorm 3250	1	3 fans not a FRU	1 PS not a FRU	1 WWN unit not a FRU
SilkWorm 3850	1	4 fans not a FRU	2 PS not a FRU	1 WWN unit not a FRU
SilkWorm 3900	1	6 fans in 3 FRUs	2 PS	1 WWN unit not a FRU
SilkWorm 4012	NA	NA	NA	NA
SilkWorm 4100	1	3 FRUs	2 PS	1 WWN unit not a FRU

Table 4-3 entPhysicalTable Entries for SilkWorm Switches

Platform	Blades	Fans	Power Supply	WWN Card
SilkWorm 4900	1	3 FRUs	2 PS	1 WWN unit not a FRU
SilkWorm 7500	1	3 FRUs	2 PS	1 WWN unit not a FRU
SilkWorm 12000 / 24000	10 blades	3 fans	4 PS	2 WWN units in 1 FRU
SilkWorm 48000	10 blades	3 fans	4 PS	2 WWN units in 1 FRU

Figure 4-8 entPhysicalTable Containment Hierarchy (entPhysicalContainsTable)

entPhysicalEntry 1.3.6.1.2.1.47.1.1.1.1

Information about a particular physical entity.

Each entry provides objects (entPhysicalDescr, entPhysicalVendorType, and entPhysicalClass) to help an NMS identify and characterize the entry, and objects (entPhysicalContainedIn and entPhysicalParentRelPos) to help an NMS relate the particular entry to other entries in this table.

Index 1: entPhysicalIndex

entPhysicalIndex 1.3.6.1.2.1.47.1.1.1.1.1

The index for this entry.

entPhysicalDescr 1.3.6.1.2.1.47.1.1.1.1.2

A textual description of the physical entity (physical name of the entity, such as chassis, blade, port, and so on). This object should contain a string that identifies the entity manufacturer's name and should be set to a distinct value for each version or model of the physical entity.

The name provides the entity type and number (for example, slot 1, power supply, and so on). The description gives the textual description of the type of the entry (for example, power supply, module, and so on).

entPhysicalVendorType 1.3.6.1.2.1.47.1.1.1.1.3

An indication of the vendor-specific hardware type of the physical entity. Note that this is different from the definition of MIB-II sysObjectID.

An agent should set this object to an enterprise-specific registration identifier value, indicating the specific equipment type in detail. The associated instance of entPhysicalClass indicates the general type of hardware device.

If no vendor-specific registration identifier exists for this physical entity, or if the value is unknown by this agent, then the value { 0, 0 } is returned.

Returns Currently, NULL OID { 0, 0 } is returned.

entPhysicalContainedIn 1.3.6.1.2.1.47.1.1.1.1.4

The value of entPhysicalIndex for the physical entity that "contains" this physical entity. A value of 0 indicates this physical entity is not contained in any other physical entity. Note that the set of containment relationships define a strict hierarchy; that is, recursion is not allowed.

In the event a physical entity is contained by more than one physical entity (for example, double-wide modules), this object should identify the containing entity with the lowest value of entPhysicalIndex.

Value 0 for chassis entry. All containers have ContainedIn set to 1. All FRUs are contained in their respective slot container entries.

entPhysicalClass 1.3.6.1.2.1.47.1.1.1.1.5

An indication of the general hardware type of the physical entity.

An agent should set this object to the standard enumeration value that most accurately indicates the general class of the physical entity, or the primary class if there is more than one.

If no appropriate standard registration identifier exists for this physical entity, then the value `other(1)` is returned. If the value is unknown by this agent, then the value `unknown(2)` is returned.

SilkWorm 12000, 24000, and 48000 directors can have the following hierarchy of physical objects:

- Chassis: One entry (one row)
- Container: One entry for each FRU slot (eight port blades, two CPs, four power supplies, three fans)
- Module: Eight entries for port blades, two entries for CPs, four entries for power supplies, and three entries for fans.

SilkWorm 3900 switches can have the following hierarchy of physical objects:

- Chassis: One entry (one row)
- Container: One entry for each FRU slot (one switch blade, two power supplies, six fans)
- Module: One entry for switch blade, up to two entries for power supplies, and up to six entries for fans.

SilkWorm 4100 switches can have the following hierarchy of physical objects:

- Chassis: One entry (one row)
- Container: One entry for each FRU slot (one switch blade, two power supplies, three fans)
- Module: 1 entry for switch blade, up to two entries for power supplies, and up to three entries for fans.

entPhysicalParentRelPos 1.3.6.1.2.1.47.1.1.1.1.6

An indication of the relative position of this child component among all its *sibling* components. Sibling components are defined as entPhysicalEntries that share the same instance values of each of the entPhysicalContainedIn and entPhysicalClass objects.

For chassis entry, this value is -1; for containers, it is the sequential number of the container from the first one; for all FRUs, it is always 1.

An NMS can use this object to identify the relative ordering for all sibling components of a particular parent (identified by the entPhysicalContainedIn instance in each sibling entry).

This value should match any external labeling of the physical component if possible. For example, for a container (such as a card slot) labeled slot #3, entPhysicalParentRelPos should have the value 3. Note that the entPhysicalEntry for the module plugged into slot 3 should have an entPhysicalParentRelPos value of 1.

If the physical position of this component does not match any external numbering or clearly visible ordering, then user documentation or other external reference material should be used to determine the parent-relative position. If this is not possible, then the agent should assign a consistent (but possibly arbitrary) ordering to a given set of sibling components, perhaps based on internal representation of the components.

If the agent cannot determine the parent-relative position for some reason, or if the associated value of entPhysicalContainedIn is 0, then the value -1 is returned; otherwise, a non-negative integer is returned, indicating the parent-relative position of this physical entity.

Parent-relative ordering normally starts from 1 and continues to n , where n represents the highest-positioned child entity. However, if the physical entities (for example, slots) are labeled from a starting position of zero, then the first sibling should be associated with an entPhysicalParentRelPos value of 0. Note that this ordering might be sparse or dense, depending on agent implementation.

The actual values returned are not globally meaningful, as each parent component might use different numbering algorithms. The ordering is meaningful only among siblings of the same parent component.

The agent should retain parent-relative position values across reboots, either through algorithmic assignment or use of nonvolatile storage.

entPhysicalName 1.3.6.1.2.1.47.1.1.1.1.7

The textual name of the physical entity (physical name of the entity such as chassis, blade, port, and so on). The value of this object should be the name of the component as assigned by the local device and should be suitable for use in commands entered at the device's "console." This might be a text name, such as "console," or a simple component number (for example, port or module number) such as 1, depending on the physical component naming syntax of the device.

If there is no local name, or this object is otherwise not applicable, then this object contains a zero-length string.

Note that the value of entPhysicalName for two physical entities is the same in the event that the console interface does not distinguish between them (for example, slot-1 and the card in slot-1).

The name provides the type of the entry and its number (for example, slot 1, power supply, and so on). The description gives the textual description of the type of the entry (for example, power supply, module, and so on)

entPhysicalHardwareRev 1.3.6.1.2.1.47.1.1.1.1.8

The vendor-specific hardware revision string for the physical entity. The preferred value is the hardware revision identifier actually printed on the component itself (if present).

Note that if revision information is stored internally in a nonprintable (for example, binary) format, then the agent must convert such information to a printable format, in an implementation-specific manner.

If no specific hardware revision string is associated with the physical component, or if this information is unknown to the agent, then this object will contain a zero-length string.

Set to an empty string.

entPhysicalFirmwareRev 1.3.6.1.2.1.47.1.1.1.1.9

The vendor-specific firmware revision string for the physical entity.

Note that if revision information is stored internally in a nonprintable (for example, binary) format, then the agent must convert such information to a printable format, in an implementation-specific manner.

If no specific firmware programs are associated with the physical component, or if this information is unknown to the agent, then this object will contain a zero-length string.

Set to an empty string.

entPhysicalSoftwareRev 1.3.6.1.2.1.47.1.1.1.1.10

The vendor-specific software revision string for the physical entity.

Note that if revision information is stored internally in a nonprintable (for example, binary) format, then the agent must convert such information to a printable format, in an implementation-specific manner.

If no specific software programs are associated with the physical component, or if this information is unknown to the agent, then this object will contain a zero-length string.

Set to empty string.

entPhysicalSerialNum 1.3.6.1.2.1.47.1.1.1.1.11

The vendor-specific serial number string for the physical entity. The preferred value is the serial number actually printed on the component (if present).

On the first instantiation of a physical entity, the value of entPhysicalSerialNum associated with that entity is set to the correct vendor-assigned serial number, if this information is available to the agent. If a serial number is unknown or nonexistent, the entPhysicalSerialNum is set to a zero-length string instead.

Note that implementations that can correctly identify the serial numbers of all installed physical entities do not need to provide write access to the entPhysicalSerialNum object. Agents that cannot provide nonvolatile storage for the entPhysicalSerialNum strings are not required to implement write access for this object.

Not every physical component has a serial number or even needs one. Physical entities for which the associated value of the entPhysicalIsFRU object is equal to “false(2)” (for example, the repeater ports within a repeater module), do not need their own unique serial number. An agent does not have to provide write access for such entities and might return a zero-length string.

If write access is implemented for an instance of entPhysicalSerialNum and a value is written into the instance, the agent must retain the supplied value in the entPhysicalSerialNum instance associated with the same physical entity for as long as that entity remains instantiated. This includes instantiations across all reinitializations/reboots of the network management system, including those that result in a change of the physical entity’s entPhysicalIndex value.

Set to serial number and part number (if available), respectively.

entPhysicalMfgName 1.3.6.1.2.1.47.1.1.1.1.12

The name of the manufacturer of this physical component. The preferred value is the name actually printed on the component (if present).

Note that comparisons between instances of the entPhysicalModelName, entPhysicalFirmwareRev, entPhysicalSoftwareRev, and the entPhysicalSerialNum objects are meaningful only amongst entPhysicalEntries with the same value of entPhysicalMfgName.

If the manufacturer name string associated with the physical component is unknown to the agent, then this object contains a zero-length string.

Set to empty string.

entPhysicalModelName 1.3.6.1.2.1.47.1.1.1.1.13

The vendor-specific model name associated with this physical component. The preferred value is the customer-visible part number, which might be printed on the component.

If the model name string associated with the physical component is unknown to the agent, then this object contains a zero-length string.

Set to serial number and part number (if available) respectively.

entPhysicalAlias 1.3.6.1.2.1.47.1.1.1.1.14

This object is an alias name for the physical entity as specified by a network manager; it provides a nonvolatile handle for the physical entity.

On the first instantiation of a physical entity, the value of entPhysicalAlias associated with that entity is set to the zero-length string. However, the agent might set the value to a locally unique default value instead of a zero-length string.

If write access is implemented for an instance of entPhysicalAlias and a value is written into the instance, the agent must retain the supplied value in the entPhysicalAlias instance associated with the same physical entity for as long as that entity remains instantiated. This includes instantiations across all reinitializations/reboots of the network management system, including those that result in a change of the physical entity's entPhysicalIndex value.

Set to empty string.

entPhysicalAssetID 1.3.6.1.2.1.47.1.1.1.1.15

This object is a user-assigned asset tracking identifier for the physical entity as specified by a network manager; it provides nonvolatile storage of this information.

On the first instantiation of a physical entity, the value of entPhysicalAssetID associated with that entity is set to the zero-length string.

Not every physical component has an asset tracking identifier or even need one. Physical entities for which the associated value of the entPhysicalIsFRU object is equal to "false(2)" (for example, the repeater ports within a repeater module) do not need their own unique asset tracking identifier. An agent does not have to provide write access for such entities and might instead return a zero-length string.

If write access is implemented for an instance of entPhysicalAssetID and a value is written into the instance, the agent must retain the supplied value in the entPhysicalAssetID instance associated with the same physical entity for as long as that entity remains instantiated. This includes instantiations across all re-initializations/reboots of the network management system, including those that result in a change of the physical entity's entPhysicalIndex value.

If no asset tracking information is associated with the physical component, then this object contains a zero-length string.

Set to empty string.

entPhysicalIsFRU 1.3.6.1.2.1.47.1.1.1.1.16

The entPhysicalIsFRU object indicates whether this physical entity is considered a field replaceable unit by the vendor. If this object contains the value "true(1)," then this entPhysicalEntry identifies a field replaceable unit. For all entPhysicalEntries representing components that are permanently contained within a field replaceable unit, the value "false(2)" should be returned for this object.

Set to True (1) for FRU entries (port blades, CPs, sensors, power supplies, and fans; False (2) for container and chassis type entries.

Logical Entity Group

entLogicalTable 1.3.6.1.2.1.47.1.2.1

This table contains one row per logical entity. For agents that implement more than one naming scope, at least one entry must exist. Agents that instantiate all MIB objects within a single naming scope are not required to implement this table.

entLogicalEntry 1.3.6.1.2.1.47.1.2.1.1

Information about a particular logical entity. Entities might be managed by this agent or other SNMP agents in the same chassis.

Index entLogicalIndex

entLogicalIndex 1.3.6.1.2.1.47.1.2.1.1.1

The value of this object uniquely identifies the logical entity. The value should be a small positive integer; index values for different logical entities are not necessarily contiguous.

entLogicalDescr 1.3.6.1.2.1.47.1.2.1.1.2

A textual description of the logical entity. This object should contain a string that identifies the manufacturer's name for the logical entity and should be set to a distinct value for each version of the logical entity.

entLogicalType 1.3.6.1.2.1.47.1.2.1.1.3

An indication of the type of logical entity. This is typically the Object Identifier name of the node in the SMI's naming hierarchy that represents the major MIB module, or the majority of the MIB modules, supported by the logical entity.

- a logical entity of a regular host/router -> mib-2
- a logical entity of a 802.1d bridge -> dot1dBridge
- a logical entity of a 802.3 repeater -> snmpDot3RptrMgmt

If an appropriate node in the SMI's naming hierarchy cannot be identified, the value mib-2 should be used.

entLogicalCommunity 1.3.6.1.2.1.47.1.2.1.1.4

An SNMPv1 or SNMPv2C community string, which can be used to access detailed management information for this logical entity. The agent should allow read access with this community string (to an appropriate subset of all managed objects) and might also return a community string based on the privileges of the request used to read this object.

Note that an agent might return a community string with read-only privileges, even if this object is accessed with a read-write community string. However, the agent must take care not to return a community string that allows more privileges than the community string used to access this object.

A compliant SNMP agent might want to conserve naming scopes by representing multiple logical entities in a single default naming scope. This is possible when the logical entities represented by the same value of entLogicalCommunity have no object instances in common. For example, “bridge1” and “repeater1” might be part of the main naming scope, but at least one additional community string is needed to represent “bridge2” and “repeater2.”

Logical entities “bridge1” and “repeater1” would be represented by sysOREntries associated with the default naming scope.

For agents not accessible through SNMPv1 or SNMPv2C, the value of this object is the empty string. This object might also contain an empty string if a community string has not yet been assigned by the agent, or no community string with suitable access rights can be returned for a particular SNMP request.

Note that this object is deprecated. Agents that implement SNMPv3 access should use the entLogicalContextEngineID and entLogicalContextName objects to identify the context associated with each logical entity. SNMPv3 agents might return a zero-length string for this object or might continue to return a community string (for example, tri-lingual agent support).

entLogicalTAddress 1.3.6.1.2.1.47.1.2.1.1.5

The transport service address by which the logical entity receives network management traffic, formatted according to the corresponding value of entLogicalTDomain.

For snmpUDPDomain, a TAddress is 6 octets long, the initial 4 octets containing the IP-address in network-byte order and the last 2 containing the UDP port in network-byte order. Refer to *Transport Mappings for Version 2 of the Simple Network Management Protocol* (RFC1906) for further information on snmpUDPDomain.

entLogicalTDomain 1.3.6.1.2.1.47.1.2.1.1.6

Indicates the kind of transport service by which the logical entity receives network management traffic. Possible values for this object are currently found in the *Transport Mappings for SNMPv2* document (RFC1906).

entLogicalContextEngineID 1.3.6.1.2.1.47.1.2.1.1.7

The authoritative contextEngineID that can be used to send an SNMP message concerning information held by this logical entity to the address specified by the associated entLogicalTAddress/entLogicalTDomain pair.

This object, together with the associated entLogicalContextName object, defines the context associated with a particular logical entity; it allows access to SNMP engines identified by a contextEngineId and contextName pair.

If no value has been configured by the agent, a zero-length string is returned, or the agent might choose not to instantiate this object at all.

entLogicalContextName 1.3.6.1.2.1.47.1.2.1.1.8

The contextName that can be used to send an SNMP message concerning information held by this logical entity to the address specified by the associated entLogicalTAddress/entLogicalTDomain pair.

This object, together with the associated entLogicalContextEngineID object, defines the context associated with a particular logical entity and allows access to SNMP engines identified by a contextEngineId and contextName pair.

If no value has been configured by the agent, a zero-length string is returned, or the agent might choose not to instantiate this object at all.

Entity Mapping Group

entLPMappingTable 1.3.6.1.2.1.47.1.3.1

This table contains zero or more rows of logical entity to physical equipment associations. For each logical entity known by this agent, there are zero or more mappings to the physical resources used to realize that logical entity.

An agent should limit the number and nature of entries in this table such that only meaningful and nonredundant information is returned. For example, in a system that contains a single power supply, mappings between logical entities and the power supply are not useful and should not be included.

Also, only the most appropriate physical component that is closest to the root of a particular containment tree should be identified in an entLPMapping entry.

Suppose a bridge is realized on a particular module and all ports on that module are ports on this bridge. A mapping between the bridge and the module would be useful, but additional mappings between the bridge and each of the ports on that module would be redundant (since the entPhysicalContainedIn hierarchy can provide the same information). If, however, more than one bridge was utilizing ports on this module, then mappings between each bridge and the ports it used would be appropriate.

Also, in the case of a single backplane repeater, a mapping for the backplane to the single repeater entity is not necessary.

entLPMappingEntry 1.3.6.1.2.1.47.1.3.1.1

Information about a particular logical entity to physical equipment association. Note that the nature of the association is not specifically identified in this entry. It is expected that sufficient information exists in the MIBs used to manage a particular logical entity to infer how physical component information is utilized.

Index	entLogicalIndex entLPPhysicalIndex
--------------	---------------------------------------

entLPPhysicalIndex 1.3.6.1.2.1.47.1.3.1.1.1

The value of this object identifies the index value of a particular entPhysicalEntry associated with the indicated entLogicalEntity.

entAliasMappingTable 1.3.6.1.2.1.47.1.3.2

This table contains zero or more rows, representing mappings of logical entity and physical component to external MIB identifiers. Each physical port in the system might be associated with a mapping to an external identifier, which itself is associated with a particular logical entity's naming scope. A wildcard mechanism is provided to indicate that an identifier is associated with more than one logical entity.

entAliasMappingEntry 1.3.6.1.2.1.47.1.3.2.1

Information about a particular physical equipment, logical entity to external identifier binding. Each logical entity/physical component pair might be associated with one alias mapping. The logical entity index might also be used as a wildcard (see [“entAliasLogicalIndexOrZero 1.3.6.1.2.1.47.1.3.2.1.1” on page 4-16](#) for details.)

Note that only entPhysicalIndex values that represent physical ports (that is, associated entPhysicalClass value is “port(10)”) are permitted to exist in this table.

Index	entPhysicalIndex entAliasLogicalIndexOrZero
--------------	--

entAliasLogicalIndexOrZero 1.3.6.1.2.1.47.1.3.2.1.1

The value of this object identifies the logical entity that defines the naming scope for the associated instance of the entAliasMappingIdentifier object.

If this object has a nonzero value, then it identifies the logical entity named by the same value of entLogicalIndex.

If this object has a value of zero, then the mapping between the physical component and the alias identifier for this entAliasMapping entry is associated with all unspecified logical entities. That is, a value of zero (the default mapping) identifies any logical entity that does not have an explicit entry in this table for a particular entPhysicalIndex/entAliasMappingIdentifier pair.

For example, to indicate that a particular interface (such as “physical component 33”) is identified by the same value of ifIndex for all logical entities, the following instance might exist:

```
entAliasMappingIdentifier.33.0 = ifIndex.5
```

In the event an entPhysicalEntry is associated differently for some logical entities, additional entAliasMapping entries might exist:

```
entAliasMappingIdentifier.33.0 = ifIndex.6
entAliasMappingIdentifier.33.4 = ifIndex.1
entAliasMappingIdentifier.33.5 = ifIndex.1
entAliasMappingIdentifier.33.10 = ifIndex.12
```

Note that entries with nonzero entAliasLogicalIndexOrZero index values have precedence over any zero-indexed entry. In this example, all logical entities except 4, 5, and 10 associate physical entity 33 with ifIndex.6.

entAliasMappingIdentifier 1.3.6.1.2.1.47.1.3.2.1.2

The value of this object identifies a particular conceptual row associated with the indicated entPhysicalIndex and entLogicalIndex pair.

Since only physical ports are modeled in this table, only entries that represent interfaces or ports are allowed. If an ifEntry exists on behalf of a particular physical port, then this object should identify the associated ifEntry. For repeater ports, the appropriate row in the rptrPortGroupTable should be identified instead.

For example, suppose a physical port was represented by entPhysicalEntry.3, entLogicalEntry.15 existed for a repeater, and entLogicalEntry.22 existed for a bridge. Then there might be two related instances of entAliasMappingIdentifier:

```
entAliasMappingIdentifier.3.15 == rptrPortGroupIndex.5.2
entAliasMappingIdentifier.3.22 == ifIndex.17
```

It is possible that other mappings (besides interfaces and repeater ports) might be defined in the future, as required.

Bridge ports are identified by examining the Bridge MIB and appropriate ifEntries associated with each dot1dBasePort and are thus not represented in this table.

entPhysicalContainsTable 1.3.6.1.2.1.47.1.3.3

A table that exposes the container/containee relationships between physical entities. This table provides all the information found by constructing the virtual containment tree for a given entPhysicalTable, but in a more direct format.

In the event a physical entity is contained by more than one other physical entity (for example, double-wide modules), this table should include these additional mappings, which cannot be represented in the entPhysicalTable virtual containment tree.

entPhysicalContainsEntry 1.3.6.1.2.1.47.1.3.3.1

A single container / containee relationship.

Indexes

- 1: entPhysicalIndex
- 2: entPhysicalChildIndex

entPhysicalChildIndex 1.3.6.1.2.1.47.1.3.3.1.1

The value of entPhysicalIndex for the contained physical entity.

General Group

entLastChangeTime 1.3.6.1.2.1.47.1.4.1

The value of sysUpTime at the time a conceptual row is created, modified, or deleted in any of the following tables:

- entPhysicalTable
- entLogicalTable

- entLPMappingTable
- entAliasMappingTable
- entPhysicalContainsTable

Entity MIB Trap

This section lists the entityMIBTrap objects.

entConfigChange 1.3.6.1.2.1.47.2.0.1

An entConfigChange notification is generated when the value of entLastChangeTime changes. It can be utilized by an NMS to trigger logical/physical entity table maintenance polls.

An agent should not generate more than one entConfigChange notification event in a given time interval (five seconds is the suggested default). A notification event is the transmission of a single trap or inform PDU to a list of notification destinations.

If additional configuration changes occur within the throttling period, then notification events for these changes should be suppressed by the agent until the current throttling period expires. At the end of a throttling period, one notification event should be generated if any configuration changes occurred since the start of the throttling period; in such a case, another throttling period is started right away.

An NMS should periodically check the value of entLastChangeTime to detect any missed entConfigChange notification events, for example, due to throttling or transmission loss.

Entity MIB Conformance Information

This section lists the entityConformance MIBs. [Figure 4-7 on page 4-3](#) shows the structure of the entityConformance group.

entityCompliance 1.3.6.1.2.1.47.3.1.1

The compliance statement for SNMP entities that implement version 1 of the Entity MIB.

Status	Deprecated
Mandatory Groups	1: entityPhysicalGroup
	2: entityLogicalGroup
	3: entityMappingGroup
	4: entityGeneralGroup
	5: entityNotificationsGroup

entity2Compliance 1.3.6.1.2.1.47.3.1.2

The compliance statement for SNMP entities that implement version 2 of the Entity MIB.

Mandatory Groups

- 1: entityPhysicalGroup
- 2: entityPhysical2Group
- 3: entityGeneralGroup
- 4: entityNotificationsGroup

Components

1. Type: Group
Group: entityLogical2Group
Description: Implementation of this group is not mandatory for agents which model all MIB object instances within a single naming scope.
2. Type: Group
Group: entityMappingGroup
Description: Implementation of the entPhysicalContainsTable is mandatory for all agents. Implementation of the entLPMappingTable and entAliasMappingTables are not mandatory for agents which model all MIB object instances within a single naming scope. Note that the entAliasMappingTable may be useful for all agents, however implementation of the entityLogicalGroup or entityLogical2Group is required to support this table.
3. Type: Object
Object: entPhysicalSerialNum
Min access: not-accessible
Description: Read and write access is not required for agents which cannot identify serial number information for physical entities, and/or cannot provide non-volatile storage for NMS-assigned serial numbers. Write access is not required for agents which can identify serial number information for physical entities, but cannot provide non-volatile storage for NMS-assigned serial.

entityPhysicalGroup 1.3.6.1.2.1.47.3.2.1

The collection of objects used to represent physical system components, for which a single agent provides management information.

Objects

- 1: entPhysicalDescr
- 2: entPhysicalVendorType
- 3: entPhysicalContainedIn
- 4: entPhysicalClass
- 5: entPhysicalParentRelPos
- 6: entPhysicalName

entityLogicalGroup 1.3.6.1.2.1.47.3.2.2

The collection of objects used to represent the list of logical entities, for which a single agent provides management information.

Objects	1: entLogicalDescr
	2: entLogicalType
	3: entLogicalCommunity
	4: entLogicalTAddress
	5: entLogicalTDomain
Status	Deprecated

entityMappingGroup 1.3.6.1.2.1.47.3.2.3

The collection of objects used to represent the associations between multiple logical entities, physical components, interfaces, and port identifiers, for which a single agent provides management information.

Objects	1: entLPPhysicalIndex
	2: entAliasMappingIdentifier
	3: entPhysicalChildIndex

entityGeneralGroup 1.3.6.1.2.1.47.3.2.4

The collection of objects that are used to represent general entity information for which a single agent provides management information.

Objects	1: entLastChangeTime
----------------	----------------------

entityNotificationsGroup 1.3.6.1.2.1.47.3.2.5

The collection of notifications used to indicate Entity MIB data consistency and general status information.

Notifications	1: entConfigChange
----------------------	--------------------

entityPhysical2Group 1.3.6.1.2.1.47.3.2.6

The collection of objects used to represent physical system components, for which a single agent provides management information. This group augments the objects contained in the entityPhysicalGroup.

Objects	1: entPhysicalHardwareRev
	2: entPhysicalFirmwareRev
	3: entPhysicalSoftwareRev
	4: entPhysicalSerialNum
	5: entPhysicalMfgName
	6: entPhysicalModelName

- 7: entPhysicalAlias
- 8: entPhysicalAssetID
- 9: entPhysicalIsFRU

entityLogical2Group 1.3.6.1.2.1.47.3.2.7

The collection of objects used to represent the list of logical entities, for which a single SNMP entity provides management information.

- Objects**
- 1: entLogicalDescr
 - 2: entLogicalType
 - 3: entLogicalTAddress
 - 4: entLogicalTDomain
 - 5: entLogicalContextEngineID
 - 6: entLogicalContextName

SW-MIB Objects

This chapter contains descriptions and other information specific to FC Switch MIB (SW-MIB) object types. This chapter provides information on:

- “SW MIB Overview” next
- “sw Traps” on page 5-12
- “swSystem Group” on page 5-17
- “swFabric Group” on page 5-26
- “SW Agent Configuration Group” on page 5-29
- “Fibre Channel Port Group” on page 5-30
- “Name Server Database Group” on page 5-36
- “Event Group” on page 5-38
- “Fabric Watch Group” on page 5-40
- “End Device Group” on page 5-48
- “Switch Group” on page 5-49
- “ASIC Performance Monitoring Group” on page 5-51
- “Trunking Group” on page 5-53

SW MIB Overview

The descriptions of the MIB variables in this chapter come directly from the FC Switch MIB. The notes that follow the descriptions typically pertain to Brocade-specific information as provided by Brocade.

SW-MIB System Organization of MIB Objects

Figure 5-1 through Figure 5-14 depict the organization and structure of SW-MIB.

Figure 5-1 SW-MIB Overall Tree Structure

```

- iso
  - org
    - dod
      - internet
        - private
          - enterprises
            - bsci
              - commDev
                - fibreChannel
                  - fcSwitch
                    - sw
                      - swTrapsV2
                      - swSystem
                      - swFabric
                      - swModule
                      - swAgtCfg
                      - swFCport
                      - swNs
                      - swEvent
                      - swFwSystem
                      - swEndDevice
                      - swGroup
                      - swBlmPerfMnt
                      - swTrunk
                      - sw28k
                      - sw21kN24k
                      - sw20x0
            - bsciReg
              - bsciModules
                - sw21kN24k
                - sw20x0

```

Figure 5-2 swTrapsV2 Hierarchy

```

- swTrapsV2
  - swFault 1.3.6.1.4.1.1588.2.1.1.1.0.1
  - swSensorScn 1.3.6.1.4.1.1588.2.1.1.1.0.2
  - swFCPortScn 1.3.6.1.4.1.1588.2.1.1.1.0.3
  - swEventTrap 1.3.6.1.4.1.1588.2.1.1.1.0.4
  - swFabricWatchTrap 1.3.6.1.4.1.1588.2.1.1.1.0.5
  - swTrackChangesTrap 1.3.6.1.4.1.1588.2.1.1.1.0.6

```

Figure 5-3 swSystem Hierarchy

```

- swSystem
  - swCurrentDate 1.3.6.1.4.1.1588.2.1.1.1.1.1
  - swBootDate 1.3.6.1.4.1.1588.2.1.1.1.1.2
  - swFWLastUpdated 1.3.6.1.4.1.1588.2.1.1.1.1.3
  - swFlashLastUpdated 1.3.6.1.4.1.1588.2.1.1.1.1.4
  - swBootPromLastUpdated 1.3.6.1.4.1.1588.2.1.1.1.1.5
  - swFirmwareVersion 1.3.6.1.4.1.1588.2.1.1.1.1.6
  - swOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.7
  - swAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.8
  - swTelnetShellAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.9
  - swSsn 1.3.6.1.4.1.1588.2.1.1.1.1.10
  - swFlashDLOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.11
  - swFlashDLAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.12
  - swFlashDLHost 1.3.6.1.4.1.1588.2.1.1.1.1.13
  - swFlashDLUser 1.3.6.1.4.1.1588.2.1.1.1.1.14
  - swFlashDLFile 1.3.6.1.4.1.1588.2.1.1.1.1.15
  - swFlashDLPassword 1.3.6.1.4.1.1588.2.1.1.1.1.16
  - swBeaconOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.18
  - swBeaconAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.19
  - swDiagResult 1.3.6.1.4.1.1588.2.1.1.1.1.20
  - swNumSensors 1.3.6.1.4.1.1588.2.1.1.1.1.21
  - swSensorTable 1.3.6.1.4.1.1588.2.1.1.1.1.22
    - swSensorEntry 1.3.6.1.4.1.1588.2.1.1.1.1.22.1
      - swSensorIndex 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.1
      - swSensorType 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.2
      - swSensorStatus 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.3
      - swSensorValue 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.4
      - swSensorInfo 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.5
    - swTrackChangesInfo 1.3.6.1.4.1.1588.2.1.1.1.1.23
  - swID 1.3.6.1.4.1.1588.2.1.1.1.1.24
  - swEtherIPAddress 1.3.6.1.4.1.1588.2.1.1.1.1.25
  - swEtherIPMask 1.3.6.1.4.1.1588.2.1.1.1.1.26
  - swFCIPAddress 1.3.6.1.4.1.1588.2.1.1.1.1.27
  - swFCIPMask 1.3.6.1.4.1.1588.2.1.1.1.1.28

```

Figure 5-4 swFabric Hierarchy

```

- swFabric
- swDomainID 1.3.6.1.4.1.1588.2.1.1.1.2.1
- swPrincipalSwitch 1.3.6.1.4.1.1588.2.1.1.1.2.2
- swNumNbs 1.3.6.1.4.1.1588.2.1.1.1.2.8
- swNbTable 1.3.6.1.4.1.1588.2.1.1.1.2.9
  - swNbEntry 1.3.6.1.4.1.1588.2.1.1.1.2.9.1
    - swNbIndex 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.1
    - swNbMyPort 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.2
    - swNbRemDomain 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.3
    - swNbRemPort 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.4
    - swNbBaudRate 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.5
    - swNbIslState 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.6
    - swNbIslCost 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.7
    - swNbRemPortName 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.8
  - swFabricMemTable 1.3.6.1.4.1.1588.2.1.1.1.2.10
    - swFabricMemEntry 1.3.6.1.4.1.1588.2.1.1.1.2.10.1
      - swFabricMemWwn 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.1
      - swFabricMemDid 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.2
      - swFabricMemName 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.3
      - swFabricMemEIP 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.4
      - swFabricMemFCIP 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.5
      - swFabricMemGWIP 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.6
      - swFabricMemType 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.7
      - swFabricMemShortVersion 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.8
      - swIDIDMode 1.3.6.1.4.1.1588.2.1.1.1.2.11

```

Figure 5-5 swModule Hierarchy

```

- swModule (1.3.6.1.4.1.1588.2.1.1.1.3)

```

Figure 5-6 swAgtCfg Hierarchy

```

- swAgtCfg
- swAgtCmtyTable 1.3.6.1.4.1.1588.2.1.1.1.4.11
  - swAgtCmtyEntry 1.3.6.1.4.1.1588.2.1.1.1.4.11.1
    - swAgtCmtyIdx 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.1
    - swAgtCmtyStr 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.2
    - swAgtTrapRcp 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.3
    - swAgtTrapSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.4

```

Figure 5-7 swFCport Hierarchy

```

- swFCport (1.3.6.1.4.1.1588.2.1.1.1.6)
  - swFCPortCapacity 1.3.6.1.4.1.1588.2.1.1.1.6.1
  - swFCPortTable 1.3.6.1.4.1.1588.2.1.1.1.6.2
    - swFCPortEntry 1.3.6.1.4.1.1588.2.1.1.1.6.2.1
      - swFCPortIndex 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.1
      - swFCPortType 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.2
      - swFCPortPhyState 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.3
      - swFCPortOpStatus 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.4
      - swFCPortAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.5
      - swFCPortLinkState 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.6
      - swFCPortTxType 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.7

      - swFCPortTxWords 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.11
      - swFCPortRxWords 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.12
      - swFCPortTxFrames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.13
      - swFCPortRxFrames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.14
      - swFCPortRxC2Frames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.15
      - swFCPortRxC3Frames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.16
      - swFCPortRxCs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.17
      - swFCPortRxCasts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.18
      - swFCPortTooManyRdys 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.19
      - swFCPortNoTxCredits 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.20
      - swFCPortRxEncInFrs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.21
      - swFCPortRxCrcs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.22
      - swFCPortRxTruncs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.23
      - swFCPortRxTooLongs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.24
      - swFCPortRxBadEofs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.25
      - swFCPortRxEncOutFrs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.26
      - swFCPortRxBadOs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.27
      - swFCPortC3Discards 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.28
      - swFCPortMcastTimedOuts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.29
      - swFCPortTxMcasts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.30
      - swFCPortLipIns 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.31
      - swFCPortLipOuts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.32
      - swFCPortLipLastAlpa 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.33
      - swFCPortWwn 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.34
      - swFCPortSpeed 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.35
      - swFCPortName 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.36
      - swFCPortSpecifier 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.37

```

Figure 5-8 swNs Hierarchy

```

- swNs
  - swNsLocalNumEntry 1.3.6.1.4.1.1588.2.1.1.1.7.1
  - swNsLocalTable 1.3.6.1.4.1.1588.2.1.1.1.7.2
    - swNsLocalEntry 1.3.6.1.4.1.1588.2.1.1.1.7.2.1
      - swNsEntryIndex 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.1
      - swNsPortID 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.2
      - swNsPortType 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.3
      - swNsPortName 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.4
      - swNsPortSymb 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.5
      - swNsNodeName 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.6
      - swNsNodeSymb 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.7
      - swNsIPA 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.8
      - swNsIpAddress 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.9
      - swNsCos 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.10
      - swNsFc4 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.11
      - swNsIpNxPort 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.12
      - swNsWwn 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.13
      - swNsHardAddr 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.14

```

Figure 5-9 swEvent Hierarchy

```

- swEvent
  - swEventTrapLevel 1.3.6.1.4.1.1588.2.1.1.1.8.1
  - swEventNumEntries 1.3.6.1.4.1.1588.2.1.1.1.8.4
  - swEventTable 1.3.6.1.4.1.1588.2.1.1.1.8.5
    - swEventEntry 1.3.6.1.4.1.1588.2.1.1.1.8.5.1
      - swEventIndex 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.1
      - swEventTimeInfo 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.2
      - swEventLevel 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.3
      - swEventRepeatCount 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.4
      - swEventDescr 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.5

```


Figure 5-10 swFwSystem Hierarchy

```

- swFwSystem
- swFwFabricWatchLicense 1.3.6.1.4.1.1588.2.1.1.1.10.1
- swFwClassAreaTable 1.3.6.1.4.1.1588.2.1.1.1.10.2
  - swFwClassAreaEntry 1.3.6.1.4.1.1588.2.1.1.1.10.2.1
    - swFwClassAreaIndex 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.1
    - swFwWriteThVals 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.2
    - swFwDefaultUnit 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.3
    - swFwDefaultTimebase 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.4
    - swFwDefaultLow 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.5
    - swFwDefaultHigh 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.6
    - swFwDefaultBufSize 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.7
    - swFwCustUnit 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.8
    - swFwCustTimebase 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.9
    - swFwCustLow 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.10
    - swFwCustHigh 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.11
    - swFwCustBufSize 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.12
    - swFwThLevel 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.13
    - swFwWriteActVals 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.14
    - swFwDefaultChangedActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.15
    - swFwDefaultExceededActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.16
    - swFwDefaultBelowActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.17
    - swFwDefaultAboveActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.18
    - swFwDefaultInBetweenActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.19
    - swFwCustChangedActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.20
    - swFwCustExceededActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.21
    - swFwCustBelowActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.22
    - swFwCustAboveActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.23
    - swFwCustInBetweenActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.24
    - swFwValidActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.25
    - swFwActLevel 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.26
- swFwThresholdTable 1.3.6.1.4.1.1588.2.1.1.1.10.3
  - swFwThresholdEntry 1.3.6.1.4.1.1588.2.1.1.1.10.3.1
    - swFwThresholdIndex 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.1
    - swFwStatus 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.2
    - swFwName 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.3
    - swFwLabel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.4
    - swFwCurVal 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.5
    - swFwLastEvent 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.6
    - swFwLastEventVal 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.7
    - swFwLastEventTime 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.8
    - swFwLastState 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.9
    - swFwBehaviorType 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.10
    - swFwBehaviorInt 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.11
    - swFwLastSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.12

```

Figure 5-11 swEndDevice Hierarchy

```

- swEndDevice
- swEndDeviceRlsTable 1.3.6.1.4.1.1588.2.1.1.1.21.1
- swEndDeviceRlsEntry 1.3.6.1.4.1.1588.2.1.1.1.21.1.1
- swEndDevicePort 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.1
- swEndDeviceAlpa 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.2
- swEndDevicePortID 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.3
- swEndDeviceLinkFailure 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.4
- swEndDeviceSyncLoss 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.5
- swEndDeviceSigLoss 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.6
- swEndDeviceProtoErr 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.7
- swEndDeviceInvalidWord 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.8
- swEndDeviceInvalidCRC 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.9

```

Figure 5-12 swGroup Hierarchy

```

- swGroup
- swGroupTable 1.3.6.1.4.1.1588.2.1.1.1.22.1
- swGroupEntry 1.3.6.1.4.1.1588.2.1.1.1.22.1.1
- swGroupIndex 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.1
- swGroupName 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.2
- swGroupType 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.3
- swGroupMemTable 1.3.6.1.4.1.1588.2.1.1.1.22.2
- swGroupMemEntry 1.3.6.1.4.1.1588.2.1.1.1.22.2.1
- swGroupID 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.1
- swGroupMemWwn 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.2
- swGroupMemPos 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.3

```

Figure 5-13 swBlmPerfMnt Hierarchy

```

- swBlmPerfMnt
- swBlmPerfALPAMntTable 1.3.6.1.4.1.1588.2.1.1.1.23.1
- swBlmPerfALPAMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.1.1
- swBlmPerfAlpaPort 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.1
- swBlmPerfAlpaIndx 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.2
- swBlmPerfAlpa 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.3
- swBlmPerfAlpaCRCCnt 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.4
- swBlmPerfEEMntTable 1.3.6.1.4.1.1588.2.1.1.1.23.2
- swBlmPerfEEMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.2.1
- swBlmPerfEEPort 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.1
- swBlmPerfEERefKey 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.2
- swBlmPerfEECRC 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.3
- swBlmPerfEEFCWRx 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.4
- swBlmPerfEEFCWTx 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.5
- swBlmPerfEESid 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.6
- swBlmPerfEEDid 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.7
- swBlmPerfFltMntTable 1.3.6.1.4.1.1588.2.1.1.1.23.3
- swBlmPerfFltMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.3.1
- swBlmPerfFltPort 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.1
- swBlmPerfFltRefkey 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.2
- swBlmPerfFltCnt 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.3
- swBlmPerfFltAlias 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.4

```

Figure 5-14 swTrunk Hierarchy

```
- swTrunk
-   swSwitchTrunkable 1.3.6.1.4.1.1588.2.1.1.1.24.1
-   swTrunkTable 1.3.6.1.4.1.1588.2.1.1.1.24.2
-       swTrunkEntry 1.3.6.1.4.1.1588.2.1.1.1.24.2.1
-           swTrunkPortIndex 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.1
-           swTrunkGroupNumber 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.2
-           swTrunkMaster 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.3
-           swPortTrunked 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.4
-   swTrunkGrpTable 1.3.6.1.4.1.1588.2.1.1.1.24.3
-       swTrunkGrpEntry 1.3.6.1.4.1.1588.2.1.1.1.24.3.1
-           swTrunkGrpNumber 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.1
-           swTrunkGrpMaster 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.2
-           swTrunkGrpTx 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.3
-           swTrunkGrpRx 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.4
```

Textual Conventions for SW-MIB

The following textual conventions are used for SW-MIB.

Table 5-1 SW-MIB Textual Conventions

Type Definition	Value	Description
FcWwn	Octet String of size 8	The World Wide Name (WWN) of Brocade-specific products and ports.
SwDomainIndex	Integer of size 1 to 239	Fibre Channel domain ID of the switch.
SwNbIndex	Integer of size 1 to 2048	Index of the neighbor inter-switch link (ISL) entry.
SwSensorIndex	Integer of size 1 to 1024	Index of the sensor entry.
SwPortIndex	Integer32	Index of the port, starting from 1 up to the maximum number of ports on the Brocade switch.
SwTrunkMaster	Integer32	Index of the trunk master, starting from 1 up to the maximum number of trunk groups on the Brocade switch.
SwFwActs	Integer	Valid action matrix: 0 swFwNoAction 1 swFwErrlog 2 swFwSnmpttrap 3 swFwErrlogSnmpttrap 4 swFwPortloglock 5 swFwErrlogPortloglock 6 swFwSnmpttrapPortloglock 7 swFwErrlogSnmpttrapPortloglock 8 swFwRn 9 swFwElRn 10 swFwStRn 11 swFwElStRn 12 swFwPIRn 13 swFwElPIRn 14 swFwStPIRn 15 swFwElStPIRn 16 swFwMailAlert 17 swFwMailAlertErrlog 18 swFwMailAlertSnmpttrap 19 swFwMailAlertErrlogSnmpttrap 20 swFwMailAlertPortloglock 21 swFwMailAlertErrlogPortloglock 22 swFwMailAlertSnmpttrapPortloglock 23 swFwMailAlertErrlogSnmpttrapPortloglock 24 swFwMailAlertRn 25 swFwElMailAlertRn 26 swFwMailAlertStRn 27 swFwMailAlertElStRn 28 swFwMailAlertPIRn 29 swFwMailAlertElPIRn 30 swFwMailAlertStPIRn 31 swFwMailAlertElStPIRn

Table 5-1 SW-MIB Textual Conventions (Continued)

Type Definition	Value	Description
SwFwLevels	Integer	Threshold values or action matrix level: 1 swFwReserved 2 swFwDefault 3 swFwCustom
SwFwClassesAreas	Integer	Classes and area index: 1 swFwEnvTemp 2 swFwEnvFan 3 swFwEnvPs 4 swFwTransceiverTemp 5 swFwTransceiverRxp 6 swFwTransceiverTxp 7 swFwTransceiverCurrent 8 swFwPortLink 9 swFwPortSync 10 swFwPortSignal 11 swFwPortPe 12 swFwPortWords 13 swFwPortCrcs 14 swFwPortRXPerf 15 swFwPortTXPerf 16 swFwPortState 17 swFwFabricEd 18 swFwFabricFr 19 swFwFabricDi 20 swFwFabricSc 21 swFwFabricZc 22 swFwFabricFq 23 swFwFabricFl 24 swFwFabricGs 25 swFwEPortLink 26 swFwEPortSync 27 swFwEPortSignal 28 swFwEPortPe 29 swFwEPortWords 30 swFwEPortCrcs 31 swFwEPortRXPerf 32 swFwEPortTXPerf 33 swFwEPortState 34 swFwFCUPortLink 35 swFwFCUPortSync 36 swFwFCUPortSignal 37 swFwFCUPortPe 38 swFwFCUPortWords 39 swFwPortCrcs 40 swFwFCUPortRXPerf 41 swFwFCUPortTXPerf 42 swFwFCUPortState 43 swFwFOPPortLink 44 swFwFOPPortSync 45 swFwFOPPortSignal 46 swFwFOPPortPe 47 swFwFOPPortWords 48 swFwFOPPortCrcs 49 swFwFOPPortRXPerf 50 swFwFOPPortTXPerf 51 swFwFOPPortState 52 swFwPerfALPACRC 53 swFwPerfEToECRC 54 swFwPerfEToERxCnt 55 swFwPerfEToETxCnt 56 swFwPerffltCusDef 57 swFwTransceiverVoltage 58 swFwSecTelnetViolations 59 swFwSecHTTPViolations 60 swFwSecAPIViolations 61 swFwSecRSNMPViolations 62 swFwSecWSNMPViolations 63 swFwSecSESViolations 64 swFwSecMSViolations 65 swFwSecSerialViolations 66 swFwSecFPViolations 67 swFwSecSCCViolations 68 swFwSecDCCViolations 69 swFwSecLoginViolations 70 swFwSecInvaledTS 71 swFwSecInvalidSign 72 swFwSecInvalidCert 73 swFwSecSlapFail 74 swFwSecSlapBadPkt 75 swFwSecTSOutSync 76 swFwSecNoFcs 77 swFwSecIncompDB 78 swFwSecIllegalCmd 79 swFwSAMTotalDownTime 80 swFwSAMTotalUpTime 81 swFwSAMDuratioOfOccur 82 swFwSAMFreqOfOccur 83 swFwResourceFlash

Table 5-1 SW-MIB Textual Conventions (Continued)

Type Definition	Value	Description
SwFwWriteVals	Integer	Write-only variable for applying or canceling values or action matrix changes: 1 swFwCancelWrite 2 swFwApplyWrite
SwFwTimebase	Integer	Timebase for thresholds: 1 swFwTbNone 2 swFwTbSec 3 swFwTbMin 4 swFwTbHour 5 swFwTbDay
SwFwStatus	Integer	Status for thresholds: 1 disabled 2 enabled
SwFwEvent	Integer	Possible events available: 1 started 2 changed 3 exceeded 4 below 5 above 6 inBetween
SwFwBehavior	Integer	Behavior type for thresholds: 1 triggered 2 continuous
SwFwState	Integer	State type for last events: 1 swFwInformative 2 swFwNormal 3 swFwfaulty
SwFwLicense	Integer	License state: 1 swFwLicensed 2 swFwNotLicensed

sw Traps

This section contains descriptions and other information that is specific to sw Traps.

See Table 5-2 for the six traps defined in the SW.MIB, when it occurs, and how to configure the trap, if possible.

Table 5-2 SW MIB Traps

Name	Specific	When	Configure
“swFault 1.3.6.1.4.1.1588.2.1.1.1.0.1” on page 5-13 (not supported)	1	During boot, if diagnostics fail	N.A.
“swSensorScn 1.3.6.1.4.1.1588.2.1.1.1.0.2” on page 5-14	2	Obsolete	N.A.
“swFCPortScn 1.3.6.1.4.1.1588.2.1.1.1.0.3” on page 5-14	3	Port changes state	Always on
“swEventTrap 1.3.6.1.4.1.1588.2.1.1.1.0.4” on page 5-15	4	Switch event	See the <i>Fabric OS Command Reference Manual</i> and the snmpConfig command for more information.
“swFabricWatchTrap1.3.6.1.4.1.1588.2.1.1.1.0.5” on page 5-16	5	Threshold reached	Fabric OS Command: fwConfigure
“swTrackChangesTrap 1.3.6.1.4.1.1588.2.1.1.1.0.6” on page 5-17	6	Login/logout	Fabric OS Command: trackChangesSet and trackChangesShow

See the *Fabric OS Command Reference Manual* and the **snmpMibCapSet** command on how to enable or disable the sending of traps from the various MIBs.

The swSsn variable is optional in trap messages.

The swGroupName, swGroupType, and swGroupMemPos variables are optional trap messages in v2.6.x. The swGroupName, swGroupType, and swGroupMemPos variables are not supported in Fabric OS v4.x and above.

swFault 1.3.6.1.4.1.1588.2.1.1.1.0.1

This trap is no longer generated.

Enterprise sw

Variables “swDiagResult 1.3.6.1.4.1.1588.2.1.1.1.1.20”
“swSsn 1.3.6.1.4.1.1588.2.1.1.1.1.10”

A swFault is generated whenever the diagnostics detect a fault with the switch.

#TYPE	Switch is faulty.
#SUMMARY	Faulty reason: %d and SSN is #%
#ARGUMENTS	0, 1
#SEVERITY	Critical
#TIMEINDEX	1
#STATE	Nonoperational

swSensorScn 1.3.6.1.4.1.1588.2.1.1.1.0.2

(Obsoleted by swFabricWatchTrap)

Enterprise sw

Variables “swSensorStatus 1.3.6.1.4.1.1588.2.1.1.1.22.1.3”
 “swSensorIndex 1.3.6.1.4.1.1588.2.1.1.1.22.1.1”
 “swSensorType 1.3.6.1.4.1.1588.2.1.1.1.22.1.2”
 “swSensorValue 1.3.6.1.4.1.1588.2.1.1.1.22.1.4”
 “swSensorInfo 1.3.6.1.4.1.1588.2.1.1.1.22.1.5”
 “swSsn 1.3.6.1.4.1.1588.2.1.1.1.10”

A swSensorScn (2) is generated whenever an environment sensor changes its operational state: for instance, if a fan stop working. The VarBind in the Trap Data Unit contain the corresponding instance of the sensor status, sensor index, sensor type, sensor value (reading), and sensor information. Note that the sensor information contains the type of sensor and its number, in textual format.

#TYPE	A sensor (temperature, fan, or other) changed its operational state.
#SUMMARY	%s: is currently in state %d and SSN is #%
#ARGUMENTS	4, 0, 5
#SEVERITY	Informational
#TIMEINDEX	1
#STATE	Operational

swFCPortScn 1.3.6.1.4.1.1588.2.1.1.1.0.3

Enterprise sw

Variables “swFCPortOpStatus 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.4”
 “swFCPortIndex 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.1”
 “swFCPortName 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.36”

“swSsn 1.3.6.1.4.1.1588.2.1.1.1.1.10”

A swFCPortScn (3) is generated whenever an FC_Port changes its operational state: for instance, the FC_Port goes from online to offline. The VarBind in the Trap Data Unit contain the corresponding instance of the FC_Port's operational status, index, swFCPortName, and swSsn. swFCPortName and swSsn are optional.

#TYPE	A Fibre Channel Port changed its operational state.
#SUMMARY	Port Index %d changed state to %d. Port Name: %s and SSN is #s
#ARGUMENTS	1, 0, 2, 3
#SEVERITY	Informational
#TIMEINDEX	1
#STATE	Operational

Sample trap output for Fabric OS 4.4.0:

```
swFCPortOpStatus.11 = offline(2)
swFCPortIndex.11 = 11
swFCPortName.11 = test
swSsn.0 = none
```

swEventTrap 1.3.6.1.4.1.1588.2.1.1.1.0.4

Enterprise sw

Variables “swEventIndex 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.1”

“swEventTimeInfo 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.2”

“swEventLevel 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.3”

“swEventRepeatCount 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.4”

“swEventDescr 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.5”

“swSsn 1.3.6.1.4.1.1588.2.1.1.1.1.10”

This trap is generated when an event occurs with a level that is at or below “swEventTrapLevel 1.3.6.1.4.1.1588.2.1.1.1.8.1”.

#TYPE	A firmware event has been logged.
#SUMMARY	Event %d: %s (severity level %d) - %s SSN is #s
#ARGUMENTS	0, 1, 2, 4, 5
#SEVERITY	Informational
#TIMEINDEX	1
#STATE	Operational

Each Trap recipient has a configured severity level association. Whenever an error message is generated at or above that configured severity level the recipient is notified of the event.

This trap is generated for all RASLog messages. From Fabric OS 4.4.0 this trap is only generated for external RASLog messages.

Sample trap output for Fabric OS 4.4.0:

```
swEventIndex.39 = 39
swEventTimeInfo.39 = 2004/08/10-07:00:17
swEventLevel.39 = warning (3)
swEventRepeatCount.39 = 1
swEventDescr.39 = SULB-1001 Firmwaredownload command
has started.
swSsn.0 = none
```

To get more details on any particular event, see the *Fabric OS System Error Message Reference Manual*.

swFabricWatchTrap1.3.6.1.4.1.1588.2.1.1.1.0.5

Enterprise sw

Variables “swFwClassAreaIndex 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.1”
 “swFwThresholdIndex 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.1”
 “swFwName 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.3”
 “swFwLabel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.4”
 “swFwLastEvent 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.6”
 “swFwLastEventVal 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.7”
 “swFwLastEventTime 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.8”
 “swFwLastState 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.9”
 “swSsn 1.3.6.1.4.1.1588.2.1.1.1.1.10”
 “swFwLastSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.12”

Trap to be sent by Fabric Watch to notify of an event.

#TYPE	Fabric Watch has generated an event.
#SUMMARY	Threshold %s in Class/Area %d at index %d has generated event %d with %d on %s. This event is %d and SSN is # %s
#ARGUMENTS	2, 0, 1, 6, 4, 5, 7, 8
#SEVERITY	Warning
#TIMEINDEX	1
#STATE	Operational

See the *Fabric Watch Administrator's Guide* for information on setting thresholds in Fabric Watch.

Sample trap output for Fabric OS 4.4.0:

```
swFwClassAreaIndex.1 = swFwEnvTemp(1)
swFwThresholdIndex.1.2 = 2
swFwName.1.2 = envTemp001
```

```

swFwLabel.1.2 = Env Temperature 1
swFwLastEventVal.1.2 = 45
swFwLastEventTime.1.2 = 06:17:01 on 08/12/2004
swFwLastEvent.1.2 = inBetween(6)
swFwLastState.1.2 = swFwNormal(2)
swFwLastSeverityLevel.1.2 = 4
swSsn.0 = none

```

swTrackChangesTrap 1.3.6.1.4.1.1588.2.1.1.1.0.6

Enterprise sw

Variables “swTrackChangesInfo 1.3.6.1.4.1.1588.2.1.1.1.23”
“swSsn 1.3.6.1.4.1.1588.2.1.1.1.10”

Trap to be sent for tracking login/logout/configuration changes.

#TYPE	Track changes has generated a trap.
#SUMMARY	%s and SSN is #%
#ARGUMENTS	0, 1
#SEVERITY	Informational
#TIMEINDEX	1
#STATE	Operational

Some of the triggers that will generate this trap are:

- Logout
- Unsuccessful login
- Successful login
- Switch configuration changes
- Track changes on and off

Sample trap output for Fabric OS 4.4.0:

```

swTrackChangesInfo.0 = Logout
swSsn.0 = none

```

This trap gets sent when track-changes is set to ENABLED and is configured to send SNMP traps on track events. Use the **trackchangesset** command to enable the track changes feature and SNMP trap mode.

swSystem Group

swCurrentDate 1.3.6.1.4.1.1588.2.1.1.1.1.1

The current date and time.

The return string displays using the following format:

```
ddd MMM DD hh:mm:ss yyyy
```

Where:

```
ddd = day  
MMM = month  
DD = date  
hh = hour  
mm = minute  
ss = seconds  
yyyy = year
```

For example:

```
Thu Aug 17 15:16:09 2000
```

swBootDate 1.3.6.1.4.1.1588.2.1.1.1.1.2

The date and time when the system last booted.

The return string displays using the following format:

```
ddd MMM DD hh:mm:ss yyyy
```

Where:

```
ddd = day  
MMM = month  
DD = date  
hh = hour  
mm = minute  
ss = seconds  
yyyy = year
```

For example:

```
Thu Aug 17 15:16:09 2000
```

swFWLastUpdated 1.3.6.1.4.1.1588.2.1.1.1.1.3

The date and time when the firmware was last loaded to the switch.

The return string displays using the following format:

```
ddd MMM DD hh:mm:ss yyyy
```

Where:

```
ddd = day  
MMM = month  
DD = date  
hh = hour  
mm = minute  
ss = seconds  
yyyy = year
```

For example:

```
Thu Aug 17 15:16:09 2000
```

swFlashLastUpdated 1.3.6.1.4.1.1588.2.1.1.1.1.4

The date and time when the firmware was last downloaded or the configuration file was last changed.

The return string displays using the following format:

```
ddd MMM DD hh:mm:ss yyyy
```

Where:

```
ddd = day  
MMM = month  
DD = date  
hh = hour  
mm = minute  
ss = seconds  
yyyy = year
```

For example:

```
Thu Aug 17 15:16:09 2000
```

swBootPromLastUpdated 1.3.6.1.4.1.1588.2.1.1.1.1.5

The date and time when the BootPROM was last updated.

The return string displays using the following format:

```
ddd MMM DD hh:mm:ss yyyy
```

Where:

```
ddd = day  
MMM = month  
DD = date  
hh = hour  
mm = minute  
ss = seconds  
yyyy = year
```

For example:

```
Thu Aug 17 15:16:09 2000
```

swFirmwareVersion 1.3.6.1.4.1.1588.2.1.1.1.1.6

The current version of the firmware.

The return value is displayed using the following format:

```
vM.m.f
```

Where:

```
v = deployment indicator  
M = major version  
m = minor version  
f = software maintenance version
```

For ev4.4.0 (indicating FOS version 4.4.0)

swOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.7

The current operational status of the switch.

Values Possible values are:

- online (1) The switch is accessible by an external Fibre Channel port.
- offline (2) The switch is not accessible.
- testing (3) The switch is in a built-in test mode and is not accessible by an external Fibre Channel port.
- faulty (4) The switch is not operational.

swAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.8

The desired administrative status of the switch. A management station might place the switch in a desired state by setting this object accordingly.

Values Possible values are:

- online (1) Set the switch to be accessible by an external FC port.
- offline (2) Set the switch to be inaccessible.
- testing (3) Set the switch to run the built-in test.
- faulty (4) Set the switch to a “soft” faulty condition.
- reboot (5) Set the chassis to reboot in 1 second.
- fastboot (6) Set the chassis to fastboot in 1 second. Fastboot causes the chassis to boot but omit the POST.
- switchReboot (7) Set the current switch to reboot in 1 second.

When the switch is in faulty state, only two states can be set: faulty and **reboot/fastboot/switchReboot**.

For the SilkWorm 3250, 3850, 3900, 24000, and 48000 the testing (3), faulty (4) values are not applicable.

The **switchReboot** (7) value only applies to the SilkWorm 12000, 24000, and 48000 directors.

swTelnetShellAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.9

The desired administrative status of the telnet shell.

Setting this value to 1 (terminated), deletes the current telnet shell task. When this variable instance is read, it reports the value last set through SNMP.

This OID is supported in Fabric OS v2.x through v3.x.

This OID is not supported in Fabric OS v4.0 through v4.2.

It is supported in Fabric OS version 4.3 and above.

Values Possible values are:

- unknown (0) The status of the current telnet shell task is unknown.
- terminated (1) The current telnet shell task is deleted.

By setting it to 1 (terminated), the current telnet shell task is deleted. When this variable instance is read, it reports the value last set through SNMP.

swSsn 1.3.6.1.4.1.1588.2.1.1.1.1.10

The soft serial number of the switch.

This variable will return the “ssn” value that is stored in the config database. If the “ssn” key value pair is not in the config database it will return WWN of the switch.”

Flash Administration

The next six objects are related to firmware or configuration file management. Due to security restrictions, firmwaredownload and configuration file upload and download are no longer supported through SNMP, in Fabric OS v4.4 and above.

swFlashDLOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.11

The operational status of the flash.

This OID cannot be used for either Firmwaredownload or Configdownload (cannot be set and is readonly) for FOS v4.4 and above. The value displayed is always "swCurrent(1)".

swFlashDLAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.12

The desired state of the flash.

The host is specified in swFlashDLHost.0. In addition, the user name is specified in swFlashDLUser.0 and the file name specified in swFlashDLFile.0.

This OID is writeable only in Fabric OS v2.6.x and v3.x.

This OID cannot be used for either **firmwareDownload** or **configDownload** (cannot be set and is readonly) for FOS v4.4 and above. The value displayed is always "swCurrent(1)".

Values

Possible values are:

- swCurrent (1) The flash contains the current firmware image or configuration file.
- swCfUpload (3) The switch configuration file is to be uploaded to the host specified.
- swCfDownload (4) The switch configuration file is to be downloaded from the host specified.
- swFwCorrupted (5) The firmware in the flash is corrupted. This value is for informational purposes only; however, setting swFlashDLAdmStatus to this value is not allowed.

For more information about the **firmwareDownload**, **configDownload** and **configUpload** commands, see the *Fabric OS Command Reference Manual*.

swFlashDLHost 1.3.6.1.4.1.1588.2.1.1.1.1.13

The name or IP address (in dot notation) of the host to download or upload a relevant file to the flash.

This OID cannot be used for either **firmwareDownload** or **configDownload** (cannot be set and is readonly) for FOS v4.4 and above. The value displayed is always NULL (zero-length).

swFlashDLUser 1.3.6.1.4.1.1588.2.1.1.1.1.14

The user name is used on the host for downloading or uploading a relevant file, to or from the flash.

This OID cannot be used for either **firmwareDownload** or **configDownload** (cannot be set and is readonly) for FOS v4.4 and above. The value displayed is always NULL (zero-length).

swFlashDLFile 1.3.6.1.4.1.1588.2.1.1.1.1.15

The name of the file to be downloaded or uploaded.

This OID cannot be used for either **firmwareDownload** or **configDownload** (cannot be set and is readonly) for FOS v4.4 and above. The value displayed is always NULL (zero-length).

swFlashDLPassword 1.3.6.1.4.1.1588.2.1.1.1.1.16

The password to be used for FTP transfer of files in the download or upload operation.

This OID cannot be used for either **firmwareDownload** or **configDownload** (cannot be set and is readonly) for FOS v4.4 and above. The value displayed is always NULL (zero-length).

swBeaconOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.18

The current operational status of the switch beacon.

Values Possible values are:

- on (1) The LEDs on the front panel of the switch run alternately from left to right and right to left. The color is yellow.
- off (2) Each LED is in its regular status, indicating color and state.

swBeaconAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.19

The desired status of the switch beacon.

Values Possible values are:

- on (1) The LEDs on the front panel of the switch run alternately from left to right and right to left. Set the color to yellow.
- off (2) Set each LED to its regular status, indicating color and state.

swDiagResult 1.3.6.1.4.1.1588.2.1.1.1.1.20

The result of the power-on startup test (POST) diagnostics.

Values Possible values are:

- sw-ok (1) The switch is okay.
- sw-faulty (2) The switch has experienced an unknown fault.
- sw-embedded-port-fault (3) The switch has experienced an embedded port fault.

swNumSensors 1.3.6.1.4.1.1588.2.1.1.1.1.21

The number of sensors inside the switch.

The SilkWorm 3800 value is between 1 and 13 (temperature = 6, fan = 3, power supply = 4). The value might vary depending on the switch model. For Fabric OS v4.x, if no sensor is available, this variable is assigned the value -1.

swSensorTable 1.3.6.1.4.1.1588.2.1.1.1.1.22

Table of sensor entries.

Table 5-3 Sensors on the Various SilkWorm Switches

Platform	Temp	Fans	Power Supply	swNumSensors / connUnitNumSensors
SilkWorm 200E	2 sensors	3 fans	1 PS	6
SilkWorm 3016	4 sensors	NA	NA	4
SilkWorm 3200	3 sensors 2 absent	5 fans 1 absent	2 absent	13 Note: Shows absent entries.
SilkWorm 3250	4 sensors	3 fans	1 PS	8
SilkWorm 3800	3 sensors 2 absent	4 fans 2 absent	2 PS	13 Note: Shows absent entries.
SilkWorm 3850	4 sensors	4 fans	2 PS	10
SilkWorm 3900	5 sensors	6 fans	2 PS	13
SilkWorm 4012	2 sensors	NA	NA	2
SilkWorm 4100	5 sensors	3 fans	2 PS	10
SilkWorm 4900	3 sensors	3 fans	2 PS	18
SilkWorm 7500	3 sensors	3 fans	2 PS	18
SilkWorm 12000	10 sensors	3 fans	4 PS	17
SilkWorm 24000	10 sensors	3 fans	4 PS	17
SilkWorm 48000	10 sensors	3 fans	4 PS	17

swSensorEntry 1.3.6.1.4.1.1588.2.1.1.1.1.22.1

An entry of the sensor information.

Index swSensorIndex

swSensorIndex 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.1

The index of the sensor.

The values are 1 through the value in swNumSensors.

swSensorType 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.2

The type of sensor.

swSensorStatus 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.3

The current status of the sensor.

Values Possible values are:

- 1: unknown (1)
- 2: faulty (2)
- 3: below-min (3) The sensor value is below the minimal threshold.
- 4: nominal (4)
- 5: above-max (5) The sensor value is above the maximum threshold.
- 6: absent (6) The sensor is missing.

For Temperature, valid values include 3 (below-min), 4 (nominal), and 5 (above-max).

For Fan, valid values include 3 (below-min), 4 (nominal), and 6 (absent).

For Power Supply, valid values include 2 (faulty), 4 (nominal), and 6 (absent).

swSensorValue 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.4

The current value (reading) of the sensor.

The value -2147483648 represents the maximum value of integer value; it also means that the sensor does not have the capability to measure the actual value. In v2.0, the temperature sensor value is in Celsius, the fan value is in RPM (revolutions per minute), and the power supply sensor reading is unknown.

The unknown value -2147483648 indicates the maximum value of integer value.

swSensorInfo 1.3.6.1.4.1.1588.2.1.1.1.1.22.1.5

Additional information on the sensor. It contains the sensor type and number, in textual format; for example:

```
SLOT #0: TEMP #3
FAN #1
Power Supply #1
```

Return values for the SilkWorm 12000, 24000, and 48000 directors depend upon the configuration of your system.

swTrackChangesInfo 1.3.6.1.4.1.1588.2.1.1.1.1.23

Track changes string; for trap only.

If there are no events to track, the default return value is “No event so far.”

If there are events to track, the following are valid return values:

- Successful login
- Unsuccessful login
- Logout
- Configuration file change from task [*name of task*]
- Track-changes on
- Track-changes off

swID 1.3.6.1.4.1.1588.2.1.1.1.1.24

Not supported in Fabric OS v3.2.0.

The number of the logical switch (either 0 or 1).

swEtherIPAddress 1.3.6.1.4.1.1588.2.1.1.1.1.25

Not supported in Fabric OS v3.2.0.

The IP address of the Ethernet interface of this logical switch.

swEtherIPMask 1.3.6.1.4.1.1588.2.1.1.1.1.26

Not supported in Fabric OS v3.2.0.

The IP mask of the Ethernet interface of this logical switch.

swFCIPAddress 1.3.6.1.4.1.1588.2.1.1.1.1.27

Not supported in Fabric OS v3.2.0.

The IP address of the FC interface of this logical switch.

swFCIPMask 1.3.6.1.4.1.1588.2.1.1.1.1.28

Not supported in Fabric OS v3.2.0.

The IP mask of the FC interface of this logical switch.

swFabric Group

swDomainID 1.3.6.1.4.1.1588.2.1.1.1.2.1

The current Fibre Channel domain ID of the switch. To set a new value, the switch (swAdmStatus) must be in offline or testing state.

swPrincipalSwitch 1.3.6.1.4.1.1588.2.1.1.1.2.2

Indicates whether the switch is the principal switch.

Values Possible values are:

- yes (1)
- no (2)

swNumNbs 1.3.6.1.4.1.1588.2.1.1.1.2.8

The number of inter-switch links (ISLs) in the (immediate) neighborhood.

swNbTable 1.3.6.1.4.1.1588.2.1.1.1.2.9

This table contains the ISLs in the immediate neighborhood of the switch.

swNbEntry 1.3.6.1.4.1.1588.2.1.1.1.2.9.1

An entry containing each neighbor ISL parameters.

Index swNbIndex

swNbIndex 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.1

The index for neighborhood entry.

swNbMyPort 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.2

This is the port that has an ISL to another switch.

This value is the same as the physical port number of the local switch +1. The valid values for the SilkWorm 12000, 24000, and 48000 directors are 1 through the *maximum number of ports +1*.

swNbRemDomain 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.3

This is the Fibre Channel domain on the other end of the ISL.

This is the domain ID of the remote switch. Valid values are 1 through 239 as defined by FCS-SW.

swNbRemPort 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.4

This is the port index on the other end of the ISL.

The physical port number of the remote switch, plus 1. The valid values for the SilkWorm 12000, 24000, and 48000 directors are 1 through the *maximum number of ports +1*.

swNbBaudRate 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.5

The baud rate of the ISL.

Values

Possible values are:

- other (1) None of the following.
- oneEighth (2) 155 Mbaud.
- quarter (4) 266 Mbaud.
- half (8) 532 Mbaud.
- full (16) 1 Gbaud.
- double (32) 2 Gbaud.
- quadruple (64) 4 Gbaud.

The valid values for the SilkWorm 12000, 24000, and 48000 directors switch are 16 (full) and 32 (double).

The valid value for the SilkWorm 4100 is 64 (quadruple).

swNbIsIState 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.6

The current state of the ISL.

swNbIsICost 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.7

The current link cost of the ISL. In other words, the cost of a link to control the routing algorithm.

swNbRemPortName 1.3.6.1.4.1.1588.2.1.1.1.2.9.1.8

The WWN of the remote port.

swFabricMemTable 1.3.6.1.4.1.1588.2.1.1.1.2.10

Supported in Fabric OS v2.6.1 and not v3.2.0.

This table contains information on the member switches of a fabric. This might not be available on all versions of Fabric OS.

swFabricMemEntry 1.3.6.1.4.1.1588.2.1.1.1.2.10.1

An entry containing each switch in the fabric.

Index swFabricMemWwn

swFabricMemWwn 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.1

This object identifies the World Wide Name of the member switch.

swFabricMemDid 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.2

This object identifies the domain ID of the member switch.

swFabricMemName 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.3

This object identifies the name of the member switch.

swFabricMemEIP 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.4

This object identifies the Ethernet IP address of the member switch.

swFabricMemFCIP 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.5

This object identifies the Fibre Channel IP address of the member switch.

swFabricMemGWIP 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.6

This object identifies the Gateway IP address of the member switch.

swFabricMemType 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.7

This object identifies the member switch type.

swFabricMemShortVersion 1.3.6.1.4.1.1588.2.1.1.1.2.10.1.8

This object identifies the Fabric OS version of the member switch.

Provides the short version of the Fabric OS version number. It gives v260 for Fabric OS v2.6.x.

swIDIDMode 1.3.6.1.4.1.1588.2.1.1.1.2.11

This identifies the status of Insistent Domain ID (IDID) mode. Status indicating if IDID mode is enabled or not.

SW Agent Configuration Group

swAgtCmtyTable 1.3.6.1.4.1.1588.2.1.1.1.4.11

A table that contains, one entry for each community, the access control and parameters of the community.

The table displays all of the community strings (read and write) if it is accessed by the “write” community string. Only “read” community strings are displayed if it is accessed by the “read” community string.

In Secure Fabric OS, the community strings can only be modified on the primary switch.

swAgtCmtyEntry 1.3.6.1.4.1.1588.2.1.1.1.4.11.1

An entry containing the community parameters.

Index swAgtCmtyIdx

swAgtCmtyIdx 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.1

The SNMPv1 community entry.

The return value for this entry is 1 through 6.

swAgtCmtyStr 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.2

This is a community string supported by the agent. If a new value is set successfully, it takes effect immediately.

Default values for communities are as follows:

- 1 (Secret Code)
- 2 (OrigEquipMfr)
- 3 (private)
- 4 (public)
- 5 (common)
- 6 (FibreChannel)

Community strings 1-3 are read-write and strings 4-6 are read-only.

You can change the community setting using the **agtCfgSet** command.

swAgtTrapRcp 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.3

This is the trap recipient associated with the community. If a new value is set successfully, it takes effect immediately.

If not otherwise set, the default IP address for this trap recipient is 0.0.0.0 and the SNMP trap is not sent for the associated community string.

With a setting of non-0.0.0.0 IP address, SNMP traps are sent to the host with the associated community string.

Any or all of the trap recipients can be configured to send a trap for the associated community string. The maximum number of trap recipients that can be configured is six. If no trap recipient is configured, no traps are sent.

The trap recipient IP address should be part of the Access Control List for Fabric OS v2.6.1, v3.1, and v4.x (See the *Fabric OS Command Reference Manual* and the **snmpConfig** command for more information).

swAgtTrapSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.4

This is the trap severity level associated with [swAgtTrapRcp 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.3](#). The trap severity level, in conjunction with the event's severity level. When an event occurs, and if its severity level is at or below the set value, the SNMP trap is sent to configure trap recipients. The severity level is limited to particular events. If a new value is set successfully, it takes effect immediately.

This object obsoletes [swEventTrapLevel 1.3.6.1.4.1.1588.2.1.1.1.8.1](#).

Fibre Channel Port Group

This group contains information about the physical state, operational status, performance, and error statistics of each Fibre Channel port on the switch. A Fibre Channel port is one which supports the Fibre Channel protocol, such as F_Port, E_Port, U_Port, or FL_Port.

swFCPortCapacity 1.3.6.1.4.1.1588.2.1.1.1.6.1

The maximum number of Fibre Channel ports on this switch. It includes U_Port, F_Port, FL_Port, and any other types of Fibre Channel port.

Values	The valid values are as follows:	
	SilkWorm 3200, 3250	8 ports
	SilkWorm 4012	12 ports
	SilkWorm 200E, 3800, 3850	16 ports
	SilkWorm 3900, 4100	32 ports
	SilkWorm 4900	64 ports

SilkWorm 7500	32 ports
SilkWorm 12000	64 ports (per logical switch)
SilkWorm 24000 (2 logical switches)	64 ports (per logical switch)
SilkWorm 24000 (1 logical switch)	128 ports
SilkWorm 48000	256 ports

swFCPortTable 1.3.6.1.4.1.1588.2.1.1.1.6.2

A table that contains, one entry for each switch port, configuration and service parameters of the port.

swFCPortEntry 1.3.6.1.4.1.1588.2.1.1.1.6.2.1

An entry containing the configuration and service parameters of the switch port.

Index swFCPortIndex

swFCPortIndex 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.1

The switch port index.

Values The physical port number of the switch, plus 1.
The valid values for the SilkWorm 12000, 24000, and 48000 directors are 0 through *maximum number of ports*.

swFCPortType 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.2

The type of ASIC for the switch port.

Values Possible values are:

- stitch (1)
- flannel (2)
- loom (3) (SilkWorm 2000 series)
- bloom (4) (Valid value for SilkWorm 3250, 3850, 3900, 12000, 24000)
- rdbloom (5)
- wormhole (6)
- other (7) (Valid value for SilkWorm 200E, 4012, 4100, 4900, 7500 and 48000)
- unknown (8)

swFCPortPhyState 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.3

The physical state of the port.

Values Possible values are:

- noCard (1) No card is present in this switch slot.
- noTransceiver (2) No Transceiver module in this port (Transceiver is the generic name for GBIC, SFP, and so on).
- laserFault (3) The module is signaling a laser fault (defective GBIC).
- noLight (4) The module is not receiving light.
- noSync (5) The module is receiving light but is out of sync.
- inSync (6) The module is receiving light and is in sync.
- portFault (7) The port is marked faulty (defective GBIC, cable, or device).
- diagFault (8) The port failed diagnostics (defective G_Port or FL_Port card or motherboard).
- lockRef (9) Port is locking to the reference signal.

swFCPortOpStatus 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.4

The operational status of the port.

Values Possible values are:

- unknown (0) The port module is physically absent.
- online (1) User frames can be passed.
- offline (2) No user frames can be passed.
- testing (3) No user frames can be passed.
- faulty (4) The port module is physically faulty.

swFCPortAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.5

The desired state of the port. A management station might place the port in a desired state by setting this object accordingly.

Values Possible values are:

- online (1) User frames can be passed.
- offline (2) No user frames can be passed.
- testing (3) No user frames can be passed.
- faulty (4) No user frames can be passed.

For Fabric OS v3.x:

The 3 (testing) state indicates that no user frames can be passed. As the result of either explicit management action or per configuration information accessible by the switch, swFCPortAdmStatus is then changed to either the 1 (online) or 3 (testing) states or remains in the 2 (offline) state.

For Fabric OS v4.x:

The 3 (testing) state is not supported.

swFCPortLinkState 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.6

Indicates the link state of the port. When the port's link state changes, its operational status (swFCPortOpStatus) is affected.

- Values** Possible values are:
- enabled (1) The port is allowed to participate in the FC-PH protocol with its attached port (or ports if it is in an FC-AL loop).
 - disabled (2) The port is not allowed to participate in the FC-PH protocol with its attached ports.
 - loopback (3) The port might transmit frames through an internal path to verify the health of the transmitter and receiver path.

swFCPortTxType 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.7

Indicates the media transmitter type of the port.

- Values** Possible values are:
- unknown (1) Cannot determine the port driver.
 - lw (2) Long wave laser.
 - sw (3) Short wave laser.
 - ld (4) Long wave LED.
 - cu (5) Copper (electrical).

swFCPortTxWords 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.11

Counts the number of Fibre Channel words that the port has transmitted. You can convert words to bytes by multiplying this value by 4.

swFCPortRxWords 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.12

Counts the number of Fibre Channel words that the port has received.

You can convert words to bytes by multiplying this value by 4.

swFCPortTxFrames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.13

Counts the number of Fibre Channel frames that the port has transmitted.

swFCPortRxFrames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.14

Counts the number of Fibre Channel frames that the port has received.

swFCPortRxC2Frames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.15

Counts the number of Class 2 frames that the port has received.

swFCPortRxC3Frames 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.16

Counts the number of Class 3 frames that the port has received.

swFCPortRxCs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.17

Counts the number of link control frames that the port has received.

swFCPortRxCasts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.18

Counts the number of multicast frames that the port has received.

swFCPortTooManyRdys 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.19

Counts the number of times that RDYs exceeds the frames received.

swFCPortNoTxCredits 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.20

Counts the number of times that the transmit credit has reached 0.

swFCPortRxEcnInFrs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.21

Counts the number of encoding error or disparity error inside frames received.

swFCPortRxCrcs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.22

Counts the number of CRC errors detected for frames received.

swFCPortRxTruncs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.23

Counts the number of truncated frames that the port has received.

swFCPortRxTooLongs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.24

Counts the number of received frames that are too long.

swFCPortRxBadEofs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.25

Counts the number of received frames that have bad EOF delimiters.

swFCPortRxEncOutFrs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.26

Counts the number of encoding error or disparity error outside frames received.

swFCPortRxBadOs 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.27

Counts the number of invalid ordered sets received.

swFCPortC3Discards 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.28

Counts the number of Class 3 frames that the port has discarded.

swFCPortMcastTimedOuts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.29

Counts the number of multicast frames that have been timed out.

swFCPortTxMcasts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.30

Counts the number of multicast frames that have been transmitted.

swFCPortLipIns 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.31

Counts the number of loop initializations that have been initiated by loop devices attached.

swFCPortLipOuts 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.32

Counts the number of loop initializations that have been initiated by the port.

swFCPortLipLastAlpa 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.33

Indicates the physical address (AL_PA) of the loop device that initiated the last loop initialization.

swFCPortWwn 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.34

The WWN of the Fibre Channel port. The contents of an instance are in IEEE extended format, as specified in FC-PH.

swFCPortSpeed 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.35

The desired baud rate for the port.

Values The baud rate can be 1 Gbit/sec, 2 Gbit/sec, or 4 Gbit/sec. 4 Gbit/sec is only applicable to the SilkWorm 4100, 4900, 7500, and 48000.

swFCPortName 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.36

Supported in Fabric OS v4.1.x and later. A string that indicates the name of the addressed port.

Note

The names should be persistent across switch reboots. Port names do not have to be unique within a switch or within a fabric.

swFCPortSpecifier 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.37

This string indicates the physical port number of the addressed port. This string can be entered as argument on CLI commands such as **portShow** or wherever a physical port number is expected. The format of the string is: <slot/>port, 'slot' being present only for bladed systems.

For directors, such as Silkworm 48000:

```
swFCPortSpecifier.64 = 4/15
```

For non-bladed systems, such as Silkworm 4100:

```
swFCPortSpecifier.31 = 30
```

Name Server Database Group

swNsLocalNumEntry 1.3.6.1.4.1.1588.2.1.1.1.7.1

The number of local Name Server entries.

swNsLocalTable 1.3.6.1.4.1.1588.2.1.1.1.7.2

The table of local Name Server entries.

swNsLocalEntry 1.3.6.1.4.1.1588.2.1.1.1.7.2.1

An entry from the local Name Server database.

Index swNsEntryIndex

swNsEntryIndex 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.1

The index of the Name Server database entry.

swNsPortID 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.2

The Fibre Channel port address ID of the entry.

swNsPortType 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.3

The type of port for this entry.

Values Possible values, as defined in FC-GS-2, are:

- nPort (1)
- nlPort (2)

swNsPortName 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.4

The Fibre Channel WWN of the port entry.

swNsPortSymb 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.5

The contents of a symbolic name of the port entry. In FC-GS-2, a symbolic name consists of a byte array of 1 through 256 bytes, and the first byte of the array specifies the length of its contents. This object variable corresponds to the contents of the symbolic name, with the first byte removed.

swNsNodeName 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.6

The Fibre Channel WWN of the associated node, as defined in FC-GS-2.

swNsNodeSymb 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.7

The contents of a Symbolic Name of the node associated with the entry. In FC-GS-2, a Symbolic Name consists of a byte array of 1 through 256 bytes, and the first byte of the array specifies the length of its contents. This object variable corresponds to the contents of the Symbolic Name, with the first byte removed.

swNsIPA 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.8

The Initial Process Associators of the node for the entry as defined in FC-GS-2.

swNsIpAddress 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.9

The IP address of the node for the entry as defined in FC-GS-2. The format of the address is in IPv6.

swNsCos 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.10

The class of services supported by the port.

swNsFc4 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.11

The FC-4s supported by the port, as defined in FC-GS-2.

swNslpNxPort 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.12

The object identifies IpAddress of the Nx_Port for the entry.

swNsWwn 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.13

The object identifies the World Wide Name (WWN) of the Fx_Port for the entry.

swNsHardAddr 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.14

The object identifies the 24-bit hard address of the node for the entry.

Event Group

Logically, the swEventTable is separate from the error log since it is essentially a view of the error log within a particular time window.

swEventTrapLevel 1.3.6.1.4.1.1588.2.1.1.1.8.1

[swAgtTrapSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.4](#), in the absence of swEventTrapLevel, specifies the trap severity level of each defined trap recipient host. This object specifies the swEventTrap level in conjunction with an event's severity level. When an event occurs, and if its severity level is at or below the value specified by the object instance, the agent sends the associated swEventTrap to configured recipients.

This object is obsoleted by [swFwLastSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.12](#) and [swAgtTrapSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.4.11.1.4](#).

swEventNumEntries 1.3.6.1.4.1.1588.2.1.1.1.8.4

The number of entries in the event table.

Values (v3.0 only) The value ranges from 0 to 64.
 (v4.0 only) The value ranges from 0 to 255.
 (v4.2 only) The value ranges from 0 to 2048.
 (v4.4 and above) The value ranges from 0 to 1024.

swEventTable 1.3.6.1.4.1.1588.2.1.1.1.8.5

The table of event entries.

Only external RAS log messages are supported. Fabric OS v4.4.0 does not have Panic or Debug level messages. All messages are documented in the *Fabric OS System Error Message Reference Manual*.

swEventEntry 1.3.6.1.4.1.1588.2.1.1.1.8.5.1

An entry of the event table.

Index swEventIndex

swEventIndex 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.1

The index of the event entry.

swEventTimeInfo 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.2

The date and time that this event occurred.

The return string is displayed using the following format:

YYYY/MM/DD-hh:mm:ss

Where:

YYYY = Year
MM = Month
DD = Date
hh = Hour
mm = Minute
ss = Seconds

For example:

2005/12/05-07:33:41

swEventLevel 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.3

The severity level of this event entry.

Values Possible values are:

- critical (1)
- error (2)
- warning (3)
- informational (4)

swEventRepeatCount 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.4

If the most recent event is the same as the previous, this number increments by 1, and is the count of consecutive times this particular event has occurred.

swEventDescr 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.5

A textual description of the event.

For Fabric OS v4.4.0, the format of error messages has changed. This field now uses the message title and number (for example, WEBD-1006) and the message text. Previously this field used the task ID, and all the message number and message text. For more information on error messages, see the *Fabric OS System Error Message Reference Manual*.

Fabric Watch Group

The Fabric Watch group contains one license scalar and two tables.

- The scalar, `swFwFabricWatchLicense`, is used to tell if the switch has proper license for Fabric Watch.
- One table, “`swFwClassAreaTable 1.3.6.1.4.1.1588.2.1.1.1.10.2`”, contains classArea information such as threshold unit string, time base, low thresholds, and so forth. `SwFwClassAreaEntry` contains control information for a particular class/area's thresholds.
- The other table, “`swFwThresholdTable 1.3.6.1.4.1.1588.2.1.1.1.10.3`”, contains individual threshold information such as name, label, last event, and so forth. The thresholds are contained in `SwFwThresholdEntry`.

swFwFabricWatchLicense 1.3.6.1.4.1.1588.2.1.1.1.10.1

If the license key is installed on the switch for Fabric Watch, the return value is `swFwLicensed`; otherwise, the value is `swFwNotLicensed`.

swFwClassAreaTable 1.3.6.1.4.1.1588.2.1.1.1.10.2

The table of classes and areas.

swFwClassAreaEntry 1.3.6.1.4.1.1588.2.1.1.1.10.2.1

An entry of the classes and areas.

Index `swFwClassAreaIndex`

swFwClassAreaIndex 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.1

This index represents the Fabric Watch classArea combination.

swFwWriteThVals 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.2

This applies or cancels the configuration value changes.

For a read operation, the return value is always `swFwCancelWrite`. The following custom configuration variables can be modified:

- `swFwCustUnit`
- `swFwCustTimebase`

- swFwCustLow
- swFwCustHigh
- swFwCustBufSize

Changes to these custom configuration variables can be saved by setting this variable to swFwApplyWrite; they can be removed by setting this variable to swFwCancelWrite.

swFwDefaultUnit 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.3

A default unit string name, used to identify the unit of measure for a Fabric Watch classArea combination.

C = environment (class), temperature (area).

RPM = environment (class), fan (area).

swFwDefaultTimebase 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.4

A default polling period for the Fabric Watch classArea combination.

swFwTbMin = port (class), link loss (area).

swFwTbNone = environment (class), temperature (area).

swFwDefaultLow 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.5

A default low threshold value.

swFwDefaultHigh 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.6

A default high threshold value.

swFwDefaultBufSize 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.7

A default buffer size value.

swFwCustUnit 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.8

A customizable unit string name, used to identify the unit of measure for a Fabric Watch classArea combination.

C = environment (class), temperature (area).

RPM = environment (class), fan (area).

swFwCustTimebase 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.9

A customizable polling period for the Fabric Watch classArea combination.

swFwTbMin = port (class), link loss (area).

swFwTbNone = environment (class), temperature (area).

swFwCustLow 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.10

A customizable low-threshold value for a Fabric Watch classArea combination.

swFwCustHigh 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.11

A customizable high-threshold value for a Fabric Watch classArea combination.

swFwCustBufSize 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.12

A customizable buffer size value for a Fabric Watch classArea combination.

swFwThLevel 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.13

swFwThLevel is used to point to the current level for classArea values. It is either default or custom.

For a read operation, the return value is either 2 (swFwDefault) or 3 (swFwCustom). 1 (swFwReserved) is obsolete.

If the write operation sets the variable to 2 (swFwDefault), the following default configuration variables are used for the Fabric Watch classArea combination:

swFwDefaultUnit
swFwDefaultTimebase
swFwDefaultLow
swFwDefaultHigh
swFwDefaultBufSize

If the write operation sets the variable to 3 (swFwCustom), the following custom configuration variables are used for the Fabric Watch classArea combination:

swFwCustUnit
swFwCustTimebase
swFwCustLow
swFwCustHigh
swFwCustBufSize

swFwWriteActVals 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.14

This applies or cancels the alarm value changes.

For a read operation, the return value is always swFwCancelWrite.

The following are the custom alarm variables that can be modified:

swFwCustChangedActs

swFwCustExceededActs

swFwCustBelowActs

swFwCustAboveActs

swFwCustInBetweenActs

Changes to these custom alarm variables can be saved by setting this variable to swFwApplyWrite.

Changes to these custom alarm variables can be removed by setting this variable to swFwCancelWrite.

swFwDefaultChangedActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.15

Default action matrix for changed event.

swFwDefaultExceededActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.16

Default action matrix for an exceeded event. The exceeded value might be either above the high threshold or below the low threshold.

swFwDefaultBelowActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.17

Default action matrix for below event.

swFwDefaultAboveActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.18

Default action matrix for above event.

swFwDefaultInBetweenActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.19

Default action matrix for in-between event.

swFwCustChangedActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.20

Custom action matrix for changed event.

swFwCustExceededActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.21

Custom action matrix for an exceeded event.

swFwCustBelowActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.22

Custom action matrix for below event.

swFwCustAboveActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.23

Custom action matrix for above event.

swFwCustInBetweenActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.24

Custom action matrix for in-between event.

swFwValidActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.25

Matrix of valid acts for a classArea.

swFwActLevel 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.26

Pointer to the current level for classArea values. It is either default or custom.

For a read operation, the return value is either 2 (swFwDefault) or 3 (swFwCustom). 1 (swFwReserved) is obsolete.

If the write operation sets the variable to 2 (swFwDefault), the following default action matrix variables are used for the Fabric Watch classArea combination:

swFwDefaultChangedActs
swFwDefaultExceededActs
swFwDefaultBelowActs
swFwDefaultAboveActs
swFwDefaultInBetweenActs

If the write operation sets the variable to 3 (swFwCustom), the following custom action matrix variables are used for the Fabric Watch classArea combination:

swFwCustChangedActs
swFwCustExceededActs
swFwCustBelowActs
swFwCustAboveActs
swFwCustInBetweenActs

swFwThresholdTable 1.3.6.1.4.1.1588.2.1.1.1.10.3

The table of individual thresholds.

swFwThresholdEntry 1.3.6.1.4.1.1588.2.1.1.1.10.3.1

An entry of an individual threshold.

Index swFwClassAreaIndex, swFwThresholdIndex

swFwThresholdIndex 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.1

Represents the element index of a threshold.

For environment class, the indexes are from 2 through (number of environment sensors+1).

For example, the indexes for environment class temperature area are:

envTemp001: index of 2

envTemp002: index of 3

envTemp003: index of 4

envTemp004: index of 5

envTemp005: index of 6

For port-related classes such as E_Port, the indexes are from 1 through (number of ports). For example, the indexes for E_Port classlink loss area:

eportLink000: index of 1

eportLink001: index of 2

eportLink002: index of 3

eportLink003: index of 4

eportLink004: index of 5

eportLink005: index of 6

eportLink006: index of 7

eportLink007: index of 8

eportLink008: index of 9

eportLink009: index of 10

eportLink010: index of 11

eportLink011: index of 12

eportLink012: index of 13

eportLink013: index of 14

eportLink014: index of 15

eportLink015: index of 16

swFwStatus 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.2

Indicates whether a threshold is enabled or disabled.

swFwName 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.3

Name of the threshold.

For examples, see [Table 5-4](#).

Table 5-4 swFwName Objects and Object Types

swFwName Objects (swFwName)	Object Types (Threshold Names)
envFan001	Env Fan 1
envPS002	Env Power Supply 2
envTemp001	Env Temperature 1
gbicTemp001	GBIC Temperature 1
gbicRXP001	GBIC RX power 1
gbicTXP001	GBIC TX power 1
gbicCrnt001	GBIC Current 1
eportCRCs007	E Port Invalid CRCs 7
eportLink007	E Port Link Failures 7
eportProtoErr007	E Port Protocol Errors 7
eportRXPerf007	E Port RX Performance 7
eportSignal007	E Port Loss of Signal 7
eportState007	E Port State Changes 7
eportSync007	E Port Loss of Sync 7
eportTXPerf007	E Port TX Performance 7
eportWords007	E Port Invalid Words 7
fabricDI000	Fabric Domain ID
fabricED000	Fabric E-port down
fabricFL000	Fabric Fabric login
fabricFQ000	Fabric Fabric<->QL
fabricFR000	Fabric Reconfigure
fabricGS000	Fabric GBIC change 0
fabricSC000	Fabric Segmentation
fabricZC000	Fabric Zoning change
fcuportCRCs013	FCU Port Invalid CRCs 13
fcuportLink013	FCU Port Link Failures 13
fcuportProtoErr0	FCU Port Protocol Errors 13
fcuportRXPerf013	FCU Port RX Performance 13
fcuportSignal013	FCU Port Loss of Signal 13
fcuportState013	FCU Port State Changes 13
fcuportSync013	FCU Port Loss of Sync 13
fcuportTXPerf013	FCU Port TX Performance 13

Table 5-4 swFwName Objects and Object Types (Continued)

swFwName Objects (swFwName)	Object Types (Threshold Names) (Continued)
fcuportWords013	FCU Port Invalid Words 13
portCRCs000 Port Invalid CRCs 0	Port Invalid CRCs 0
portLink000	Port Link Failures 0
portProtoErr000	Port Protocol Errors 0
portRXPerf000	Port RX Performance 0
portSignal000	Port Loss of Signal 0
portState000	Port State Changes 0
portSync000	Port Loss of Sync 0
portTXPerf000	Port TX Performance 0
portWords000	Port Invalid Words 0
foportCRCs013	FOP Port Invalid CRCs 13
foportLink013	FOP Port Link Failures 13
foportProtoErr0	FOP Port Protocol Errors 13
foportRXPerf013	FOP Port RX Performance 13
foportSignal013	FOP Port Loss of Signal 13
foportState013	FOP Port State Changes 13
foportSync013	FOP Port Loss of Sync 13
foportTXPerf013	FOP Port TX Performance 13
foportWords013	FOP Port Invalid Words 13

swFwLabel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.4

Label of the threshold.

See “swFwName 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.3” on page 5-45.

swFwCurVal 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.5

Current counter of the threshold.

swFwLastEvent 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.6

Last event type of the threshold.

swFwLastEventVal 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.7

Last event value of the threshold.

swFwLastEventTime 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.8

Last event time of the threshold. This value is in the same format as in swCurrentDate.

swFwLastState 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.9

Last event state of the threshold.

swFwBehaviorType 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.10

A behavior of which the thresholds generate event.

swFwBehaviorInt 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.11

An integer of which the thresholds generate continuous event.

swFwLastSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.12

This object is a last event severity level of the threshold. This object obsoletes [swEventTrapLevel 1.3.6.1.4.1.1588.2.1.1.1.8.1](#).

End Device Group

swEndDeviceRIsTable 1.3.6.1.4.1.1588.2.1.1.1.21.1

The table of RLS for individual end devices. By default, no data appears in this table.

swEndDeviceRIsEntry 1.3.6.1.4.1.1588.2.1.1.1.21.1.1

An entry of an individual end devices' RLS.

Index swEndDevicePort, swEndDeviceAlpa

Since SilkWorm switches start with port # 0, the SNMP port # should be physical port # plus 1. In turn, that means that SNMP port # 3 translates to port # 2.

swEndDevicePort 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.1

This object represents the port of the local switch to which the end device is connected.

swEndDeviceAlpa 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.2

This object represents the AL_PA of the end device. SNMP AL_PA number should be the logical AL_PA number plus 1. For example, SNMP AL_PA number 0xf0 translates to 0xef.

swEndDevicePortID 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.3

The Fibre Channel port address ID of the entry.

swEndDeviceLinkFailure 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.4

Link failure count for the end device.

swEndDeviceSyncLoss 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.5

Sync loss count for the end device.

swEndDeviceSigLoss 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.6

Sig loss count for the end device.

swEndDeviceProtoErr 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.7

Protocol err count for the end device.

swEndDeviceInvalidWord 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.8

Invalid word count for the end device.

swEndDeviceInvalidCRC 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.9

Invalid CRC count for the end device.

Switch Group

Not supported.

swGroupTable 1.3.6.1.4.1.1588.2.1.1.1.22.1

The table of groups. This is not available on all versions of Fabric OS.

swGroupEntry 1.3.6.1.4.1.1588.2.1.1.1.22.1.1

An entry of table of groups.

Index swGroupIndex

swGroupIndex 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.1

This object is the group index, starting from 1.

swGroupName 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.2

This object identifies the name of the group.

swGroupType 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.3

This object identifies the type of the group.

swGroupMemTable 1.3.6.1.4.1.1588.2.1.1.1.22.2

The table of members of all groups. This might not be available on all versions of the Fabric OS.

swGroupMemEntry 1.3.6.1.4.1.1588.2.1.1.1.22.2.1

An entry for a member of a group.

Index swGroupID, swGroupMemWwn

swGroupID 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.1

This object identifies the Group ID of the member switch.

swGroupMemWwn 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.2

This object identifies the WWN of the member switch.

swGroupMemPos 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.3

This object identifies the position of the member switch in the group, based on the order that the switches were added in the group.

ASIC Performance Monitoring Group

swBlmPerfALPAMntTable 1.3.6.1.4.1.1588.2.1.1.1.23.1

AL_PA monitoring counter table.

For the SilkWorm 4100, 12 filter monitors per port are supported.

swBlmPerfALPAMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.1.1

AL_PA monitoring counter for given AL_PA.

Index swEndDevicePort, swEndDeviceAlpa

swBlmPerfAlpaPort 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.1

This object identifies the port index of the switch.

swBlmPerfAlpaIndx 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.2

This object identifies the AL_PA index. There can be 126 AL_PA values.

swBlmPerfAlpa 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.3

This object identifies the AL_PA values. These values range between x'01' and x'EF' (1 to 239). AL_PA value x'00' is reserved for FL_Port. If Alpha device is invalid, then it will have -1 value.

swBlmPerfAlpaCRCCnt 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.4

Get CRC count for given AL_PA and port. This monitoring provides information on the number of CRC errors that occurred on the frames destined to each possible AL_PA attached to a specific port.

For the SilkWorm 4100, this value will always be 0. CRC counters are not supported on this platform.

swBlmPerfEEMntTable 1.3.6.1.4.1.1588.2.1.1.1.23.2

End-to-end monitoring counter table.

swBlmPerfEEMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.2.1

End-to-end monitoring counter for given port.

Index swBlmPerfEEPort, swBlmPerfEERefKey

swBlmPerfEEPort 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.1

This object identifies the port number of the switch.

swBlmPerfEERefKey 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.2

This object identifies the reference number of the counter. This reference is a number assigned when a filter is created. In the SNMP Index, start with one instead of 0, add one to the actual reference key.

swBlmPerfEECRC 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.3

End-to-end CRC error for the frames that matched the SID-DID pair.

swBlmPerfEEFCWRx 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.4

Get end-to-end count of Fibre Channel words (FCW) received by the port that matched the SID-DID pair.

swBlmPerfEEFCWTx 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.5

Get end-to-end count of Fibre Channel words (FCW) transmitted by the port that matched the SID-DID pair.

swBlmPerfEESid 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.6

Gets DID information by reference number.

swBlmPerfEEDid 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.7

Gets SID information by reference number. SID (Source Identifier) is a 3-byte field in the frame header used to indicate the address identifier of the N_Port from which the frame was sent.

swBlmPerfFltMntTable 1.3.6.1.4.1.1588.2.1.1.1.23.3

Filter-based monitoring counter.

swBlmPerfFltMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.3.1

Filter-based monitoring counter for given port.

Index swBlmPerfFltPort, swBlmPerfFltRefkey

swBlmPerfFltPort 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.1

This object identifies the port number of the switch.

swBlmPerfFltRefkey 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.2

This object identifies the reference number of the filter. This reference number is assigned when a filter is created. In the SNMP Index, start with one instead of 0, add one to actual reference key.

swBlmPerfFltCnt 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.3

Get statistics of filter-based monitor. Filter-based monitoring provides information about a filter hit count, such as:

- Read command
- SCSI or IP traffic
- SCSI Read/Write

swBlmPerfFltAlias 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.4

Alias name for the filter.

Trunking Group

swSwitchTrunkable 1.3.6.1.4.1.1588.2.1.1.1.24.1

Whether the switch supports the trunking feature or not: no (0) or yes (8).

swTrunkTable 1.3.6.1.4.1.1588.2.1.1.1.24.2

Displays trunking information for the switch.

For the SilkWorm 4100, 8 ports per trunk are supported. The SilkWorm 4100 supports masterless trunking, or dynamic swapping of master port. See the *Fabric OS Administrator's Guide* for more information on these features.

swTrunkEntry 1.3.6.1.4.1.1588.2.1.1.1.24.2.1

Entry for the trunking table.

Index swTrunkPortIndex

swTrunkPortIndex 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.1

This object identifies the switch port index.

The value of a port index is 1 higher than the port number labeled on the front panel. For example, port index 1 corresponds to port number 0.

swTrunkGroupNumber 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.2

This object is a logical entity that specifies the group number to which the port belongs. If this value is 0, the port is not trunked.

swTrunkMaster 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.3

Port number that is the trunk master of the group. The trunk master implicitly defines the group. All ports with the same master are considered to be part of the same group.

swPortTrunked 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.4

The active trunk status of the member port. Values are enabled (1) or disabled (0).

swTrunkGrpTable 1.3.6.1.4.1.1588.2.1.1.1.24.3

Displays trunking performance information for the switch.

swTrunkGrpEntry 1.3.6.1.4.1.1588.2.1.1.1.24.3.1

Entry for the trunking group table.

Index	swTrunkGrpNumber
--------------	------------------

swTrunkGrpNumber 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.1

This object is a logical entity that specifies the group number to which port belongs.

swTrunkGrpMaster 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.2

This object gives the master port ID for the trunk group.

swTrunkGrpTx 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.3

Gives the aggregate value of the transmitted words from this trunk group.

Note

The syntax for this MIB variable is an OCTET STRING. The output is shown in hexadecimal value. The value of **swTrunkGrpTx** is the 4-byte word transmitted in the TrunkGrp port. This value can be obtained through the CLI in the output of the **portStatsShow** command (stat_wtx value) for the corresponding trunk ports.

swTrunkGrpRx 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.4

Gives the aggregate value of the received words by this trunk group.

The syntax for this MIB variable is an OCTET STRING. The output is shown in hexadecimal value. The value of **swTrunkGrpRx** is the 4-byte word received in the TrunkGrp port. This value can be obtained through the CLI in the output of the **portStatsShow** command (stat_wrx value) for the corresponding trunk ports.

High-Availability MIB Objects

This chapter provides descriptions and other information specific to High-Availability MIB object types and includes the following sections:

- “HA MIB Overview” next
- “High-Availability Group” on page 6-3
- “FRU Table” on page 6-3
- “FRU History Table” on page 6-5
- “CP Table” on page 6-7
- “HA-MIB Traps” on page 6-8

HA MIB Overview

The HA-MIB provides information about the High Availability features of Fabric OS v4.x. This MIB is supported only in Fabric OS v4.1.0 and later (and is not supported in Fabric OS v3.x or Fabric OS v2.6.x).

The HA-MIB depends on the SW-MIB. This dependency requires a management application to load the SNMP-FRAMEWORK MIB, then the SW-MIB, and finally the Entity MIB before it can load the HA-MIB.

The descriptions of each of the MIB variables in this chapter come directly from the HA-MIB itself.

The object types in HA-MIB are organized into the following groupings:

- High-Availability Group
- HA-MIB Traps

Figure 6-1 and Figure 6-2 depict the organization and structure of the HA-MIB file system.

Figure 6-1 HA-MIB Overall Tree Structure

```

- iso
  - org
    - dod
      - internet
        - private
          - enterprises
            - bsci
              - commDev
                - fibreChannel
                  - haMIB
                    - highAvailability
                    - haMIBTraps

```

Figure 6-2 haMIB and haMIBTraps Hierarchy

```

- haMIB (1.3.6.1.4.1.1588.2.1.2)
  - highAvailability (1.3.6.1.4.1.1588.2.1.2.1)
    - haStatus 1.3.6.1.4.1.1588.2.1.2.1.1
    - fruTable 1.3.6.1.4.1.1588.2.1.2.1.5
      - fruEntry 1.3.6.1.4.1.1588.2.1.2.1.5.1
        - fruClass 1.3.6.1.4.1.1588.2.1.2.1.5.1.1
        - fruStatus 1.3.6.1.4.1.1588.2.1.2.1.5.1.2
        - fruObjectNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.3
        - fruSupplierId 1.3.6.1.4.1.1588.2.1.2.1.5.1.4
        - fruSupplierPartNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.5
        - fruSupplierSerialNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.6
        - fruSupplierRevCode 1.3.6.1.4.1.1588.2.1.2.1.5.1.7
      - fruHistoryTable 1.3.6.1.4.1.1588.2.1.2.1.6
        - fruHistoryEntry 1.3.6.1.4.1.1588.2.1.2.1.6.1
          - fruHistoryIndex 1.3.6.1.4.1.1588.2.1.2.1.6.1.1
          - fruHistoryClass 1.3.6.1.4.1.1588.2.1.2.1.6.1.2
          - fruHistoryObjectNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.3
          - fruHistoryEvent 1.3.6.1.4.1.1588.2.1.2.1.6.1.4
          - fruHistoryTime 1.3.6.1.4.1.1588.2.1.2.1.6.1.5
          - fruHistoryFactoryPartNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.6
          - fruHistoryFactorySerialNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.7
        - cpTable 1.3.6.1.4.1.1588.2.1.2.1.7
          - cpEntry 1.3.6.1.4.1.1588.2.1.2.1.7.1
            - cpStatus 1.3.6.1.4.1.1588.2.1.2.1.7.1.1
            - cpIpAddress 1.3.6.1.4.1.1588.2.1.2.1.7.1.2
            - cpIpMask 1.3.6.1.4.1.1588.2.1.2.1.7.1.3
            - cpIpGateway 1.3.6.1.4.1.1588.2.1.2.1.7.1.4
            - cpLastEvent 1.3.6.1.4.1.1588.2.1.2.1.7.1.5
    - haMIBTraps
      - haMIBTrapPrefix (1.3.6.1.4.1.1588.2.1.2.2.0)
        - fruStatusChanged 1.3.6.1.4.1.1588.2.1.2.2.0.1
        - cpStatusChanged 1.3.6.1.4.1.1588.2.1.2.2.0.2
        - fruHistoryTrap 1.3.6.1.4.1.1588.2.1.2.2.0.3

```

Table 6-1 lists the objects or definitions that are imported into the HA-MIB and the modules from which they are imported.

Table 6-1 Objects Imported into the HA-MIB

Object	Imported from this module
MODULE-IDENTITY	SNMPv2-SMI
OBJECT-TYPE	
NOTIFICATION-TYPE	
TimeTicks	
Integer32	
IpAddress	
mib-2	
fibrenchannel	SW-MIB
entPhysicalIndex	ENTITY-MIB
entPhysicalName	
DisplayString	SNMPv2-TC
TimeStamp	

High-Availability Group

This section describes the MIB objects in the High-Availability group.

haStatus 1.3.6.1.4.1.1588.2.1.2.1.1

Indicates whether the system is redundant.

- Values** Possible values are:
- 1: redundant(0)
Dual CP with standby CP ready to take over.
 - 2: nonredundant(1)
Single or Dual CP system where the standby CP is not available to take over operation of the switch.

FRU Table

fruTable 1.3.6.1.4.1.1588.2.1.2.1.5

This table inventories the field replaceable unit (FRU) slots available.

This table contains an entry for each entry in the entPhysicalTable that has entPhysicalClass set to “Container (5)” and has a child entry having entPhysicalIsFRU set to “true (1)”.

In Fabric OS v4.4 and above the chassis is marked as a FRU. Unlike other FRUs the chassis FRU does not have a corresponding container entry.

Table 6-2 on page 6-4 includes information on all FRUs except the chassis.

Table 6-2 Valid FRU Counts for the Various SilkWorm Switches

Platform	Blades	Fans	Power Supply	WWN Card
SilkWorm 3800	NA	6 fans in 2 FRUs	2 PS	NA
SilkWorm 3850	NA	4 fans (not a FRU)	2 PS (not a FRU)	NA
SilkWorm 3900	NA	6 fans in 3 FRUs	2 PS	NA
SilkWorm 4012	NA	NA	NA	NA
SilkWorm 4100	NA	3 fans in 3 FRUs	2 PS	NA
SilkWorm 4900	NA	3 fans in 3 FRUs	2 PS	NA
SilkWorm 7500	NA	3 fans in 3 FRUs	2 PS	NA
SilkWorm 12000	8 port blades 2 CP blades	3 fans	4 PS	1 WWN
SilkWorm 24000	8 port blades 2 CP blades	3 fans	4 PS	1 WWN
SilkWorm 48000	8 port blades 2 CP blades	3 fans	4 PS	1 WWN

fruEntry 1.3.6.1.4.1.1588.2.1.2.1.5.1

An entry for FRU slot in the fruTable.

Index entPhysicalIndex

fruClass 1.3.6.1.4.1.1588.2.1.2.1.5.1.1

The type of the FRU object that this slot can hold.

Values Possible values are:

- 1: other(1)
- 2: unknown(2)
- 3: chassis(3)
- 4: cp(4)
- 5: other-CP(5)
- 6: switchblade(6)

- 7: wwn(7)
- 8: powerSupply(8)
- 9: fan(9)

fruStatus 1.3.6.1.4.1.1588.2.1.2.1.5.1.2

The current status of the FRU object in the slot.

Values Possible values are:

- 1: other(1)
- 2: unknown(2)
- 3: on(3)
- 4: off(4)
- 5: faulty(5)

fruObjectNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.3

The slot number of the blade, and the unit number for everything else.

fruSupplierId 1.3.6.1.4.1.1588.2.1.2.1.5.1.4

The supplier ID.

fruSupplierPartNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.5

The supplier part number.

fruSupplierSerialNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.6

The supplier serial number.

fruSupplierRevCode 1.3.6.1.4.1.1588.2.1.2.1.5.1.7

The supplier revision code.

FRU History Table

fruHistoryTable 1.3.6.1.4.1.1588.2.1.2.1.6

This table gives the contents of the entire history log of the FRU events.

fruHistoryEntry 1.3.6.1.4.1.1588.2.1.2.1.6.1

An entry in this table represents a particular FRU event.

Index fruHistoryIndex

fruHistoryIndex 1.3.6.1.4.1.1588.2.1.2.1.6.1.1

Index of the FRU event in the history table.

fruHistoryClass 1.3.6.1.4.1.1588.2.1.2.1.6.1.2

The type of the FRU object related to the event.

Values Possible values are:

- 1: other(1)
- 2: unknown(2)
- 3: chassis(3)
- 4: cp(4)
- 5: other-CP(5)
- 6: switchblade(6)
- 7: wwn(7)
- 8: powerSupply(8)
- 9: fan(9)

fruHistoryObjectNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.3

The slot number of the blade and the unit number for everything else.

fruHistoryEvent 1.3.6.1.4.1.1588.2.1.2.1.6.1.4

The type of the FRU event.

Values Possible values are:

- 1: added(1)
- 2: removed(2)
- 3: invalid(3)

fruHistoryTime 1.3.6.1.4.1.1588.2.1.2.1.6.1.5

The time at which this event happened.

fruHistoryFactoryPartNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.6

The Brocade part number of the FRU object.

fruHistoryFactorySerialNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.7

The Brocade serial number of the FRU object.

CP Table

cpTable 1.3.6.1.4.1.1588.2.1.2.1.7

This table lists all the CPs in the system.

cpEntry 1.3.6.1.4.1.1588.2.1.2.1.7.1

An entry represents a single CP in the system.

Index entPhysicalIndex

cpStatus 1.3.6.1.4.1.1588.2.1.2.1.7.1.1

The current status of the CP.

Values Possible values are:

- 1: other(1)
- 2: unknown(2)
- 3: active(3)
- 4: standby(4)
- 5: failed(5)

cpIpAddress 1.3.6.1.4.1.1588.2.1.2.1.7.1.2

The IP address of the Ethernet interface of this CP.

cpIpMask 1.3.6.1.4.1.1588.2.1.2.1.7.1.3

The IP mask of the Ethernet interface of this CP.

cplpGateway 1.3.6.1.4.1.1588.2.1.2.1.7.1.4

The IP address of the IP gateway for this CP.

cpLastEvent 1.3.6.1.4.1.1588.2.1.2.1.7.1.5

The last event related to this CP.

- Values** Possible values are:
- 1: other(1)
 - 2: unknown(2)
 - 3: haSync(3)
 - 4: haOutSync(4)
 - 5: cpFaulty(5)
 - 6: cpHealthy(6)
 - 7: cpActive(7)
 - 8: configChange(8)
 - 9: failOverStart(9)
 - 10: failOverDone(10)
 - 11: firmwareCommit(11)
 - 12: firmwareUpgrade(12)

HA-MIB Traps

This section lists the HA-MIB traps.

fruStatusChanged 1.3.6.1.4.1.1588.2.1.2.2.0.1

- Objects**
- 1: entPhysicalName
 - 2: fruStatus

Status Current

This trap is sent when the status of any FRU object changes.

Some of the triggers that will generate this trap are:

- switch reboot
- Add or remove a FRU component

Sample trap output for Fabric OS v4.4.0; The following trap is generated when switch is rebooted:

```
entPhysicalName.11 = MODULE 5
fruStatus.11 = off(4)
```

cpStatusChanged 1.3.6.1.4.1.1588.2.1.2.2.0.2

Objects

- 1: cpStatus
- 2: cpLastEvent
- 3: swID
- 4: swSsn

Status Current

This trap is sent when the status of any CP object changes.

The cpLastEvent variable provides the information about the event that occurred.

Some of the triggers that will generate this trap are:

- Reboot
- firmwareDownload

Sample trap output for Fabric OS v4.4.0:

```
cpStatus.13 = standby(4)
cpLastEvent.13 = cpHealthy(6)
swID.0 = 1
swSsn.0 = 10:00:00:60:69:e2:03:6d
```

fruHistoryTrap 1.3.6.1.4.1.1588.2.1.2.2.0.3

Objects

- 1: fruHistoryClass
- 2: fruHistoryObjectNum
- 3: fruHistoryEvent
- 4: fruHistoryTime
- 5: fruHistoryFactoryPartNum
- 6: fruHistoryFactorySerialNum

Status Current

This trap is generated when a FRU is added or removed.

Sample trap output for Fabric OS v4.4.0:

```
fruHistoryClass.40 = powerSupply(8)
fruHistoryObjectNum.40 = 2
fruHistoryEvent.40 = removed(2)
fruHistoryTime.40 = Fri Aug 13 07:24:00 2004
fruHistoryFactoryPartNum.40 = 23-0000006-02
fruHistoryFactorySerialNum.40 = FL2L0022715
```

HA-MIB Traps and Sample Triggers

The following table lists the HA-MIB traps and sample events that will trigger them.

Table 6-3 HA-MIB Traps and Example Triggers

HA-MIB Traps	Trigger
fruStatusChanged	Example events that will trigger this trap: • switch reboot • Add or remove a FRU component
cpStatusChanged	Example events that will trigger this trap: • Reboot • firmwareDownload
fruHistoryTrap	Example events that will trigger this trap: • Add or remove a FRU component

FICON MIB Objects

This chapter provides descriptions and other information specific to FICON MIB (LINK-INCIDENT-MIB) object types, including the following information:

- “FICON MIB Overview” next
- “ficonRNID Group” on page 7-5
- “ficonLIRR Group” on page 7-8
- “ficonRLIR Group” on page 7-10
- “linkIncidentMIBTraps Group” on page 7-11

FICON MIB Overview

The FICON MIB module (LINK-INCIDENT-MIB) defines support for FICON in Fabric OS v4.1.2 and later. This MIB addresses link incident and link failure data for FICON hosts and devices connected to a Brocade switch.

The descriptions of each of the MIB variables in this chapter come directly from the FICON MIB itself.

The object types in the FICON MIB are organized into the following groupings:

- Request Node Identification Data (RNID)
- Link Incident Record Registration (LIRR)
- Registered Link Incident Report (RLIR)
- Traps

SNMP Traps for FICON

SNMP traps for FICON are generated when:

- a FICON device is added to the switch
- a FICON device is removed from the switch
- a new “listener” is added (once the LIRR handshake is complete)
- a “listener” entry is deleted
- a link incident occurs

FICON MIB System Organization of MIB Objects

Figure 7-1 and Figure 7-3 depict the organization and structure of the FICON MIB file system.

Figure 7-1 Overall Tree Structure for FICON MIB (linkIncidentMIB)

```
- iso
  - org
    - dod
      - internet
        - private
          - enterprises
            - bsci
              - commDev
                - fibreChannel
                  - fcSwitch
                    - linkIncidentMIB
                      - ficonRNID
                      - ficonLIRR
                      - ficonRLIR
                      - linkIncidentMIBTraps
```

Figure 7-2 linkIncidentMIB Hierarchy

```

- linkIncidentMIB
- ficonRNID
  - nodeRNIDTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.2.1
  - nodeRNIDTable 1.3.6.1.4.1.1588.2.1.1.50.2.2
    - nodeRNIDEntry 1.3.6.1.4.1.1588.2.1.1.50.2.2.1
      - nodeRNIDIndex 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.1
      - nodeRNIDIncidentPortWWN 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.2
      - nodeRNIDPID 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.3
      - nodeRNIDFlags 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.4
      - nodeRNIDType 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.5
      - nodeRNIDModel 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.6
      - nodeRNIDManufacturer 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.7
      - nodeRNIDManufacturerPlant 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.8
      - nodeRNIDSequenceNumber 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.9
      - nodeRNIDConnectedPortWWN 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.10
      - nodeRNIDPortType 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.11
      - nodeRNIDFormat 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.12
      - nodeRNIDTag 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.13
      - nodeRNIDParams 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.14
    - switchRNIDTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.2.3
    - switchRNIDTable 1.3.6.1.4.1.1588.2.1.1.50.2.4
      - switchRNIDEntry 1.3.6.1.4.1.1588.2.1.1.50.2.4.1
        - switchRNIDIndex 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.1
        - switchRNIDSwitchWWN 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.2
        - switchRNIDFlags 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.3
        - switchRNIDType 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.4
        - switchRNIDModel 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.5
        - switchRNIDManufacturer 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.6
        - switchRNIDManufacturerPlant 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.7
        - switchRNIDSequenceNumber 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.8
        - switchRNIDTag 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.9
        - switchRNIDParams 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.10
  - ficonLIRR
    - LIRRTTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.3.1
    - LIRRTTable 1.3.6.1.4.1.1588.2.1.1.50.3.2
      - LIRREntry 1.3.6.1.4.1.1588.2.1.1.50.3.2.1
        - LIRRIndex 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.1
        - LIRRListenerPortWWN 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.2
        - LIRRListenerPID 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.3
        - LIRRRegType 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.4
        - LIRRProtocol 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.5
        - LIRRPortType 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.6
        - LIRRFormat 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.7
    - ficonRLIR
      - rLIRTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.4.1
      - rLIRTable 1.3.6.1.4.1.1588.2.1.1.50.4.2
        - rLIREntry 1.3.6.1.4.1.1588.2.1.1.50.4.2.1
          - rLIRIndex 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.1
          - rLIRIncidentPortWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.2
          - rLIRIncidentNodeWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.3
          - rLIRIncidentPortType 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.5
          - rLIRIncidentPID 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.6
          - rLIRIncidentPortNumber 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.7
          - rLIRConnectedPortWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.8
          - rLIRConnectedNodeWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.9
          - rLIRFabricWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.10
          - rLIRLinkFailureType 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.11
          - rLIRTimeStamp 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.12
          - rLIRFormat 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.13

```

Figure 7-3 linkIncidentMIBTraps Hierarchy

```

- linkIncidentMIBTraps
  - linkIncidentMIBTrapPrefix
    - linkRNIDDeviceRegistration 1.3.6.1.4.1.1588.2.1.1.50.21.0.1
    - linkRNIDDeviceDeRegistration 1.3.6.1.4.1.1588.2.1.1.50.21.0.2
    - linkLIRRListenerAdded 1.3.6.1.4.1.1588.2.1.1.50.21.0.3
    - linkLIRRListenerRemoved 1.3.6.1.4.1.1588.2.1.1.50.21.0.4
    - linkRLIRFailureIncident 1.3.6.1.4.1.1588.2.1.1.50.21.0.5

```

Textual Conventions

Table 7-1 lists the textual conventions for the FICON MIB.

Table 7-1 FICON MIB Textual Conventions

Name	Status	Description	Syntax
LIRRProtocol	Current	Represents the LIRR Protocol.	INTEGER { fcp (1), sb2 (2) }
FcPortID	Current	Represents Fibre Channel Address ID, a 24-bit value unique within the address space of a fabric.	OCTET STRING (SIZE (3))
RNIDModel	Current	Represents the value of Model Number.	OCTET STRING (SIZE (3))
RLIRLinkFailureType	Current	Represents the link failure type.	INTEGER { bitErrorRate(2), lossOfSignal(3), nOSRecognized(4), primitiveSequenceTimeout(5), invalidSeqForPortState(6), loopInitializationTimeout(7), lossOfSignalInLoopInit(8) }
RNIDManufacturer	Current	Represents the Manufacturer name or code.	OCTET STRING (SIZE (3))
RNIDTagType	Current	Represents the value of RNID Tag, in hexadecimal format. Note: Includes DISPLAY-HINT "x".	OCTET STRING (SIZE (2))
LinkWwn	Current	Represents the link WWN.	OCTET STRING (SIZE (8))

Table 7-1 FICON MIB Textual Conventions (Continued)

Name	Status	Description	Syntax
RegType	Current	Represents the RNID Registration Type.	INTEGER { conditional (1), unconditional (2) }
RNIDSequenceNumber	Current	Sequence number of the self describing node.	OCTET STRING (SIZE (12))
RNIDManufacturerPlant	Current	Represents the manufacturer plant name or code.	OCTET STRING (SIZE (2))
RNIDParams	Current	Represents the value of Param.	OCTET STRING (SIZE (3))
PortType	Current	Represents the Port Type.	INTEGER { n-port (1), nl-port (2) }
RNIDFlags	Current	Represents the value of RNID Flag in hexadecimal format. It indicates if the node is valid, not valid, or not current.	OCTET STRING (SIZE (1))
LinkFormat	Current	Represents the frame format.	INTEGER { ficon (1), common (2) }
RNIDType	Current	Represents the value of Type Number. Displays the type number of the self-describing node. It also describes the machine type.	OCTET STRING (SIZE (6))

ficonRNID Group

This group contains all Request Node Identification Data (RNID) group objects for FICON.

nodeRNIDTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.2.1

The number of entries in Request Node Identification Data (RNID) table.

See the *Fabric OS Command Reference Manual* and the **ficonShow** command for additional information on FICON MIB tables.

nodeRNIDTable 1.3.6.1.4.1.1588.2.1.1.50.2.2

A table that contains one entry for each FICON RNID node attached to a switch.

nodeRNIDEntry 1.3.6.1.4.1.1588.2.1.1.50.2.2.1

A entry containing the RNID information for a FICON node.

Index nodeRNIDIndex

nodeRNIDIndex 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.1

Index into the nodeRNIDTable.

nodeRNIDIncidentPortWWN 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.2

Port WWN for Incident port. An N_Port (FICON device or host) is an incident port.

nodeRNIDPID 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.3

PID for an Incident port.

nodeRNIDFlags 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.4

RNID flags for an Incident port. Bits 0–2 of the flag describe the validity of bits 3–7 of the flag. Bit 3 of the flag specifies whether the node is a device-type node or a central-processor-complex-type (CPC-type) node. Bits 4–7 of the flag are reserved.

nodeRNIDType 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.5

Number associated with a node.

nodeRNIDModel 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.6

Model number of the RNID node.

nodeRNIDManufacturer 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.7

Identifies the manufacturer of the node.

nodeRNIDManufacturerPlant 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.8

Identifies the manufacturer plant of the node.

nodeRNIDSequenceNumber 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.9

Identifies the sequence number of the node.

nodeRNIDConnectedPortWWN 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.10

WWN of the connected port.

nodeRNIDPortType 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.11

Port type (N, NL, or virtual port) of the connected port.

nodeRNIDFormat 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.12

Node identification data format of the connected port.

nodeRNIDTag 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.13

Node identification tag of the connected port.

nodeRNIDParams 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.14

Node parameters of the connected port.

switchRNIDTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.2.3

The number of entries in an RNID table that corresponds to the switch.

See the *Fabric OS Command Reference Manual* and the **ficonShow** command for additional information on FICON MIB tables.

switchRNIDTable 1.3.6.1.4.1.1588.2.1.1.50.2.4

A table that contains RNID information for each switch FICON node.

switchRNIDEntry 1.3.6.1.4.1.1588.2.1.1.50.2.4.1

An entry containing the RNID information for the switch FICON node.

switchRNIDIndex 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.1

Index into switchRNIDTable.

switchRNIDSwitchWWN 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.2

WWN of the switch.

switchRNIDFlags 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.3

RNID flags for the switch.

switchRNIDType 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.4

Type Number associated with the switch.

switchRNIDModel 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.5

Model number of the RNID switch.

switchRNIDManufacturer 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.6

Identifies the manufacturer of the switch.

switchRNIDManufacturerPlant 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.7

Identifies the manufacturer plant of the switch.

switchRNIDSequenceNumber 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.8

Identifies the sequence number of the switch.

switchRNIDTag 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.9

Identification tag of the switch.

switchRNIDParams 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.10

Identifies the parameters of the switch.

ficonLIRR Group

This group contains all Link Incident Record Registration (LIRR) group objects for FICON.

LIRRTblNumEntries 1.3.6.1.4.1.1588.2.1.1.50.3.1

The number of entries in an LIRR table.

See the *Fabric OS Command Reference Manual* and the **ficonShow** command for additional information on FICON MIB tables.

LIRRTbl 1.3.6.1.4.1.1588.2.1.1.50.3.2

A table that contains LIRR information, one entry for each LIRR incident for an attached FICON device.

LIRREntry 1.3.6.1.4.1.1588.2.1.1.50.3.2.1

An entry containing LIRR information.

LIRRIndex 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.1

Index into the LIRR table.

LIRRListenerPortWWN 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.2

WWN of the Listener port.

LIRRListenerPID 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.3

PID for the Listener port.

LIRRRegType 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.4

Registration type: conditional or unconditional.

LIRRProtocol 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.5

Protocol type supported.

LIRRPortType 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.6

Attached port type.

LIRRFormat 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.7

Registration type: conditional or unconditional.

ficonRLIR Group

This group contains all Registered Link Incident Report (RLIR) group objects for FICON.

rLIRTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.4.1

The number of entries in a switch RLIR table.

See the *Fabric OS Command Reference Manual* and the **ficonShow** command for additional information on FICON MIB tables.

rLIRTable 1.3.6.1.4.1.1588.2.1.1.50.4.2

A table that contains RLIR information, one entry for each LIRR incident for an attached FICON device.

rLIREntry 1.3.6.1.4.1.1588.2.1.1.50.4.2.1

An entry containing RLIR information.

rLIRIndex 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.1

Index into the RLIR table.

rLIRIncidentPortWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.2

Port WWN for RLIR Incident port.

rLIRIncidentNodeWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.3

Incident node WWN.

rLIRIncidentPortType 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.5

RLIR Incident port type.

rLIRIncidentPID 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.6

RLIR Incident PID.

rLIRIncidentPortNumber 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.7

RLIR Incident port number. This is a vendor-specific port number.

rLIRConnectedPortWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.8

RLIR Connected port WWN.

rLIRConnectedNodeWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.9

RLIR Connected node WWN.

rLIRFabricWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.10

RLIR Fabric WWN.

rLIRLinkFailureType 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.11

RLIR Link failure type.

rLIRTimeStamp 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.12

RLIR time stamp.

rLIRFormat 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.13

RLIR Format.

linkIncidentMIBTraps Group**linkIncidentMIBTrapPrefix 1.3.6.1.4.1.1588.2.1.1.50.21.0**

The Link Incident traps.

linkRNIDDeviceRegistration 1.3.6.1.4.1.1588.2.1.1.50.21.0.1

A device registered with the switch.

- Objects**
- 1: nodeRNIDIndex
 - 2: nodeRNIDIncidentPortWWN
 - 3: nodeRNIDConnectedPortWWN

linkRNIDDeviceDeRegistration 1.3.6.1.4.1.1588.2.1.1.50.21.0.2

A device deregistered with the switch.

linkLIRListenerAdded 1.3.6.1.4.1.1588.2.1.1.50.21.0.3

- Objects**
- 1: nodeRNIDIndex
 - 2: nodeRNIDIncidentPortWWN
 - 3: nodeRNIDConnectedPortWWN

linkLIRListenerAdded 1.3.6.1.4.1.1588.2.1.1.50.21.0.3

A listener for link failure incident is added.

- Objects**
- 1: IIRListenerPortWWN
 - 2: IIRListenerPID
 - 3: IIRIndex

linkLIRListenerRemoved 1.3.6.1.4.1.1588.2.1.1.50.21.0.4

A listener for link failure incident was removed.

- Objects**
- 1: IIRListenerPortWWN
 - 2: IIRListenerPID
 - 3: IIRIndex

linkRLIRFailureIncident 1.3.6.1.4.1.1588.2.1.1.50.21.0.5

A link failure incident has occurred. The value of IIRIndex will be -2147483647 and IIRListenerPID will be 0, if there is no listener for incident.

- Objects**
- 1: nodeRNIDIndex
 - 2: IIRIndex
 - 3: rLIRIncidentPortWwn
 - 4: rLIRConnectedPortWwn
 - 5: rLIRIndex
 - 6: rLIRLinkFailureType
 - 7: IIRListenerPID

FibreAlliance MIB Objects

This chapter contains descriptions and other information specific to FibreAlliance MIB (FCMGMT-MIB) object types, including the following:

- [“FibreAlliance MIB Overview”](#) next
- [“ConnSet Group”](#) on page 8-9
- [“Statistics Group”](#) on page 8-34
- [“Service Group”](#) on page 8-42
- [“SNMP Trap Registration Group”](#) on page 8-44
- [“Revision Number Scalar”](#) on page 8-46
- [“Unsupported Tables”](#) on page 8-46
- [“FibreAlliance MIB Traps”](#) on page 8-47

FibreAlliance MIB Overview

The descriptions of each of the MIB variables in this chapter come directly from the FCMGMT-MIB itself. The notes that follow the descriptions typically pertain to Brocade-specific information and are provided by Brocade.

The object types in FCMGMT-MIB are organized into the following groups:

- Connectivity
- Trap Registration
- Revision Number
- Statistic Set
- Service Set

FCMGMT-MIB System Organization of MIB Objects

[Figure 8-1](#) to [Figure 8-11](#) depicts the high level organization of the FCMGMT-MIB.

Figure 8-1 FCMGMT-MIB High Level Hierarchy

```

- iso
  - org
    - dod
      - internet
        - experimental
          - fcmgmt
            - connSet
              - uNumber 1.3.6.1.3.94.1.1
              - systemURL 1.3.6.1.3.94.1.2
              + connUnitTable 1.3.6.1.3.94.1.6
              + connUnitRevsTable 1.3.6.1.3.94.1.7
              + connUnitSensorTable 1.3.6.1.3.94.1.8
              + connUnitPortTable 1.3.6.1.3.94.1.10
              + connUnitEventTable 1.3.6.1.3.94.1.11
              + connUnitLinkTable 1.3.6.1.3.94.1.12
            - trapReg
              - trapMaxClients 1.3.6.1.3.94.2.1
              - trapClientCount 1.3.6.1.3.94.2.2
              + trapRegTable 1.3.6.1.3.94.2.3
            - revisionNumber 1.3.6.1.3.94.3
            - statSet
              + connUnitPortStatTable 1.3.6.1.3.94.4.5
            - connUnitServiceSet
              + connUnitServiceScalars
              + connUnitServiceTables

```

Figure 8-2 ConnUnitTable Hierarchy

```

- connUnitTable 1.3.6.1.3.94.1.6
  - connUnitEntry 1.3.6.1.3.94.1.6.1
    - connUnitId 1.3.6.1.3.94.1.6.1.1
    - connUnitGlobalId 1.3.6.1.3.94.1.6.1.2
    - connUnitType 1.3.6.1.3.94.1.6.1.3
    - connUnitNumports 1.3.6.1.3.94.1.6.1.4
    - connUnitState 1.3.6.1.3.94.1.6.1.5
    - connUnitStatus 1.3.6.1.3.94.1.6.1.6
    - connUnitProduct 1.3.6.1.3.94.1.6.1.7
    - connUnitSn 1.3.6.1.3.94.1.6.1.8
    - connUnitUpTime 1.3.6.1.3.94.1.6.1.9
    - connUnitUrl 1.3.6.1.3.94.1.6.1.10
    - connUnitDomainId 1.3.6.1.3.94.1.6.1.11
    - connUnitProxyMaster 1.3.6.1.3.94.1.6.1.12
    - connUnitPrincipal 1.3.6.1.3.94.1.6.1.13
    - connUnitNumSensors 1.3.6.1.3.94.1.6.1.14
    - connUnitStatusChangeTime 1.3.6.1.3.94.1.6.1.15
    - connUnitConfigurationChangeTime 1.3.6.1.3.94.1.6.1.16
    - connUnitNumRevs 1.3.6.1.3.94.1.6.1.17
    - connUnitNumZones 1.3.6.1.3.94.1.6.1.18
    - connUnitModuleId 1.3.6.1.3.94.1.6.1.19
    - connUnitName 1.3.6.1.3.94.1.6.1.20
    - connUnitInfo 1.3.6.1.3.94.1.6.1.21
    - connUnitControl 1.3.6.1.3.94.1.6.1.22
    - connUnitContact 1.3.6.1.3.94.1.6.1.23
    - connUnitLocation 1.3.6.1.3.94.1.6.1.24
    - connUnitEventFilter 1.3.6.1.3.94.1.6.1.25
    - connUnitNumEvents 1.3.6.1.3.94.1.6.1.26
    - connUnitMaxEvents 1.3.6.1.3.94.1.6.1.27
    - connUnitEventCurrID 1.3.6.1.3.94.1.6.1.28

```

Figure 8-3 ConnUnitRevsTable Hierarchy

```
- connUnitRevsTable 1.3.6.1.3.94.1.7
  - connUnitRevsEntry 1.3.6.1.3.94.1.7.1
    - connUnitRevsUnitId 1.3.6.1.3.94.1.7.1.1
    - connUnitRevsIndex 1.3.6.1.3.94.1.7.1.2
    - connUnitRevsRevId 1.3.6.1.3.94.1.7.1.3
    - connUnitRevsDescription 1.3.6.1.3.94.1.7.1.4
```

Figure 8-4 ConnUnitSensorTable Hierarchy

```

- connUnitSensorTable 1.3.6.1.3.94.1.8
  - connUnitSensorEntry 1.3.6.1.3.94.1.8.1
    - connUnitSensorUnitId 1.3.6.1.3.94.1.8.1.1
    - connUnitSensorIndex 1.3.6.1.3.94.1.8.1.2
    - connUnitSensorName 1.3.6.1.3.94.1.8.1.3
    - connUnitSensorStatus 1.3.6.1.3.94.1.8.1.4
    - connUnitSensorInfo 1.3.6.1.3.94.1.8.1.5
    - connUnitSensorMessage 1.3.6.1.3.94.1.8.1.6
    - connUnitSensorType 1.3.6.1.3.94.1.8.1.7
    - connUnitSensorCharacteristic 1.3.6.1.3.94.1.8.1.8

```

Figure 8-5 ConnUnitPortTable Hierarchy

```

- connUnitPortTable 1.3.6.1.3.94.1.10
  - connUnitPortEntry 1.3.6.1.3.94.1.10.1
    - connUnitPortUnitId 1.3.6.1.3.94.1.10.1.1
    - connUnitPortIndex 1.3.6.1.3.94.1.10.1.2
    - connUnitPortType 1.3.6.1.3.94.1.10.1.3
    - connUnitPortFCClassCap 1.3.6.1.3.94.1.10.1.4
    - connUnitPortFCClassOp 1.3.6.1.3.94.1.10.1.5
    - connUnitPortState 1.3.6.1.3.94.1.10.1.6
    - connUnitPortStatus 1.3.6.1.3.94.1.10.1.7
    - connUnitPortTransmitterType 1.3.6.1.3.94.1.10.1.8
    - connUnitPortModuleType 1.3.6.1.3.94.1.10.1.9
    - connUnitPortWwn 1.3.6.1.3.94.1.10.1.10
    - connUnitPortFCId 1.3.6.1.3.94.1.10.1.11
    - connUnitPortSn 1.3.6.1.3.94.1.10.1.12
    - connUnitPortRevision 1.3.6.1.3.94.1.10.1.13
    - connUnitPortVendor 1.3.6.1.3.94.1.10.1.14
    - connUnitPortSpeed 1.3.6.1.3.94.1.10.1.15
    - connUnitPortControl 1.3.6.1.3.94.1.10.1.16
    - connUnitPortName 1.3.6.1.3.94.1.10.1.17
    - connUnitPortPhysicalNumber 1.3.6.1.3.94.1.10.1.18
    - connUnitPortStatObject 1.3.6.1.3.94.1.10.1.19
    - connUnitPortProtocolCap 1.3.6.1.3.94.1.10.1.20
    - connUnitPortProtocolOp 1.3.6.1.3.94.1.10.1.21
    - connUnitPortNodeWwn 1.3.6.1.3.94.1.10.1.22
    - connUnitPortHWState 1.3.6.1.3.94.1.10.1.23

```

Figure 8-6 ConnUnitEventTable Hierarchy

```

- connUnitEventTable 1.3.6.1.3.94.1.11
  - connUnitEventEntry 1.3.6.1.3.94.1.11.1
    - connUnitEventUnitId 1.3.6.1.3.94.1.11.1.1
    - connUnitEventIndex 1.3.6.1.3.94.1.11.1.2
    - connUnitEventId 1.3.6.1.3.94.1.11.1.3
    - connUnitREventTime 1.3.6.1.3.94.1.11.1.4
    - connUnitSEventTime 1.3.6.1.3.94.1.11.1.5
    - connUnitEventSeverity 1.3.6.1.3.94.1.11.1.6
    - connUnitEventType 1.3.6.1.3.94.1.11.1.7
    - connUnitEventObject 1.3.6.1.3.94.1.11.1.8
    - connUnitEventDescr 1.3.6.1.3.94.1.11.1.9

```

Figure 8-7 ConnUnitLinkTable Hierarchy

```

- connUnitLinkTable 1.3.6.1.3.94.1.12
  - connUnitLinkEntry 1.3.6.1.3.94.1.12.1
    - connUnitLinkUnitId 1.3.6.1.3.94.1.12.1.1
    - connUnitLinkIndex 1.3.6.1.3.94.1.12.1.2
    - connUnitLinkNodeIdX 1.3.6.1.3.94.1.12.1.3
    - connUnitLinkPortNumberX 1.3.6.1.3.94.1.12.1.4
    - connUnitLinkPortWwnX 1.3.6.1.3.94.1.12.1.5
    - connUnitLinkNodeIdY 1.3.6.1.3.94.1.12.1.6
    - connUnitLinkPortNumberY 1.3.6.1.3.94.1.12.1.7
    - connUnitLinkPortWwnY 1.3.6.1.3.94.1.12.1.8
    - connUnitLinkAgentAddressY 1.3.6.1.3.94.1.12.1.9
    - connUnitLinkAgentAddressTypeY 1.3.6.1.3.94.1.12.1.10
    - connUnitLinkAgentPortY 1.3.6.1.3.94.1.12.1.11
    - connUnitLinkUnitTypeY 1.3.6.1.3.94.1.12.1.12
    - connUnitLinkConnIdY 1.3.6.1.3.94.1.12.1.13
    - connUnitLinkCurrIndex 1.3.6.1.3.94.1.12.1.14

```

Figure 8-8 TrapRegTable Hierarchy

```

- trapRegTable 1.3.6.1.3.94.2.3
  - trapRegEntry 1.3.6.1.3.94.2.3.1
    - trapRegIpAddress 1.3.6.1.3.94.2.3.1.1
    - trapRegPort 1.3.6.1.3.94.2.3.1.2
    - trapRegFilter 1.3.6.1.3.94.2.3.1.3
    - trapRegRowState 1.3.6.1.3.94.2.3.1.4

```

Figure 8-9 ConnUnitPortStatTable Hierarchy

```

- connUnitPortStatTable 1.3.6.1.3.94.4.5
- connUnitPortStatEntry 1.3.6.1.3.94.4.5.1
  - connUnitPortStatUnitId 1.3.6.1.3.94.4.5.1.1
  - connUnitPortStatIndex 1.3.6.1.3.94.4.5.1.2
  - connUnitPortStatCountError 1.3.6.1.3.94.4.5.1.3
  - connUnitPortStatCountTxObjects 1.3.6.1.3.94.4.5.1.4
  - connUnitPortStatCountRxObjects 1.3.6.1.3.94.4.5.1.5
  - connUnitPortStatCountTxElements 1.3.6.1.3.94.4.5.1.6
  - connUnitPortStatCountRxElements 1.3.6.1.3.94.4.5.1.7
  - connUnitPortStatCountBBCreditZero 1.3.6.1.3.94.4.5.1.8
  - connUnitPortStatCountInputBuffersFull 1.3.6.1.3.94.4.5.1.9
  - connUnitPortStatCountFBSYFrames 1.3.6.1.3.94.4.5.1.10
  - connUnitPortStatCountPBSYFrames 1.3.6.1.3.94.4.5.1.11
  - connUnitPortStatCountFRJTFrames 1.3.6.1.3.94.4.5.1.12
  - connUnitPortStatCountPRJTFrames 1.3.6.1.3.94.4.5.1.13
  - connUnitPortStatCountClass1RxFrames 1.3.6.1.3.94.4.5.1.14
  - connUnitPortStatCountClass1TxFrames 1.3.6.1.3.94.4.5.1.15
  - connUnitPortStatCountClass1FBSYFrames 1.3.6.1.3.94.4.5.1.16
  - connUnitPortStatCountClass1PBSYFrames 1.3.6.1.3.94.4.5.1.17
  - connUnitPortStatCountClass1FRJTFrames 1.3.6.1.3.94.4.5.1.18
  - connUnitPortStatCountClass1PRJTFrames 1.3.6.1.3.94.4.5.1.19
  - connUnitPortStatCountClass2RxFrames 1.3.6.1.3.94.4.5.1.20
  - connUnitPortStatCountClass2TxFrames 1.3.6.1.3.94.4.5.1.21
  - connUnitPortStatCountClass2FBSYFrames 1.3.6.1.3.94.4.5.1.22
  - connUnitPortStatCountClass2PBSYFrames 1.3.6.1.3.94.4.5.1.23
  - connUnitPortStatCountClass2FRJTFrames 1.3.6.1.3.94.4.5.1.24
  - connUnitPortStatCountClass2PRJTFrames 1.3.6.1.3.94.4.5.1.25
  - connUnitPortStatCountClass3RxFrames 1.3.6.1.3.94.4.5.1.26
  - connUnitPortStatCountClass3TxFrames 1.3.6.1.3.94.4.5.1.27
  - connUnitPortStatCountClass3Discards 1.3.6.1.3.94.4.5.1.28
  - connUnitPortStatCountRxMulticastObjects 1.3.6.1.3.94.4.5.1.29
  - connUnitPortStatCountTxMulticastObjects 1.3.6.1.3.94.4.5.1.30
  - connUnitPortStatCountRxBroadcastObjects 1.3.6.1.3.94.4.5.1.31
  - connUnitPortStatCountTxBroadcastObjects 1.3.6.1.3.94.4.5.1.32
  - connUnitPortStatCountRxLinkResets 1.3.6.1.3.94.4.5.1.33
  - connUnitPortStatCountTxLinkResets 1.3.6.1.3.94.4.5.1.34
  - connUnitPortStatCountNumberLinkResets 1.3.6.1.3.94.4.5.1.35
  - connUnitPortStatCountRxOfflineSequences 1.3.6.1.3.94.4.5.1.36
  - connUnitPortStatCountTxOfflineSequences 1.3.6.1.3.94.4.5.1.37
  - connUnitPortStatCountNumberOfflineSequences 1.3.6.1.3.94.4.5.1.38
  - connUnitPortStatCountLinkFailures 1.3.6.1.3.94.4.5.1.39
  - connUnitPortStatCountInvalidCRC 1.3.6.1.3.94.4.5.1.40
  - connUnitPortStatCountInvalidTxWords 1.3.6.1.3.94.4.5.1.41
  - connUnitPortStatCountPrimitiveSequenceProtocolErrors 1.3.6.1.3.94.4.5.1.42
  - connUnitPortStatCountLossofSignal 1.3.6.1.3.94.4.5.1.43
  - connUnitPortStatCountLossofSynchronization 1.3.6.1.3.94.4.5.1.44
  - connUnitPortStatCountInvalidOrderedSets 1.3.6.1.3.94.4.5.1.45
  - connUnitPortStatCountFramesTooLong 1.3.6.1.3.94.4.5.1.46
  - connUnitPortStatCountFramesTruncated 1.3.6.1.3.94.4.5.1.47
  - connUnitPortStatCountAddressErrors 1.3.6.1.3.94.4.5.1.48
  - connUnitPortStatCountDelimiterErrors 1.3.6.1.3.94.4.5.1.49
  - connUnitPortStatCountEncodingDisparityErrors 1.3.6.1.3.94.4.5.1.50

```

Figure 8-10 ConnUnitServiceScalars Hierarchy

```

- connUnitServiceSet
  - connUnitServiceScalars
    - connUnitSnsMaxEntry 1.3.6.1.3.94.5.1.1

```

Figure 8-11 ConnUnitSnsTable Hierarchy

```

- connUnitServiceSet
  - connUnitServiceTables
    - connUnitSnsTable 1.3.6.1.3.94.5.2.1
      - connUnitSnsEntry 1.3.6.1.3.94.5.2.1.1
        - connUnitSnsId 1.3.6.1.3.94.5.2.1.1.1
        - connUnitSnsPortIndex 1.3.6.1.3.94.5.2.1.1.2
        - connUnitSnsPortIdentifier 1.3.6.1.3.94.5.2.1.1.3
        - connUnitSnsPortName 1.3.6.1.3.94.5.2.1.1.4
        - connUnitSnsNodeName 1.3.6.1.3.94.5.2.1.1.5
        - connUnitSnsClassOfSvc 1.3.6.1.3.94.5.2.1.1.6
        - connUnitSnsNodeIPAddress 1.3.6.1.3.94.5.2.1.1.7
        - connUnitSnsProcAssoc 1.3.6.1.3.94.5.2.1.1.8
        - connUnitSnsFC4Type 1.3.6.1.3.94.5.2.1.1.9
        - connUnitSnsPortType 1.3.6.1.3.94.5.2.1.1.10
        - connUnitSnsPortIPAddress 1.3.6.1.3.94.5.2.1.1.11
        - connUnitSnsFabricPortName 1.3.6.1.3.94.5.2.1.1.12
        - connUnitSnsHardAddress 1.3.6.1.3.94.5.2.1.1.13
        - connUnitSnsSymbolicPortName 1.3.6.1.3.94.5.2.1.1.14
        - connUnitSnsSymbolicNodeName 1.3.6.1.3.94.5.2.1.1.15

```

Definitions for FCMGMT-MIB

The following definitions are used for FCMGMT-MIB.

Table 8-1 Definitions for FCMGMT-MIB

Type Definition	Value	Description
FcNameId	Octet String of size 8	The Port Name for this entry in the SNS table.
FcGlobalId	Octet String of size 16	An optional global-scope identifier for this connectivity unit. It MUST be a WWN for this connectivity unit or 16 octets of value zero.
FcAddressId	Octet String of size 3	The Port Identifier for this entry in the SNS table.
FcEventSeverity	Integer	1 (unknown) 2 (emergency) Emergency status. 3 (alert) Alert status. 4 (critical) Critical status. 5 (error) Error status. 6 (warning) Warning status. 7 (notify) Notification status. 8 (info) Informational status. 9 (debug) Debug status. 10 (mark) All messages logged.
FcUnitType	Integer	1 (unknown) 2 (other) None of 3–14. 3 (hub) Passive connectivity unit supporting loop protocol. 4 (switch) Active connectivity unit supporting multiple protocols. 5 (gateway) Unit that not only converts the interface but also encapsulates the frame into another protocol. The assumption is that there are always two gateways connected together: for example, FC <-> ATM. 6 (converter) Unit that converts from one interface to another: for example, FC <-> SCSI. 7 (hba) Host bus adapter. 8 (proxy-agent) Software proxy agent. 9 (storage-device) Disk, CD, tape, and so on. 10 (host) Host computer. 11 (storage-subsystem) For example, RAID, library. 12 (module) Subcomponent of a system. 13 (swdriver) Software driver. 14 (storage-access-device) Provides storage management and access for heterogeneous hosts and heterogeneous devices.

ConnSet Group

Implementation of the Connectivity group is mandatory for all systems.

uNumber 1.3.6.1.3.94.1.1

The number of connectivity units present on this system (represented by this agent). Might be a count of the boards in a chassis or the number of full boxes in a rack.

The connectivity unit is mapped to a switch. uNumber is always set to 1.

systemURL 1.3.6.1.3.94.1.2

The top-level URL of the system; if it does not exist, the value is an empty string. The URL format is implementation dependant and can have keywords embedded that are preceded by a percent sign (for example, %USER).

The following are the defined keywords that are recognized and replaced with data during a launch:

USER Replace with username

PASSWORD Replace with password

GLOBALID Replace with global ID

SERIALNO Replace with serial number

The expected value for system URL.0 is:

```
http://{a.b.c.d}
```

where {a.b.c.d} is the IP address of the switch if a Web Tools license is available.

```
"" (null)
```

where "" is used when a Web Tools license is not available.

connUnitTable 1.3.6.1.3.94.1.6

A list of units under a single SNMP agent. The number of entries is given by the value of uNumber. The value is 1 for stand-alone system.

connUnitEntry 1.3.6.1.3.94.1.6.1

A connectivity unit entry containing objects for a particular unit.

Index	connUnitId
--------------	------------

connUnitId 1.3.6.1.3.94.1.6.1.1

The unique identification for this connectivity unit among those within this proxy domain. The value must be unique within the proxy domain because it is the index variable for connUnitTable. The value assigned to a given connectivity unit should be persistent across agent and unit resets. It should be the same as connUnitGlobalId if connUnitGlobalId is known and stable.

The Brocade implementation maps the switch WWN to the top 8 octets of this variable and sets the remaining lower 8 octets to 0.

To specify a particular instance of any columnar variable in the connUnitEntry (such as connUnitType), specify the instance identifier as a 16-octet value.

```
connUnitType.10.0.0.60.69.4.11.19.0.0.0.0.0.0.0.0
```

where the object instance identifier consists of 16 octets, each representing the byte value from high-byte order to low-byte order of this 128-bit integer.

connUnitGlobalId 1.3.6.1.3.94.1.6.1.2

An optional global-scope identifier for this connectivity unit. It must be a WWN for this connectivity unit or 16 octets of value 0.

The following characteristics are required:

- WWN formats requiring fewer than 16 octets must be extended to 16 octets with trailing 0 octets.
- If a WWN is used for connUnitId, the same WWN must be used for connUnitGlobalId.

When a non-zero value is provided, the following characteristics are strongly recommended:

- It should be persistent across agent and unit resets.
- It should be globally unique.
- It should be one of these FC-PH/PH3 formats:
 - IEEE (NAA=1)
 - IEEE Extended (NAA=2)
 - IEEE Registered (NAA=5)
 - IEEE Registered extended (NAA=6)

Use of the IEEE formats allows any IEEE-registered vendor to assure global uniqueness independently. The following are some references on IEEE WWN formats:

```
http://standards.ieee.org/regauth/oui/tutorials/fibreformat.html
http://standards.ieee.org/regauth/oui/tutorials/fibrecomp_id.html
```

If one or more WWNs are associated with the connUnit via other management methods, one of them should be used for connUnitGlobalId.

If a WWN is not assigned specifically to the connUnit, there is some merit to using a WWN assigned to (one of) its permanently attached FC/LAN interfaces. This cannot risk uniqueness, though.

As a counterexample, if your agent runs in a host and the host has an HBA, it is quite possible that agent, host, and HBA are all distinct connUnits, so the host and agent cannot use the WWN of the HBA.

If your hub has a built-in Ethernet port, it might be reasonable for the hub to use its LAN address (prefixed with the appropriate NAA) as its connUnitId. But if the Ethernet is a replaceable PCCard, the hub should have an independent ID.

The Brocade implementation maps the switch WWN to the top 8 octets of this variable and sets the remaining lower 8 octets to 0.

Example:

If Brocade's switch WWN is 10:0:0:60:69:10:02:18, then use the SNMP GET command on connUnitGlobalId.10.0.0.60.69.10.02.18.0.0.0.0.0.0.0 returns:

```
10 00 00 60 69 10 02 18 00 00 00 00 00 00 00 00
```

connUnitType 1.3.6.1.3.94.1.6.1.3

The type of this connectivity unit.

Set to 4 (switch).

connUnitNumports 1.3.6.1.3.94.1.6.1.4

Number of physical ports (between 0 and the *maximum number of system supported ports*) in the connectivity unit (internal/embedded, external).

To determine the *maximum number of system supported ports*, use the SNMP GET command on swFcPortCapacity.

The SilkWorm switches support 0 to *maximum number of system supported ports*.

The maximum number of supported ports are as follows:

SilkWorm 3200, 3250	8 ports
SilkWorm 4012	12 ports
SilkWorm 200E, 3800, 3850	16 ports
SilkWorm 3900, 4100	32 ports
SilkWorm 4900	64 ports
SilkWorm 7500	32 ports
SilkWorm 12000	128 ports
SilkWorm 24000	128 ports
SilkWorm 48000	256 ports

connUnitState 1.3.6.1.3.94.1.6.1.5

Overall state of the connectivity unit.

Values Possible values are:

- unknown (1)
- online (2) Set the state to online.
- offline (3) Set the state to offline.

Mapped as follows:

```
switchState(ONLINE) 2 (online)
```

```
switchState(not ONLINE) 3 (offline, testing, faulty)
```

connUnitStatus 1.3.6.1.3.94.1.6.1.6

Overall status of the connectivity unit.

Values Possible values are:

- unknown (1)
- unused (2)
- ok (3)
- warning (4) - Needs attention.
- failed (5)

switchStatus maps directly as follows:

connUnitStatus switchStatus

1 (unknown) Unknown

2 (unused) Unmonitored

3 (ok) Healthy/ok

4 (warning) Marginal/Warning

5 (failed) Down/Failed

connUnitProduct 1.3.6.1.3.94.1.6.1.7

The connectivity unit vendor's product model name.

This is the same as for sysDescr (set for as many as 79 bytes).

connUnitSn 1.3.6.1.3.94.1.6.1.8

The serial number for this connectivity unit.

Set to the SSN (which by default is the WWN).

connUnitUpTime 1.3.6.1.3.94.1.6.1.9

The number of centiseconds since the last unit initialization.

Set when connUnitTable is initialized.

connUnitUrl 1.3.6.1.3.94.1.6.1.10

URL to launch a management application, if applicable; otherwise an empty string. In a standalone unit, this would be the same as the top-level URL. This has the same definition as systemURL for keywords.

(Same as systemURL.) The expected value for connUnitURL.0 is:

“http://{a.b.c.d}”

where {a.b.c.d} is the IP address of the switch if Web Tools license is available.

“” (null)

where “” is the IP address of the switch if Web Tools license is not available.

connUnitDomainId 1.3.6.1.3.94.1.6.1.11

24-bit Fibre Channel address ID of this connectivity unit, right-justified with leading 0s if required. If this value is not applicable, return all bits to 1.

Set to the switch domain ID (as per FC-SW).

connUnitProxyMaster 1.3.6.1.3.94.1.6.1.12

A value of “yes” means this is the proxy master unit for a set of managed units.

Values Possible values are:

- unknown (1)
- no (2)
- yes (3)

This could be the only unit with a management card in it for a set of units. A standalone unit should return “yes” for this object.

Set to 3 (yes).

connUnitPrincipal 1.3.6.1.3.94.1.6.1.13

Indicates whether this connectivity unit is the principal unit within the group of fabric elements. If this value is not applicable, it returns “unknown.”

If the switch is principal, this is set to 3 (yes); otherwise, it is set to 2 (no).

Values Possible values are:

- unknown (1)
- no (2)
- yes (3)

connUnitNumSensors 1.3.6.1.3.94.1.6.1.14

Number of sensors (between 0 and *maximum number of sensors*) in the connUnitSensorTable.

See [Table 5-3 on page 5-23](#) for specific sensor counts on the various switches.

connUnitStatusChangeTime 1.3.6.1.3.94.1.6.1.15

The sysuptime time stamp (in centiseconds) at which the last status change occurred for any members of the set; this is the latest time stamp that connUnitStatus or connUnitPortStatus changed.

Not supported.

connUnitConfigurationChangeTime 1.3.6.1.3.94.1.6.1.16

The sysuptime time stamp (in centiseconds) at which the last configuration change occurred for any members of the set. In other words, this is the latest time stamp of flash memory update. This represents a union of change information for connUnitConfigurationChangeTime

Not supported.

connUnitNumRevs 1.3.6.1.3.94.1.6.1.17

The number of revisions in connUnitRevsTable.

Set to 2.

connUnitNumZones 1.3.6.1.3.94.1.6.1.18

Number of zones defined in connUnitZoneTable.

Not supported.

connUnitModuleId 1.3.6.1.3.94.1.6.1.19

This is a unique ID, persistent between boots, that can be used to group a set of connUnits together into a module. The intended use would be to create a connUnit with a connUnitType of “module” to represent a physical or logical group of connectivity units. Then the value of the group would be set to the value of connUnitId for this “container” connUnit.

connUnitModuleId should be 0s if this connUnit is not part of a module.

Set to the WWN of the switch.

connUnitName 1.3.6.1.3.94.1.6.1.20

A display string containing a name for this connectivity unit. This object value should be persistent between boots.

Set to switchName/sysName.

connUnitInfo 1.3.6.1.3.94.1.6.1.21

A display string containing information about this connectivity unit. This object value should be persistent between boots.

Set to sysDescr and read-only.

connUnitControl 1.3.6.1.3.94.1.6.1.22

Controls the addressed connUnit. Each implementation might choose not to allow any or all of these values on a SET.

Cold start and warm start are as defined in MIB-II and are not meant to be a factory reset.

This is similar to swAdmStatus:

```
resetConnunitColdStart = reboot
resetConnunitWarmStart = fastboot
offlineConnUnit = disable switch
onlineConnUnit = enable switch
default after reboot = unknown
```

The declaration 1 (unknown) maps to the default value upon rebooting, and 2 (invalid) is not applicable.

Declarations 3 and 4 perform the same operation—a cold boot of the switch.

Values

Possible values are:

- unknown (1)
- invalid (2)
- resetConnUnitColdStart (3): Reboot. Performs a switch reboot.
- resetConnUnitWarmStart (4): Fastboot. The addressed unit performs a Warm Start reset.
- offlineConnUnit (5): Disable switch. The addressed unit puts itself into an implementation-dependant offline state. In general, if a unit is in an offline state, it cannot be used to perform meaningful Fibre Channel work.
- onlineConnUnit (6): Enable switch. The addressed unit puts itself into an implementation-dependant online state. In general, if a unit is in an online state, it is capable of performing meaningful Fibre Channel work.

connUnitContact 1.3.6.1.3.94.1.6.1.23

Contact information for this connectivity unit.

Displays the same value as sysContact. Changing the value in this variable causes the value in sysContact to also be changed.

connUnitLocation 1.3.6.1.3.94.1.6.1.24

Location information for this connectivity unit.

Displays the same value as sysLocation.

connUnitEventFilter 1.3.6.1.3.94.1.6.1.25

Defines the event severity logged by this connectivity unit. All events of severity less than or equal to connUnitEventFilter are logged in connUnitEventTable.

Return Always returns value 9 (debug).

connUnitNumEvents 1.3.6.1.3.94.1.6.1.26

Number of events currently in connUnitEventTable.

Values For Fabric OS v3.0 this value ranges from 0 to 64.
 For Fabric OS v4.0 this value ranges from 0 to 255.
 For Fabric OS v4.2 this value ranges from 0 to 2048.
 For Fabric OS v4.4 this value ranges from 0 to 1024.
 For Fabric OS v5.0.1 this value ranges from 0 to 1024.

connUnitMaxEvents 1.3.6.1.3.94.1.6.1.27

Maximum number of events that can be defined in connUnitEventTable.

Values For Fabric OS v3.0 this value is 64.
 For Fabric OS v4.0 this value is 255.
 For Fabric OS v4.2 this value is 2048.
 For Fabric OS v4.4 this value is 1024.
 For Fabric OS v5.0.1 this value is 1024.

connUnitEventCurrID 1.3.6.1.3.94.1.6.1.28

The last-used event ID (connUnitEventId).

Maximum is 2147483647 ($2^{31}-1$).

connUnitRevsTable 1.3.6.1.3.94.1.7

Table of the revisions supported by connectivity units managed by this agent.

Usage Notes This table lists the versions of hardware and software elements in the switch.

One entry for the hardware platform version and another entry for the Fabric OS version. For example, for the SilkWorm 4100 the hardware platform number is 32.0. The Fabric OS version for this release is 5.1.

connUnitRevsEntry 1.3.6.1.3.94.1.7.1

Table of the revisions supported by connectivity units managed by this agent.

Index connUnitRevsUnitId
 connUnitRevsIndex

connUnitRevsUnitId 1.3.6.1.3.94.1.7.1.1

The connUnitId value for the connectivity unit that contains this revision table.

connUnitRevsIndex 1.3.6.1.3.94.1.7.1.2

A unique value among all connUnitRevsEntries with the same value of connUnitRevsUnitId, in the range between 1 and connUnitNumRevs.

Index 1 returns the hardware version. Index 2 returns the software version.

connUnitRevsRevId 1.3.6.1.3.94.1.7.1.3

A vendor-specific string identifying a revision of a component of the connUnit indexed by connUnitRevsUnitId.

Index 1 returns the switchType from **switchShow**. Index 2 returns the Fabric OS version from telnet command **version**: for example, v2.6.

connUnitRevsDescription 1.3.6.1.3.94.1.7.1.4

Description of a component to which the revision corresponds.

Index 1 returns the hardware version. Index 2 returns the software version.

connUnitSensorTable 1.3.6.1.3.94.1.8

Table of the sensors supported by each connectivity unit managed by this agent.

See [Table 5-3 on page 5-23](#) for specific sensor counts on the various switches.

connUnitSensorEntry 1.3.6.1.3.94.1.8.1

Each entry contains the information for a specific sensor.

Index connUnitSensorUnitId
 connUnitSensorIndex

connUnitSensorUnitId 1.3.6.1.3.94.1.8.1.1

The connUnitId value of the connectivity unit that contains this sensor table.

Set to connUnitId.

connUnitSensorIndex 1.3.6.1.3.94.1.8.1.2

A unique value among all connUnitSensorEntryS with the same value of connUnitSensorUnitId, in the range between 1 and the return value from connUnitNumSensor.

connUnitSensorName 1.3.6.1.3.94.1.8.1.3

A textual identification of the sensor, intended primarily for operator use.

Each contains the name of sensor in textual format: for example, Temp #1, Fan #2, and so on.

connUnitSensorStatus 1.3.6.1.3.94.1.8.1.4

The status indicated by the sensor.

- Values** Possible values are:
- unknown (1)
 - other (2)
 - ok (3) The sensor indicates okay.
 - Warning (4) The sensor indicates a warning.
 - failed (5) The sensor indicates failure.
 - Nominal = 3 (ok).

connUnitSensorInfo 1.3.6.1.3.94.1.8.1.5

Miscellaneous static information about the sensor, such as its serial number.

Each contains textual information about the sensor.

- Return** Returns the serial ID if this is for the power supply; otherwise, returns Null.

connUnitSensorMessage 1.3.6.1.3.94.1.8.1.6

This describes the status of the sensor as a message. It may also provide some information about the sensor, for example:

sensor 1: type 3 is OK, value is 33

Each contains the sensor status (and reading if applicable) in textual format.

connUnitSensorType 1.3.6.1.3.94.1.8.1.7

The type of component being monitored by this sensor.

Values Possible values are:

- unknown (1)
- other (2)
- battery (3)
- fan (4)
- power-supply (5)
- transmitter (6)
- enclosure (7)
- board (8)
- receiver (9)

The following mapping is for each individual sensor, where applicable:

swSensorType	connUnitSensorType
1 (temperature)	8 (board)
2 (fan)	4 (fan)
3 (power supply)	5 (power supply)

connUnitSensorCharacteristic 1.3.6.1.3.94.1.8.1.8

The characteristics being monitored by this sensor.

The following mapping is for each individual sensor, where applicable:

swSensorType	connUnitSensorCharacteristic
1 (temperature)	3 (temperature)
2 (fan)	7 (airflow)
3 (power supply)	9 (power)

Values Possible values are:

- unknown (1)
- other (2)
- temperature (3)
- pressure (4)
- emf (5)
- currentValue (6) Current is a keyword.
- airflow (7)
- frequency (8)

- power (9)
- door (10) Not supported in Fabric OS v2.6.1.

connUnitPortTable 1.3.6.1.3.94.1.10

Generic information on ports for a specific connUnit.



Note: Information about the GbE ports on a SilkWorm 7500 or FR4-18i blade is not supported.

connUnitPortEntry 1.3.6.1.3.94.1.10.1

Each entry contains the information for a specific port.

Index connUnitPortUnitId
 connUnitPortIndex

connUnitPortUnitId 1.3.6.1.3.94.1.10.1.1

The connUnitId value of the connectivity unit that contains this port.

Same value as connUnitId.

connUnitPortIndex 1.3.6.1.3.94.1.10.1.2

Number of physical ports between 0 and *maximum number of system supported ports* in the connectivity unit (internal/embedded, external).

To determine the *maximum number of system supported ports*, use the SNMP GET command on swFcPortCapacity.

The SilkWorm switches support 0 to *maximum number of system supported ports*. The maximum number of supported ports are as follows:

SilkWorm 3200, 3250	8 ports
SilkWorm 4012	12 ports
SilkWorm 200E, 3800, 3850	16 ports
SilkWorm 3900, 4100	32 ports
SilkWorm 4900	64 ports
SilkWorm 7500	32 ports
SilkWorm 12000	128 ports
SilkWorm 24000	128 ports
SilkWorm 48000	256 ports

connUnitPortType 1.3.6.1.3.94.1.10.1.3

The port type.

For EX_Port, VEX_Port and VE_Port, the port type will be shown as other.

Values

Possible values are:

- unknown (1)
- other (2)
- not-present (3)
- hub-port (4)
- n-port (5) End port for fabric.
- l-port (6) End port for loop.
- fl-port (7) Public loop.
- f-port (8) Fabric port.
- e-port (9) Fabric expansion port.
- g-port (10) Generic fabric port.
- domain-ctl (11) Domain controller.
- hub-controller (12)
- scsi (13) Parallel SCSI port.
- escon (14)
- lan (15)
- wan (16)
- ac (17) AC power line. (Not supported in Fabric OS v2.6.1.)
- dc (18) DC power line. (Not supported in Fabric OS v2.6.1.)
- ssa (19) Serial storage architecture. (Not supported in Fabric OS v2.6.1.)

connUnitPortFCClassCap 1.3.6.1.3.94.1.10.1.4

Bit mask that specifies the classes of service capability of this port. If this is not applicable, return all bits set to 0.

The bits have the following definition:

- unknown 0
- class-f 1
- class-one 2
- class-two 4
- class-three 8
- class-four 16
- class-five 32
- class-six 64

For an F_Port or FL_Port, this value is 0x000C. For a G_Port or E_Port, this value is 0x000D.

connUnitPortFCClassOp 1.3.6.1.3.94.1.10.1.5

Bit mask that specifies the classes of service that are currently operational. If this is not applicable, return all bits set to 0. This object has the same definition as connUnitPortFCClassCap.

For an F_Port or FL_Port, this value is 0x000C. For a G_Port or E_Port, this value is 0x000D.

connUnitPortState 1.3.6.1.3.94.1.10.1.6

The state of the port hardware.

Values Possible values are:

- unavailable (1) Do not use.
- online (2) Available for meaningful work.
- offline (3) Not available for meaningful work.
- bypassed (4) No longer used.
- diagnostics (5) Map to your testing. (Not supported in Fabric OS v2.6.1.)

For an E, F, or FL_Port, the value is online. For a U_Port, the value is offline (disabled, testing, faulted).

connUnitPortStatus 1.3.6.1.3.94.1.10.1.7

An overall protocol status for the port. For a U_Port, the status should be ols (9).

Values Possible values are:

- unknown (1)
- unused (2) Device cannot report this status.
- ready (3) FCAL Loop or FCPH Link reset protocol initialization has completed.
- warning (4) Do not use.
- failure (5) Port is faulty.
- notparticipating (6) Loop not participating and does not have a loop address. Do not use.
- initializing (7) Protocol is proceeding. Do not use.
- bypass (8) Do not use.
- ols (9) FCP offline status. (Not supported in Fabric OS v2.6.1.)

Note

In FOS v2.6.x, for an E_Port, F_Port, or FL_Port, the value is 3 (ok). For a U_Port, the value is 2 (unused) if not faulty with GBIC, 1(unknown) if not faulty but no GBIC, or 5 (failure) if faulty.

In FOS v3.x and above, for an E_Port, F_Port, FL_Port or other Port and online port state, the value is 3 (ok). For G_Port or other Port and offline port state, the value is 9 (ols). For unknown porttype and offline port state, the value is 1 (unknown).

connUnitPortTransmitterType 1.3.6.1.3.94.1.10.1.8

The technology of the port transceiver.

Values Possible values are:

- unknown (1)
- other (2)
- unused (3)
- shortwave (4)
- longwave (5)
- copper (6)
- scsi (7)
- longwaveNoOFC (8)
- shortwaveNoOFC (9)
- longwaveLED (10)
- ssa (11) (Not supported in Fabric OS v2.6.1.)

For an external FC_Port, this value should be 9 (shortwaveNoOFC), 8 (longwaveNoOFC), or 6 (copper).

connUnitPortModuleType 1.3.6.1.3.94.1.10.1.9

The module type of the port connector.

Values Possible values are:

- unknown (1)
- other (2)
- gbic (3)
- embedded (4) Fixed (oneXnine)
- glm (5)
- gbicSerialId (6)
- gbicNoSerialId (7)
- gbicNotInstalled (8)
- smallFormFactor (9)

For an external FC_Port with GBIC, this value is set to 6 (gbicSerialId) or 7 (gbicNoSerialId). For an external FC_Port without GBIC, this value is set to 8 (gbicNotInstalled).

connUnitPortWwn 1.3.6.1.3.94.1.10.1.10

The World Wide Name of the port, if applicable; otherwise, an empty string.

This is in IEEE Extended format, and the extension contains the internal port number of each port.

Note

The internal port number is 1 less than the port index. For **example**, if the switch has WWN 10:00:00:60:69:10:02:18, then port numbers 0 and 6 have WWN 20:00:00:60:69:10:02:18 and 20:06:00:60:69:10:02:18, respectively. However, the embedded port has WWN 10:00:00:60:69:10:02:18, the same as the switch.

connUnitPortFCId 1.3.6.1.3.94.1.10.1.11

This is the assigned Fibre Channel ID of this port. This value is expected to be a Big Endian value of 24 bits. If this is a loop, then it is the AL_PA that is connected. If this is an E_Port, then it contains only the domain ID, left justified, 0 filled. If this port does not have a Fibre Channel address, return all bits set to 1.

For an F_Port, this is the Fibre Channel ID to which the connected N_port is assigned. For an FL_Port, this is the Fibre Channel ID of the FL_Port (alpha = 0). For a U or E_Port, this is similar to F_Port.

connUnitPortSn 1.3.6.1.3.94.1.10.1.12

The serial number of the unit (for example, for a GBIC). If this is not applicable, return an empty string.

If the GBIC has a serial ID, the return value is the GBIC part number; otherwise, the return value is Null.

connUnitPortRevision 1.3.6.1.3.94.1.10.1.13

The port revision (for example, GBIC).

Return If the GBIC has a serial ID, this returns the GBIC revision number; otherwise, it returns a Null value.

connUnitPortVendor 1.3.6.1.3.94.1.10.1.14

The port vendor (for example, for a GBIC).

Return If the GBIC has a serial ID, this returns the GBIC vendor name; otherwise, it returns a Null value.

connUnitPortSpeed 1.3.6.1.3.94.1.10.1.15

The speed of the port, in kilobytes per second.

For example, the valid values for SilkWorm 12000, 24000, and 48000 *directors*: 125,000 KBps, 250,000 KBps, or 500,000 KBps depending on the configuration.

connUnitPortControl 1.3.6.1.3.94.1.10.1.16

Controls the addressed connUnit's port.

Valid commands are:

- **resetConnUnitPort**

If the addressed connUnit allows this operation to be performed to this port, the addressed port performs a vendor-specific reset operation.

Examples of these operations are:

- The Link Reset protocol.
- The Loop Initialization protocol.
- Resynchronization occurring between the transceiver in the addressed port to the transceiver to which the port is connected.

- **bypassConnUnitPort**

If the addressed connUnit allows this operation to be performed to this port, the addressed port performs a vendor-specific “bypass” operation.

Examples of these operations are:

- Transitioning from online to offline.
- A request (NON-PARTICIPATING) command to the loop port state machine.
- Removal of the port from an arbitrated loop by a hub.

- **unbypassConnUnitPort**

If the addressed connUnit allows this operation to be performed to this port, the addressed port performs a vendor-specific “unbypass” operation. Examples of these operations are

- The Link Failure protocol.
- A request (PARTICIPATING) command to the loop port state machine.
- Addition of the port to an arbitrated loop by a hub.

- **offlineConnUnitPort**

If the addressed connUnit allows this operation to be performed to this port, the addressed port performs a vendor-specific offline operation.

Examples of these operations are:

- Disabling a port's transceiver.
- The Link Failure protocol.
- Request (NON-PARTICIPATING) command to the loop port state machine removal of the port from an arbitrated loop by a hub.

- **onlineConnUnitPort**

If the addressed connUnit allows this operation to be performed to this port, the addressed port performs a vendor-specific online operation.

Examples of these operations are:

- Enabling a port's transceiver.
- The Link Failure protocol, request (PARTICIPATING) command to the loop port state machine.
- Addition of the port from an arbitrated loop by a hub.

Each implementation might choose not to allow any or all of these values on a SET.

If the management station uses in-band communication (FC-IP) with the switch, either of the two following actions might result in a loss of in-band communication with the switch:

- Disabling the FC port that is connected to the management station
- Disabling the embedded port
- Return values are:
 - resetConnUnitPort portDisable (F or E_Port, loop for U_Port)
 - bypassConnUnitPort portDisable (FL_Port)
 - unbypassConnUnitPort portEnable (FL_Port)
 - offlineConnUnitPort portDisable (E, F, FL_Port)
 - onlineConnUnitPort portEnable (U)
 - resetConnUnitPortCounters clear the port statistics counter. When rebooted, this defaults to 1 (unknown).

connUnitPortName 1.3.6.1.3.94.1.10.1.17

A string describing the addressed port.

This object is read-only for Brocade switches.

connUnitPortPhysicalNumber 1.3.6.1.3.94.1.10.1.18

This is the internal port number by which this port is known. In many implementations, this should be the same as connUnitPortIndex. Some implementations might have an internal port representation not compatible with the rules for table indices. In these cases, provide the internal representation of this port in this object. This value might also be used in the connUnitLinkPortNumberX or connUnitLinkPortNumberY objects of the connUnitLinkTable.

The internal port numbers for Brocade switch. The SilkWorm switches support 0 through *maximum number of ports*.

The maximum number of supported ports are as follows:

SilkWorm 3200, 3250	8 ports
SilkWorm 4012	12 ports
SilkWorm 200E, 3800, 3850	16 ports
SilkWorm 3900, 4100	32 ports
SilkWorm 4900	64 ports
SilkWorm 7500	32 ports
SilkWorm 12000	128 ports
SilkWorm 24000	128 ports
SilkWorm 48000	256 ports

connUnitPortStatObject 1.3.6.1.3.94.1.10.1.19

This OID is deprecated.

This contains the OID of the first object of the table that contains the statistics for this particular port. If this has a value of 0, then there are no statistics available for this port. The port type information helps identify the statistics objects found in the table. From this point, use the getnext command to get the next statistics object. When the first part of the OID changes, the end of table is reached.

Mapped to connUnitPortStatFabricUnitId.

connUnitPortProtocolCap 1.3.6.1.3.94.1.10.1.20

Not supported in Fabric OS v2.6.1.

This is the bit mask that specifies the driver-level protocol capability of this port.

If this is not applicable, return all bits set to 0.

Return value = 07F

The bits have the following definition:

- 0 = unknown
- 1 = Loop
- 2 = Fabric
- 4 = SCSI
- 8 = TCP/IP
- 16 = VI
- 32 = FICON

connUnitPortProtocolOp 1.3.6.1.3.94.1.10.1.21

Not supported in Fabric OS v2.6.1.

This is the bit mask that specifies the driver level protocol(s) that are currently operational.

Return value = 07F

If this is not applicable, return all bits set to zero. The bits have the following definition:

- 0 = unknown
- 1 = Loop
- 2 = Fabric
- 4 = SCSI
- 8 = TCP/IP
- 16 = VI
- 32 = FICON

connUnitPortNodeWwn 1.3.6.1.3.94.1.10.1.22

Not supported in Fabric OS v2.6.1.

The node World Wide Name of the port, if applicable; otherwise, an empty string.

All related ports in within a group should have the same node WWN value. The container is defined as the largest physical entity.

All ports on HBAs on a host will have the same node WWN. All ports on the same storage subsystem will have the same node WWN.

This is in IEEE Extended format and the extension contains the internal port number of each port.

The internal port number is 1 less than the port index. For **example**, if the switch has WWN 10:00:00:60:69:10:02:18, then port number 0 and 6 have WWN 20:00:00:60:69:10:02:18 and 20:06:00:60:69:10:02:18, respectively. However, the embedded port has WWN 10:00:00:60:69:10:02:18, the same as the switch.

connUnitPortHWState 1.3.6.1.3.94.1.10.1.23

Not supported in Fabric OS v2.6.1.

The state of the port as detected by the hardware.

Values Possible values are:

- unknown (1)
- failed (2) Port failed diagnostics (port_flt_state).
- bypassed (3) FCAL bypass, loop only (not used).
- active (4) Connected to a device (light and sync are present).
- loopback (5) Port in ext loopback (loopback state).
- txfault (6) Transmitter fault (bad GBIC).
- noMedia (7) Media not installed (GBIC removed).
- linkDown (8) Waiting for activity—rx sync (light with no sync).

connUnitEventTable 1.3.6.1.3.94.1.11

The table of connectivity unit events. Errors, warnings, and information should be reported in this table.

- (v3.0 only) This table contains the 64 most-recent event log entries.
- (v4.0 only) This table contains the 255 most-recent event log entries.
- (v4.2 only) This table contains the 2048 most-recent event log entries.
- (v4.4 and above) This table contains the 1024 most-recent event log entries.

Only external RAS log messages are supported. Fabric OS v4.4.0 and above do not have Panic or Debug level messages. All external messages are documented in the *Fabric OS System Error Message Reference Manual*.

connUnitEventEntry 1.3.6.1.3.94.1.11.1

Each entry contains information on a specific event for the given connectivity unit.

Index connUnitEventUnitId
 connUnitEventIndex

connUnitEventUnitId 1.3.6.1.3.94.1.11.1.1

The connUnitId of the connectivity unit that contains this event table.

Same as connUnitId.

connUnitEventIndex 1.3.6.1.3.94.1.11.1.2

Each connectivity unit has its own event buffer. As it wraps, it might write over previous events. This object is an index into the buffer. It is recommended that this table is read using “getNext”s to retrieve the initial table. The management application should read the event table at periodic intervals and then determine if any new entries were added by comparing the last known index value with the current highest index value. The management application should then update its copy of the event table. If the read interval is too long, it is possible that there might be events that might not be contained in the agent's internal event buffer.

An agent might read events 50-75.

At the next read interval, connUnitEventCurrID is 189. If the management application tries to read event index 76 and the agent's internal buffer is 100 entries maximum, event index 76 is no longer available.

The index value is an incrementing integer starting from 1 every time there is a table reset. On table reset, all contents are emptied and all indices are set to 0. When an event is added to the table, the event is assigned the next-higher integer value than the last item entered into the table. If the index value reaches its maximum value, the next item entered causes the index value to roll over and start at 1 again.

Mapped to swEventIndex.

connUnitEventId 1.3.6.1.3.94.1.11.1.3

The internal event ID. Incriminated for each event, ranging between 0 and connUnitMaxEvents. Not used as table index to simplify the agent implementation. When this reaches the end of the range specified by connUnitMaxEvents, the ID rolls over to start at 0. This value is set back to 0 at reset. The relationship of this value to the index is that internal event ID might represent a smaller number than a 32-bit integer (for example, maximum 100 entries) and would only have a value range up to connUnitMaxEvents.

Same function as connUnitEventIndex.

connUnitREventTime 1.3.6.1.3.94.1.11.1.4

This is the real time when the event occurred. It has the following format.

DDMMYYYY HHMMSS

Where:

DD = day number

MM = month number

YYYY = year

HH = hours

MM = minutes

SS = seconds

If not applicable, returns a null string.

connUnitSEventTime 1.3.6.1.3.94.1.11.1.5

This is the sysuptime time stamp when the event occurred.

connUnitEventSeverity 1.3.6.1.3.94.1.11.1.6

The event severity level. The mapping between errorlog severity level and this variable is:

Error log	FA-MIB
none (0)	unknown (1)
Critical (1)	critical (4)
Error (2)	error (5)
Warning (3)	warning (6)
Informational (4)	info (8)
Debug (5)	debug (9)

See FcEventSeverity in [Table 8-1 on page 8-8](#) for more information about severity.

connUnitEventType 1.3.6.1.3.94.1.11.1.7

The type of this event.

Values Possible values are:

- unknown (1)
- other (2)
- status (3)
- configuration (4)
- topology (5)

Always set to 2 (other).

connUnitEventObject 1.3.6.1.3.94.1.11.1.8

This is used with the connUnitEventType to identify to which object the event refers. It can be the OID of a connectivity unit or of another object, like connUnitPortStatus[...].

Values Always set to null.

connUnitEventDescr 1.3.6.1.3.94.1.11.1.9

The description of the event.

Same as the string displayed in the system error log. The system error log can be viewed using the **errShow** or **errDump** commands.

For Fabric OS v4.4.0, the format of error messages has changed. This field now uses the message title and number (for example, WEBD-1006) and the message text. Previously, this field used the task ID and all the message number and message text. For more information on error messages, see *Fabric OS System Error Message Reference Manual*.

connUnitLinkTable 1.3.6.1.3.94.1.12

A list of links known to this agent from this connectivity unit to other connectivity units: X is switch data and Y is other end.

The link table is intended to organize and communicate any information the agent has that might assist a management application to discover the connectivity units in the framework and the topology of their interconnect: the goal is to assist the management application by mapping the elements of the framework in addition to listing them.

With this goal, the agent should include as much as it possesses about any links from its own connectivity units to others, including links among its own units.

An agent should include partial information about links if it is not able to fully define them in accord with the following structure; however, the information must include either a nonzero connUnitNodeId—or a nonzero connUnitPortWwn—for each end of the link.

If the agent is able to discover links that do not directly attach to members of its agency and its discovery algorithm gives some assurance that the links are recently valid, it might include these links.

Link information entered by administrative action might be included even if not validated directly if the link has at least one endpoint in this agency, but it should not be included otherwise.

A connectivity unit should fill the table in as best it can. One of the methods to fill this in would be to use the RNID ELS command (ANSI document 99-422v0). This command queries a port for the information needed for the link table.

This table is accessed either directly, if the management software has an index value, or using **getNext**. The values of the indexes are not required to be contiguous. Each entry created in this table is assigned an index. This relationship is kept persistent until the entry is removed from the table or the system is reset. The total number of entries is defined by the size of the table.

For an entry to be considered valid, both the X (local) and the Y (remote) values need to have one valid value.

connUnitLinkEntry 1.3.6.1.3.94.1.12.1

An entry describing a particular link to another.

Index connUnitLinkUnitId
 connUnitLinkIndex

connUnitLinkUnitId 1.3.6.1.3.94.1.12.1.1

The connUnitId of the connectivity unit that contains this link table.

Values Set to WWN of the local switch.

connUnitLinkIndex 1.3.6.1.3.94.1.12.1.2

This value is used to create a unique value for each entry in the link table with the same connUnitLinkUnitId. The value can only be reused if it is not currently in use and the value is the next candidate to be used. This value is allowed to wrap at the highest value represented by the number of bits. This value is reset to 0 when the system is reset and the first value to be used is 1.

Indexes 1 through *maximum number of ports* is reserved for ISL.

Indexes *maximum number of ports + 1* and above are reserved for end devices and are calculated based on portID of the end device(s).

connUnitLinkNodeIdX 1.3.6.1.3.94.1.12.1.3

The node WWN of the unit at one end of the link. If the node WWN is unknown and the node is a connUnit in the responding agent, then the value of this object must be equal to its connUnitID.

WWN of the local switch.

connUnitLinkPortNumberX 1.3.6.1.3.94.1.12.1.4

The port number on the unit specified by connUnitLinkNodeIdX, if known; otherwise, -1. If the value is nonnegative, then it is equal to connUnitPortPhysicalNumber.

ISL: Physical port number of the E_Port.

Device: Physical port # to which the device is connected.

connUnitLinkPortWwnX 1.3.6.1.3.94.1.12.1.5

The port WWN of the unit specified by connUnitLinkNodeIdX, if known; otherwise, 16 octets of binary 0.

This is the WWN of the port to which the device is connected.

connUnitLinkNodeIdY 1.3.6.1.3.94.1.12.1.6

The node WWN of the unit at the other end of the link. If the node WWN is unknown and the node is a connUnit in the responding SNMP agency, then the value of this object must be equal to its connUnitID.

ISL: WWN of the remote switch.
Device: Node name of the device.

connUnitLinkPortNumberY 1.3.6.1.3.94.1.12.1.7

The port number on the unit specified by connUnitLinkNodeIdY, if known; otherwise, -1. If the value is nonnegative then it is equal to connUnitPortPhysicalNumber.

ISL: Physical port number of the remote port.
Device: -1.

connUnitLinkPortWwnY 1.3.6.1.3.94.1.12.1.8

The port WWN on the unit specified by connUnitLinkNodeIdY, if known; otherwise, 16 octets of binary 0.

ISL: WWN of the remote port.
Device: *Port name*.

connUnitLinkAgentAddressY 1.3.6.1.3.94.1.12.1.9

The address of an FCMGMT MIB agent for the node identified by connUnitLinkNodeIdY, if known; otherwise, 16 octets of binary 0.

ISL: IP address (IPv4).
Device: 0 (Null).

connUnitLinkAgentAddressTypeY 1.3.6.1.3.94.1.12.1.10

If connUnitLinkAgentAddressY is nonzero, it is a protocol address. ConnUnitLinkAgentAddressTypeY is the “address family number” assigned by IANA to identify the address format (for example, 1 is Ipv4, 2 is Ipv6).

ISL: Type 1.
Device: 0 (Null).

connUnitLinkAgentPortY 1.3.6.1.3.94.1.12.1.11

The IP port number for the agent. This is provided in case the agent is at a non-standard SNMP port.

ISL: IP port.
Device: 0 (Null).

connUnitLinkUnitTypeY 1.3.6.1.3.94.1.12.1.12

Type of the FC connectivity unit, as defined in connUnitType.

- ISL: Switch device.
- End devices: End device types based on an FCP Inquiry.

Brocade does not support Hubs.

Table 8-2 connUnitLinkUnitTypeY End Devices

Storage System	Storage Sub-system	Unknown	Other
Direct Access	Medium Changer	Unknown	Anything else (printer device, processor device, scanner, and so on)
Sequential Access	Array		
Write-Once	SES		
CD-ROM			
Optical			

connUnitLinkConnIdY 1.3.6.1.3.94.1.12.1.13

This is the Fibre Channel ID of this port. If the connectivity unit is a switch, this is expected to be a Big Endian value of 24 bits. If this is loop, then it is the AL_PA that is connected. If this is an E_port, then it contains only the domain ID. If not any of those, unknown or cascaded loop, return all bits set to 1.

ISL: Port ID of the remote port.

Device: Port ID of the remote port.

connUnitLinkCurrIndex 1.3.6.1.3.94.1.12.1.14

Not supported in Fabric OS v2.6.1.

The last-used link index.

Statistics Group

Not supported in Fabric OS v2.6.1.

Port types are aggregated into a port type class, such as all the fabric port types.

Each individual port has only one statistics table. For all objects in the statistics table, if the object is not supported by the conn unit, then the high order bit is set to 1, with all other bits set to 0 (for example, the last eight bytes of the returned value might be ...:80 00 00 00 00 00 00 00).

The high order bit is reserved to indicate whether the object is supported. All objects start at a value of 0 at hardware initialization and continue incrementing until end of 63 bits and then wrap to 0.

This is the case for all Class 1 Frames; Brocade does not support them.

connUnitPortStatTable 1.3.6.1.3.94.4.5

A list of statistics for the fabric port types.

connUnitPortStatEntry 1.3.6.1.3.94.4.5.1

An entry describing port statistics.

Index	connUnitPortStatUnitId
	connUnitPortStatIndex

connUnitPortStatUnitId 1.3.6.1.3.94.4.5.1.1

The connUnitId of the connectivity unit that contains this port statistics table.

connUnitPortStatIndex 1.3.6.1.3.94.4.5.1.2

A unique value among all entries in this table, between 0 and connUnitNumPort[connUnitPortUnitId].

connUnitPortStatCountError 1.3.6.1.3.94.4.5.1.3

A count of the errors that have occurred on this port.

connUnitPortStatCountTxObjects 1.3.6.1.3.94.4.5.1.4

The number of frames, packets, IOs, and so forth, that have been transmitted by this port.

A Fibre Channel frame starts with SOF and ends with EOF. FC loop devices should not count frames passed through. This value represents the sum total for all other Tx objects.

connUnitPortStatCountRxObjects 1.3.6.1.3.94.4.5.1.5

The number of frames, packets, IOs, and so forth, that have been received by this port.

A Fibre Channel frame starts with SOF and ends with EOF. FC loop devices should not count frames passed through. This value represents the sum total for all other Rx objects.

connUnitPortStatCountTxElements 1.3.6.1.3.94.4.5.1.6

The number of octets or bytes that have been transmitted by this port. There is an one-second periodic polling of the port. This value is saved and compared with the next polled value to compute net throughput.

For Fibre Channel, ordered sets are not included in the count.

connUnitPortStatCountRxElements 1.3.6.1.3.94.4.5.1.7

The number of octets or bytes that have been received by this port. There is an one-second periodic polling of the port. This value is saved and compared with the next polled value to compute net throughput.

For Fibre Channel, ordered sets are not included in the count.

connUnitPortStatCountBBCreditZero 1.3.6.1.3.94.4.5.1.8

The number of transitions in/out of BB credit zero state. The other side is not providing any credit. This is a Fibre Channel statistic only.

connUnitPortStatCountInputBuffersFull 1.3.6.1.3.94.4.5.1.9

Not supported.

The number of occurrences when all input buffers of a port were full and outbound buffer-to-buffer credit transitioned to 0. There is no credit to provide to other side.

Return Value: 80 0 0 0 0 0 0 (Not Supported)

This is a Fibre Channel statistic only.

connUnitPortStatCountFBSYFrames 1.3.6.1.3.94.4.5.1.10

The number of times that FBSY was returned to this port as a result of a frame that could not be delivered to the other end of the link. This occurs if either the Fabric or the destination port is temporarily busy. Port can only occur on SOFc1 frames (the frames that establish a connection).

This is a Fibre Channel only statistic. This is the sum of all classes. If you cannot keep the by-class counters, then keep the sum counters.

connUnitPortStatCountPBSYFrames 1.3.6.1.3.94.4.5.1.11

Not supported.

The number of times that PBSY was returned to this port as a result of a frame that could not be delivered to the other end of the link. This occurs if the destination port is temporarily busy. PBSY can only occur on SOFc1 frames (the frames that establish a connection).

Return Value: 80 0 0 0 0 0 0 (not supported)

This is a Fibre Channel only statistic. This is the sum of all classes. If you cannot keep the by class counters, then keep the sum counters.

connUnitPortStatCountFRJTFrames 1.3.6.1.3.94.4.5.1.12

The number of times that FRJT was returned to this port as a result of a frame that was rejected by the fabric.

This is the total for all classes and is a Fibre Channel only statistic.

connUnitPortStatCountPRJTFrames 1.3.6.1.3.94.4.5.1.13

Not supported.

The number of times that FRJT was returned to this port as a result of a frame that was rejected at the destination N_Port.

Return Value: 80 0 0 0 0 0 0

This is the total for all classes and is a Fibre Channel only statistic.

connUnitPortStatCountClass1RxFrames 1.3.6.1.3.94.4.5.1.14

The number of Class 1 Frames received at this port.

This is a Fibre Channel only statistic.

Brocade does not support Class 1 Frames.

connUnitPortStatCountClass1TxFrames 1.3.6.1.3.94.4.5.1.15

The number of Class 1 Frames transmitted out this port. This is a Fibre Channel only statistic. Brocade does not support Class 1 Frames.

connUnitPortStatCountClass1FBSYFrames 1.3.6.1.3.94.4.5.1.16

The number of times that FBSY was returned to this port as a result of a Class 1 Frame that could not be delivered to the other end of the link. This occurs if either the Fabric or the destination port is temporarily busy. FBSY can only occur on SOFc1 frames (the frames that establish a connection).

This is a Fibre Channel only statistic. Brocade does not support Class 1 Frames.

connUnitPortStatCountClass1PBSYFrames 1.3.6.1.3.94.4.5.1.17

The number of times that PBSY was returned to this port as a result of a Class 1 Frame that could not be delivered to the other end of the link. This occurs if the destination N_Port is temporarily busy. PBSY can only occur on SOFc1 frames (the frames that establish a connection).

This is a Fibre Channel only statistic. Brocade does not support Class 1 Frames.

connUnitPortStatCountClass1FRJTFrames 1.3.6.1.3.94.4.5.1.18

The number of times that FRJT was returned to this port as a result of a Class 1 Frame that was rejected by the fabric.

This is a Fibre Channel only statistic. Brocade does not support Class 1 Frames.

connUnitPortStatCountClass1PRJTFrames 1.3.6.1.3.94.4.5.1.19

The number of times that FRJT was returned to this port as a result of a Class 1 Frame that was rejected at the destination N_Port.

This is a Fibre Channel only statistic. Brocade does not support Class 1 Frames.

connUnitPortStatCountClass2RxFrames 1.3.6.1.3.94.4.5.1.20

The number of Class 2 Frames received at this port.

This is a Fibre Channel only statistic.

connUnitPortStatCountClass2TxFrames 1.3.6.1.3.94.4.5.1.21

Not supported.

The number of Class 2 Frames transmitted out this port.

Return value: 80 0 0 0 0 0 0 0

This is a Fibre Channel only statistic.

connUnitPortStatCountClass2FBSYFrames 1.3.6.1.3.94.4.5.1.22

Not supported.

The number of times that FBSY was returned to this port as a result of a Class 2 Frame that could not be delivered to the other end of the link. This occurs if either the Fabric or the destination port is temporarily busy. FBSY can only occur on SOFc1 frames (the frames that establish a connection).

Return value: 80 0 0 0 0 0 0 0

This is a Fibre Channel only statistic.

connUnitPortStatCountClass2PBSYFrames 1.3.6.1.3.94.4.5.1.23

Not supported.

The number of times that PBSY was returned to this port as a result of a Class 2 Frame that could not be delivered to the other end of the link. This occurs if the destination N_Port is temporarily busy. PBSY can only occur on SOFc1 frames (the frames that establish a connection).

Return value: 80 0 0 0 0 0 0 0

This is a Fibre Channel only statistic.

connUnitPortStatCountClass2FRJTFrames 1.3.6.1.3.94.4.5.1.24

Not supported.

The number of times that FRJT was returned to this port as a result of a Class 2 Frame that was rejected by the fabric.

Return value: 80 0 0 0 0 0 0 0

This is a Fibre Channel only statistic.

connUnitPortStatCountClass2PRJTFrames 1.3.6.1.3.94.4.5.1.25

The number of times that FRJT was returned to this port as a result of a Class 2 Frame that was rejected at the destination N_Port.

Return value: 80 0 0 0 0 0 0 0 (not supported)

This is a Fibre Channel only statistic.

connUnitPortStatCountClass3RxFrames 1.3.6.1.3.94.4.5.1.26

The number of Class 3 Frames received at this port.

This is a Fibre Channel only statistic.

connUnitPortStatCountClass3TxFrames 1.3.6.1.3.94.4.5.1.27

The number of Class 3 Frames transmitted out this port.

This is a Fibre Channel only statistic.

connUnitPortStatCountClass3Discards 1.3.6.1.3.94.4.5.1.28

The number of Class 3 Frames that were discarded upon reception at this port. There is no FBSY or FRJT generated for Class 3 Frames. They are discarded if they cannot be delivered.

This is a Fibre Channel only statistic.

connUnitPortStatCountRxMulticastObjects 1.3.6.1.3.94.4.5.1.29

The number of multicast frames or packets received at this port.

connUnitPortStatCountTxMulticastObjects 1.3.6.1.3.94.4.5.1.30

The number of multicast frames or packets transmitted out this port.

connUnitPortStatCountRxBroadcastObjects 1.3.6.1.3.94.4.5.1.31

The number of broadcast frames or packets received at this port.

Return value: 80 0 0 0 0 0 0 0 (not supported)

connUnitPortStatCountTxBroadcastObjects 1.3.6.1.3.94.4.5.1.32

The number of broadcast frames or packets transmitted out this port. On a Fibre Channel loop, count only OPN_r frames generated.

Return value: 80 0 0 0 0 0 0 0 (not supported)

connUnitPortStatCountRxLinkResets 1.3.6.1.3.94.4.5.1.33

The number of link resets. This is the number of LRs received.

This is a Fibre Channel only statistic.

connUnitPortStatCountTxLinkResets 1.3.6.1.3.94.4.5.1.34

The number of link resets. This is the number LRs transmitted.

This is a Fibre Channel only statistic.

connUnitPortStatCountNumberLinkResets 1.3.6.1.3.94.4.5.1.35

The number of link resets and LIPs detected at this port. The number times the reset link protocol is initiated. This is a count of the logical resets, a count of the number of primitives.

This is a Fibre Channel only statistic.

connUnitPortStatCountRxOfflineSequences 1.3.6.1.3.94.4.5.1.36

The number of offline primitive OLS received at this port.

This is a Fibre Channel only statistic.

connUnitPortStatCountTxOfflineSequences 1.3.6.1.3.94.4.5.1.37

The number of offline primitive OLS transmitted by this port.

This is a Fibre Channel only statistic.

connUnitPortStatCountNumberOfflineSequences 1.3.6.1.3.94.4.5.1.38

The number of offline primitive sequence received at this port.

Return Value: 80 0 0 0 0 0 0 (not supported)

This is a Fibre Channel only statistic.

connUnitPortStatCountLinkFailures 1.3.6.1.3.94.4.5.1.39

The number of link failures. This count is part of the Link Error Status Block (LESB). (FC-PH 29.8)

This is a Fibre Channel only statistic.

connUnitPortStatCountInvalidCRC 1.3.6.1.3.94.4.5.1.40

The number of frames received with invalid CRC. This count is part of the Link Error Status Block (LESB). (FC-PH 29.8) Loop ports should not count CRC errors passing through when monitoring.

This is a Fibre Channel only statistic.

connUnitPortStatCountInvalidTxWords 1.3.6.1.3.94.4.5.1.41

The number of invalid transmission words received at this port. This count is part of the Link Error Status Block (LESB). (FC-PH 29.8)

This is a Fibre Channel only statistic.

connUnitPortStatCountPrimitiveSequenceProtocolErrors 1.3.6.1.3.94.4.5.1.42

The number of primitive sequence protocol errors detected at this port. This count is part of the Link Error Status Block (LESB). (FC-PH 29.8)

This is a Fibre Channel only statistic.

connUnitPortStatCountLossofSignal 1.3.6.1.3.94.4.5.1.43

The number of instances of signal loss detected at port.

This count is part of the Link Error Status Block (LESB).

(FC-PH 29.8)

This is a Fibre Channel only statistic.

connUnitPortStatCountLossofSynchronization 1.3.6.1.3.94.4.5.1.44

The number of instances of synchronization loss detected at port. This count is part of the Link Error Status Block (LESB). (FC-PH 29.8)

This is a Fibre Channel only statistic.

connUnitPortStatCountInvalidOrderedSets 1.3.6.1.3.94.4.5.1.45

The number of invalid ordered sets received at port. This count is part of the Link Error Status Block (LESB). (FC-PH 29.8).

This is a Fibre Channel only statistic.

connUnitPortStatCountFramesTooLong 1.3.6.1.3.94.4.5.1.46

The number of frames received at this port where the frame length was greater than what was agreed to in FLOGI/PLOGI. This could be caused by losing the end of frame delimiter.

This is a Fibre Channel only statistic.

connUnitPortStatCountFramesTruncated 1.3.6.1.3.94.4.5.1.47

The number of frames received at this port where the frame length was less than the minimum indicated by the frame header - normally 24 bytes, but it could be more if the DFCTL field indicates an optional header should have been present.

This is a Fibre Channel only statistic.

connUnitPortStatCountAddressErrors 1.3.6.1.3.94.4.5.1.48

The number of frames received with unknown addressing. For example, unknown SID or DID. The SID or DID is not known to the routing algorithm.

This is a Fibre Channel only statistic.

connUnitPortStatCountDelimiterErrors 1.3.6.1.3.94.4.5.1.49

The number of invalid frame delimiters received at this port. An example is a frame with a class 2 start and a class 3 at the end.

This is a Fibre Channel only statistic.

connUnitPortStatCountEncodingDisparityErrors 1.3.6.1.3.94.4.5.1.50

The number of disparity errors received at this port.

This is a Fibre Channel only statistic.

Service Group

Not supported in Fabric OS v2.6.1.

Implementation of the Service group is mandatory for all systems.

The Service group contains the following subgroups:

- Connectivity Unit Service Scalers Group
- Connectivity Unit Service Tables Group

Implementation of the Connectivity Unit Service Scalers group is mandatory for all systems.

connUnitSnsMaxEntry 1.3.6.1.3.94.5.1.1

The maximum number of entries in the table.

connUnitSnsTable 1.3.6.1.3.94.5.2.1

This table contains an entry for each object registered with this port in the switch.

Implementation of the Connectivity Unit Service Tables group is mandatory for all systems.

connUnitSnsEntry 1.3.6.1.3.94.5.2.1.1

The simple name server (SNS) table for the port represented by connUnitSnsPortIndex.

Index	connUnitSnsId
	connUnitSnsPortIndex
	connUnitSnsPortIdentifier

connUnitSnsId 1.3.6.1.3.94.5.2.1.1.1

The connUnitId of the connectivity unit that contains this name server table.

connUnitSnsPortIndex 1.3.6.1.3.94.5.2.1.1.2

The physical port number of this SNS table entry. Each physical port has an SNS table with 1-n entries indexed by connUnitSnsPortIdentifier (port address).

connUnitSnsPortIdentifier 1.3.6.1.3.94.5.2.1.1.3

The port identifier for this entry in the SNS table.

connUnitSnsPortName 1.3.6.1.3.94.5.2.1.1.4

The port name for this entry in the SNS table.

connUnitSnsNodeName 1.3.6.1.3.94.5.2.1.1.5

The node name for this entry in the SNS table.

connUnitSnsClassOfSvc 1.3.6.1.3.94.5.2.1.1.6

The Classes of Service offered by this entry in the SNS table.

connUnitSnsNodeIPAddress 1.3.6.1.3.94.5.2.1.1.7

The IPv6 formatted address of the Node for this entry in the SNS table.

connUnitSnsProcAssoc 1.3.6.1.3.94.5.2.1.1.8

The process associator for this entry in the SNS table.

connUnitSnsFC4Type 1.3.6.1.3.94.5.2.1.1.9

The FC-4 types supported by this entry in the SNS table.

connUnitSnsPortType 1.3.6.1.3.94.5.2.1.1.10

The port type of this entry in the SNS table.

connUnitSnsPortIPAddress 1.3.6.1.3.94.5.2.1.1.11

The IPv6 formatted address of this entry in the SNS table.

connUnitSnsFabricPortName 1.3.6.1.3.94.5.2.1.1.12

The fabric port name of this entry in the SNS table.

connUnitSnsHardAddress 1.3.6.1.3.94.5.2.1.1.13

The hard address of this entry in the SNS table.

connUnitSnsSymbolicPortName 1.3.6.1.3.94.5.2.1.1.14

The symbolic port name of this entry in the SNS table.

connUnitSnsSymbolicNodeName 1.3.6.1.3.94.5.2.1.1.15

The symbolic node name of this entry in the SNS table.

SNMP Trap Registration Group

trapMaxClients 1.3.6.1.3.94.2.1

The maximum number of SNMP trap recipients supported by the connectivity unit.

Set to 6.

trapClientCount 1.3.6.1.3.94.2.2

The current number of rows in the trap table.

trapRegTable 1.3.6.1.3.94.2.3

A table containing a row for each IP address/port number to which traps are sent.

trapRegEntry 1.3.6.1.3.94.2.3.1

IP/port pair for a specific client.

Index trapRegIpAddress
 trapRegPort

trapRegIpAddress 1.3.6.1.3.94.2.3.1.1

The IP address of a client registered for traps.

trapRegPort 1.3.6.1.3.94.2.3.1.2

The UDP port to send traps to for this host. Normally this would be the standard trap port (162). This object is an index and must be specified to create a row in this table.

Set to 162.

trapRegFilter 1.3.6.1.3.94.2.3.1.3

This value defines the trap severity filter for this trap host. The connUnit sends traps to this host that have a severity level less than or equal to this value. The default value of this object is Warning. The mapping between errorlog severity level and this variable is:

Table 8-3

System Error Log errshow command	FA-MIB
none (0)	unknown (1)
Critical (1)	critical (4)
Error (2)	error (5)
Warning (3)	warning (6)
Info (4)	info (8)
Debug (5)	debug (9)

This severity applies to all entries. See FcEventSeverity in [Table 8-1 on page 8-8](#).

The values 1, 3, 7, and 10 are not valid for SET operations.

trapRegRowState 1.3.6.1.3.94.2.3.1.4

Specifies the state of the row. This entry always returns rowActive and allows for read-only.

Table 8-4 TrapRegRowState for Read/Write

State	Description (Read)	Description (Write)
rowDestroy (1)	Read: Can never happen.	Write: Remove this row from the table.
rowInactive (2)	Read: Indicates that this row does exist but that traps are not enabled to be sent to the target.	Write: If the row does not exist and the agent allows writes to the trap table, then a new row is created. The values of the optional columns are set to default values. Traps are not enabled to be sent to the target. If the row already existed, then traps are disabled from being sent to the target.
rowActive (3)	Read: Indicates that this row exists and that traps are enabled to be sent to the target.	Write: If the row does not exist and the agent allows writes to the trap table, then a new row is created. The values of the optional columns are set to default values. Traps are enabled to be sent to the target. If the row already exists, then traps are enabled to be sent to the target.

Revision Number Scalar

revisionNumber 1.3.6.1.3.94.3

This is the revision number for this MIB. The format of the revision value is as follows:

- 0 = High order major revision number
- 1 = Low order major revision number
- 2 = High order minor revision number
- 3 = Low order minor revision number

The value is stored as an ASCII value. The following is the current value of this object:

- 0 = 0
- 1 = 3
- 2 = 0
- 3 = 0

This defines a revision of 03.00.

Set to 0300.

Unsupported Tables

The Connectivity Unit Port Statistics Fabric Table is only supported in v2.6.1

Brocade does not support the following:

- Connectivity Unit Port Statistics Hub Table
- Connectivity Unit Port Statistics SCSI Table
- Connectivity Unit Port Statistics LAN/WAN Table

FibreAlliance MIB Traps

connUnitStatusChange

Enterprise fcmgmt

Variables connUnitStatus, connUnitState

The overall status of the connectivity unit has changed.

Recommended severity level (for filtering): alert.

Generated when connUnitStatus changes. See “[connUnitStatus 1.3.6.1.3.94.1.6.1.6](#)” on page 8-12 for a description of how the value is calculated.

Sample trap output for Fabric OS v4.4.0:

```
connUnitStatus.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.1 = warning(4)
connUnitState.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.1 = offline(3)
```

See the *Fabric Watch Administrator's Guide* on how the switch status is determined.

connUnitDeletedTrap

Enterprise fcmgmt

Variables connUnitId

A connUnit has been deleted from this agent.

Recommended severity level (for filtering): warning.

Not implemented.

connUnitEventTrap

Enterprise fcmgmt

Variables connUnitEventId, connUnitEventType, connUnitEventObject, connUnitEventDescr

An event has been generated by the connectivity unit.

Recommended severity level (for filtering): info.

Sample trap output for Fabric OS v4.4.0:

```
connUnitEventId.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.354 = 354
connUnitEventType.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.354 = other(2)
```

```
connUnitEventObject.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.354 = null
connUnitEventDescr.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.354 = FW-1425 Switch
status changed from MARGINAL to HEALTHY.
```

See the [swEventTrap](#) for more details.

connUnitSensorStatusChange

Enterprise fcmgmt

Variables connUnitSensorStatus

Overall status of the connectivity unit has changed.

This trap is generated whenever the status of the sensors (like fan, power supply, temperature) present in the connectivity unit changes.

Sample trap output for Fabric OS v4.4.0:

```
connUnitSensorStatus.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.7 = failed(5)
```

See the *Fabric Watch Administrator's Guide* for information on configuring thresholds that generate these traps.

connUnitPortStatusChange

Enterprise fcmgmt

Variables connUnitPortStatus, connUnitPortState

Overall status of the connectivity unit changed. Recommended severity level (for filtering): alert.

This trap sends the instance of connUnitPortName as part of the trap; the instance string is NULL, if the port name is not defined for the specified port.

Sample trap output for Fabric OS v4.4.0:

```
connUnitPortStatus.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.29 = ready(3)
connUnitPortState.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.29 = online(2)
connUnitPortName.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.29 = test
```

See the [swFCportSCN](#) for more information.

MIB Object Groupings

This appendix provides a function-based listing of MIB objects. To see the correlation of various switch objects to MIB objects, including the following:

- “Switch Variables” next
- “Sensor Variables” on page A-1
- “Port Variables” on page A-1
- “Event Variables” on page A-2
- “ISL and End Device Variables” on page A-2
- “SNMP Configuration Variables” on page A-3

Switch Variables

MIB variables that assist in monitoring or modifying the status of switches are in the following tables or groups:

- connUnitTable 1.3.6.1.3.94.1.6 in *FibreAlliance MIB Objects* on page 8-9
- connUnitRevsTable 1.3.6.1.3.94.1.7 in *FibreAlliance MIB Objects* on page 8-16
- FIBRE-CHANNEL-FE-MIB Organization in *FE MIB Objects* on page 3-2
- FCFABRIC-ELEMENT-MIB Organization in *FE MIB Objects* on page 3-24
- Flash Administration in *SW-MIB Objects* on page 5-21

Sensor Variables

MIB variables that assist in monitoring or modifying the status/state of fans, power supply, and temperature are in the following tables or groups:

- connUnitSensorTable 1.3.6.1.3.94.1.8 in *FibreAlliance MIB Objects* on page 8-17
- swNumSensors 1.3.6.1.4.1.1588.2.1.1.1.21 in *SW-MIB Objects* on page 5-23

Port Variables

MIB variables that assist in monitoring or modifying ports are in the following tables or groups:

Variables for State and Status

- “ConnSet Group” on page 8-9
- “fcFxpPortTable 1.3.6.1.2.1.75.1.1.5” on page 3-11
- “Fx_Port Configuration Table” on page 3-33
- “fcFxpPortStatusTable 1.3.6.1.2.1.75.1.2.1” on page 3-13
- “Fx_Port Physical Level Table” on page 3-13
- “fcFxpPortCapTable 1.3.6.1.2.1.75.1.5.1” on page 3-22
- “Fibre Channel Port Group” on page 5-30

Variables for Statistics and Measurement

- “Statistics Group” on page 8-34
- “fcFxpPortErrorTable 1.3.6.1.2.1.75.1.3.1” on page 3-17
- “fcFxpPortC2AccountingTable 1.3.6.1.2.1.75.1.4.2” on page 3-20
- “fcFeCapability Group” on page 3-22

Event Variables

MIB variables that assist in monitoring or modifying events are in the following tables or groups:

- “connUnitEventTable 1.3.6.1.3.94.1.11” on page 8-28
- “Event Group” on page 5-38

ISL and End Device Variables

MIB variables that assist in monitoring or modifying ISL and end-devices are in the following tables or groups:

ISL Variables

- “connUnitLinkTable 1.3.6.1.3.94.1.12” on page 8-31
- “swFabric Group” on page 5-26

End Device Variables

- “connUnitLinkTable 1.3.6.1.3.94.1.12” on page 8-31
- “fcFxploginTable 1.3.6.1.2.1.75.1.2.3” on page 3-15
- “swFCPortName 1.3.6.1.4.1.1588.2.1.1.1.6.2.1.36” on page 5-36

SNMP Configuration Variables

MIB variables that assist in configuring SNMP are in the following tables or groups:

- [“trapRegTable 1.3.6.1.3.94.2.3” on page 8-45](#)
- [“SW Agent Configuration Group” on page 5-29](#)

MIB OIDs and Their Matching Object Names

This appendix provides a listing of the v3.1.x MIB object names and the corresponding MIB Object ID (OID) associated with each.

MIB OIDs

The following matrix allows you to identify a MIB object name according to its related OID.

Table 2-1 MIB Object Name/OID Matrix

MIB Object Name	OID	Page No.
iso	1	page 3-2
org	1.3	page 3-2
dod	1.3.6	page 3-2
internet	1.3.6.1	page 3-2
directory	1.3.6.1.1	
mgmt	1.3.6.1.2	page 3-2
mib-2	1.3.6.1.2.1	page 3-2
fcFeMIB	1.3.6.1.2.1.75	page 3-2
fcFeMIBObjects	1.3.6.1.2.1.75.1	page 3-2
fcFeConfig	1.3.6.1.2.1.75.1.1	page 3-2
fcFeFabricName	1.3.6.1.2.1.75.1.1.1	page 3-3
fcFeElementName	1.3.6.1.2.1.75.1.1.2	page 3-9
fcFeModuleCapacity	1.3.6.1.2.1.75.1.1.3	page 3-9
fcFeModuleTable	1.3.6.1.2.1.75.1.1.4	page 3-9
fcFeModuleEntry	1.3.6.1.2.1.75.1.1.4.1	page 3-9
fcFeModuleIndex	1.3.6.1.2.1.75.1.1.4.1.1	page 3-9
fcFeModuleDescr	1.3.6.1.2.1.75.1.1.4.1.2	page 3-9
fcFeModuleObjectID	1.3.6.1.2.1.75.1.1.4.1.3	page 3-10
fcFeModuleOperStatus	1.3.6.1.2.1.75.1.1.4.1.4	page 3-10
fcFeModuleLastChange	1.3.6.1.2.1.75.1.1.4.1.5	page 3-10

Table 2-1 MIB Object Name/OID Matrix (Continued)

MIB Object Name	OID	Page No.
fcFeModuleFxPortCapacity	1.3.6.1.2.1.75.1.1.4.1.6	page 3-10
fcFeModuleName	1.3.6.1.2.1.75.1.1.4.1.7	page 3-11
fcFxPortTable	1.3.6.1.2.1.75.1.1.5	page 3-11
fcFxPortEntry	1.3.6.1.2.1.75.1.1.5.1	page 3-11
fcFxPortIndex	1.3.6.1.2.1.75.1.1.5.1.1	page 3-11
fcFxPortName	1.3.6.1.2.1.75.1.1.5.1.2	page 3-11
fcFxPortFcphVersionHigh	1.3.6.1.2.1.75.1.1.5.1.3	page 3-11
fcFxPortFcphVersionLow	1.3.6.1.2.1.75.1.1.5.1.4	page 3-11
fcFxPortBbCredit	1.3.6.1.2.1.75.1.1.5.1.5	page 3-11
fcFxPortRxBufSize	1.3.6.1.2.1.75.1.1.5.1.6	page 3-12
fcFxPortRatov	1.3.6.1.2.1.75.1.1.5.1.7	page 3-12
fcFxPortEdtov	1.3.6.1.2.1.75.1.1.5.1.8	page 3-12
fcFxPortCosSupported	1.3.6.1.2.1.75.1.1.5.1.9	page 3-12
fcFxPortIntermixSupported	1.3.6.1.2.1.75.1.1.5.1.10	page 3-12
fcFxPortStackedConnMode	1.3.6.1.2.1.75.1.1.5.1.11	page 3-12
fcFxPortClass2SeqDeliv	1.3.6.1.2.1.75.1.1.5.1.12	page 3-12
fcFxPortClass3SeqDeliv	1.3.6.1.2.1.75.1.1.5.1.13	page 3-12
fcFxPortHoldTime	1.3.6.1.2.1.75.1.1.5.1.14	page 3-12
fcFeStatus	1.3.6.1.2.1.75.1.2	page 3-2
fcFxPortStatusTable	1.3.6.1.2.1.75.1.2.1	page 3-13
fcFxPortStatusEntry	1.3.6.1.2.1.75.1.2.1.1	page 3-13
fcFxPortID	1.3.6.1.2.1.75.1.2.1.1.1	page 3-13
fcFxPortBbCreditAvailable	1.3.6.1.2.1.75.1.2.1.1.2	page 3-13
fcFxPortOperMode	1.3.6.1.2.1.75.1.2.1.1.3	page 3-13
fcFxPortAdminMode	1.3.6.1.2.1.75.1.2.1.1.4	page 3-13
fcFxPortPhysTable	1.3.6.1.2.1.75.1.2.2	page 3-14
fcFxPortPhysEntry	1.3.6.1.2.1.75.1.2.2.1	page 3-14
fcFxPortPhysAdminStatus	1.3.6.1.2.1.75.1.2.2.1.1	page 3-14
fcFxPortPhysOperStatus	1.3.6.1.2.1.75.1.2.2.1.2	page 3-14
fcFxPortPhysLastChange	1.3.6.1.2.1.75.1.2.2.1.3	page 3-14
fcFxPortPhysRttov	1.3.6.1.2.1.75.1.2.2.1.4	page 3-15
fcFxLoginTable	1.3.6.1.2.1.75.1.2.3	page 3-15
fcFxLoginEntry	1.3.6.1.2.1.75.1.2.3.1	page 3-15

Table 2-1 MIB Object Name/OID Matrix (Continued)

MIB Object Name	OID	Page No.
fcFxFPortNxLoginIndex	1.3.6.1.2.1.75.1.2.3.1.1	page 3-15
fcFxFPortFcphVersionAgreed	1.3.6.1.2.1.75.1.2.3.1.2	page 3-15
fcFxFPortNxPortBbCredit	1.3.6.1.2.1.75.1.2.3.1.3	page 3-15
fcFxFPortNxPortRxDataFieldSize	1.3.6.1.2.1.75.1.2.3.1.4	page 3-16
fcFxFPortCosSuppAgreed	1.3.6.1.2.1.75.1.2.3.1.5	page 3-16
fcFxFPortIntermixSuppAgreed	1.3.6.1.2.1.75.1.2.3.1.6	page 3-16
fcFxFPortStackedConnModeAgreed	1.3.6.1.2.1.75.1.2.3.1.7	page 3-16
fcFxFPortClass2SeqDelivAgreed	1.3.6.1.2.1.75.1.2.3.1.8	page 3-16
fcFxFPortClass3SeqDelivAgreed	1.3.6.1.2.1.75.1.2.3.1.9	page 3-16
fcFxFPortNxPortName	1.3.6.1.2.1.75.1.2.3.1.10	page 3-16
fcFxFPortConnectedNxPort	1.3.6.1.2.1.75.1.2.3.1.11	page 3-17
fcFxFPortBbCreditModel	1.3.6.1.2.1.75.1.2.3.1.12	page 3-17
fcFeError	1.3.6.1.2.1.75.1.3	page 3-17
fcFxFPortErrorTable	1.3.6.1.2.1.75.1.3.1	page 3-17
fcFxFPortErrorEntry	1.3.6.1.2.1.75.1.3.1.1	page 3-17
fcFxFPortLinkFailures	1.3.6.1.2.1.75.1.3.1.1.1	page 3-17
fcFxFPortSyncLosses	1.3.6.1.2.1.75.1.3.1.1.2	page 3-17
fcFxFPortSigLosses	1.3.6.1.2.1.75.1.3.1.1.3	page 3-18
fcFxFPortPrimSeqProtoErrors	1.3.6.1.2.1.75.1.3.1.1.4	page 3-18
fcFxFPortInvalidTxWords	1.3.6.1.2.1.75.1.3.1.1.5	page 3-18
fcFxFPortInvalidCrcs	1.3.6.1.2.1.75.1.3.1.1.6	page 3-18
fcFxFPortDelimiterErrors	1.3.6.1.2.1.75.1.3.1.1.7	page 3-18
fcFxFPortAddressIdErrors	1.3.6.1.2.1.75.1.3.1.1.8	page 3-18
fcFxFPortLinkResetIns	1.3.6.1.2.1.75.1.3.1.1.9	page 3-18
fcFxFPortLinkResetOuts	1.3.6.1.2.1.75.1.3.1.1.10	page 3-18
fcFxFPortOlsIns	1.3.6.1.2.1.75.1.3.1.1.11	page 3-18
fcFxFPortOlsOuts	1.3.6.1.2.1.75.1.3.1.1.12	page 3-18
fcFeAccounting	1.3.6.1.2.1.75.1.4	page 3-2
fcFxFPortC1AccountingTable	1.3.6.1.2.1.75.1.4.1	page 3-19
fcFxFPortC1AccountingEntry	1.3.6.1.2.1.75.1.4.1.1	page 3-19
fcFxFPortC1InFrames	1.3.6.1.2.1.75.1.4.1.1.1	page 3-19
fcFxFPortC1OutFrames	1.3.6.1.2.1.75.1.4.1.1.2	page 3-19
fcFxFPortC1InOctets	1.3.6.1.2.1.75.1.4.1.1.3	page 3-19

Table 2-1 MIB Object Name/OID Matrix (Continued)

MIB Object Name	OID	Page No.
fcFxpPortC1OutOctets	1.3.6.1.2.1.75.1.4.1.1.4	page 3-19
fcFxpPortC1Discards	1.3.6.1.2.1.75.1.4.1.1.5	page 3-19
fcFxpPortC1FbsyFrames	1.3.6.1.2.1.75.1.4.1.1.6	page 3-20
fcFxpPortC1FrjtFrames	1.3.6.1.2.1.75.1.4.1.1.7	page 3-20
fcFxpPortC1InConnections	1.3.6.1.2.1.75.1.4.1.1.8	page 3-20
fcFxpPortC1OutConnections	1.3.6.1.2.1.75.1.4.1.1.9	page 3-20
fcFxpPortC1ConnTime	1.3.6.1.2.1.75.1.4.1.1.10	page 3-20
fcFxpPortC2AccountingTable	1.3.6.1.2.1.75.1.4.2	page 3-20
fcFxpPortC2AccountingEntry	1.3.6.1.2.1.75.1.4.2.1	page 3-20
fcFxpPortC2InFrames	1.3.6.1.2.1.75.1.4.2.1.1	page 3-20
fcFxpPortC2OutFrames	1.3.6.1.2.1.75.1.4.2.1.2	page 3-20
fcFxpPortC2InOctets	1.3.6.1.2.1.75.1.4.2.1.3	page 3-21
fcFxpPortC2OutOctets	1.3.6.1.2.1.75.1.4.2.1.4	page 3-21
fcFxpPortC2Discards	1.3.6.1.2.1.75.1.4.2.1.5	page 3-21
fcFxpPortC2FbsyFrames	1.3.6.1.2.1.75.1.4.2.1.6	page 3-21
fcFxpPortC2FrjtFrames	1.3.6.1.2.1.75.1.4.2.1.7	page 3-21
fcFxpPortC3AccountingTable	1.3.6.1.2.1.75.1.4.3	page 3-21
fcFxpPortC3AccountingEntry	1.3.6.1.2.1.75.1.4.3.1	page 3-21
fcFxpPortC3InFrames	1.3.6.1.2.1.75.1.4.3.1.1	page 3-21
fcFxpPortC3OutFrames	1.3.6.1.2.1.75.1.4.3.1.2	page 3-21
fcFxpPortC3InOctets	1.3.6.1.2.1.75.1.4.3.1.3	page 3-22
fcFxpPortC3OutOctets	1.3.6.1.2.1.75.1.4.3.1.4	page 3-22
fcFxpPortC3Discards	1.3.6.1.2.1.75.1.4.3.1.5	page 3-22
fcFeCapabilities	1.3.6.1.2.1.75.1.5	page 3-2
fcFxpPortCapTable	1.3.6.1.2.1.75.1.5.1	page 3-22
fcFxpPortCapEntry	1.3.6.1.2.1.75.1.5.1.1	page 3-22
fcFxpPortCapFcphVersionHigh	1.3.6.1.2.1.75.1.5.1.1.1	page 3-22
fcFxpPortCapFcphVersionLow	1.3.6.1.2.1.75.1.5.1.1.2	page 3-22
fcFxpPortCapBbCreditMax	1.3.6.1.2.1.75.1.5.1.1.3	page 3-22
fcFxpPortCapBbCreditMin	1.3.6.1.2.1.75.1.5.1.1.4	page 3-23
fcFxpPortCapRxDataFieldSizeMax	1.3.6.1.2.1.75.1.5.1.1.5	page 3-23
fcFxpPortCapRxDataFieldSizeMin	1.3.6.1.2.1.75.1.5.1.1.6	page 3-23
fcFxpPortCapCos	1.3.6.1.2.1.75.1.5.1.1.7	page 3-23

Table 2-1 MIB Object Name/OID Matrix (Continued)

MIB Object Name	OID	Page No.
fcFxFPortCapIntermix	1.3.6.1.2.1.75.1.5.1.1.8	page 3-23
fcFxFPortCapStackedConnMode	1.3.6.1.2.1.75.1.5.1.1.9	page 3-23
fcFxFPortCapClass2SeqDeliv	1.3.6.1.2.1.75.1.5.1.1.10	page 3-23
fcFxFPortCapClass3SeqDeliv	1.3.6.1.2.1.75.1.5.1.1.11	page 3-23
fcFxFPortCapHoldTimeMax	1.3.6.1.2.1.75.1.5.1.1.12	page 3-23
fcFxFPortCapHoldTimeMin	1.3.6.1.2.1.75.1.5.1.1.13	page 3-23
fcFeMIBConformance	1.3.6.1.2.1.75.2	
fcFeMIBCompliances	1.3.6.1.2.1.75.2.1	
fcFeMIBMinimumCompliance	1.3.6.1.2.1.75.2.1.1	
fcFeMIBFullCompliance	1.3.6.1.2.1.75.2.1.2	
fcFeMIBGroups	1.3.6.1.2.1.75.2.2	
fcFeConfigGroup	1.3.6.1.2.1.75.2.2.1	
fcFeStatusGroup	1.3.6.1.2.1.75.2.2.2	
fcFeErrorGroup	1.3.6.1.2.1.75.2.2.3	
fcFeClass1AccountingGroup	1.3.6.1.2.1.75.2.2.4	
fcFeClass2AccountingGroup	1.3.6.1.2.1.75.2.2.5	
fcFeClass3AccountingGroup	1.3.6.1.2.1.75.2.2.6	
fcFeCapabilitiesGroup	1.3.6.1.2.1.75.2.2.7	
experimental	1.3.6.1.3	page 3-25
fibreChannel	1.3.6.1.3.42	page 3-25
fcFabric	1.3.6.1.3.42.2	page 3-25
fcFe	1.3.6.1.3.42.2.1	page 3-25
fcFeConfig	1.3.6.1.3.42.2.1.1	page 3-25
fcFabricName	1.3.6.1.3.42.2.1.1.1	page 3-31
fcElementName	1.3.6.1.3.42.2.1.1.2	page 3-32
fcFeModuleCapacity	1.3.6.1.3.42.2.1.1.3	page 3-32
fcFeModuleTable	1.3.6.1.3.42.2.1.1.4	page 3-32
fcFeModuleEntry	1.3.6.1.3.42.2.1.1.4.1	page 3-32
fcFeModuleIndex	1.3.6.1.3.42.2.1.1.4.1.1	page 3-32
fcFeModuleDescr	1.3.6.1.3.42.2.1.1.4.1.2	page 3-32
fcFeModuleObjectID	1.3.6.1.3.42.2.1.1.4.1.3	page 3-32
fcFeModuleOperStatus	1.3.6.1.3.42.2.1.1.4.1.4	page 3-33
fcFeModuleLastChange	1.3.6.1.3.42.2.1.1.4.1.5	page 3-33

Table 2-1 MIB Object Name/OID Matrix (Continued)

MIB Object Name	OID	Page No.
fcFeModuleFxpPortCapacity	1.3.6.1.3.42.2.1.1.4.1.6	page 3-33
fcFeModuleName	1.3.6.1.3.42.2.1.1.4.1.7	page 3-33
fcFxpConfTable	1.3.6.1.3.42.2.1.1.5	page 3-33
fcFxpConfEntry	1.3.6.1.3.42.2.1.1.5.1	page 3-33
fcFxpConfModuleIndex	1.3.6.1.3.42.2.1.1.5.1.1	page 3-34
fcFxpConfFxpPortIndex	1.3.6.1.3.42.2.1.1.5.1.2	page 3-34
fcFxpPortName	1.3.6.1.3.42.2.1.1.5.1.3	page 3-34
fcFxpPortFcphVersionHigh	1.3.6.1.3.42.2.1.1.5.1.4	page 3-34
fcFxpPortFcphVersionLow	1.3.6.1.3.42.2.1.1.5.1.5	page 3-34
fcFxpPortBbCredit	1.3.6.1.3.42.2.1.1.5.1.6	page 3-34
fcFxpPortRxBufSize	1.3.6.1.3.42.2.1.1.5.1.7	page 3-34
fcFxpPortRatov	1.3.6.1.3.42.2.1.1.5.1.8	page 3-34
fcFxpPortEdtov	1.3.6.1.3.42.2.1.1.5.1.9	page 3-35
fcFxpPortCosSupported	1.3.6.1.3.42.2.1.1.5.1.10	page 3-35
fcFxpPortIntermixSupported	1.3.6.1.3.42.2.1.1.5.1.11	page 3-35
fcFxpPortStackedConnMode	1.3.6.1.3.42.2.1.1.5.1.12	page 3-35
fcFxpPortClass2SeqDeliv	1.3.6.1.3.42.2.1.1.5.1.13	page 3-35
fcFxpPortClass3SeqDeliv	1.3.6.1.3.42.2.1.1.5.1.14	page 3-35
fcFxpPortHoldTime	1.3.6.1.3.42.2.1.1.5.1.15	page 3-35
fcFxpPortBaudRate	1.3.6.1.3.42.2.1.1.5.1.16	page 3-36
fcFxpPortMedium	1.3.6.1.3.42.2.1.1.5.1.17	page 3-36
fcFxpPortTxType	1.3.6.1.3.42.2.1.1.5.1.18	page 3-36
fcFxpPortDistance	1.3.6.1.3.42.2.1.1.5.1.19	page 3-36
fcFeOp	1.3.6.1.3.42.2.1.2	page 3-25
fcFxpPortOperTable	1.3.6.1.3.42.2.1.2.1	page 3-36
fcFxpPortOperEntry	1.3.6.1.3.42.2.1.2.1.1	page 3-36
fcFxpPortOperModuleIndex	1.3.6.1.3.42.2.1.2.1.1.1	page 3-36
fcFxpPortOperFxpPortIndex	1.3.6.1.3.42.2.1.2.1.1.2	page 3-37
fcFxpPortID	1.3.6.1.3.42.2.1.2.1.1.3	page 3-37
fcFxpPortAttachedPortName	1.3.6.1.3.42.2.1.2.1.1.4	page 3-37
fcFxpPortConnectedPort	1.3.6.1.3.42.2.1.2.1.1.5	page 3-37
fcFxpPortBbCreditAvailable	1.3.6.1.3.42.2.1.2.1.1.6	page 3-37
fcFxpPortOperMode	1.3.6.1.3.42.2.1.2.1.1.7	page 3-37

Table 2-1 MIB Object Name/OID Matrix (Continued)

MIB Object Name	OID	Page No.
fcFxpPortAdminMode	1.3.6.1.3.42.2.1.2.1.1.8	page 3-37
fcFxpPortPhysTable	1.3.6.1.3.42.2.1.2.3	page 3-37
fcFxpPortPhysEntry	1.3.6.1.3.42.2.1.2.3.1	page 3-37
fcFxpPortPhysModuleIndex	1.3.6.1.3.42.2.1.2.3.1.1	page 3-38
fcFxpPortPhysFxpPortIndex	1.3.6.1.3.42.2.1.2.3.1.2	page 3-38
fcFxpPortPhysAdminStatus	1.3.6.1.3.42.2.1.2.3.1.3	page 3-38
fcFxpPortPhysOperStatus	1.3.6.1.3.42.2.1.2.3.1.4	page 3-38
fcFxpPortPhysLastChange	1.3.6.1.3.42.2.1.2.3.1.5	page 3-38
fcFxpPortPhysRttov	1.3.6.1.3.42.2.1.2.3.1.6	page 3-39
fcFxplogiTable	1.3.6.1.3.42.2.1.2.4	page 3-39
fcFxplogiEntry	1.3.6.1.3.42.2.1.2.4.1	page 3-39
fcFxplogiModuleIndex	1.3.6.1.3.42.2.1.2.4.1.1	page 3-39
fcFxplogiFxpPortIndex	1.3.6.1.3.42.2.1.2.4.1.2	page 3-39
fcFxplogiNxPortIndex	1.3.6.1.3.42.2.1.2.4.1.3	page 3-39
fcFxpPortFcphVersionAgreed	1.3.6.1.3.42.2.1.2.4.1.4	page 3-39
fcFxpPortNxPortBbCredit	1.3.6.1.3.42.2.1.2.4.1.5	page 3-40
fcFxpPortNxPortRxDataFieldSize	1.3.6.1.3.42.2.1.2.4.1.6	page 3-40
fcFxpPortCosSuppAgreed	1.3.6.1.3.42.2.1.2.4.1.7	page 3-40
fcFxpPortIntermixSuppAgreed	1.3.6.1.3.42.2.1.2.4.1.8	page 3-40
fcFxpPortStackedConnModeAgreed	1.3.6.1.3.42.2.1.2.4.1.9	page 3-40
fcFxpPortClass2SeqDelivAgreed	1.3.6.1.3.42.2.1.2.4.1.10	page 3-40
fcFxpPortClass3SeqDelivAgreed	1.3.6.1.3.42.2.1.2.4.1.11	page 3-40
fcFxpPortNxPortName	1.3.6.1.3.42.2.1.2.4.1.12	page 3-41
fcFxpPortConnectedNxPort	1.3.6.1.3.42.2.1.2.4.1.13	page 3-41
fcFxpPortBbCreditModel	1.3.6.1.3.42.2.1.2.4.1.14	page 3-41
fcFeError	1.3.6.1.3.42.2.1.3	page 3-25
fcFxpPortErrorTable	1.3.6.1.3.42.2.1.3.1	page 3-41
fcFxpPortErrorEntry	1.3.6.1.3.42.2.1.3.1.1	page 3-41
fcFxpPortErrorModuleIndex	1.3.6.1.3.42.2.1.3.1.1.1	page 3-42
fcFxpPortErrorFxpPortIndex	1.3.6.1.3.42.2.1.3.1.1.2	page 3-42
fcFxpPortLinkFailures	1.3.6.1.3.42.2.1.3.1.1.3	page 3-42
fcFxpPortSyncLosses	1.3.6.1.3.42.2.1.3.1.1.4	page 3-42
fcFxpPortSigLosses	1.3.6.1.3.42.2.1.3.1.1.5	page 3-42

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fcFxpPortInvalidTxWords	1.3.6.1.3.42.2.1.3.1.1.7	page 3-42
fcFxpPortInvalidCrcs	1.3.6.1.3.42.2.1.3.1.1.8	page 3-42
fcFxpPortDelimiterErrors	1.3.6.1.3.42.2.1.3.1.1.9	page 3-42
fcFxpPortAddressIdErrors	1.3.6.1.3.42.2.1.3.1.1.10	page 3-42
fcFxpPortLinkResetIns	1.3.6.1.3.42.2.1.3.1.1.11	page 3-43
fcFxpPortLinkResetOuts	1.3.6.1.3.42.2.1.3.1.1.12	page 3-43
fcFxpPortOlsIns	1.3.6.1.3.42.2.1.3.1.1.13	page 3-43
fcFxpPortOlsOuts	1.3.6.1.3.42.2.1.3.1.1.14	page 3-43
fcFeAcct	1.3.6.1.3.42.2.1.4	page 3-25
fcFeCap	1.3.6.1.3.42.2.1.5	page 3-25
fcFxpPortCapTable	1.3.6.1.3.42.2.1.5.1	page 3-43
fcFxpPortCapEntry	1.3.6.1.3.42.2.1.5.1.1	page 3-43
fcFxpPortCapModuleIndex	1.3.6.1.3.42.2.1.5.1.1.1	page 3-43
fcFxpPortCapFxpPortIndex	1.3.6.1.3.42.2.1.5.1.1.2	page 3-44
fcFxpPortCapFcphVersionHigh	1.3.6.1.3.42.2.1.5.1.1.3	page 3-44
fcFxpPortCapFcphVersionLow	1.3.6.1.3.42.2.1.5.1.1.4	page 3-44
fcFxpPortCapBbCreditMax	1.3.6.1.3.42.2.1.5.1.1.5	page 3-44
fcFxpPortCapBbCreditMin	1.3.6.1.3.42.2.1.5.1.1.6	page 3-44
fcFxpPortCapRxDataFieldSizeMax	1.3.6.1.3.42.2.1.5.1.1.7	page 3-44
fcFxpPortCapRxDataFieldSizeMin	1.3.6.1.3.42.2.1.5.1.1.8	page 3-44
fcFxpPortCapCos	1.3.6.1.3.42.2.1.5.1.1.9	page 3-44
fcFxpPortCapIntermix	1.3.6.1.3.42.2.1.5.1.1.10	page 3-44
fcFxpPortCapStackedConnMode	1.3.6.1.3.42.2.1.5.1.1.11	page 3-45
fcFxpPortCapClass2SeqDeliv	1.3.6.1.3.42.2.1.5.1.1.12	page 3-45
fcFxpPortCapClass3SeqDeliv	1.3.6.1.3.42.2.1.5.1.1.13	page 3-45
fcFxpPortCapHoldTimeMax	1.3.6.1.3.42.2.1.5.1.1.14	page 3-45
fcFxpPortCapHoldTimeMin	1.3.6.1.3.42.2.1.5.1.1.15	page 3-45
fcFxpPortCapBaudRates	1.3.6.1.3.42.2.1.5.1.1.16	page 3-45
fcFxpPortCapMedia	1.3.6.1.3.42.2.1.5.1.1.17	page 3-45
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uNumber	1.3.6.1.3.94.1.1	page 8-9

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connUnitEntry	1.3.6.1.3.94.1.6.1	page 8-9
connUnitId	1.3.6.1.3.94.1.6.1.1	page 8-10
connUnitGlobalId	1.3.6.1.3.94.1.6.1.2	page 8-10
connUnitType	1.3.6.1.3.94.1.6.1.3	page 8-11
connUnitNumports	1.3.6.1.3.94.1.6.1.4	page 8-11
connUnitState	1.3.6.1.3.94.1.6.1.5	page 8-11
connUnitStatus	1.3.6.1.3.94.1.6.1.6	page 8-12
connUnitProduct	1.3.6.1.3.94.1.6.1.7	page 8-12
connUnitSn	1.3.6.1.3.94.1.6.1.8	page 8-12
connUnitUpTime	1.3.6.1.3.94.1.6.1.9	page 8-12
connUnitUrl	1.3.6.1.3.94.1.6.1.10	page 8-12
connUnitDomainId	1.3.6.1.3.94.1.6.1.11	page 8-13
connUnitProxyMaster	1.3.6.1.3.94.1.6.1.12	page 8-13
connUnitPrincipal	1.3.6.1.3.94.1.6.1.13	page 8-13
connUnitNumSensors	1.3.6.1.3.94.1.6.1.14	page 8-13
connUnitStatusChangeTime	1.3.6.1.3.94.1.6.1.15	page 8-14
connUnitConfigurationChangeTime	1.3.6.1.3.94.1.6.1.16	page 8-14
connUnitNumRevs	1.3.6.1.3.94.1.6.1.17	page 8-14
connUnitNumZones	1.3.6.1.3.94.1.6.1.18	page 8-14
connUnitModuleId	1.3.6.1.3.94.1.6.1.19	page 8-14
connUnitName	1.3.6.1.3.94.1.6.1.20	page 8-14
connUnitInfo	1.3.6.1.3.94.1.6.1.21	page 8-14
connUnitControl	1.3.6.1.3.94.1.6.1.22	page 8-15
connUnitContact	1.3.6.1.3.94.1.6.1.23	page 8-15
connUnitLocation	1.3.6.1.3.94.1.6.1.24	page 8-15
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connUnitMaxEvents	1.3.6.1.3.94.1.6.1.27	page 8-16
connUnitEventCurrID	1.3.6.1.3.94.1.6.1.28	page 8-16
connUnitRevsTable	1.3.6.1.3.94.1.7	page 8-16
connUnitRevsEntry	1.3.6.1.3.94.1.7.1	page 8-17

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connUnitRevsIndex	1.3.6.1.3.94.1.7.1.2	page 8-17
connUnitRevsRevId	1.3.6.1.3.94.1.7.1.3	page 8-17
connUnitRevsDescription	1.3.6.1.3.94.1.7.1.4	page 8-17
connUnitSensorTable	1.3.6.1.3.94.1.8	page 8-17
connUnitSensorEntry	1.3.6.1.3.94.1.8.1	page 8-17
connUnitSensorUnitId	1.3.6.1.3.94.1.8.1.1	page 8-18
connUnitSensorIndex	1.3.6.1.3.94.1.8.1.2	page 8-18
connUnitSensorName	1.3.6.1.3.94.1.8.1.3	page 8-18
connUnitSensorStatus	1.3.6.1.3.94.1.8.1.4	page 8-18
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connUnitSensorMessage	1.3.6.1.3.94.1.8.1.6	page 8-18
connUnitSensorType	1.3.6.1.3.94.1.8.1.7	page 8-19
connUnitSensorCharacteristic	1.3.6.1.3.94.1.8.1.8	page 8-19
connUnitPortTable	1.3.6.1.3.94.1.10	page 8-20
connUnitPortEntry	1.3.6.1.3.94.1.10.1	page 8-20
connUnitPortUnitId	1.3.6.1.3.94.1.10.1.1	page 8-20
connUnitPortIndex	1.3.6.1.3.94.1.10.1.2	page 8-20
connUnitPortType	1.3.6.1.3.94.1.10.1.3	page 8-21
connUnitPortFCClassCap	1.3.6.1.3.94.1.10.1.4	page 8-21
connUnitPortFCClassOp	1.3.6.1.3.94.1.10.1.5	page 8-22
connUnitPortState	1.3.6.1.3.94.1.10.1.6	page 8-22
connUnitPortStatus	1.3.6.1.3.94.1.10.1.7	page 8-22
connUnitPortTransmitterType	1.3.6.1.3.94.1.10.1.8	page 8-23
connUnitPortModuleType	1.3.6.1.3.94.1.10.1.9	page 8-23
connUnitPortWwn	1.3.6.1.3.94.1.10.1.10	page 8-23
connUnitPortFCId	1.3.6.1.3.94.1.10.1.11	page 8-24
connUnitPortSn	1.3.6.1.3.94.1.10.1.12	page 8-24
connUnitPortRevision	1.3.6.1.3.94.1.10.1.13	page 8-24
connUnitPortVendor	1.3.6.1.3.94.1.10.1.14	page 8-24
connUnitPortSpeed	1.3.6.1.3.94.1.10.1.15	page 8-24
connUnitPortControl	1.3.6.1.3.94.1.10.1.16	page 8-24
connUnitPortName	1.3.6.1.3.94.1.10.1.17	page 8-26

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MIB Object Name	OID	Page No.
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connUnitPortStatObject	1.3.6.1.3.94.1.10.1.19	page 8-27
connUnitPortProtocolCap	1.3.6.1.3.94.1.10.1.20	page 8-27
connUnitPortProtocolOp	1.3.6.1.3.94.1.10.1.21	page 8-27
connUnitPortNodeWwn	1.3.6.1.3.94.1.10.1.22	page 8-28
connUnitPortHWState	1.3.6.1.3.94.1.10.1.23	page 8-28
connUnitEventTable	1.3.6.1.3.94.1.11	page 8-28
connUnitEventEntry	1.3.6.1.3.94.1.11.1	page 8-29
connUnitEventUnitId	1.3.6.1.3.94.1.11.1.1	page 8-29
connUnitEventIndex	1.3.6.1.3.94.1.11.1.2	page 8-29
connUnitEventId	1.3.6.1.3.94.1.11.1.3	page 8-29
connUnitREventTime	1.3.6.1.3.94.1.11.1.4	page 8-29
connUnitSEventTime	1.3.6.1.3.94.1.11.1.5	page 8-30
connUnitEventSeverity	1.3.6.1.3.94.1.11.1.6	page 8-30
connUnitEventType	1.3.6.1.3.94.1.11.1.7	page 8-30
connUnitEventObject	1.3.6.1.3.94.1.11.1.8	page 8-30
	1.3.6.1.3.94.1.11.1.9	page 8-31
connUnitLinkTable	1.3.6.1.3.94.1.12	page 8-31
connUnitLinkEntry	1.3.6.1.3.94.1.12.1	page 8-31
connUnitLinkUnitId	1.3.6.1.3.94.1.12.1.1	page 8-32
connUnitLinkIndex	1.3.6.1.3.94.1.12.1.2	page 8-32
connUnitLinkNodeIdx	1.3.6.1.3.94.1.12.1.3	page 8-32
connUnitLinkPortNumberX	1.3.6.1.3.94.1.12.1.4	page 8-32
connUnitLinkPortWwnX	1.3.6.1.3.94.1.12.1.5	page 8-32
connUnitLinkNodeIdY	1.3.6.1.3.94.1.12.1.6	page 8-32
connUnitLinkPortNumberY	1.3.6.1.3.94.1.12.1.7	page 8-33
connUnitLinkPortWwnY	1.3.6.1.3.94.1.12.1.8	page 8-33
connUnitLinkAgentAddressY	1.3.6.1.3.94.1.12.1.9	page 8-33
connUnitLinkAgentAddressTypeY	1.3.6.1.3.94.1.12.1.10	page 8-33
connUnitLinkAgentPortY	1.3.6.1.3.94.1.12.1.11	page 8-33
connUnitLinkUnitTypeY	1.3.6.1.3.94.1.12.1.12	page 8-33
connUnitLinkConnIdY	1.3.6.1.3.94.1.12.1.13	page 8-34
connUnitLinkCurrIndex	1.3.6.1.3.94.1.12.1.14	page 8-34

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trapMaxClients	1.3.6.1.3.94.2.1	page 8-44
trapClientCount	1.3.6.1.3.94.2.2	page 8-44
trapRegTable	1.3.6.1.3.94.2.3	page 8-45
trapRegEntry	1.3.6.1.3.94.2.3.1	page 8-45
trapRegIpAddress	1.3.6.1.3.94.2.3.1.1	page 8-45
trapRegPort	1.3.6.1.3.94.2.3.1.2	page 8-45
trapRegFilter	1.3.6.1.3.94.2.3.1.3	page 8-45
trapRegRowState	1.3.6.1.3.94.2.3.1.4	page 8-46
revisionNumber	1.3.6.1.3.94.3	page 8-46
statSet	1.3.6.1.3.94.4	page 8-34
connUnitPortStatTable	1.3.6.1.3.94.4.5	page 8-34
connUnitPortStatEntry	1.3.6.1.3.94.4.5.1	page 8-35
connUnitPortStatUnitId	1.3.6.1.3.94.4.5.1.1	page 8-35
connUnitPortStatIndex	1.3.6.1.3.94.4.5.1.2	page 8-35
connUnitPortStatCountError	1.3.6.1.3.94.4.5.1.3	page 8-35
connUnitPortStatCountTxObjects	1.3.6.1.3.94.4.5.1.4	page 8-35
connUnitPortStatCountRxObjects	1.3.6.1.3.94.4.5.1.5	page 8-35
connUnitPortStatCountTxElements	1.3.6.1.3.94.4.5.1.6	page 8-35
connUnitPortStatCountRxElements	1.3.6.1.3.94.4.5.1.7	page 8-35
connUnitPortStatCountBBCreditZero	1.3.6.1.3.94.4.5.1.8	page 8-36
connUnitPortStatCountInputBuffersFull	1.3.6.1.3.94.4.5.1.9	page 8-36
connUnitPortStatCountFBSYFrames	1.3.6.1.3.94.4.5.1.10	page 8-36
connUnitPortStatCountPBSYFrames	1.3.6.1.3.94.4.5.1.11	page 8-36
connUnitPortStatCountFRJTFrames	1.3.6.1.3.94.4.5.1.12	page 8-36
connUnitPortStatCountPRJTFrames	1.3.6.1.3.94.4.5.1.13	page 8-36
connUnitPortStatCountClass1RxFrames	1.3.6.1.3.94.4.5.1.14	page 8-37
connUnitPortStatCountClass1TxFrames	1.3.6.1.3.94.4.5.1.15	page 8-37
connUnitPortStatCountClass1FBSYFrames	1.3.6.1.3.94.4.5.1.16	page 8-37
connUnitPortStatCountClass1PBSYFrames	1.3.6.1.3.94.4.5.1.17	page 8-37
connUnitPortStatCountClass1FRJTFrames	1.3.6.1.3.94.4.5.1.18	page 8-37
connUnitPortStatCountClass1PRJTFrames	1.3.6.1.3.94.4.5.1.19	page 8-37
connUnitPortStatCountClass2RxFrames	1.3.6.1.3.94.4.5.1.20	page 8-38

Table 2-1 MIB Object Name/OID Matrix (Continued)

MIB Object Name	OID	Page No.
connUnitPortStatCountClass2TxFrames	1.3.6.1.3.94.4.5.1.21	page 8-38
connUnitPortStatCountClass2FBSYFrames	1.3.6.1.3.94.4.5.1.22	page 8-38
connUnitPortStatCountClass2PBSYFrames	1.3.6.1.3.94.4.5.1.23	page 8-38
connUnitPortStatCountClass2FRJTFrames	1.3.6.1.3.94.4.5.1.24	page 8-38
connUnitPortStatCountClass2PRJTFrames	1.3.6.1.3.94.4.5.1.25	page 8-39
connUnitPortStatCountClass3RxFrames	1.3.6.1.3.94.4.5.1.26	page 8-39
connUnitPortStatCountClass3TxFrames	1.3.6.1.3.94.4.5.1.27	page 8-39
connUnitPortStatCountClass3Discards	1.3.6.1.3.94.4.5.1.28	page 8-39
connUnitPortStatCountRxMulticastObjects	1.3.6.1.3.94.4.5.1.29	page 8-39
connUnitPortStatCountTxMulticastObjects	1.3.6.1.3.94.4.5.1.30	page 8-39
connUnitPortStatCountRxBroadcastObjects	1.3.6.1.3.94.4.5.1.31	page 8-39
connUnitPortStatCountTxBroadcastObjects	1.3.6.1.3.94.4.5.1.32	page 8-39
connUnitPortStatCountRxLinkResets	1.3.6.1.3.94.4.5.1.33	page 8-40
connUnitPortStatCountTxLinkResets	1.3.6.1.3.94.4.5.1.34	page 8-40
connUnitPortStatCountNumberLinkResets	1.3.6.1.3.94.4.5.1.35	page 8-40
connUnitPortStatCountRxOfflineSequences	1.3.6.1.3.94.4.5.1.36	page 8-40
connUnitPortStatCountTxOfflineSequences	1.3.6.1.3.94.4.5.1.37	page 8-40
connUnitPortStatCountNumberOffline Sequences	1.3.6.1.3.94.4.5.1.38	page 8-40
connUnitPortStatCountLinkFailures	1.3.6.1.3.94.4.5.1.39	page 8-40
connUnitPortStatCountInvalidCRC	1.3.6.1.3.94.4.5.1.40	page 8-40
connUnitPortStatCountInvalidTxWords	1.3.6.1.3.94.4.5.1.41	page 8-41
connUnitPortStatCountPrimitiveSequence ProtocolErrors	1.3.6.1.3.94.4.5.1.42	page 8-41
connUnitPortStatCountLossofSignal	1.3.6.1.3.94.4.5.1.43	page 8-41
connUnitPortStatCountLossofSynchronization	1.3.6.1.3.94.4.5.1.44	page 8-41
connUnitPortStatCountInvalidOrderedSets	1.3.6.1.3.94.4.5.1.45	page 8-41
connUnitPortStatCountFramesTooLong	1.3.6.1.3.94.4.5.1.46	page 8-41
connUnitPortStatCountFramesTruncated	1.3.6.1.3.94.4.5.1.47	page 8-42
connUnitPortStatCountAddressErrors	1.3.6.1.3.94.4.5.1.48	page 8-42
connUnitPortStatCountDelimiterErrors	1.3.6.1.3.94.4.5.1.49	page 8-42
connUnitPortStatCountEncodingDisparityErrors	1.3.6.1.3.94.4.5.1.50	page 8-42
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MIB Object Name	OID	Page No.
connUnitServiceScalars	1.3.6.1.3.94.5.1	page 8-42
connUnitSnsMaxEntry	1.3.6.1.3.94.5.1.1	page 8-42
connUnitServiceTables	1.3.6.1.3.94.5.2	page 8-42
connUnitSnsTable	1.3.6.1.3.94.5.2.1	page 8-42
connUnitSnsEntry	1.3.6.1.3.94.5.2.1.1	page 8-43
connUnitSnsId	1.3.6.1.3.94.5.2.1.1.1	page 8-43
connUnitSnsPortIndex	1.3.6.1.3.94.5.2.1.1.2	page 8-43
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swNsFc4	1.3.6.1.4.1.1588.2.1.1.1.7.2.1.11	page 5-37
swNsIpNxPort	1.3.6.1.4.1.1588.2.1.1.1.7.2.1.12	page 5-38
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swFwFabricWatchLicense	1.3.6.1.4.1.1588.2.1.1.1.10.1	page 5-40
swFwClassAreaTable	1.3.6.1.4.1.1588.2.1.1.1.10.2	page 5-40
swFwClassAreaEntry	1.3.6.1.4.1.1588.2.1.1.1.10.2.1	page 5-40
swFwClassAreaIndex	1.3.6.1.4.1.1588.2.1.1.1.10.2.1.1	page 5-40
swFwWriteThVals	1.3.6.1.4.1.1588.2.1.1.1.10.2.1.2	page 5-40
swFwDefaultUnit	1.3.6.1.4.1.1588.2.1.1.1.10.2.1.3	page 5-41
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swFwCustHigh	1.3.6.1.4.1.1588.2.1.1.1.10.2.1.11	page 5-42
swFwCustBufSize	1.3.6.1.4.1.1588.2.1.1.1.10.2.1.12	page 5-42
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swFwDefaultInBetweenActs	1.3.6.1.4.1.1588.2.1.1.1.10.2.1.19	page 5-43
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swFwBehaviorType	1.3.6.1.4.1.1588.2.1.1.1.10.3.1.10	page 5-48
swFwBehaviorInt	1.3.6.1.4.1.1588.2.1.1.1.10.3.1.11	page 5-48
swEndDevice	1.3.6.1.4.1.1588.2.1.1.1.21	page 5-48
swEndDeviceRlsTable	1.3.6.1.4.1.1588.2.1.1.1.21.1	page 5-48
swEndDeviceRlsEntry	1.3.6.1.4.1.1588.2.1.1.1.21.1.1	page 5-48
swEndDevicePort	1.3.6.1.4.1.1588.2.1.1.1.21.1.1.1	page 5-48
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swEndDeviceSyncLoss	1.3.6.1.4.1.1588.2.1.1.1.21.1.1.5	page 5-49
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