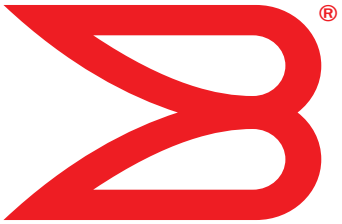
53-1003682-01
31 March 2015



Fabric OS

MIB Reference

Supporting Fabric OS v7.4.0

BROCADE

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How this document is organized

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

The document contains the following components:

- Chapter 1, "Understanding Brocade SNMP," provides an introduction to Brocade SNMP and MIBs.
- Chapter 2, "Supported Standard MIBs," provides information about all the partially and fully supported Standard MIBs.
- Chapter 3, "SW-MIB Objects," provides information for FC Switch MIB (SW-MIB) object types.
- Chapter 4, "MAPS-MIB Objects," provides information on MAPS MIB object types.
- Chapter 5, "High-Availability MIB Objects," provides information for High-Availability MIB object types.
- Chapter 6, "FICON MIB Objects," provides information for FICON MIB (LINK-INCIDENT-MIB) object types.
- Chapter 7, "FibreAlliance MIB Objects," provides information for FibreAlliance MIB (FCMGMT-MIB) object types.
- Chapter 8, "FibreAlliance Extension MIB Objects," provides information for FibreAlliance extension MIB object types.
- Chapter 9, "BD MIB Objects," provides information on BD MIB object types.
- Appendix A, "MIB Object Groupings," is a function-based listing of MIB objects.
- Appendix B, "Mapping of CLI Counters to MIB Objects," maps the CLI counters to the corresponding MIB objects.

Supported hardware and software

In those instances in which procedures or parts of procedures documented here apply to some switches but not to others, this guide identifies exactly which switches are supported and which are not.

Although many different software and hardware configurations are tested and supported by Brocade Communications Systems, Inc. for Fabric OS v7.4.0, documenting all possible configurations and scenarios is beyond the scope of this document.

The following hardware platforms are supported by this release of Fabric OS:

Brocade Gen 4 platform (8-Gpbs) fixed-port switches

- Brocade 300 switch
- Brocade 5100 switch
- Brocade 5300 switch
- Brocade 5410 blade server SAN I/O module
- Brocade 5424 blade server SAN I/O module
- Brocade 5430 blade server SAN I/O module
- Brocade 5431 blade server SAN I/O module
- Brocade 5432 blade server SAN I/O module
- Brocade 5450 blade server SAN I/O module
- Brocade 5460 blade server SAN I/O module
- Brocade 5470 blade server SAN I/O module
- Brocade 5480 blade server SAN I/O module
- Brocade NC-5480 blade server SAN I/O module
- Brocade 7800 extension switch
- Brocade VA-40FC switch
- Brocade Encryption Switch

Brocade Gen 5 platform (16-Gbps) fixed-port switches

- Brocade 6505 switch
- Brocade M6505 Blade Server SAN I/O Module
- Brocade 6510 switch
- Brocade 6520 switch
- Brocade 6547 blade server SAN I/O module
- Brocade 6548 blade server SAN I/O module
- Brocade 7840 extension switch

Brocade Gen 4 platform (8-Gpbs) DCX Backbone family

- Brocade DCX
- Brocade DCX-4S

Brocade Gen 5 platform (16-Gbps) DCX Backbone family

- Brocade DCX 8510-4
- Brocade DCX 8510-8

What's new in this document

The *Fabric OS MIB Reference* was last released for Fabric OS v7.1.0. For in-detail v7.2.0 and v7.3.0 MIB enhancements, refer to the release-specific *Fabric OS Documentation Updates* book. The following sections provide a high-level summary of changes for the 7.4.0, 7.3.x, and 7.2.x releases.

v7.4.0

- Obsoleted the following tables/trap related to the Fabric Watch feature, as this feature is not supported from Fabric OS v7.4.0:

  swBlmPerfALPAMntTable, swBlmPerfEEMntTable, swBlmPerfFltMntTable, swTopTalker, swFwThresholdTable, swFwClassAreaTable, swFWLastUpdated, and swFabricWatchTrap
- Updated the swBrcdGenericTrap to include the following events:

  Routing policy change, Diagnostics port configuration change, Polling status, Dynamic port name change, Dynamic port name feature enable/disable event
- Added a note that the iSCSI MIB is not supported from Fabric OS v7.4.0
- Added a note for the following MIB objects not supported on MAPS enables switches:

  swCpuUsageLimit, swCpuAction, swMemUsageLimit1, swMemUsageLimit3, and swMemAction
- Added a new chapter, Chapter 2, "Supported Standard MIBs," and moved information on all supported Standard MIBs to this chapter
- Change of version number (Fabric OS v7.4.0) wherever applicable

v7.3.x

- Added support for Brocade 7840 switch
- Added swBrcdBitObjVal and swIODState MIB objects
- Updated "swFCPortPrevType" MIB object to include D_Port option
- Updated swBrcdGenericTrap to include two new variables - swBrcdBitObjVal and swVfId
- Updated bdTrap and bdClearTrap to include a new variable "slotPort"
- Deprecated: swTrackChangesInfo, swTelnetShellAdmStatus, and swTrackChangesTrap

v7.2.x

- Added the following MIB objects:

  swConnUnitUnroutableFrameCounter, swFCPortDisableReason, swConnUnitFECCorrectedCounter, swConnUnitFECUnCorrectedCounter, swConnUnitPortFECMode, and swConnUnitPortFECState

- Added the following counters to the portShow command table.

  er64_pcs_blk, stat64_fec_cor, stat64_fec_uncor

- Added support for MAPS MIB
- Added swCpuOrMemoryUsage table support for MAPS enabled switches.
- Added bpTable (blade processor table) to HA.mib
- Obsoleted swFCPortSpeed MIB object in SW.mib

For further information about new features and documentation updates for this release, refer to the Fabric OS v7.4.0 release notes.

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
italic text	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 and statements are used in this manual. They are listed below in order of increasing severity of potential hazards.

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

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

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

DANGER
A Danger statement indicates conditions or situations that can be potentially lethal or extremely hazardous to you. Safety labels are also attached directly to products to warn of these conditions or situations.

Key terms

For definitions specific to Brocade and Fibre Channel, see the technical glossaries on MyBrocade. See "Brocade resources" on page xiv for instructions on accessing MyBrocade.

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

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

Notice to the reader

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These references are made for informational purposes only.

TABLE 1

Corporation	Referenced Trademarks and Products
Microsoft Corporation	Windows, Windows NT, Internet Explorer
Oracle Corporation	Oracle, Java

Additional information

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

Brocade resources

To get up-to-the-minute information, go to *http://my.brocade.com* and register at no cost for a user ID and password.

White papers, online demonstrations, and data sheets are available through the Brocade website at:

http://www.brocade.com/products-solutions/products/index.page

For additional Brocade documentation, visit the Brocade website:

http://www.brocade.com

Release notes are available on the MyBrocade website and are also bundled with the Fabric OS firmware.

Other industry resources

For additional resource information, visit the Technical Committee T11 website. This website 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 website:

http://www.fibrechannel.org

Getting technical help

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

1. General Information
    - Switch model
    - Switch operating system version
    - Software name and software version, if applicable
    - Error numbers and messages received
    - **supportSave** command output
    - Detailed description of the problem, including the switch or fabric behavior immediately following the problem, and specific questions
    - Description of any troubleshooting steps already performed and the results
    - Serial console and Telnet session logs
    - syslog message logs
2. Switch Serial Number

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

The serial number label is located as follows:

- *Brocade 300*, *5100, 5300, 6505, M6505, 6520, 6547, 6548, 7800, 7840, VA-40FC*, and *Brocade Encryption Switch*—On the switch ID pull-out tab located inside the chassis on the port side on the left.
- *Brocade 5410, 5424, 5430, 5431, 5432, 5450, 5460, 5470, 5480*—Serial number label attached to the module.
- *Brocade 6510*—On the pull-out tab on the front of the switch.
- *Brocade DCX* and *DCX 8510-8*—On the port side of the chassis, on the lower right side and directly above the cable management comb.
- *Brocade DCX-4S* and *DCX 8510-4*—On the non-port side of the chassis, on the lower left side.

3. World Wide Name (WWN)

   Use the **licenseIdShow** command to display the WWN of the chassis. If you cannot use the **licenseIdShow** command because the switch is inoperable, you can get the WWN from the same place as the serial number, except for the Brocade DCX. For the Brocade DCX, access the numbers on the WWN cards by removing the Brocade logo plate at the top of the nonport side of the chassis.

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.

Chapter

1 Understanding Brocade SNMP

In this chapter

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Overview

Simple Network Management Protocol (SNMP) is a set of protocols for managing complex networks. SNMP protocols are application layer protocols. Using SNMP, devices within a network send messages, called protocol data units (PDUs), to different parts of a network. Network management using SNMP requires three components:

- SNMP Manager
- SNMP Agent
- Management Information Base (MIB)

SNMP Manager

The SNMP Manager can communicate to the devices within a network using the SNMP protocol. Typically, SNMP Managers are network management systems (NMS) that manage networks by monitoring the network parameters, and optionally, setting parameters in managed devices. Normally, the SNMP Manager sends read requests to the devices that host the SNMP Agent, to which the SNMP Agent responds with the requested data. In some cases, the managed devices can initiate the communication, and send data to the SNMP Manager using asynchronous events called traps.

SNMP Agent

The SNMP agent is a software that resides in the managed devices in the network, and collects data from these devices. Each device hosts an SNMP Agent. The SNMP Agent stores the data, and sends these when requested by an SNMP Manager. In addition, the Agent can asynchronously alert the SNMP Manager about events, by using special PDUs called traps.

Management Information Base (MIB)

SNMP Agents in the managed devices store the data about these devices in a database called Management Information Base (MIB). The MIB is a hierarchical database, which is structured on the standard specified in the RFC 2578 (Structure of Management Information Version 2 (SMIv2)).

The MIB is a database of objects that can be used by a network management system to manage and monitor devices on the network. The MIB can be retrieved by a network management system that uses SNMP. The MIB structure determines the scope of management access allowed by a device. By using SNMP, a manager application can issue read or write operations within the scope of the MIB.

Basic SNMP operation

Every Brocade device carries an agent and management information base (MIB). The agent accesses information about a device and makes it available to an SNMP network management station.

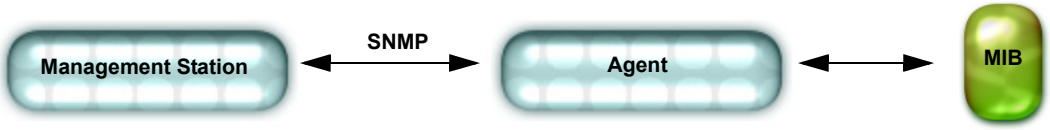

FIGURE 1 SNMP structure

When active, the management station can **get** information or **set** information when it queries an agent. SNMP commands, such as **get**, **set**, **getnext**, and **getresponse**, are sent from the management station, and the agent replies once the value is obtained or modified. 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.

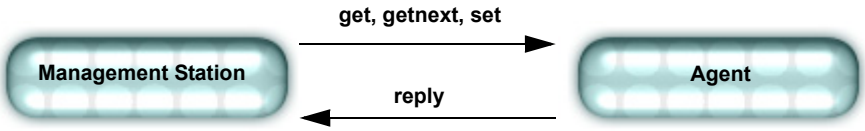

FIGURE 2 SNMP query

The management station can also receive *traps*, unsolicited messages from the switch agent if an unusual event occurs. For more information, refer to "Traps" on page 4.

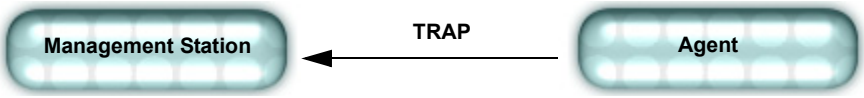

FIGURE 3 SNMP trap

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 4, the Brocade SW.MIB OID is:

```
1.3.6.1.4.1.1588.2.1.1.1
```

The corresponding name is:

```
iso.org.dod.internet.private.enterprise.bcsi.commDev.fibreChannel.fcSwitch.sw
```

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 reference.

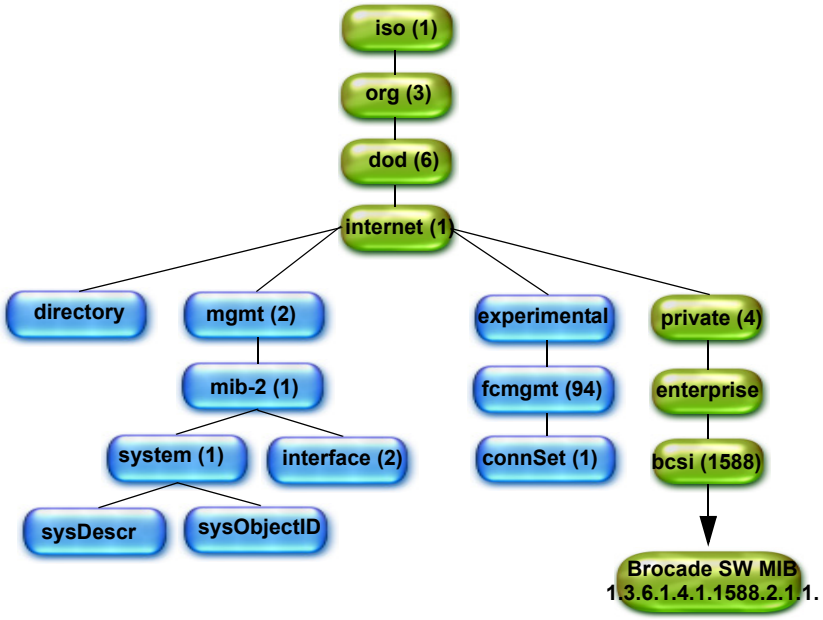

FIGURE 4 Brocade MIB tree location

Access to MIB variables

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

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.

- accessible-to-notify

  You can read this information only through traps.

SNMP support

In addition to the standard MIBs that Brocade devices support, these devices also support Brocadespecific 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 that certain information be included in all MIBs: it is the vendors' responsibility to follow the standards. The standards are as follows:

- FibreAlliance (FA) MIB: Brocade supports v4.4.0 and later releases.
- Fabric Element (FE) MIB: accepted by the Internet Engineering Task Force (IETF).

Brocade supports FE_RFC2837.mib under the MIB-II branch in Fabric v6.0.0 and later releases. The 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.

For more information, refer to “Loading Brocade MIBs” on page 7.

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 and to any configured port. In order to receive traps, the management station IP address and severity level must be configured on the switch. You can define a different message severity level for each recipient so that some recipients receive all trap messages and others receive only the most critical.

NOTE
Due to design limitation, IP address validation cannot be done for trap recipients.

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 Brocade MIB (SW-MIB), manages Brocade switches only.

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

You can also use these additional MIBs and their associated traps: HA-MIB; FICON-MIB; and SWEXTTRAP. In Fabric OS v7.4.0, you can use the **snmpConfig** command to enable or disable all the MIBs.

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

FA traps

Consider enabling the FA traps 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 - This trap is generated by Fabric watch such that only the swUnitsStatusChange is controlled by **switchStatusPolicySet** command.
- connUnitSensorStatusChange - This trap is generated by any sensor event.
- connUnitPortStatusChange - 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.
- connUnitEventTrap - All the external traps gets converted into swEventTrap except for AN-1006, AUTH-3001 to AUTH-3008, FW-3001, SEC-3001 to SEC-3034, and SEC-3044 to SEC-3048 RASlog messages.

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. For more information on this command, refer to the *Fabric OS Command Reference*.

HA traps

Consider enabling these traps to monitor field-replaceable unit (FRU) status and control processor (CP) status when you have a Brocade director in your environment:

- fruStatusChanged - This trap is generated by a FRU status change, such as a switch reboot or disabling or enabling a FRU component such as fandisable, fanenable and so on.
- 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. It is not generated when standby CP is removed.

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

SW traps

There are sixteen specific traps defined in Brocade SW-TRAP.

- swfault (no longer supported).
- swSensorScn (no longer supported).
- swFCPortScn - This trap is generated by a port state change.
- swEventTrap - This trap is generated by any switch event reported to the system error log. The desired severity level is introduced to filter a swEvent trap based on the severity level.
- swFabricWatchTrap - This trap is deprecated. This trap is generated when any Fabric Watch threshold is reached. The desired severity level is introduced to filter a swFabricWatchTrap based on the severity level.
- swTrackChangesTrap (no longer supported).
- swIPv6ChangeTrap - This trap is generated when an IPv6 address status change event occurs. It is generated only when IPv6 stateless state changes to the deprecation state and not for address change notification.
- swPmgrEventTrap - This trap is generated when any partition manager change happens.
- swFabricReconfigTrap - The trap to be sent for tracking fabric reconfiguration.
- swFabricSegmentTrap - The trap to be sent for tracking segmentation.
- swExtTrap - The trap adds the SSN binding to the traps if it is enabled.
- swStateChangeTrap - This trap is sent when the switch changes its state to online or offline.
- swPortMoveTrap - This trap is sent when the virtual ports are moved from one switch to another.
- swBrcdGenericTrap - This trap is sent for the following events. This trap is for Brocade use.
  - Routing Policy change
  - Diagnostics Port Configuration Change
  - Polling status
  - Dynamic Port Name change
  - Dynamic Port Name Feature Enable/Disable Event
- swDeviceStatusTrap - This trap is sent whenever a device logs in or logs out.
- swZoneConfigChangeTrap - This trap is sent whenever there is change in local zone database.

The Brocade trap (SW-TRAP) can be configured to send traps using the **snmpConfig** command.

FICON traps

- linkRNIDDeviceRegistration - A device registered with the switch.
- linkRNIDDeviceDeRegistration - A device de-registered with the switch.
- linkLIRRListenerAdded - A listener for link failure incident is added.
- linkLIRRListenerRemoved - A listener for link failure incident is removed.
- linkRLIRFailureIncident - A link failure incident has occurred.

IF traps

- linkDown - A linkDown trap signifies that the SNMPv2 entity, acting in an agent role has detected that the ifOperStatus object for one of its communication links is about to transition into the down state.
- linkUp - A linkUp trap signifies that the SNMPv2 entity, acting in an agent role has detected that the ifOperStatus object for one of its communication links has transitioned out of the down state.

BD traps

- bdTrap - Traps to be sent for bottleneck detection.
- bdClearTrap - Traps to be sent for bottleneck clearance.

MAPS traps

Consider enabling the MAPS traps if you want to use SNMP to monitor Brocade switches.

- mapsTrapAM - Traps to be sent for Monitoring and Alerting Policy Suite (MAPS) threshold events.

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:

- bd.mib
- bcCustomOperation.mib
- BRCD_REG.mib
- BRCD_TC.mib
- brcdfcip.mib
- BROCADE-MAPS-MIB.mib
- CPQ_HOST.mib
- CPQ_RACK.mib
- FA.mib
- faext.mib
- FICON.mib
- fod.mib
- HA.mib

- IbmBladeCenter.mib
- SW.mib

Standard MIBs

Distribution of standard MIBs has been stopped from Fabric OS v6.4.0. Download the following MIBs from the *http://www.oidview.com/* or http://www.mibdepot.com website:

- BRIDGE-MIB
- ENTITY-MIB
- FC-MGMT-MIB
- FCIP-MGMT-MIB
- FIBRE-CHANNEL-FE-MIB
- IANAifType-MIB
- IEEE 802.1x PAE MIB
- IEEE 802.3 LAG MIB
- IF-MIB
- INET-ADDRESS-MIB
- IP MIB
- LLDP MIB
- LLDP-EXT-DOT1-MIB
- LLDP-EXT-DOT3-MIB
- P-BRIDGE MIB
- Q-BRIDGE MIB
- RFC1155-SMI
- RFC1158-MIB
- RFC-1212
- RFC1213-MIB
- RFC-1215
- RMON-MIB
- RSTP-MIB
- SNMP-COMMUNITY-MIB
- SNMP-FRAMEWORK-MIB
- SNMPv2-CONF
- SNMPv2-MIB
- SNMPv2-PARTY-MIB
- SNMPv2-SMI-MIB
- SNMPv2-TC
- SNMP-VIEW-BASED-ACM-MIB
- SNMP-USER-BASED-SM-MIB
- SNMP-TARGET-MIB

- T11-FC-ZONE-SERVER-MIB (This is an internal MIB. The MIB contains internal traps: t11ZsRequestRejectNotify, t11ZsMergeFailureNotify, t11ZsMergeSuccessNotify, t11ZsDefZoneChangeNotify, and t11ZsActivateNotify.)

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, refer to the following table to ensure any MIB dependencies are loading in the correct order.

Before loading Brocade MIB files, ensure that you have the correct version of SNMP for your Fabric OS version. All versions of Fabric OS support SNMPv1 and SNMPv3. All versions of Fabric OS other than Fabric OS v6.1.2_CEE support SNMPv2c, but do not support trap/inform.

TABLE 2 Brocade SNMP MIB dependencies

MIB Name	Dependencies
BRCD_REG.mib	RFC1155-SMI
BRCD_TC.mib	Brocade-REG-MIB SNMPv2-TC SNMPv2-SMI
FC-MGMT-MIB	SNMPv2-SMI SNMPv2-CONF SNMPv2-MIB IANAifType-MIB SNMPv2-TC IF-MIB SNMP-FRAMEWORK-MIB
FA.mib	RFC1155-SMI RFC1158-MIB RFC-1212 RFC1213-MIB RFC-1215
FIBRE-CHANNEL-FE-MIB	SNMPv2-SMI SNMPv2-TC SNMP-FRAMEWORK-MIB SNMPv2-CONF
FCIP-MGMT-MIB	SNMPv2-SMI SNMPv2-TC INET-ADDRESS-MIB FC-MGMT-MIB IF-MIB SNMPv2-CONF SNMP-FRAMEWORK-MIB
ENTITY-MIB	SNMPv2-SMI SNMPv2-TC SNMPv2-CONF SNMP-FRAMEWORK-MIB

TABLE 2 Brocade SNMP MIB dependencies (Continued)

MIB Name	Dependencies
SW.mib	SNMPv2-TC SNMPv2-SMI Brocade-TC Brocade-REG-MIB FCMGMT-MIB
bd.mib	SNMPv2-TC SNMPv2-SMI Brocade-TC Brocade-REG-MIB SW-MIB
brcdfcip.mib	SNMPv2-SMI Brocade-REG-MIB SNMPv2-TC INET-ADDRESS-MIB IF-MIB SNMPv2-CONF
faext.mib	SNMPv2-TC SNMPv2-SMI SW-MIB FCMGMT-MIB
FICON.mib	SNMPv2-SMI SNMPv2-TC Brocade-REG-MIB
HA.mib	SNMPv2-SMI Brocade-REG-MIB SW-MIB ENTITY-MIB SNMPv2-TC
BROCADE-MAPS-MIB	SNMPv2-SMI Brocade-REG-MIB SW-MIB

Access Gateway and Brocade MIBs

The following table shows the MIBs supported by Brocade Access Gateway.

TABLE 3 Access Gateway MIB support

MIB name	Description
MIB-2	Supported in v5.2.1 and later releases.
Entity-MIB	Supported.
HA-MIB	Supported.

TABLE 3 Access Gateway MIB support (Continued)

MIB name	Description
SW-MIB	Disabled in Access Gateway because the conventions are specific to fabric switches. In Fabric OS v6.4.0, swConnUnitPortExtensionTable is supported in Access Gateway mode. In Fabric OS v7.0.0, SNMP allows you to access the following tables to support the Advanced Performance Monitoring feature on Access Gateway, even if the SW-MIB is disabled: • "swBlmPerfEEMntTable" (This table is deprecated) • "swBlmPerfFltMntTable" (This table is deprecated)
FA-MIB	The connUnitSnsTable is not supported because a switch in Access Gateway does support name server services.
CPQ-Rack MIB	Supported on embedded switches only.
IF-MIB	Supported.
BD-MIB	Supported for F-ports.
FA-Ext	Supported.
SNMPv2 MIB	Supported.

Firmware upgrades and enabled traps

You can turn on and off traps individually within a trap group. By default the individual traps are turned off even if the corresponding trap group was enabled before upgrading. You must use the **snmpconfig** command to turn on the individual traps within each trap group.

Support for Administrative Domains

Administrative Domains are supported in Fabric OS v5.3.0 and later releases. An Administrative Domain (AD) is a domain within a fabric. Administrative domains can be used to limit administrator access within a fabric, and to provide service providers with a means to assign portions of a fabric to individual consumers. An AD may contain switches, devices, and ports. An AD may also limit access to a configured set of users.

The following example shows how the AD:xxx field is used in the snmpwalk command. This command is executed on the host and it walks the entire MIB tree specified (.1).

```
switch# snmpwalk -v3 -a MD5 -A passpass -x AES128 -u admin1 -X passpass -n AD:4
10.20.8.17 1.3.6.1.4.1.1588.2.1.2.1.5.1 -l authPriv
```

Support for Role-Based Access Control

Role-Based Access Control (RBAC) is supported in Fabric OS v5.3.0 and later releases. RBAC applies a fixed set of roles that address the access control needs of a majority of customers. Each role is a set of permissions that can be applied to a user that controls the kinds of jobs and tasks the user can perform on a fabric or fabric element.

Support for IPv6 addressing

IPv6 addressing is supported in Fabric OS v5.3.0 and later releases.

Support for Virtual Fabric

Virtual Fabric is supported in Fabric OS v6.2.0 and later releases.

When an SNMPv3 request arrives with a particular user name, it executes in the home Virtual Fabric. From the SNMP manager, all SNMPv3 requests must have a home Virtual Fabric that is specified in the *contextName* field. When the home Virtual Fabric is specified, it will be converted to the corresponding switch ID and the home Virtual Fabric will be set. If the user does not have permission for the specified home Virtual Fabric, this request fails with an error code of *noAccess* .

For an SNMPv3 user to have a home Virtual Fabric, a list of allowed Virtual Fabrics, an RBAC role, and the name of the SNMPv3 user should match that of the Fabric OS user in the local switch database. SNMPv3 users whose names do not match with any of the existing Fabric OS local users have a default RBAC role of admin with the SNMPv3 user access control of read/write. Their SNMPv3 user logs in with an access control of read-only. Both user types will have the default switch as their home Virtual Fabrics.

The *contextName* field should have the format "VF:xxx", where xxx is the actual VF_ID, for example "VF:1". If the *contextName* field is empty, then the home Virtual Fabric of the local Fabric OS user with the same name is used. As Virtual Fabrics and Admin Domains are mutually exclusive, this field is considered as Virtual Fabrics context when Virtual Fabrics is enabled. You cannot specify chassis context in the *contextName* field.

The following example shows how the VF:xxx field is used in the **snmpwalk** command. This command is executed on the host and it walks the entire MIB tree specified (.1).

```
switch# snmpwalk –v3 –a MD5 –A passpass –x AES128 –u admin1 –X passpass –n VF:4
10.20.8.17 1.3.6.1.4.1.1588.2.1.2.1.5.1 –l authPriv
```

Filtering ports

Each port can belong to only one Virtual Fabric at any time. An SNMP request coming to one Virtual Fabric can only view the port information of the ports belonging to that Virtual Fabric. All port attributes are filtered to allow SNMP to obtain the port information only from within the current Virtual Fabrics context.

Switch and chassis context enforcement

All attributes are classified into one of two categories:

- Chassis-level attributes
- Switch-level attributes

Attributes that are specific to each logical switch belong to the switch category. These attributes are available in the Virtual Fabrics context and not available in the Chassis context.

Attributes that are common across the logical switches belong to the chassis level. These attributes are accessible to users having the chassis-role permission. When a chassis table is queried, the context is set to chassis context, if the user has the chassis-role permission. The context is switched back to the original context after the operation is performed.

Customized traps

This is only applicable for OEM customers. FOS v7.0.0 and v7.0.1 releases supported addition of system OID in trap OID to customized trap OID on different platforms. For example, Fabric Watch customized trap OID is 1.3.6.1.4.1.1588.2.1.1.62.0.5 on DCX and 1.3.6.1.4.1.1588.2.1.1.71.0.5 on Brocade 5100. This feature is not supported from FOS v7.1.0 release.

References

For procedures on configuring SNMP on the Brocade switches, refer to the *Fabric OS Administrator's Guide*

For information about the SNMP commands, refer to the *Fabric OS Command Reference*.

1 References

Chapter

2

Supported Standard MIBs

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- RFC 4133: Entity MIB 21
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- USM MIB Objects 40

RFC 1213: MIB-II

Fully supported/deprecated object groups

The following groups from RFC 1213 are either fully supported or deprecated.

Object group name	OID	Supported?
system	1.3.6.1.2.1.1	Yes **NOTE:** 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.
at	1.3.6.1.2.1.3	No **NOTE:** Implementation of the Address Translation group is mandatory for all systems. However, that this group is deprecated by MIB-II. From MIB-II onward, each network protocol group contains its own address translation tables.
icmp	1.3.6.1.2.1.5	Yes **NOTE:** Implementation of the ICMP group is mandatory for all systems.
tcp	1.3.6.1.2.1.6	Yes **NOTE:** 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.
udp	1.3.6.1.2.1.7	Yes **NOTE:** Implementation of the UDP group is mandatory for all systems that implement the UDP.
egp	1.3.6.1.2.1.8	No
transmission	1.3.6.1.2.1.10	No
snmp	snmp	Yes **NOTE:** 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). snmpInBadTypes and snmpOutReadOnlys are not supported.

Partially supported object groups

The following groups from RFC 1213 are partially supported.

Interfaces group

Implementation of the Interfaces group is mandatory for all systems. FCIP tunnel support is added in Fabric OS 5.3.0 and later. To support FCIP tunneling, entries are created in the ifTable for each WAN interface (GbE port), each FC port, and each FCIP tunnel (transport interface).

Logical Inter-Switch Link (LISL) is an FC interface.

TABLE 4

Object	OID	Supported?
ifNumber	1.3.6.1.2.1.2.1	Yes
ifTable	1.3.6.1.2.1.2.2	Yes
ifEntry	1.3.6.1.2.1.2.2.1	Yes
ifIndex	1.3.6.1.2.1.2.2.1.1	Yes
ifDescr	1.3.6.1.2.1.2.2.1.2	Yes
ifType	1.3.6.1.2.1.2.2.1.3	Yes
ifMtu	1.3.6.1.2.1.2.2.1.4	Yes
ifSpeed	1.3.6.1.2.1.2.2.1.5	Yes
ifPhysAddress	1.3.6.1.2.1.2.2.1.6	Yes
ifAdminStatus	1.3.6.1.2.1.2.2.1.7	Yes
ifOperStatus	1.3.6.1.2.1.2.2.1.8	Yes
ifLastChange	1.3.6.1.2.1.2.2.1.9	Yes
ifInOctets	1.3.6.1.2.1.2.2.1.10	Yes
ifInUcastPkts	1.3.6.1.2.1.2.2.1.11	No
ifInNUcastPkts	1.3.6.1.2.1.2.2.1.12	No
ifInDiscards	1.3.6.1.2.1.2.2.1.13	Yes
ifInErrors	1.3.6.1.2.1.2.2.1.14	Yes
ifInUnknownProtos	1.3.6.1.2.1.2.2.1.15	No
ifOutOctets	1.3.6.1.2.1.2.2.1.16	Yes
ifOutUcastPkts	1.3.6.1.2.1.2.2.1.17	No
ifOutNUcastPkts	1.3.6.1.2.1.2.2.1.18	No
ifOutDiscards	1.3.6.1.2.1.2.2.1.19	Yes
ifOutErrors	1.3.6.1.2.1.2.2.1.20	Yes
ifOutQLen	1.3.6.1.2.1.2.2.1.21	No
ifSpecific	1.3.6.1.2.1.2.2.1.22	Yes

IP group

Implementation of the IP group is mandatory for all systems.

TABLE 5

Object	OID	Supported?
ipForwarding	1.3.6.1.2.1.4.1	Yes
ipDefaultTTL	1.3.6.1.2.1.4.2	Yes
ipInReceives	1.3.6.1.2.1.4.3	Yes
ipInHdrErrors	1.3.6.1.2.1.4.4	Yes
ipInAddrErrors	1.3.6.1.2.1.4.5	Yes
ipForwDatagrams	1.3.6.1.2.1.4.6	Yes
ipInUnknownProtos	1.3.6.1.2.1.4.7	Yes
ipInDiscards	1.3.6.1.2.1.4.8	Yes
ipInDelivers	1.3.6.1.2.1.4.9	Yes
ipOutRequests	1.3.6.1.2.1.4.10	Yes
ipOutDiscards	1.3.6.1.2.1.4.11	Yes
ipOutNoRoutes	1.3.6.1.2.1.4.12	Yes
ipReasmTimeout	1.3.6.1.2.1.4.13	Yes
ipReasmReqds	1.3.6.1.2.1.4.14	Yes
ipReasmOKs	1.3.6.1.2.1.4.15	Yes
ipReasmFails	1.3.6.1.2.1.4.16	Yes
ipFragOKs	1.3.6.1.2.1.4.17	Yes
ipFragFails	1.3.6.1.2.1.4.18	Yes
ipFragCreates	1.3.6.1.2.1.4.19	Yes
ipAddrTable	1.3.6.1.2.1.4.20	Yes
ipAddrEntry	1.3.6.1.2.1.4.20.1	Yes
ipAdEntAddr	1.3.6.1.2.1.4.20.1.1	Yes
ipAdEntIfIndex	1.3.6.1.2.1.4.20.1.2	Yes
ipAdEntNetMask	1.3.6.1.2.1.4.20.1.3	Yes
ipAdEntBcastAddr	1.3.6.1.2.1.4.20.1.4	Yes
ipAdEntReasmMaxSize	1.3.6.1.2.1.4.20.1.5	No
ipRouteTable	1.3.6.1.2.1.4.21	Yes
ipRouteEntry	1.3.6.1.2.1.4.21.1	Yes
ipRouteDest	1.3.6.1.2.1.4.21.1.1	Yes
ipRouteIfIndex	1.3.6.1.2.1.4.21.1.2	Yes
ipRouteMetric1	1.3.6.1.2.1.4.21.1.3	Yes
ipRouteMetric2	1.3.6.1.2.1.4.21.1.4	Yes
ipRouteMetric3	1.3.6.1.2.1.4.21.1.5	Yes

TABLE 5

Object	OID	Supported?
ipRouteMetric4	1.3.6.1.2.1.4.21.1.6	Yes
ipRouteNextHop	1.3.6.1.2.1.4.21.1.7	Yes
ipRouteType	1.3.6.1.2.1.4.21.1.8	Yes
ipRouteProto	1.3.6.1.2.1.4.21.1.9	Yes
ipRouteAge	1.3.6.1.2.1.4.21.1.10	No
ipRouteMask	1.3.6.1.2.1.4.21.1.11	Yes
ipRouteMetric5	1.3.6.1.2.1.4.21.1.12	Yes
ipRouteInfo	1.3.6.1.2.1.4.21.1.13	Yes
ipNetToMediaTable	1.3.6.1.2.1.4.22	Yes
ipNetToMediaEntry	1.3.6.1.2.1.4.22.1	Yes
ipNetToMediaIfIndex	1.3.6.1.2.1.4.22.1.1	Yes
ipNetToMediaPhysAddress	1.3.6.1.2.1.4.22.1.2	Yes
ipNetToMediaNetAddress	1.3.6.1.2.1.4.22.1.3	Yes
ipNetToMediaType	1.3.6.1.2.1.4.22.1.4	Yes
ipRoutingDiscards	1.3.6.1.2.1.4.23	No
ipAddressTable	1.3.6.1.2.1.4.34	Yes
ipAddressEntry	1.3.6.1.2.1.4.34.1	Yes
ipAddressAddrType	1.3.6.1.2.1.4.34.1.1	Yes
ipAddressAddr	1.3.6.1.2.1.4.34.1.2	Yes
ipAddressIfIndex	1.3.6.1.2.1.4.34.1.3	Yes
ipAddressType	1.3.6.1.2.1.4.34.1.4	Yes
ipAddressPrefix	1.3.6.1.2.1.4.34.1.5	Yes
ipAddressOrigin	1.3.6.1.2.1.4.34.1.6	Yes
ipAddressStatus	1.3.6.1.2.1.4.34.1.7	Yes
ipAddressCreated	1.3.6.1.2.1.4.34.1.8	Yes
ipAddressLastChanged	1.3.6.1.2.1.4.34.1.9	Yes
ipAddressRowStatus	1.3.6.1.2.1.4.34.1.10	Yes
ipAddressStorageType	1.3.6.1.2.1.4.34.1.11	Yes

ifMIB group

The ifMIB group is implemented in Fabric OS v5.3.0 and later versions to support FCIP tunnels. There are entries in the ifXTable for each WAN interface (GbE port), each FC port, and each FCIP tunnel (transport interface). The ifXtable is used to support 64-bit FC statistics counters.

TABLE 6

Object	OID	Supported?
ifXTable	1.3.6.1.2.1.31.1.1	Yes
ifXentry	1.3.6.1.2.1.31.1.1.1	Yes
ifName	1.3.6.1.2.1.31.1.1.1.1	Yes
ifInMulticastPkts	1.3.6.1.2.1.31.1.1.1.2	No
ifInBroadcastPkts	1.3.6.1.2.1.31.1.1.1.3	No
ifOutMulticastPkts	1.3.6.1.2.1.31.1.1.1.4	No
ifOutBroadcastPkts	1.3.6.1.2.1.31.1.1.1.5	No
ifHCInOctets	1.3.6.1.2.1.31.1.1.1.6	Yes
ifHCInUcastPkts	1.3.6.1.2.1.31.1.1.1.7	Yes
ifHCInMulticastPkts	1.3.6.1.2.1.31.1.1.1.8	No
ifHCInBroadcastPkts	1.3.6.1.2.1.31.1.1.1.9	No
ifHCOutOctets	1.3.6.1.2.1.31.1.1.1.10	Yes
ifHCOutUcastPkts	1.3.6.1.2.1.31.1.1.1.11	Yes
ifHCOutMulticastPkts	1.3.6.1.2.1.31.1.1.1.12	No
ifHCOutBroadcastPkts	1.3.6.1.2.1.31.1.1.1.13	No
ifLinkUpDownTrapEnable	1.3.6.1.2.1.31.1.1.1.14	Yes
ifHighSpeed	1.3.6.1.2.1.31.1.1.1.15	Yes
ifPromiscuousMode	1.3.6.1.2.1.31.1.1.1.16	Yes
ifConnectorPresent	1.3.6.1.2.1.31.1.1.1.17	Yes
ifAlias	1.3.6.1.2.1.31.1.1.1.18	No
ifCounterDiscontinuityTime	1.3.6.1.2.1.31.1.1.1.17	No

RFC 1757: Remote Network Monitoring Management Information Base

Remote network monitoring devices, often called monitors or probes, are instruments that exist for the purpose of managing a network. This MIB defines objects for managing remote network monitoring devices.

The following groups from RFC 1757 are fully supported.

Object group name	OID	Supported?
rmon	1.3.6.1.2.1.16	Yes
statistics	1.3.6.1.2.1.16.1	Yes
history	1.3.6.1.2.1.16.2	Yes
alarm	1.3.6.1.2.1.16.3	Yes
event	1.3.6.1.2.1.16.9	Yes

RFC 4133: Entity MIB

Entity MIB is the module for representing multiple logical entities supported by a single SNMP agent. This MIB is supported on Fabric OS v5.x and later releases.

Textual conventions for Entity MIB

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 7 lists the possible values for PhysicalClass.

TABLE 7 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.

TABLE 7 Possible values for PhysicalClass (Continued)

Values	Description
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 ore 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 (Refer to RFC 2571).

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).

- For the Brocade 3016 or Brocade 4020 blades, the snmpEngineID takes the UUID value. For example, if the UUID value is **A9914D56-1E5A-0E59-C51E-528802B06E4F**, the snmpEngineID displays `80.00.06.34.B1.A9.91.4D.56.1E.5A.0E.59.C5.1E.52.88.02.B0.6E.4F (hex)`
- For other switches, the snmpEngineID takes the WWN. For example, if the WWN value is **10:00:00:05:1e:35:d5:ee**, the snmpEngineID displays `80.00.06.34.B2.10.00.00.05.1E.35.D5.EE (hex)`
- If the WWN cannot be taken, the snmpEngineID takes the IP address + port number along with the private enterprise number and algorithm type used. An example of this type of snmpEngineID would be `00.00.06.34.00.00.00.A1.0A.20.93.CA (hex)`

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

Fully supported object group

The following groups from RFC 4133 are fully supported.

Physical entity group

Object group name	OID	Supported?
entityPhysical	1.3.6.1.2.1.47.1.1	Yes
entPhysicalTable	1.3.6.1.2.1.47.1.1.1	Yes
entPhysicalEntry	1.3.6.1.2.1.47.1.1.1.1	Yes
entPhysicalIndex	1.3.6.1.2.1.47.1.1.1.1.1	Yes
entPhysicalDescr	1.3.6.1.2.1.47.1.1.1.1.2	Yes
entPhysicalVendorType	1.3.6.1.2.1.47.1.1.1.1.3	Yes.
entPhysicalContainedIn	1.3.6.1.2.1.47.1.1.1.1.4	Yes
entPhysicalClass	1.3.6.1.2.1.47.1.1.1.1.5	Yes Brocade 300 switches can have the following hierarchy of physical objects: • Chassis: One entry (one row) • Container: One entry for each FRU slot (one blade, one power supply, three fans) • Module: One entry for blades, one entry for power supply, and three entries for fans Brocade 5100 switches can have the following hierarchy of physical objects: • Chassis: One entry (one row) • Container: One entry for each FRU slot (one blade, two power supplies, two fans) • Module: One entry for blades, two entries for power supplies, and two entries for fans Brocade 5300 switches can have the following hierarchy of physical objects: • Chassis: One entry (one row) • Container: One entry for each FRU slot (one blade, two power supplies, three fans) • Module: One entry for blades, two entries for power supplies, and three entries for fans

Object group name	OID	Supported?
entPhysicalClass (continued)	1.3.6.1.2.1.47.1.1.1.1.5	Brocade DCX 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 Brocade DCX-4S directors can have the following hierarchy of physical objects: • Chassis: One entry (one row) • Container: One entry for each FRU slot (four port blades, two CPs, two power supplies, two fans) • Module: Eight entries for port blades, two entries for CPs, four entries for power supplies, and three entries for fans Brocade 7800 Extension switch 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, two fans) • Module: One entry for switch blade, up to two entries for power supplies, and up to two entries for fans Brocade 6505 switch 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, two fans) • Module: One entry for switch blade, up to two entries for power supplies, and up to two entries for fans. Brocade 6510 switch 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, two fans) • Module: One entry for switch blade, up to two entries for power supplies, and up to two entries for fans Brocade 6520 switch 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: One entry for switch blade, up to two entries for power supplies, and up to three entries for fans

Object group name	OID	Supported?
entPhysicalClass (continued)	1.3.6.1.2.1.47.1.1.1.1.5	Brocade DCX 8510-4 Backbone can have the following hierarchy of physical objects: • Chassis: One entry (one row) • Container: One entry for each FRU slot (four port blades, two CPs, two power supplies, two fans) • Module: Eight entries for port blades, two entries for CPs, four entries for power supplies, and three entries for fans Brocade DCX 8510-8 Backbone 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 Brocade VA-40FC switch can have the following hierarchy of physical objects: • Chassis: One entry (one row) • Container: One entry for each FRU slot (one blade, two power supplies, two fans) • Module: One entry for blades, two entries for power supplies, and two entries for fans
entPhysicalParentRelPos	1.3.6.1.2.1.47.1.1.1.1.6	Yes
entPhysicalName	1.3.6.1.2.1.47.1.1.1.1.7	Yes
entPhysicalHardwareRev	1.3.6.1.2.1.47.1.1.1.1.8	Yes
entPhysicalFirmwareRev	1.3.6.1.2.1.47.1.1.1.1.9	Yes
entPhysicalSoftwareRev	1.3.6.1.2.1.47.1.1.1.1.10	Yes
entPhysicalSerialNum	1.3.6.1.2.1.47.1.1.1.1.11	Yes **NOTE:** For the Brocade 4024 blade, entPhysicalSerialNum displays the vendor-specific serial number; for other switches it displays the factory serial number.
entPhysicalMfgName	1.3.6.1.2.1.47.1.1.1.1.12	Yes
entPhysicalModelName	1.3.6.1.2.1.47.1.1.1.1.13	Yes
entPhysicalAlias	1.3.6.1.2.1.47.1.1.1.1.14	Yes
entPhysicalAssetID	1.3.6.1.2.1.47.1.1.1.1.15	Yes
entPhysicalIsFRU	1.3.6.1.2.1.47.1.1.1.1.16	Yes

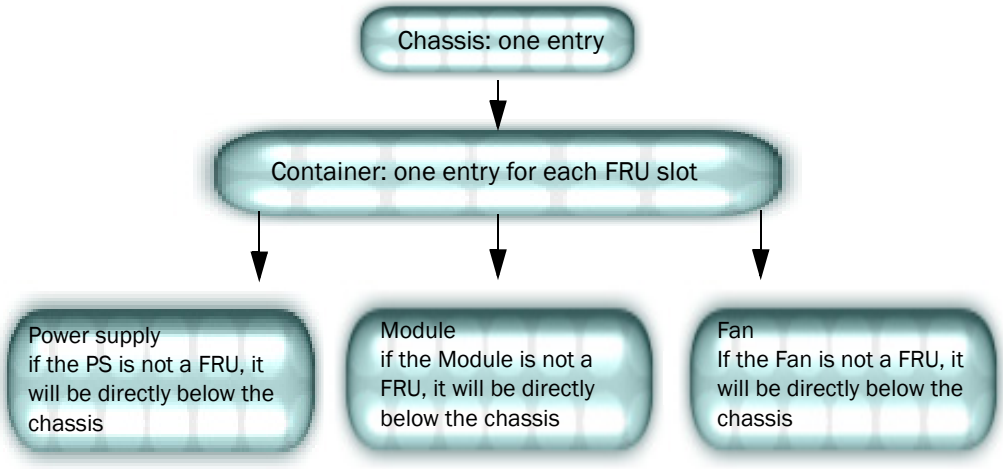

FIGURE 5 entPhysicalTable containment hierarchy (entPhysicalContainsTable)

Unsupported object groups

The following groups from RFC 4133 are not supported.

Object group name	OID	Supported?
entLogical	1.3.6.1.2.1.47.1.2	No
entityMapping	1.3.6.1.2.1.47.1.3	No
entityGeneral	1.3.6.1.2.1.47.1.4	No

Partially supported object group

The following group from RFC 4133 is partially supported.

Object group name	OID	Supported?
entityCompliance	1.3.6.1.2.1.47.3.1.1	No
entity2Compliance	1.3.6.1.2.1.47.3.1.2	Yes
entityPhysicalGroup	1.3.6.1.2.1.47.3.2.1	Yes
entityLogicalGroup	1.3.6.1.2.1.47.3.2.2	No
entityMappingGroup	1.3.6.1.2.1.47.3.2.3	Yes
entityGeneralGroup	1.3.6.1.2.1.47.3.2.4	Yes
entityNotificationsGroup	1.3.6.1.2.1.47.3.2.5	Yes
entityPhysical2Group	1.3.6.1.2.1.47.3.2.6	Yes
entityLogical2Group	1.3.6.1.2.1.47.3.2.7	Yes

Bridge-MIB

The Bridge MIB module for managing devices that support IEEE 802.1D.

Fully supported object groups

The following groups from LLDP-EXT-DOT1-MIB are fully supported.

Object group name	OID	Supported
dot1dBase	1.3.6.1.2.1.17.1	Yes This contains the objects that are applicable to all types of bridges (support only for default VLAN).
dot1dStp	1.3.6.1.2.1.17.2	Yes This contains objects that denote the bridge's state with respect to the Spanning Tree Protocol. Implementation of the dot1dStp sub-tree is optional. It is implemented by those bridges that support the Spanning Tree Protocol.
dot1dTp	1.3.6.1.2.1.17.4	Yes Implementation of the dot1dTp sub-tree is optional. It is implemented by those bridges that support the transparent bridging mode. A transparent or SRT bridge will implement this sub-tree.

Partially supported objects

The following groups from LLDP-EXT-DOT1-MIB are partially supported.

dot1d static group

Object	OID	Supported?
dot1dStaticTable	1.3.6.1.2.1.17.5.1	Yes
dot1dStaticEntry	1.3.6.1.2.1.17.5.1.1	Yes
dot1dStaticAddress	1.3.6.1.2.1.17.5.1.1.1	Yes
dot1dStaticReceivePort	1.3.6.1.2.1.17.5.1.1.2	Yes
dot1dStaticAllowedToGoTo	1.3.6.1.2.1.17.5.1.1.3	No
dot1dStaticStatus	1.3.6.1.2.1.17.5.1.1.4	Yes

P-Bridge MIB

The Bridge MIB Extension module for managing Priority and Multicast Filtering, defined by IEEE 802.1D-1998, including Restricted Group Registration defined by IEEE 802.1t-2001.

The following tables are not supported:

- dot1dTpHCPortTable

- dot1dUserPriorityRegenTable
- dot1dTrafficClassTable
- dot1dPortOutboundAccessPriorityTable
- dot1dPortGarpTable
- dot1dPortGmrpTable

Fully supported object groups

The following groups from P-Bridge MIB are fully supported.

Object group name	OID	Supported
dot1dBase	1.3.6.1.2.1.17.1	Yes
dot1dExtBase	1.3.6.1.2.1.17.6.1.1	Yes
dot1dPortPriorityTable	1.3.6.1.2.1.17.6.1.2.1	Yes

Q-Bridge MIB

The VLAN Bridge MIB module for managing Virtual Bridged Local Area Networks, as defined by IEEE 802.1Q-2003, including Restricted VLAN Registration defined by IEEE 802.1u-2001 and VLAN Classification defined by IEEE 802.1v-2001.

The following tables are not supported:

- dot1qPortVlanTable
- dot1qPortVlanHCStatisticsTable
- dot1qLearningConstraintsTable
- dot1vProtocolGroupTable
- dot1vProtocolPortTable

Fully supported object groups

The following groups from P-Bridge MIB are fully supported.

Object group name	OID	Supported
dot1qBase	1.3.6.1.2.1.17.7.1.1	Yes
dot1qTp	1.3.6.1.2.1.17.7.1.2	Yes
dot1qStatic	1.3.6.1.2.1.17.7.1.3	Yes
dot1qVlan	1.3.6.1.2.1.17.7.1.4	Yes

RSTP MIB

The Bridge MIB Extension module for managing devices that support the Rapid Spanning Tree Protocol defined by IEEE 802.1w.

Fully supported object groups

The following groups from RSTP MIB are fully supported.

Object group name	OID	Supported
dot1dStpVersion	1.3.6.1.2.1.17.2.16	Yes
dot1dStpTxHoldCount	1.3.6.1.2.1.17.2.17	Yes
dot1dStpExtPortTable	1.3.6.1.2.1.17.2.19	Yes

FCIP MIB Objects

You can refer to RFC 4044 for description of the entire MIB.

Fully supported object groups

The following groups from FCIP MIB are fully supported.

Object group name	OID	Supported?
fcipEntityInstanceTable	1.3.6.1.2.1.224.1.1.4	Yes
fcipLinkTable	1.3.6.1.2.1.224.1.1.5	Yes
fcipTcpConnTable	1.3.6.1.2.1.224.1.1.6	Yes

Partially supported object groups

The following groups from FCIP MIB are partially supported.

FCIP extended link table

The FCIP extended link table contains statistical information about FCIP tunnel transport operation. The information stored in this table is returned in response to **portshow fciptunnel** commands.

Object	OID	Supported?
fcipExtendedLinkTable	1.3.6.1.4.1.1588.4.1	Yes **NOTE:** The information stored in this table is returned in response to **portshow fciptunnel** commands.
fcipExtendedLinkEntry	1.3.6.1.4.1.1588.4.1.1	Yes
fcipExtendedLinkIfIndex	1.3.6.1.4.1.1588.4.1.1.1	Yes
fcipExtendedLinkTcpRetransmits	1.3.6.1.4.1.1588.4.1.1.2	Yes
fcipExtendedLinkTcpDropped Packets	1.3.6.1.4.1.1588.4.1.1.3	No
fcipExtendedLinkCompressionRatio	1.3.6.1.4.1.1588.4.1.1.4	Yes
fcipExtendedLinkTcpSmoothedRTT	1.3.6.1.4.1.1588.4.1.1.5	No

Object	OID	Supported?
fcipExtendedLinkRawBytes	1.3.6.1.4.1.1588.4.1.1.6	Yes
fcipExtendedLinkCompressedBytes	1.3.6.1.4.1.1588.4.1.1.7	Yes
fcipExtendedLinkConnectedCount	1.3.6.1.4.1.1588.4.1.1.8	Yes
fcipExtendedLinkRtxRtxTO	1.3.6.1.4.1.1588.4.1.1.9	No
fcipExtendedLinkRtxDupAck	1.3.6.1.4.1.1588.4.1.1.10	No
fcipExtendedLinkDupAck	1.3.6.1.4.1.1588.4.1.1.11	No
fcipExtendedLinkRtt	1.3.6.1.4.1.1588.4.1.1.12	Yes
fcipExtendedLinkOoo	1.3.6.1.4.1.1588.4.1.1.13	Yes
fcipExtendedLinkSlowStarts	1.3.6.1.4.1.1588.4.1.1.14	Yes

FCIP connection statistics table

This table contains statistical information about FCIP circuit and connection compression, retransmission, packet loss, and latency details. For Brocade 7840 switch, this table shows only circuit statistics.

This table gives details about FCIP circuit statistics for the Brocade 7800 Extension Switch or FX8-24 DCX Extension Blade. This table is not supported on the Brocade 7500 or FR4-18i router blade.

Corresponding CLI command:

```
portshow fcipcircuit -t/-q -perf
```

Object	OID	Supported?
fcipConnStatsTable	1.3.6.1.4.1.1588.4.2	Yes
fcipConnStatsEntry	1.3.6.1.4.1.1588.4.2.1	Yes
xfcipEntityId	1.3.6.1.4.1.1588.4.2.1.1	Yes
xfcipLinkIfIndex	1.3.6.1.4.1.1588.4.2.1.2	Yes
xfcipLinkIndex	1.3.6.1.4.1.1588.4.2.1.3	Yes
xfcipExtendedLinkTcpRetransmits	1.3.6.1.4.1.1588.4.2.1.4	Yes
xfcipExtendedLinkTcpDroppedPackets	1.3.6.1.4.1.1588.4.2.1.5	No
xfcipExtendedLinkCompressionRatio	1.3.6.1.4.1.1588.4.2.1.6	Yes
xfcipExtendedLinkTcpSmoothedRTT	1.3.6.1.4.1.1588.4.2.1.7	Yes
xfcipExtendedLinkRawBytes	1.3.6.1.4.1.1588.4.2.1.8	Yes
xfcipExtendedLinkCompressedBytes	1.3.6.1.4.1.1588.4.2.1.9	Yes

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

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 8 lists which FE MIB is supported in which Fabric OS version.

TABLE 8 FE MIBs and supported Fabric OS versions

Fabric OS version	FIBRE-CHANNEL-FE-MIB (MIB-II branch)	FCFABRIC-ELEMENT-MIB (experimental branch)
v7.4.0	Yes	No
v7.3.0	Yes	No
v7.2.0	Yes	No
v7.1.0	Yes	No
v7.0.0	Yes	No
v6.4.1_fcoe	Yes	No
v6.4.0	Yes	No
v6.3.0	Yes	No
v6.2.0	Yes	No
v6.1.2_CEE	Yes	No
v6.1.0	Yes	No
v6.0.0	Yes	No
v5.x	Yes	No
v4.x	Yes	No
v3.1.x	Yes	No
v3.0.x	Yes	Yes
v2.6.x	No	Yes

NOTE
The port swap feature does not have any effect on SNMP for FE MIB.

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

Fully supported object groups

The following groups from FIBRE-CHANNEL-FE-MIB are fully supported.

Object group name	OID	Supported?
fcFeConfig group	1.3.6.1.2.1.75.1.1	Yes 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.
fcFeStatus group	1.3.6.1.2.1.75.1.2	Yes This group consists of tables that contain operational status and established service parameters for the fabric element and the attached Nx_Ports.
fcFeError group	1.3.6.1.2.1.75.1.3	Yes 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.
fcFeAccounting group	1.3.6.1.2.1.75.1.4	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.
fcFeCapabilities group	1.3.6.1.2.1.75.1.5	Yes 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.

IEEE 802.1x PAE MIB

NOTE
dot1xPaeSupplicant group is not supported.

Fully supported object groups

The following groups from IEEE 802.1x PAE MIB are fully supported.

Object group name	OID	Supported
dot1xPaePortTable	1.0.8802.1.1.1.1.1.2	Yes
dot1xAuthConfigTable	1.0.8802.1.1.1.1.2.1	Yes

IEEE 802.3 LAG MIB

Fully supported object group

The following group from IEEE 802.3 LAG MIB is fully supported.

Object group name	OID	Supported
dot3adAggTable	1.2.840.10006.300.43.1.1.1	Yes

Partially supported object group

The following group from IEEE 802.3 LAG MIB is partially supported.

Aggregator port group

Object	OID	Supported?
dot3adAggPortTable	1.2.840.10006.300.43.1.2.1	Yes
dot3adAggPortEntry	1.2.840.10006.300.43.1.2.1.1	Yes
dot3adAggPortIndex	1.2.840.10006.300.43.1.2.1.1.1	Yes
dot3adAggPortActorSystemPriority	1.2.840.10006.300.43.1.2.1.1.2	Yes
dot3adAggPortActorSystemID	1.2.840.10006.300.43.1.2.1.1.3	Yes
dot3adAggPortActorAdminKey	1.2.840.10006.300.43.1.2.1.1.4	Yes
dot3adAggPortActorOperKey	1.2.840.10006.300.43.1.2.1.1.5	Yes
dot3adAggPortPartnerAdminSystemPriority	1.2.840.10006.300.43.1.2.1.1.6	Yes
dot3adAggPortPartnerOperSystemPriority	1.2.840.10006.300.43.1.2.1.1.7	Yes
dot3adAggPortPartnerAdminSystemID	1.2.840.10006.300.43.1.2.1.1.8	No
dot3adAggPortPartnerOperSystemID	1.2.840.10006.300.43.1.2.1.1.9	No
dot3adAggPortPartnerAdminKey	1.2.840.10006.300.43.1.2.1.1.10	Yes
dot3adAggPortPartnerOperKey	1.2.840.10006.300.43.1.2.1.1.11	Yes
dot3adAggPortSelectedAggID	1.2.840.10006.300.43.1.2.1.1.12	Yes
dot3adAggPortAttachedAggID	1.2.840.10006.300.43.1.2.1.1.13	Yes
dot3adAggPortActorPort	1.2.840.10006.300.43.1.2.1.1.14	Yes
dot3adAggPortActorPortPriority	1.2.840.10006.300.43.1.2.1.1.15	Yes
dot3adAggPortPartnerAdminPort	1.2.840.10006.300.43.1.2.1.1.16	Yes
dot3adAggPortPartnerOperPort	1.2.840.10006.300.43.1.2.1.1.17	Yes
dot3adAggPortPartnerAdminPortPriority	1.2.840.10006.300.43.1.2.1.1.18	Yes
dot3adAggPortPartnerOperPortPriority	1.2.840.10006.300.43.1.2.1.1.19	Yes
dot3adAggPortActorAdminState	1.2.840.10006.300.43.1.2.1.1.20	Yes
dot3adAggPortActorOperState	1.2.840.10006.300.43.1.2.1.1.21	Yes

Object	OID	Supported?
dot3adAggPortPartnerAdminState	1.2.840.10006.300.43.1.2.1.1.22	Yes
dot3adAggPortPartnerOperState	1.2.840.10006.300.43.1.2.1.1.23	Yes
dot3adAggPortAggregateOrIndividual	1.2.840.10006.300.43.1.2.1.1.24	Yes
dot3adAggPortStatsTable	1.2.840.10006.300.43.1.2.2	Yes
dot3adAggPortStatsEntry	1.2.840.10006.300.43.1.2.2.1	Yes
dot3adAggPortStatsLACPDUsRx	1.2.840.10006.300.43.1.2.2.1.1	Yes
dot3adAggPortStatsMarkerPDUsRx	1.2.840.10006.300.43.1.2.2.1.2	Yes
dot3adAggPortStatsMarkerResponsePDUsRx	1.2.840.10006.300.43.1.2.2.1.3	Yes
dot3adAggPortStatsUnknownRx	1.2.840.10006.300.43.1.2.2.1.4	Yes
dot3adAggPortStatsIllegalRx	1.2.840.10006.300.43.1.2.2.1.5	Yes
dot3adAggPortStatsLACPDUsTx	1.2.840.10006.300.43.1.2.2.1.6	Yes
dot3adAggPortStatsMarkerPDUsTx	1.2.840.10006.300.43.1.2.2.1.7	Yes
dot3adAggPortStatsMarkerResponsePDUsTx	1.2.840.10006.300.43.1.2.2.1.8	Yes
dot3adAggPortDebugTable	1.2.840.10006.300.43.1.2.3	Yes
dot3adAggPortDebugEntry	1.2.840.10006.300.43.1.2.3.1	Yes
dot3adAggPortDebugRxState	1.2.840.10006.300.43.1.2.3.1.1	Yes
dot3adAggPortDebugLastRxTime	1.2.840.10006.300.43.1.2.3.1.2	Yes
dot3adAggPortDebugMuxState	1.2.840.10006.300.43.1.2.3.1.3	Yes
dot3adAggPortDebugMuxReason	1.2.840.10006.300.43.1.2.3.1.4	Yes
dot3adAggPortDebugActorChurnState	1.2.840.10006.300.43.1.2.3.1.5	Yes
dot3adAggPortDebugPartnerChurnState	1.2.840.10006.300.43.1.2.3.1.6	Yes
dot3adAggPortDebugActorChurnCount	1.2.840.10006.300.43.1.2.3.1.7	Yes
dot3adAggPortDebugPartnerChurnCount	1.2.840.10006.300.43.1.2.3.1.8	Yes
dot3adAggPortDebugActorSyncTransitionCount	1.2.840.10006.300.43.1.2.3.1.9	Yes
dot3adAggPortDebugPartnerSyncTransitionCount	1.2.840.10006.300.43.1.2.3.1.10	Yes
dot3adAggPortDebugActorChangeCount	1.2.840.10006.300.43.1.2.3.1.11	Yes
dot3adAggPortDebugPartnerChangeCount	1.2.840.10006.300.43.1.2.3.1.12	Yes
dot3adTablesLastChanged	1.2.840.10006.300.43.1.3	Yes

iSCSI MIB

You can refer to RFC 4544 for a description of the entire MIB.

NOTE
From Fabric OS v7.4.0, iSCSI MIB is not supported.

Partially supported objects

The following groups from iSCSI MIB are partially supported.

iSCSI instance attributes table

Object	OID	Supported?
iscsiInstanceAttributesTable	1.3.6.1.2.1.142.1.1.1	Yes
iscsiInstanceAttributesEntry	1.3.6.1.2.1.142.1.1.1.1	Yes
iscsiInstIndex	1.3.6.1.2.1.142.1.1.1.1.1	Yes
iscsiInstDescr	1.3.6.1.2.1.142.1.1.1.1.2	Yes
iscsiInstVersionMin	1.3.6.1.2.1.142.1.1.1.1.3	Yes
iscsiInstVersionMax	1.3.6.1.2.1.142.1.1.1.1.4	Yes
iscsiInstVendorID	1.3.6.1.2.1.142.1.1.1.1.5	No
iscsiInstVendorVersion	1.3.6.1.2.1.142.1.1.1.1.6	Yes
iscsiInstPortalNumber	1.3.6.1.2.1.142.1.1.1.1.7	Yes
iscsiInstNodeNumber	1.3.6.1.2.1.142.1.1.1.1.8	Yes
iscsiInstSessionNumber	1.3.6.1.2.1.142.1.1.1.1.9	Yes
iscsiInstSsnFailures	1.3.6.1.2.1.142.1.1.1.1.10	No
iscsiInstLastSsnFailureType	1.3.6.1.2.1.142.1.1.1.1.11	No
iscsiInstLastSsnRmtNodeName	1.3.6.1.2.1.142.1.1.1.1.12	No
iscsiInstDiscontinuityTime	1.3.6.1.2.1.142.1.1.1.1.13	No

iSCSI node attributes table

Object	OID	Supported?
iscsiNodeAttributesTable	1.3.6.1.2.1.142.1.1.5.1	Yes
iscsiNodeAttributesEntry	1.3.6.1.2.1.142.1.1.5.1.1	Yes
iscsiNodeIndex	1.3.6.1.2.1.142.1.1.5.1.1.1	Yes
iscsiNodeName	1.3.6.1.2.1.142.1.1.5.1.1.2	Yes
iscsiNodeAlias	1.3.6.1.2.1.142.1.1.5.1.1.3	No
iscsiNodeRoles	1.3.6.1.2.1.142.1.1.5.1.1.4	Yes
iscsiNodeTransportType	1.3.6.1.2.1.142.1.1.5.1.1.5	No
iscsiNodeInitialR2T	1.3.6.1.2.1.142.1.1.5.1.1.6	No
iscsiNodeImmediateData	1.3.6.1.2.1.142.1.1.5.1.1.7	No
iscsiNodeMaxOutstandingR2T	1.3.6.1.2.1.142.1.1.5.1.1.8	No
iscsiNodeFirstBurstLength	1.3.6.1.2.1.142.1.1.5.1.1.9	No
iscsiNodeMaxBurstLength	1.3.6.1.2.1.142.1.1.5.1.1.10	No
iscsiNodeMaxConnections	1.3.6.1.2.1.142.1.1.5.1.1.11	Yes

Object	OID	Supported?
iscsiNodeDataSequenceInOrder	1.3.6.1.2.1.142.1.1.5.1.1.12	No
iscsiNodeDataPDUInOrder	1.3.6.1.2.1.142.1.1.5.1.1.13	No
iscsiNodeDefaultTime2Wait	1.3.6.1.2.1.142.1.1.5.1.1.14	No
iscsiNodeDefaultTime2Retain	1.3.6.1.2.1.142.1.1.5.1.1.15	No
iscsiNodeErrorRecoveryLevel	1.3.6.1.2.1.142.1.1.5.1.1.16	No
iscsiNodeDiscontinuityTime	1.3.6.1.2.1.142.1.1.5.1.1.17	No
iscsiNodeStorageType	1.3.6.1.2.1.142.1.1.5.1.1.18	No

iSCSI session attributes table

The isciSessionAttributesTable contains a set of rows that list the sessions known to exist locally for each node in the iSCSI instance. This table contains session negotiable parameters, the target name, the initiator name, the tsid, and the isid.

Object	OID	Supported?
iscsiSessionAttributesTable	1.3.6.1.2.1.142.1.1.10.1	Yes
iscsiSessionAttributesEntry	1.3.6.1.2.1.142.1.1.10.1.1	Yes
iscsiSsnNodeIndex	1.3.6.1.2.1.142.1.1.10.1.1.1	Yes
iscsiSsnIndex	1.3.6.1.2.1.142.1.1.10.1.1.2	Yes
iscsiSsnDirection	1.3.6.1.2.1.142.1.1.10.1.1.3	Yes
iscsiSsnInitiatorName	1.3.6.1.2.1.142.1.1.10.1.1.4	Yes
iscsiSsnTargetName	1.3.6.1.2.1.142.1.1.10.1.1.5	Yes
iscsiSsnTSIH	1.3.6.1.2.1.142.1.1.10.1.1.6	Yes
iscsiSsnISID	1.3.6.1.2.1.142.1.1.10.1.1.7	Yes
iscsiSsnInitiatorAlias	1.3.6.1.2.1.142.1.1.10.1.1.8	Yes
iscsiSsnTargetAlias	1.3.6.1.2.1.142.1.1.10.1.1.9	Yes
iscsiSsnInitialR2T	1.3.6.1.2.1.142.1.1.10.1.1.10	Yes
iscsiSsnImmediateData	1.3.6.1.2.1.142.1.1.10.1.1.11	Yes
iscsiSsnType	1.3.6.1.2.1.142.1.1.10.1.1.12	Yes
iscsiSsnMaxOutstandingR2T	1.3.6.1.2.1.142.1.1.10.1.1.13	Yes
iscsiSsnFirstBurstLength	1.3.6.1.2.1.142.1.1.10.1.1.14	Yes
iscsiSsnMaxBurstLength	1.3.6.1.2.1.142.1.1.10.1.1.15	Yes
iscsiSsnConnectionNumber	1.3.6.1.2.1.142.1.1.10.1.1.16	Yes
iscsiSsnAuthIdentity	1.3.6.1.2.1.142.1.1.10.1.1.17	Yes
iscsiSsnDataSequenceInOrder	1.3.6.1.2.1.142.1.1.10.1.1.18	Yes
iscsiSsnDataPDUInOrder	1.3.6.1.2.1.142.1.1.10.1.1.19	Yes
iscsiSsnErrorRecoveryLevel	1.3.6.1.2.1.142.1.1.10.1.1.20	Yes
iscsiSsnErrorDiscontinuityTime	1.3.6.1.2.1.142.1.1.10.1.1.21	No

iSCSI session statistics table

Object	OID	Supported?
iscsiSessionStatsTable	1.3.6.1.2.1.142.1.1.10.2	Yes
iscsi SessionS tats Entry	1.3.6.1.2.1.142.1.1.10.2.1	Yes
iscsiSsnCmdPDUs	1.3.6.1.2.1.142.1.1.10.2.1.1	Yes
iscsiSsnRspPDUs	1.3.6.1.2.1.142.1.1.10.2.1.2	Yes
iscsiTxDataOctets	1.3.6.1.2.1.142.1.1.10.2.1.3	Yes
iscsiRxDataOctets	1.3.6.1.2.1.142.1.1.10.2.1.4	Yes
iscsiLCTxDataOctets	1.3.6.1.2.1.142.1.1.10.2.1.5	No
iscsiLCRxDataOctets	1.3.6.1.2.1.142.1.1.10.2.1.6	No

iSCSI connection attributes table

The iscsiConnectionAttributesTable contains a list of active connections within each session.

Object	OID	Supported?
iscsiConnectionAttributesTable	1.3.6.1.2.1.142.1.1.11.1	Yes
iscsiConnectionAttributesEntry	1.3.6.1.2.1.142.1.1.11.1.1	Yes
iscsiCxnIndex	1.3.6.1.2.1.142.1.1.11.1.1.1	Yes
iscsiCxnCid	1.3.6.1.2.1.142.1.1.11.1.1.2	Yes
iscsiCxnState	1.3.6.1.2.1.142.1.1.11.1.1.3	Yes
iscsiCxnAddrType	1.3.6.1.2.1.142.1.1.11.1.1.4	Yes
iscsiCxnLocalAddr	1.3.6.1.2.1.142.1.1.11.1.1.5	Yes
iscsiCxnProtocol	1.3.6.1.2.1.142.1.1.11.1.1.6	Yes
iscsiCxnLocalPort	1.3.6.1.2.1.142.1.1.11.1.1.7	Yes
iscsiCxnRemoteAddr	1.3.6.1.2.1.142.1.1.11.1.1.8	Yes **NOTE:** Only IPv4 addresses are supported.
iscsiCxnRemotePort	1.3.6.1.2.1.142.1.1.11.1.1.9	Yes
iscsiCxnMaxRecvDataSegLength	1.3.6.1.2.1.142.1.1.11.1.1.10	Yes
iscsiCxnMaxXmitDataSegLength	1.3.6.1.2.1.142.1.1.11.1.1.11	Yes
iscsiCxnHeaderIntegrity	1.3.6.1.2.1.142.1.1.11.1.1.12	Yes
iscsiCxnDataIntegrity	1.3.6.1.2.1.142.1.1.11.1.1.13	Yes
iscsiCxnRecvMarker	1.3.6.1.2.1.142.1.1.11.1.1.14	Yes
iscsiCxnSendMarker	1.3.6.1.2.1.142.1.1.11.1.1.15	Yes
iscsiCxnVersionActive	1.3.6.1.2.1.142.1.1.11.1.1.16	Yes

LLDP MIB

The Management Information Base module for LLDP configuration, statistics, local system data and remote systems data components.

NOTE
LLDP notifications are not supported.

Fully supported object groups

The following groups from LLDP MIB are fully supported.

Object group name	OID	Supported?
lldpConfiguration	1.0.8802.1.1.2.1.1	Yes
lldpStatistics	1.0.8802.1.1.2.1.2	Yes
lldpLocalSystemData	1.0.8802.1.1.2.1.3	Yes
lldpRemoteSystemsData	1.0.8802.1.1.2.1.4	Yes

LLDP-EXT-DOT1-MIB

The LLDP Management Information Base extension module for IEEE 802.1 organizationally defined discovery information.

Fully supported object groups

The following groups from LLDP-EXT-DOT1-MIB are fully supported.

Object group name	OID	Supported?
lldpXdot1Config	1.0.8802.1.1.2.1.5.32962.1.1	Yes
lldpXdot1LocalData	1.0.8802.1.1.2.1.5.32962.1.2	Yes
lldpXdot1RemoteData	1.0.8802.1.1.2.1.5.32962.1.3	Yes

LLDP-EXT-DOT3-MIB

The LLDP Management Information Base extension module for IEEE 802.3 organizationally defined discovery information.

Fully supported object group

The following group from LLDP-EXT-DOT3-MIB is fully supported.

Object group name	OID	Supported?
lldpXdot3Config	1.0.8802.1.1.2.1.5.4623.1.1	Yes

Partially supported objects

The following groups from LLDP-EXT-DOT3-MIB are partially supported.

lldpXdot3 local data group

Object	OID	Supported?
lldpXdot3LocalData	1.0.8802.1.1.2.1.5.4623.1.2	Yes
lldpXdot3LocPortTable	1.0.8802.1.1.2.1.5.4623.1.2.1	Yes
lldpXdot3LocPortEntry	1.0.8802.1.1.2.1.5.4623.1.2.1.1	Yes
lldpXdot3LocPortAutoNegSupported	1.0.8802.1.1.2.1.5.4623.1.2.1.1.1	Yes
lldpXdot3LocPortAutoNegEnabled	1.0.8802.1.1.2.1.5.4623.1.2.1.1.2	Yes
lldpXdot3LocPortAutoNegAdvertisedCap	1.0.8802.1.1.2.1.5.4623.1.2.1.1.3	Yes
lldpXdot3LocPortOperMauType	1.0.8802.1.1.2.1.5.4623.1.2.1.1.4	Yes
lldpXdot3LocPowerTable	1.0.8802.1.1.2.1.5.4623.1.2.2	No
lldpXdot3LocLinkAggTable	1.0.8802.1.1.2.1.5.4623.1.2.3	Yes
lldpXdot3LocLinkAggEntry	1.0.8802.1.1.2.1.5.4623.1.2.3.1	Yes
lldpXdot3LocLinkAggStatus	1.0.8802.1.1.2.1.5.4623.1.2.3.1.1	Yes
lldpXdot3LocLinkAggPortId	1.0.8802.1.1.2.1.5.4623.1.2.3.1.2	Yes
lldpXdot3LocMaxFrameSizeTable	1.0.8802.1.1.2.1.5.4623.1.2.4	Yes
lldpXdot3LocMaxFrameSizeEntry	1.0.8802.1.1.2.1.5.4623.1.2.4.1	Yes
lldpXdot3LocMaxFrameSize	1.0.8802.1.1.2.1.5.4623.1.2.4.1.1	Yes

lldpXdot3 remote data group

Object	OID	Supported?
lldpXdot3RemoteData	1.0.8802.1.1.2.1.5.4623.1.3	Yes
lldpXdot3RemPortTable	1.0.8802.1.1.2.1.5.4623.1.3.1	Yes
lldpXdot3RemPortEntry	1.0.8802.1.1.2.1.5.4623.1.3.1.1	Yes
lldpXdot3RemPortAutoNegSupported	1.0.8802.1.1.2.1.5.4623.1.3.1.1.1	Yes
lldpXdot3RemPortAutoNegEnabled	1.0.8802.1.1.2.1.5.4623.1.3.1.1.2	Yes
lldpXdot3RemPortAutoNegAdvertisedCap	1.0.8802.1.1.2.1.5.4623.1.3.1.1.3	Yes
lldpXdot3RemPortOperMauType	1.0.8802.1.1.2.1.5.4623.1.3.1.1.4	Yes
lldpXdot3RemPowerTable	1.0.8802.1.1.2.1.5.4623.1.3.2	No
lldpXdot3RemLinkAggTable	1.0.8802.1.1.2.1.5.4623.1.3.3	Yes
lldpXdot3RemLinkAggEntry	1.0.8802.1.1.2.1.5.4623.1.3.3.1	Yes

Object	OID	Supported?
lldpXdot3RemLinkAggStatus	1.0.8802.1.1.2.1.5.4623.1.3.3.1.1	Yes
lldpXdot3RemLinkAggPortId	1.0.8802.1.1.2.1.5.4623.1.3.3.1.2	Yes
lldpXdot3RemMaxFrameSizeTable	1.0.8802.1.1.2.1.5.4623.1.3.4	Yes
lldpXdot3RemMaxFrameSizeEntry	1.0.8802.1.1.2.1.5.4623.1.3.4.1	Yes
lldpXdot3RemMaxFrameSize	1.0.8802.1.1.2.1.5.4623.1.3.4.1.1	Yes

SNMPv2 MIB

Fully supported object groups

The following groups from SNMPv2 MIB are fully supported.

Object group name	OID	Supported?
snmpTargetAddrTable	1.3.6.1.6.3.12.1.2	Yes
snmpTargetParamsTable	1.3.6.1.6.3.12.1.3	Yes
snmpCommunityTable	1.3.6.1.6.3.18.1.1	Yes

USM MIB Objects

Fully supported object groups

The following groups from USM MIB are fully supported.

Object group name	OID	Supported
usmStats	1.3.6.1.6.3.15.1.1	Yes
usmUser	1.3.6.1.6.3.15.1.2	Yes

Chapter

3

SW-MIB Objects

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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.

NOTE
The port swap feature does not have any effect on SNMP for SW MIB.

NOTE
From FOS v7.4.0, the Fabric watch feature is not supported.

Textual conventions for SW-MIB

Table 9 lists the textual conventions used for SW-MIB.

TABLE 9 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.

TABLE 9 SW-MIB textual conventions (Continued)

Type definition	Value	Description
SwFwActs	Integer	Valid Fabric Watch actions: 0 swFwNoAction 1 swFwErrlog 2 swFwSnmptrap 3 swFwErrlogSnmptrap 4 swFwPortloglock 5 swFwErrlogPortloglock 6 swFwSnmptrapPortloglock 7 swFwErrlogSnmptrapPortloglock 8 swFwRn 9 swFwElRn 10 swFwStRn 11 swFwElStRn 12 swFwPlRn 13 swFwElPlRn 14 swFwStPlRn 15 swFwElStPlRn 16 swFwMailAlert 17 swFwMailAlertErrlog 18 swFwMailAlertSnmptrap 19 swFwMailAlertErrlogSnmptrap 20 swFwMailAlertPortloglock 21 swFwMailAlertErrlogPortloglock 22 swFwMailAlertSnmptrapPortloglock 23 swFwMailAlertErrlogSnmptrapPortloglock 24 swFwMailAlertRn 25 swFwElMailAlertRn 26 swFwMailAlertStRn 27 swFwMailAlertElStRn 28 swFwMailAlertPlRn 29 swFwMailAlertElPlRn 30 swFwMailAlertStPlRn 55 swFwMailAlertElStPlPf 63 swFwMailAlertElStPlRnPf
SwFwLevels	Integer	Threshold or Action levels: 1 swFwReserved (Not supported) 2 swFwDefault 3 swFwCustom Commands: • portthconfig To set port thresholds • thconfig To set other thresholds • sysmonitor --config To set ENV/RES class ENV- Environment, RES - Resource

TABLE 9 SW-MIB textual conventions (Continued)

Type definition	Value	Description
SwFwClassesAreas	Integer	Index of Fabric Watch classes and areas where thresholds can be monitored: Environment class: 1 swFwEnvTemp 2 swFwEnvFan (Not supported) 3 swFwEnvPS (Not supported) SFP class: 4 swFwTransceiverTemp 5 swFwTransceiverRxp 6 swFwTransceiverTxp 7 swFwTransceiverCurrent 57 swFwTransceiverVoltage Port class: 8 swFwPortLink 9 swFwPortSync 10 swFwPortSignal 11 swFwPortPe 12 swFwPortWords 13 swFwPortCrcs 14 swFwPortRXPerf 15 swFwPortTXPerf 16 swFwPortState 86 swFwPortLr 90 swFwPortC3Discard Fabric class: 17 swFwFabricEd 18 swFwFabricFr 19 swFwFabricDi 20 swFwFabricSc 21 swFwFabricZc 23 swFwFabricFl 24 swFwFabricGs F/FL Port (Optical) class: 43 swFwFOPPortLink 44 swFwFOPPortSync 45 swFwFOPPortSignal 46 swFwFOPPortPe 47 swFwFOPPortWords 48 swFwFOPPortCrcs 49 swFwFOPPortRXPerf 50 swFwFOPPortTXPerf 51 swFwFOPPortState 52 swFwFOPPortWords 89 swFwFOPPortLr 93 swFwFOPPortC3Discard 99 swFwFOPPortTrunkUtil EE Performance Monitor class: 54 swFwPerfEToERxCnt 55 swFwPerfEToETxCnt Filter Performance Monitor class: 56 swFwPerffltCusDef Security class: 58 swFwSecTelnetViolations 59 swFwSecHTTPViolations 60 swFwSecAPIViolations (not supported) 61 swFwSecRSNMPViolations (not supported) 62 swFwSecWSNMPViolations (not supported) 63 swFwSecSESViolations (not supported) 64 swFwSecMSViolations (not supported) 65 swFwSecSerialViolations (not supported) 66 swFwSecFPViolations (not supported) 67 swFwSecSCCViolations 68 swFwSecDCCViolations 69 swFwSecLoginViolations 70 swFwSecInvaledTS (not supported) 71 swFwSecInvalidSign (not supported) 72 swFwSecInvalidCert 73 swFwSecSlapFail 74 swFwSecSlapBadPkt (not supported) 75 swFwSecTSOutSync 76 swFwSecNoFcs 77 swFwSecIncompDB 78 swFwSecIllegalCmd E_Port class: 25 swFwEPortLink 26 swFwEPortSync 27 swFwEPortSignal 28 swFwEPortPe 29 swFwEPortWords 30 swFwEPortCrcs 31 swFwEPortRXPerf 32 swFwEPortTXPerf 33 swFwEPortState 84 swFwEPortUtil (not supported) 87 swFwEPortLr 91 swFwEPortC3Discard 97 swFwEPortTrunkUtil 94 swFwVEPortStateChange 95 swFwVEPortUtil 96 swFwVEPortPktLoss Resource class: 83 swFwResourceFlash

TABLE 9 SW-MIB textual conventions (Continued)

Type definition	Value	Description
EportUtil and EportPktl are the MIB defines used for VE ports for Legacy FCIP (FR4-18i router blade/Brocade 7500), while VEPortUtil and VEPortPktlLoss are used for VE ports for Brocade 7800 Extension Switch/FX8-24 DCX Extension Blade. In the index swFwEnvTemp, Env refers to Environment class and Temp refers to the area Temperature.		
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 7 lowBufferCrsd
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	Fabric Watch License state: 1 swFwLicensed 2 swFwNotLicensed

sw traps

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

From Fabric OS v6.2.0, the sw traps will have an extra binding associated to indicate the Virtual Fabric (VF). The traps will have a Virtual Fabric ID (VFID) associated with them.

For the fourteen traps defined in the SW-MIB and how to configure the trap, refer to Table 10.

TABLE 10 SW-MIB traps

Trap name	Commands to configure
"swFault" on page 47 (not supported)	N.A.
"swSensorScn" on page 47	N.A.
"swFCPortScn" on page 47	Always on
"swEventTrap" on page 48	For more information, refer to the **snmpConfig** command in the *Fabric OS Command Reference*.
"swFabricWatchTrap" on page 48	Fabric OS Command: **portthconfig, thconfig, sysmonitor –config**
"swTrackChangesTrap" on page 49	Fabric OS Command: **trackChangesSet** and **trackChangesShow**
"swIPv6ChangeTrap" on page 49	For more information, refer to the **snmpConfig** command in the *Fabric OS Command Reference*.
"swPmgrEventTrap" on page 49	
"swFabricReconfigTrap" on page 49	
"swFabricSegmentTrap" on page 50	
"swExtTrap" on page 50	
"swStateChangeTrap" on page 50	
"swPortMoveTrap" on page 50	
"swBrcdGenericTrap" on page 50	
"swDeviceStatusTrap" on page 50	

The swSsn variable is optional in trap messages.

Select either the previous behavior in which the Enterprise field is taken from sysObjectID or the new behavior in which the value in the Enterprise field will always be "sw":

- Set the value of this variable to 0, to use the sysObjectID.
- Set the value to 1 to use the fixed enterprise value, "sw" (1.3.6.1.4.1.1588.2.1.1.1.).

TABLE 11

Trap name and OID	Variables	Description
swFault 1.3.6.1.4.1.1588.2.1.1.1 .0.1	swDiagResult swSsn	This trap is no longer generated. A swFault is generated whenever the diagnostics detect a fault with the switch. #TYPE Switch is faulty. #SUMMARY Faulty reason: %d and SSN is #%s #ARGUMENTS 0, 1 #SEVERITY Critical #TIMEINDEX 1 #STATE Nonoperational
swSensorScn 1.3.6.1.4.1.1588.2.1.1.1 .0.2	swSensorStatus swSensorIndex swSensorType swSensorValue swSensorInfo swSsn	This object is obsoleted by swFabricWatchTrap. 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 #%s #ARGUMENTS 4, 0, 5 #SEVERITY Informational #TIMEINDEX 1 #STATE Operational
swFCPortScn 1.3.6.1.4.1.1588.2.1.1.1 .0.3	swFCPortOpStatus swFCPortIndex swFCPortName swFCPortWwn swFCPortPrevType swFCPortBrcdType swSsn swFCPortFlag swVfId	A swFCPortScn (3) is generated whenever an FC port changes its operational state or port type. The events that trigger this trap are as follows: • Port changes its state to online or offline. • Port type changes to E_port, F_port, or FL_port. The VarBind in the Trap Data Unit contains 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

TABLE 11

Trap name and OID	Variables	Description
swEventTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.4	swEventIndex swEventTimeInfo swEventLevel swEventRepeatCount swEventDescr swSsn swVfId	This trap is generated when an event occurs with a level that is at or below swEventTrapLevel. #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. To get more details on any particular event, refer to the *Fabric OS Message Reference*.
swFabricWatchTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.5	swFwClassAreaIndex swFwThresholdIndex swFwName swFwLabel swFwLastEventVal swFwLastEventTime swFwLastEvent swFwLastState swFwLastSeverityLevel swSsn swVfId	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.This event label is %d, event severity level is %d and SSN is #%s #ARGUMENTS 2, 0, 1, 6, 4, 5, 7, 3, 8, 9 #SEVERITY Warning #TIMEINDEX 1 #STATE Operational For information on setting thresholds in Fabric Watch, refer to the *Fabric Watch Administrator's Guide*. **NOTE:** This object is obsoleted.

TABLE 11

Trap name and OID	Variables	Description
swTrackChangesTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.6	swTrackChangesInfo swSsn swVfId	Trap to be sent for tracking log in, log out, or configuration changes. #TYPE Track changes has generated a trap. #SUMMARY %s and SSN is #%s #ARGUMENTS 0, 1 #SEVERITY Informational #TIMEINDEX 1 #STATE Operational Some of the triggers that will generate this trap are: • Log out • Unsuccessful log in • Successful log in • Switch configuration changes • Track changes on and off 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. **NOTE:** This trap is deprecated.
swIPv6ChangeTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.7	swIPv6Address swIPv6Status	This trap is generated when an IPv6 address status change event occurs. It is generated only when IPv6 stateless state changes to the deprecation state and not for address change notification.
swPmgrEventTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.8	swPmgrEventType swPmgrEventTime swPmgrEventDescr swSsn swVfId	This trap is generated when any partition manager change happens. This trap is generated when: • Logical switch is created or deleted. • Port is moved between logical switches. • Switch FID changes. • When any logical switch is changed to base switch. • VF is enabled or disabled.
swFabricReconfigTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.9	swDomainID	The trap to be sent for tracking fabric reconfiguration. This trap is generated under the following circumstances: • Two switches with the same domain ID have connected to one another. • Two fabrics have joined. • An E_Port has gone offline. • A principal link has segmented from the fabric. • Zone conflicts. • Domain conflicts. • Segmentation of the principal link between two switches. • Incompatible link parameters. During E_Port initialization, ports exchange link parameters. Rarely, incompatible parameters result in segmentation.

TABLE 11

Trap name and OID	Variables	Description
swFabricSegmentTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.10	swFCPortIndex swFCPortName swSsn swFCPortFlag swVfId	The trap to be sent for tracking segmentation changes.
swExtTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.11		The trap adds the SSN binding to the traps if it is enabled. This is an internal trap.
swStateChangeTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.12	swOperStatus swVfId	This trap is sent when the switch changes it state to online or offline. This trap is disabled by default.
swPortMoveTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.13	swPortList swVfId	This trap is sent when the ports are moved from one switch to another. This trap is disabled by default.
swBrcdGenericTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.14	swBrcdTrapBitMask swBrcdBitObjVal swVfId	This trap is sent for one of the following events: • fabric change • device change • FAPWWN change • FDMI events • Routing policy change • Diagnostics port configuration change • Polling status • Dynamic port name change • Dynamic port name feature enable/disable event This trap is enabled by default. **NOTE:** This trap is for internal use.
swDeviceStatusTrap 1.3.6.1.4.1.1588.2.1.1.1 .0.15	swFCPortSpecifier swDeviceStatus swEndDevicePortID swNsNodeName	This trap is sent whenever a device logs in or logs out.

Switch system group

TABLE 12

Object and OID	Access	Description
swSystem 1.3.6.1.4.1.1588.2.1.1.1.1	Not accessible	The OID sub-tree for switch system group.

swCurrentDate
1.3.6.1.4.1.1588.2.1.1.1.1.1
	Read only	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
	Read only	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`

TABLE 12

Object and OID	Access	Description

swFWLastUpdated
1.3.6.1.4.1.1588.2.1.1.1.1.3
	Read only	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`
		NOTE: This object is obsoleted.

swFlashLastUpdated
1.3.6.1.4.1.1588.2.1.1.1.1.4
	Read only	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
	Read only	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`

TABLE 12

Object and OID	Access	Description
swFirmwareVersion 1.3.6.1.4.1.1588.2.1.1.1.1.6	Read only	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 example, v6.1.0_main_bld36 describes firmware version 6.1.0 and the specific build number 36. Some versions may not have a build number and will appear as the version. For example, v6.1.0 indicates Fabric OS version 6.0.0.
swOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.7	Read only	The current operational status of the switch. 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	Read-write	The desired administrative status of the switch. A management station might place the switch in a desired state by setting this object accordingly. 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. When the switch is in faulty state, only two states can be set: faulty and reboot/fastboot For the Brocade 3250, 3850, 3900, 8000, 24000, 48000 and DCX director the testing (3) and faulty (4) values are not applicable. The possible values for Brocade 300, 5100 and 5300 are either online (1) or offline (2).

TABLE 12

Object and OID	Access	Description
swTelnetShellAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.9	Read-write	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. This OID is supported in Fabric OS v4.3 and later versions. 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. **NOTE:** This object is deprecated.
swSsn 1.3.6.1.4.1.1588.2.1.1.1.1.10	Read only	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 not supported through SNMP.		
swFlashDLOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.11	Read only	The operational status of the flash. This OID cannot be used for either Firmwaredownload or Configdownload (cannot be set and is read only). The value displayed is always “swCurrent (1)”.
swFlashDLAdmStatus 1.3.6.1.4.1.1588.2.1.1.1.1.12	Read-write	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. 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, refer to the *Fabric OS Command Reference*.
swFlashDLHost 1.3.6.1.4.1.1588.2.1.1.1.1.13	Read-write	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 read only) for Fabric OS v4.4 and later. The value displayed is always NULL (zero-length).This is not supported in Fabric OS v6.0.0 and later versions.

TABLE 12

Object and OID	Access	Description
swFlashDLUser 1.3.6.1.4.1.1588.2.1.1.1.1.14	Read-write	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 read only) for Fabric OS v4.4 and later. The value displayed is always NULL (zero-length).This is not supported in v6.0.0 and later versions.
swFlashDLFile 1.3.6.1.4.1.1588.2.1.1.1.1.15	Read-write	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 read only) for Fabric OS v4.4 and later. The value displayed is always NULL (zero-length).This is not supported in v6.0.0 and later versions.
swFlashDLPassword 1.3.6.1.4.1.1588.2.1.1.1.1.16	Read-write	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 read only) for Fabric OS v4.4 and later. The value displayed is always NULL (zero-length).This is not supported in v6.0.0 and later versions.
swBeaconOperStatus 1.3.6.1.4.1.1588.2.1.1.1.1.18	Read only	The current operational status of the switch beacon. 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	Read-write	The desired status of the switch beacon. 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	Read only	The result of the power-on startup test (POST) diagnostics. 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	Read only	The number of sensors inside the switch. The Brocade DCX value is between 1 and 57 (temperature =50, fan = 3, power supply = 4). The value might vary depending on the switch model. For Fabric OS v6.1.0, 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	Not accessible	Table of sensor entries. Table 13 lists the sensors on the Brocade switches. The sensors on the switches vary based on the blades. For the exact count of temperature sensors, refer to Table 14.
swSensorEntry 1.3.6.1.4.1.1588.2.1.1.1.1.22 .1	Not accessible	An entry of the sensor information.

TABLE 12

Object and OID	Access	Description
swSensorIndex 1.3.6.1.4.1.1588.2.1.1.1.1.22 .1.1	Read only	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	Read only	The type of sensor.
swSensorStatus 1.3.6.1.4.1.1588.2.1.1.1.1.22 .1.3	Read only	The current status of the sensor. Possible values are: • unknown (1) • faulty (2) • below-min (3) - The sensor value is below the minimal threshold. • nominal (4) • above-max (5) - The sensor value is above the maximum threshold. • 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	Read only	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
	Read only	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`

swTrackChangesInfo 1.3.6.1.4.1.1588.2.1.1.1.1.23	Read only	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 log in • Unsuccessful log in • Logout • Configuration file change from task [name of task] • Track-changes on • Track-changes off **NOTE:** This object is deprecated.
swID 1.3.6.1.4.1.1588.2.1.1.1.1.24	Read only	With VF-enabled fabric, the number of switches will be 0 to 128.

TABLE 12

Object and OID	Access	Description
swEtherIPAddress 1.3.6.1.4.1.1588.2.1.1.1.1.25	Read only	Supported in Fabric OS v6.2.0 and later releases. The IP address of the Ethernet interface of this switch.
swEtherIPMask 1.3.6.1.4.1.1588.2.1.1.1.1.26	Read only	The IP mask of the Ethernet interface of this switch.
swFCIPAddress 1.3.6.1.4.1.1588.2.1.1.1.1.27	Read only	The IP address of the FC interface of this switch.
swFCIPMask 1.3.6.1.4.1.1588.2.1.1.1.1.28	Read only	The IP mask of the FC interface of this switch.
swIPv6Address 1.3.6.1.4.1.1588.2.1.1.1.1.29	Not accessible	The IPv6 address. This object is not accessible.
swIPv6Status 1.3.6.1.4.1.1588.2.1.1.1.1.30	Not accessible	The current status of the IPv6 address. This object is not accessible.
swModel 1.3.6.1.4.1.1588.2.1.1.1.1.31	Read only	Indicates whether the switch is 7500 or 7500E.
swTestString 1.3.6.1.4.1.1588.2.1.1.1.1.32	Not accessible	Presence of this string represents test trap.
swPortList 1.3.6.1.4.1.1588.2.1.1.1.1.33	Not accessible	This string represents the list of ports and its WWN when the ports are moved from one switch to another.
swBrcdTrapBitMask 1.3.6.1.4.1.1588.2.1.1.1.1.34	Not accessible	This represents the type of notification by a single bit. 0x01 - Fabric change event 0x02 - Device change event 0x04 - FAPWWN change event 0x08 - FDMI events 0x0A - Routing policy change 0x10 - D-port configuraiton event 0x20 - SupportSave start/complete event 0x40 - Dynamic port name change 0x80 - Dynamic port name feature enable/disable
swFCPortPrevType 1.3.6.1.4.1.1588.2.1.1.1.1.35	Not accessible	This represents the port type of a port before it goes online or offline and it is valid only in swFcPortSCN trap. Valid values are: • unknown (1) • other (2) • fl-port (3) - public loop • f-port (4) - fabric port • e-port (5) - fabric expansion port • g-port (6) - generic fabric port • ex-port (7) • d-port(8)
swDeviceStatus 1.3.6.1.4.1.1588.2.1.1.1.1.36	Not accessible	This represents the status of the attached device. The status changes whenever the port or the node goes to online or offline state.

TABLE 12

Object and OID	Access	Description
swBrcdBitObjVal 1.3.6.1.4.1.1588.2.1.1.1.1.37	Not accessible	The object contains object value for each change mentioned in the swBrcdGenericTrap. It will be empty for the events which do not have any value.
swIODState 1.3.6.1.4.1.1588.2.1.1.1.1.38	Not accessible	The object represents the IOD feature state. Possible values are: • 1 - enabled • 2 - disabled • 3 - unknown

TABLE 13 Sensors on the various Brocade switches

Platform	Temp	Fans	Power supply	swNumSensors / connUnitNumSensors
Brocade 300	3 sensors	3 fans	1 PS	7
Brocade 5100	4 sensors	2 fans	2 PS	8
Brocade 5300	3 sensors	3 fans	2 PS	8
Brocade 5410	3 sensors	NA	NA	3
Brocade 5424	3 sensors	NA	NA	3
Brocade 5450	2 sensors	NA	NA	2
Brocade 5460	2 sensors	NA	NA	2
Brocade 5470	2 sensors	NA	NA	2
Brocade 5480	2 sensors	NA	NA	2
Brocade 7800 Extension Switch	3 sensor	2 fans	2 PS	7
Brocade DCX	16+ sensors	3 fans	4 PS	23+
Brocade DCX-4S	16+ sensors	3 fans	4 PS	23+
Brocade 6505	4 sensors	2 fans	2 PS	8
Brocade 6510	4 sensors	2 fans	2 PS	8
Brocade 6520	4 sensors	2 fans	2 PS	8
Brocade DCX 8510-8 Backbone	58+ sensors	3 fans	4 PS	65+
Brocade DCX 8510-4 Backbone	35+ sensors	2 fans	2 PS	39+
Brocade VA-40FC	4 sensors	2 fans	2 PS	8

TABLE 14 Blade table

Model	Temp sensors
FC10-6	1 sensor
FR4-18i	5 sensors
FA4-18 18	5 sensors
FC4-16IP	5 sensors
FS8-18	5 sensors

TABLE 14 Blade table (Continued)

Model	Temp sensors
FX8-24	3 sensors
FCOE10-24	5 sensors
FC8-16	5 sensors
FC8-32	7 sensors
FC8-48	7 sensors
FC8-64	8 sensors
FC8-32E	7 sensors
FC8-48E	7 sensors
CP8	4 sensors
Core8	4 sensors
CR4S-8	4 sensors

Switch Fabric group

TABLE 15

Object and OID	Access	Description
swFabric 1.3.6.1.4.1.1588.2.1.1.1 .2	Not accessible	The OID sub-tree for the switch Fabric group.
swDomainID 1.3.6.1.4.1.1588.2.1.1.1 .2.1	Read-write	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	Read only	Indicates whether the switch is the principal switch. Possible values are: • yes (1) • no (2)
swNumNbs 1.3.6.1.4.1.1588.2.1.1.1 .2.8	Read only	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	Not accessible	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	Not accessible	An entry containing each neighbor ISL parameters.
swNbIndex 1.3.6.1.4.1.1588.2.1.1.1 .2.9.1.1	Read only	The index for neighborhood entry.
swNbMyPort 1.3.6.1.4.1.1588.2.1.1.1 .2.9.1.2	Read only	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.

TABLE 15

Object and OID	Access	Description
swNbRemDomain 1.3.6.1.4.1.1588.2.1.1.1 .2.9.1.3	Read only	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	Read only	This is the port index on the other end of the ISL. The physical port number of the remote switch, plus 1.
swNbBaudRate 1.3.6.1.4.1.1588.2.1.1.1 .2.9.1.5	Read only	The baud rate of the ISL. It is always unknown (0). 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. • octuple (128) - 8 Gbaud. • decuple (256) - 10 Gbaud. • sexdecuple (512) - 16 Gbaud The valid values for the Brocade DCX are double (32), quadruple (64), and octuple (128).
swNbIslState 1.3.6.1.4.1.1588.2.1.1.1 .2.9.1.6	Read only	The current state of the ISL. The possible values are as follows. • 0 - ISL is down. • 1 - ISL is initiating and not yet operational. • 2, 3, 4, - Used for notification of internal states. • 5 - ISL is active.
swNbIslCost 1.3.6.1.4.1.1588.2.1.1.1 .2.9.1.7	Read-write	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	Read only	The WWN of the remote port.
swFabricMemTable 1.3.6.1.4.1.1588.2.1.1.1 .2.10	Not accessible	This table contains information on the member switches of a fabric. Supported in Fabric OS v2.6.1 and not v3.2.0. This is not available in v6.2.0 and later releases.
swIDIDMode 1.3.6.1.4.1.1588.2.1.1.1 .2.11	Read only	This identifies the status of Insistent Domain ID (IDID) mode. Status indicating if IDID mode is enabled or not.
swPmgrEventType 1.3.6.1.4.1.1588.2.1.1.1 .2.12	Not accessible	This indicates partition manager event type. This OID identifies the following events: • create (0) • delete (1) • moveport (2) • fidchange (3) • basechange (4) • vfstatechange (5)
swPmgrEventTime 1.3.6.1.4.1.1588.2.1.1.1 .2.13	Not accessible	This object identifies the date and time when any events mentioned in swPmgrEventType occur, in textual format.

TABLE 15

Object and OID	Access	Description
swPmgrEventDescr 1.3.6.1.4.1.1588.2.1.1.1 .2.14	Not accessible	This object identifies the textual description of the events mentioned in swPmgrEventType.
swVfId 1.3.6.1.4.1.1588.2.1.1.1 .2.15	Read only	The virtual Fabric ID of the switch.
swVfName 1.3.6.1.4.1.1588.2.1.1.1 .2.16	Read only	This represents the virtual switch name configured in the switch.

Switch agent configuration group

TABLE 16

Object and OID	Access	Description
swAgtCfg 1.3.6.1.4.1.1588.2.1.1.1 .4	Not accessible	The OID sub-tree for switch agent configuration group.
swAgtCmtyTable 1.3.6.1.4.1.1588.2.1.1.1 .4.11	Not accessible	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. **NOTE:** This table is deprecated in Fabric OS v7.0. Use the tables snmpTargetAddrTable, snmpTargetParamsTable, snmpCommunityTable to get the required data.
swAgtCmtyEntry 1.3.6.1.4.1.1588.2.1.1.1 .4.11.1	Not accessible	An entry containing the community parameters.
swAgtCmtyIdx 1.3.6.1.4.1.1588.2.1.1.1 .4.11.1.1	Read only	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	Read-write	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 **snmpconfig** command.

TABLE 16

Object and OID	Access	Description
swAgtTrapRcp 1.3.6.1.4.1.1588.2.1.1.1 .4.11.1.3	Read-write	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 (refer to the *Fabric OS Command Reference* and the **snmpConfig** command for more information).
swAgtTrapSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1 .4.11.1.4	Read-write	This is the trap severity level associated with "swAgtTrapRcp". The trap severity level, is 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".

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.

TABLE 17

Object and OID	Access	Description
swFCport 1.3.6.1.4.1.1588.2.1.1.1.6	Not accessible	The OID sub-tree for Fibre Channel port group.
swFCPortCapacity 1.3.6.1.4.1.1588.2.1.1.1.6.1	Read only	The maximum number of Fibre Channel ports on this switch. It includes G_Port, F_Port, FL_Port and any other types of Fibre Channel port.
swFCPortTable 1.3.6.1.4.1.1588.2.1.1.1.6.2	Not accessible	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	Not accessible	An entry containing the configuration and service parameters of the switch port.
swFCPortIndex 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.1	Read only	The switch port index. The value of swFCPortIndex is 1 higher than the actual port index. For example, a swFCPortIndex of 1 corresponds to the actual port index of 0.

TABLE 17

Object and OID	Access	Description
swFCPortType 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.2	Read only	The type of ASIC for the switch port. Possible values are: • stitch (1) • flannel (2) • loom (3) (Brocade 2000 series) • bloom (4) (Valid value for Brocade 3250, 3850, 3900, 12000, 24000) • rdbloom (5) • wormhole (6) • other (7) (Valid value for Brocade 200E, 4012, 4100, 4900, 7500, 7600, 48000, 300, 5100 and 5300) • unknown (8)
swFCPortPhyState 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.3	Read only	The physical state of the port. 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) - The port is locking to the reference signal. • validating (10) - The module is being validated. • invalidModule (11) - The module is invalid. • noSigDet (14) - No Signal is detected in the port. • unknown (255) - The module is unknown.
swFCPortOpStatus 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.4	Read only	The operational status of the port. 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	Read-write	The desired state of the port. A management station might place the port in a desired state by setting this object accordingly. Based on the port status, this OID returns one of the following: • Online - When queried port is online. • Offline - When queried port is offline. • Faulty - When port is in faulty state. The following values can be used to set this object: • Online - To change port's state to Online. • Offline - To change port's state to Offline.

TABLE 17

Object and OID	Access	Description
swFCPortLinkState 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.6	Read-write	Indicates the link state of the port. When the port's link state changes, its operational status (swFCPortOpStatus) is affected. 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	Read only	Indicates the media transmitter type of the port. 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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	Counts the number of Class 3 frames that the port has received.
swFCPortRxLCs 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.17	Read only	Counts the number of link control frames that the port has received.
swFCPortRxMcasts 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.18	Read only	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	Read only	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	Read only	Counts the number of times that the transmit credit has reached 0.

TABLE 17

Object and OID	Access	Description
swFCPortRxEncInFrs 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.21	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	Counts the number of invalid ordered sets received.
swFCPortC3Discards 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.28	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	The WWN of the Fibre Channel port. The contents of an instance are in IEEE extended format, as specified in FC-PH.

TABLE 17

Object and OID	Access	Description
swFCPortSpeed 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.35	Read-write	The desired baud rate for the port. The baud rate can be 1 Gbps, 2 Gbps, autonegotiate, or 4 Gbps or 8 Gbps. 4 Gbps is only applicable to the Brocade 4100, 4900, 7500, 7600, and 48000. 8 Gbps is only applicable to the Brocade DCX director. **NOTE:** This object is obsoleted.
swFCPortName 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.36	Read only	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	Read only	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 LISL, the value is -1/<port #>.
swFCPortFlag 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.38	Read only	This string is a bit map of the port status flags, including the port type. • physical (0) • virtual (1)
swFCPortBrcdType 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.39	Read only	This string indicates the Brocade port type. Valid values: • unknown(1) • other(2) • fl-port(3) • f-port(4) • e-port(5) • g-port(6) • ex-port(7)
swFCPortDisableReason 1.3.6.1.4.1.1588.2.1.1.1.6.2 .1.40	not-accessible	This string indicates the state change reason when a port goes from online to offline.

Name Server database group

TABLE 18

Object and OID	Access	Description
swNs 1.3.6.1.4.1.1588.2.1.1.1.7	Not accessible	The OID sub-tree for Name Server database group.
swNsLocalNumEntry 1.3.6.1.4.1.1588.2.1.1.1.7.1	Read only	The number of local Name Server entries.
swNsLocalTable 1.3.6.1.4.1.1588.2.1.1.1.7.2	Not accessible	The table of local Name Server entries.
swNsLocalEntry 1.3.6.1.4.1.1588.2.1.1.1.7.2.1	Not accessible	An entry from the local Name Server database.

TABLE 18

Object and OID	Access	Description
swNsEntryIndex 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.1	Read only	The index of the Name Server database entry.
swNsPortID 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.2	Read only	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	Read only	The type of port for this entry. 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	Read only	The Fibre Channel WWN of the port entry.
swNsPortSymb 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.5	Read only	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	Read only	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	Read only	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	Read only	The Initial Process Associators of the node for the entry as defined in FC-GS-2. This value is read only and cannot be changed.
swNsIpAddress 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.9	Read only	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	Read only	The class of services supported by the port. This value is a hard-coded bitmap and indicates the supported services as follows: • Class F (1) • Class 1 (2) • Class F-1 (3) • Class 2 (4) • Class F-2 (5) • Class 1-2 (6) • Class F-1-2 (7) • Class 3 (8) • Class F-3 (9) • Class 1-3 (10) • Class F-1-3 (11) • Class 2-3 (12) • Class F-2-3 (13) • Class 1-2-3 (14) • Class F-1-2-3 (15)
swNsFc4 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.11	Read only	The FC-4s supported by the port, as defined in FC-GS-2.

TABLE 18

Object and OID	Access	Description
swNsIpNxPort 1.3.6.1.4.1.1588.2.1.1.1.7.2.1.12	Read only	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	Read only	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	Read only	The object identifies the 24-bit hard address of the node for the entry.

Event group

swEventTable identifies the error log messages by the switch. It can only have a maximum of 1024 entries.

TABLE 19

Object and OID	Access	Description
swEvent 1.3.6.1.4.1.1588.2.1.1.1.8	Not accessible	The OID sub-tree for switch event group.
swEventTrapLevel 1.3.6.1.4.1.1588.2.1.1.1.8.1	Read-write	Deprecated. "swAgtTrapSeverityLevel", 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"and "swAgtTrapSeverityLevel".
swEventNumEntries 1.3.6.1.4.1.1588.2.1.1.1.8.4	Read only	The number of entries in the event table. For Fabric OS v6.0 and later, the value ranges from 0 to 1024.
swEventTable 1.3.6.1.4.1.1588.2.1.1.1.8.5	Not accessible	The table of event entries. The events will be received from the CHASSIS and the created logical switches. Only external RASlog messages are supported. These external messages are documented in the *Fabric OS Message Reference*.
swEventEntry 1.3.6.1.4.1.1588.2.1.1.1.8.5.1	Not accessible	An entry of the event table.
swEventIndex 1.3.6.1.4.1.1588.2.1.1.1.8.5.1.1	Read only	Every RASLOG message is identified with a unique number which is swEventIndex.

TABLE 19

Object and OID	Access	Description
swEventTimeInfo 1.3.6.1.4.1.1588.2.1.1.1 .8.5.1.2	Read only	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	Read only	The severity level of this event entry. Possible values are: • critical (1) • error (2) • warning (3) • informational (4) • debug (5)
swEventRepeatCount 1.3.6.1.4.1.1588.2.1.1.1 .8.5.1.4	Read only	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	Read only	A textual description of the event. For Fabric OS v6.2.0 and later releases, 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, refer to the *Fabric OS Message Reference*.
swEventVfid 1.3.6.1.4.1.1588.2.1.1.1 .8.5.1.6	Read only	This object identifies the Virtual Fabric ID.

Fabric Watch group

NOTE
From FOS v7.4.0 release, Fabric Watch feature is deprecated and therefore the following table is obsolete.

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", 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", contains individual threshold information such as name, label, last event, and so forth. The thresholds are contained in "swFwThresholdEntry".

TABLE 20

Object and OID	Access	Description
swFwSystem 1.3.6.1.4.1.1588.2.1.1.1.10	Not accessible	The OID sub-tree for switch Fabric Watch group.
swFwFabricWatchLicense 1.3.6.1.4.1.1588.2.1.1.1.10.1	Read only	This OID indicates whether the switch has proper Fabric Watch license or not. 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	Not accessible	The table of classes and areas.
swFwClassAreaEntry 1.3.6.1.4.1.1588.2.1.1.1.10.2.1	Not accessible	An entry of the classes and areas.
swFwClassAreaIndex 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.1	Read only	This index represents the Fabric Watch classArea combination. For the class areas configured in the switch, use the **thconfig --show** <*class_name*> command.
swFwWriteThVals 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.2	Read-write	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	Read only	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	Read only	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	Read only	A default low threshold value.
swFwDefaultHigh 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.6	Read only	A default high threshold value.
swFwDefaultBufSize 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.7	Read only	A default buffer size value.
swFwCustUnit 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.8	Read only	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).

TABLE 20

Object and OID	Access	Description
swFwCustTimebase 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.9	Read-write	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	Read-write	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	Read-write	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	Read-write	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	Read-write	This object 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	Read-write	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	Read only	Default action matrix for changed event.

TABLE 20

Object and OID	Access	Description
swFwDefaultExceededActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.16	Read only	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	Read only	Default action matrix for below event.
swFwDefaultAboveActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.18	Read only	Default action matrix for above event.
swFwDefaultInBetweenActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.19	Read only	Default action matrix for in-between event.
swFwCustChangedActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.20	Read-write	Custom action matrix for changed event.
swFwCustExceededActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.21	Read-write	Custom action matrix for an exceeded event.
swFwCustBelowActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.22	Read-write	Custom action matrix for below event.
swFwCustAboveActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.23	Read-write	Custom action matrix for above event.
swFwCustInBetweenActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.24	Read-write	Custom action matrix for in-between event.
swFwValidActs 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.25	Read only	Matrix of valid acts for a classArea.
swFwActLevel 1.3.6.1.4.1.1588.2.1.1.1.10.2.1.26	Read-write	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	Not accessible	The table of individual thresholds.
swFwThresholdEntry 1.3.6.1.4.1.1588.2.1.1.1.10.3.1	Not accessible	An entry of an individual threshold.

TABLE 20

Object and OID	Access	Description
swFwThresholdIndex 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.1	Read only	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	Read-write	Indicates whether a threshold is enabled or disabled.
swFwName 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.3	Read only	Name of the threshold. For examples of swFwName objects and object types, refer to Table 21.
swFwLabel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.4	Read only	Label of the threshold. Refer to "swFwName" on page 73.
swFwCurVal 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.5	Read only	Current counter of the threshold.
swFwLastEvent 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.6	Read only	Last event type of the threshold. Valid values: • started (1) • changed (2) • exceeded (3) • below (4) • above (5) • inBetween (6) • lowBufferCrsd (7)
swFwLastEventVal 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.7	Read only	Last event value of the threshold.

TABLE 20

Object and OID	Access	Description
swFwLastEventTime 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.8	Read only	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	Read only	Last state type of the threshold. Valid values: • swFW faulty • swInformative • swnormal or Inbetween
swFwBehaviorType 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.10	Read-write	A behavior of which the thresholds generate event. Valid values: • Triggered • Continuous
swFwBehaviorInt 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.11	Read-write	An integer of which the thresholds generate continuous event. This is non-persistent.
swFwLastSeverityLevel 1.3.6.1.4.1.1588.2.1.1.1.10.3.1.12	Read only	This object is a last event severity level of the threshold. This object obsoletes "swEventTrapLevel". Valid values are as follows: • None • Critical • Error • Warings • Informational • Debug

TABLE 21 swFwName objects and object types

swFwName objects (swFwName)	Object types (Threshold names)
envFan001	Env Fan 1 (Not supported)
envPS002	Env Power Supply 2 (Not supported)
envTemp001	Env Temperature 1
sfpTemp001	GBIC Temperature 1
sfpRXP001	GBIC RX power 1
sfpTXP001	GBIC TX power 1
sfpCrnt001	GBIC Current 1
sfpVolt001	SFP Voltage 1
sfpGS000	SFP GBIC change 0
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

TABLE 21 swFwName objects and object types (Continued)

swFwName objects (swFwName)	Object types (Threshold names)
eportTXPerf007	E Port TX Performance 7
eportWords007	E Port Invalid Words 7
eportLinkreset007	E Port Link Reset 7
eportUtil007	E Port Util 7 (Not supported)
eportTrunkUtil007	E Port Trunk Util 7
eportc3DiscardTo007	E Port C3 Discard 7
eportPktl007	E Port Packet Loss 7 (Not supported)
fabricDI000	Fabric Domain ID
fabricED000	Fabric E-port down
fabricFL000	Fabric Fabric login
fabricFQ000	Fabric Fabric<->QL (Not supported)
fabricFR000	Fabric Reconfigure
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
fcuportWords013	FCU Port Invalid Words 13
portCRCs000	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
portLinkReset000	Port Link Reset 0
portc3DiscardTo000	Port C3 Discard 0
fopportCRCs013	FOP Port Invalid CRCs 13
fopportLink013	FOP Port Link Failures 13

TABLE 21 swFwName objects and object types (Continued)

swFwName objects (swFwName)	Object types (Threshold names)
fopportProtoErr0	FOP Port Protocol Errors 13
fopportRXPerf013	FOP Port RX Performance 13
fopportSignal013	FOP Port Loss of Signal 13
fopportState013	FOP Port State Changes 13
fopportSync013	FOP Port Loss of Sync 13
fopportTXPerf013	FOP Port TX Performance 13
fopportWords013	FOP Port Invalid Words 13
fopportTrunkUtil013	FOP Port Trunk Util 13
secTelnet000	Security Telnet Violations 0
eeperfRX	End-to-end RX Performance
eeperfTX	End-to-end TX Performance
filters001	Filter performance 001
secHTTP000	Security HTTP Violations 0
secAPI000	Security API Violations 0 (Not supported)
secRSNMP000	Security RSNMP Violations 0 (Not supported)
secWSNMP000	Security WSNMP Violations 0 (Not supported)
secSES000	Security SES Violations 0 (Not supported)
secMS000	Security MS Violations 0 (Not supported)
secSerial000	Security Serial Violations 0 (Not supported)
secPanel000	Security Front Panel Violations 0 (Not supported)
secSCC000	Security SCC Violations 0
secDCC000	Security DCC Violations 0
secLogin000	Security Login Violations 0
secInvTS000	Security Invalid Timestamps 0 (Not supported)
secInvSign000	Security Invalid Signatures 0 (Not supported)
secInvCert000	Security Invalid Certificates 0
secSlapFail000	Security SLAP Failures 0
secSlapBP000	Security SLAP Bad Packets 0 (Not supported)
secTSSync000	Security TS Out of Sync 0
secNoFCS000	Security No-FCS 0
secIncDB000	Incompatible Security DB 0
secILLCmd000	Security Illegal Command 0
resFlash000	Resource Flash 0

EportUtil and EportPktl are the MIB defines used for VE ports for Legacy FCIP (FR4-18i router blade/Brocade 7500) while VEPortUtil and VEPortPktlLoss are used for VE ports for Brocade 7800 Extension Switch/FX8-24 DCX Extension Blade.

NOTE
The FCU port is supported on the following platforms only:
Brocade 3016
Brocade 3014
Brocade 4012
Brocade 4020
Brocade 4016
Brocade 4024
Brocade 4018
Brocade 4424
Brocade 5440
Brocade 5450
Brocade 5460
Brocade 5410
Brocade 5480
Brocade 5470

End device group

TABLE 22

Object and OID	Access	Description
swEndDevice 1.3.6.1.4.1.1588.2.1.1.1.21	Not accessible	The OID sub-tree for end device group.
swEndDeviceRlsTable 1.3.6.1.4.1.1588.2.1.1.1.21.1	Not accessible	The table of RLS for individual end devices.
swEndDeviceRlsEntry 1.3.6.1.4.1.1588.2.1.1.1.21.1.1	Not accessible	An entry of an individual end devices' RLS. Since Brocade 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	Not accessible	This object represents the port of the local switch to which the end device is connected. This is an obsolete entry and does not show any value.
swEndDeviceAlpa 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.2	Not accessible	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. This is an obsolete entry and does not show any value.
swEndDevicePortID 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.3	Read only	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	Read only	Link failure count for the end device.
swEndDeviceSyncLoss 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.5	Read only	Sync loss count for the end device.
swEndDeviceSigLoss 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.6	Read only	Signal loss count for the end device.
swEndDeviceProtoErr 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.7	Read only	Protocol error count for the end device.

TABLE 22

Object and OID	Access	Description
swEndDeviceInvalidWord 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.8	Read only	Invalid word count for the end device.
swEndDeviceInvalidCRC 1.3.6.1.4.1.1588.2.1.1.1.21.1.1.9	Read only	Invalid CRC count for the end device.

Switch group

Switch group is not supported.

TABLE 23

Object and OID	Access	Description
swGroup 1.3.6.1.4.1.1588.2.1.1.1.22	Not accessible	The OID sub-tree for switch group.
swGroupTable 1.3.6.1.4.1.1588.2.1.1.1.22.1	Not accessible	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	Not accessible	An entry of table of groups.
swGroupIndex 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.1	Read only	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	Read only	This object identifies the name of the group. **NOTE:** This object is obsolete.
swGroupType 1.3.6.1.4.1.1588.2.1.1.1.22.1.1.3	Read only	This object identifies the type of the group. **NOTE:** This object is obsolete.
swGroupMemTable 1.3.6.1.4.1.1588.2.1.1.1.22.2	Not accessible	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	Not accessible	An entry for a member of a group.
swGroupID 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.1	Read only	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	Read only	This object identifies the WWN of the member switch.
swGroupMemPos 1.3.6.1.4.1.1588.2.1.1.1.22.2.1.	Read only	This object identifies the position of the member switch in the group, based on the order that the switches were added in the group. **NOTE:** This object is obsolete.

Bloom performance monitor group

From Fabric OS v7.4.0 release, the following table is obsoleted.

TABLE 24

Object and OID	Access	Description
swBlmPerfMnt 1.3.6.1.4.1.1588.2.1.1.1.23	Not accessible	The OID sub-tree for bloom performance monitor group.
swBlmPerfALPAMntTable 1.3.6.1.4.1.1588.2.1.1.1.23.1	Not accessible	AL_PA monitoring counter table. For the Brocade 4100, 12 filter monitors per port are supported.
swBlmPerfALPAMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.1.1	Not accessible	AL_PA monitoring counter for given AL_PA.
swBlmPerfAlpaPort 1.3.6.1.4.1.1588.2.1.1.1.23.1.1.1	Read only	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	Read only	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	Read only	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	Read only	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 Brocade 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	Not accessible	End-to-end monitoring counter table.
swBlmPerfEEMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.2.1	Not accessible	End-to-end monitoring counter for given port.
swBlmPerfEEPort 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.1	Read only	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	Read only	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	Read only	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	Read only	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	Read only	Get end-to-end count of Fibre Channel words (FCW) transmitted by the port that matched the SID-DID pair.

TABLE 24

Object and OID	Access	Description
swBlmPerfEESid 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.6	Read only	Gets DID information by reference number.
swBlmPerfEEDid 1.3.6.1.4.1.1588.2.1.1.1.23.2.1.7	Read only	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	Not accessible	Filter-based monitoring counter. To configure the predefined monitors on port, use the **fmmonitor –addmonitor** <*frame_type*> -**port** <*slot/port_list*> command. To configure the user-defined monitors on port, use one of the following commands: • **fmmonitor –create** <*frame_type*> -**pat** <*bitpattern*> [-**port** <*slot/port_list*>] • **fmmonitor –addmonitor** <*frame_type*> -**port** <*slot/port_list*>
swBlmPerfFltMntEntry 1.3.6.1.4.1.1588.2.1.1.1.23.3.1	Not accessible	Filter-based monitoring counter for given port.
swBlmPerfFltPort 1.3.6.1.4.1.1588.2.1.1.1.23.3.1.1	Read only	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	Read only	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	Read only	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	Read only	Alias name for the filter.

Trunking group

TABLE 25

Object and OID	Access	Description
swTrunk 1.3.6.1.4.1.1588.2.1.1.1.24	Not accessible	The OID sub-tree for swTrunk group.
swSwitchTrunkable 1.3.6.1.4.1.1588.2.1.1.1.24.1	Not accessible	This object indicates whether the switch supports the trunking feature or not: • no (0) • yes (8)
swTrunkTable 1.3.6.1.4.1.1588.2.1.1.1.24.2	Not accessible	This object displays trunking information for the switch. For the Brocade 4100, cc ports per trunk are supported.

TABLE 25

Object and OID	Access	Description
swTrunkEntry 1.3.6.1.4.1.1588.2.1.1.1.24.2.1	Not accessible	Entry for the trunking table.
swTrunkPortIndex 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.1	Read only	This object identifies the switch port index. The value of a port index is extracted from the second octet of the port WWN stored in swFCPortWwn (refer to "swFCPortWwn" in the Fibre Channel port group).
swTrunkGroupNumber 1.3.6.1.4.1.1588.2.1.1.1.24.2.1.2	Read only	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	Read only	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	Read only	The active trunk status of the member port. Valid values: • enabled (1) • disabled (0)
swTrunkGrpTable 1.3.6.1.4.1.1588.2.1.1.1.24.3	Not accessible	The table displays trunking performance information for the switch.
swTrunkGrpEntry 1.3.6.1.4.1.1588.2.1.1.1.24.3.1	Not accessible	Entry for the trunking group table.
swTrunkGrpNumber 1.3.6.1.4.1.1588.2.1.1.1.24.3.1.1	Read only	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	Read only	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	Read only	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	Read only	Gives the aggregate value of the received words by this trunk group. **NOTE:** 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.

Toptalker group

From Fabric OS v7.4.0 release, the following table is deprecated.

TABLE 26

Object and OID	Access	Description
swTopTalker 1.3.6.1.4.1.1588.2.1.1.1.25	Not accessible	The OID sub-tree for TopTalker group.
swTopTalkerMntMode 1.3.6.1.4.1.1588.2.1.1.1.25.1	Read only	This object gives the mode in which toptalker is installed. Possible modes: • Fabricmode (1) • portmode (2)
swTopTalkerMntNumEntries 1.3.6.1.4.1.1588.2.1.1.1.25.2	Read only	This object provides the number of toptalking flows that are existing in the switch.
swTopTalkerMntTable 1.3.6.1.4.1.1588.2.1.1.1.25.3	Not accessible	Table to display toptalking flows.
swTopTalkerMntEntry 1.3.6.1.4.1.1588.2.1.1.1.25.3.1	Not accessible	Entry for the toptalking flows.
swTopTalkerMntIndex 1.3.6.1.4.1.1588.2.1.1.1.25.3.1.1	Read only	This object identifies the list/object entry. The possible values are one to maximum number of entries.
swTopTalkerMntPort 1.3.6.1.4.1.1588.2.1.1.1.25.3.1.2	Read only	This object identifies the switch port number on which the F_Port mode toptalker is added. This attribute is applicable to F_Port mode only.
swTopTalkerMntSpid 1.3.6.1.4.1.1588.2.1.1.1.25.3.1.3	Read only	This object identifies the SID of the host. **NOTE:** SNMP response for this object will be in decimal format. You must convert the response to hexadecimal format to get the exact PID.
swTopTalkerMntDpid 1.3.6.1.4.1.1588.2.1.1.1.25.3.1.4	Read only	This object identifies the DID of the SID-DID pair.
swTopTalkerMntflow 1.3.6.1.4.1.1588.2.1.1.1.25.3.1.5	Read only	This object identifies the traffic flow in MB/sec.
swTopTalkerMntSwwn 1.3.6.1.4.1.1588.2.1.1.1.25.3.1.6	Read only	This object identifies the SID of the host in WWN format.
swTopTalkerMntDwwn 1.3.6.1.4.1.1588.2.1.1.1.25.3.1.7	Read only	This object identifies the DID of the SID-DID pair in WWN format.

CPU or memory usage group

The memory usage of a system indicates the system's RAM. This table is supported on MAPS enabled switches.

TABLE 27

Object and OID	Access	Description
swCpuOrMemoryUsage 1.3.6.1.4.1.1588.2.1.1.1.26	Not accessible	The object identifier sub-tree for CPU or memory usage group.
swCpuUsage 1.3.6.1.4.1.1588.2.1.1.1.26.1	Read only	The system's CPU usage.
swCpuNoOfRetries 1.3.6.1.4.1.1588.2.1.1.1.26.2	Read only	The number of times the system should take a CPU utilization sample before sending the CPU utilization trap.
swCpuUsageLimit 1.3.6.1.4.1.1588.2.1.1.1.26.3	Read only	The CPU usage limit. **NOTE:** This object is not supported on MAPS-enabled switches.
swCpuPollingInterval 1.3.6.1.4.1.1588.2.1.1.1.26.4	Read only	The time after which the next CPU usage value will be recorded.
swCpuAction 1.3.6.1.4.1.1588.2.1.1.1.26.5	Read only	The action to be taken if the CPU usage exceeds the specified threshold limit. **NOTE:** This object is not supported on MAPS-enabled switches.
swMemUsage 1.3.6.1.4.1.1588.2.1.1.1.26.6	Read only	The system's memory usage.
swMemNoOfRetries 1.3.6.1.4.1.1588.2.1.1.1.26.7	Read only	The number of times the system should take a memory usage sample before sending the Fabric Watch trap that indicates the current memory usage.
swMemUsageLimit 1.3.6.1.4.1.1588.2.1.1.1.26.8	Read only	The memory usage limit. This OID specifies the in-between threshold value.
swMemPollingInterval 1.3.6.1.4.1.1588.2.1.1.1.26.9	Read only	The time after which the next memory usage sample will be taken.
swMemAction 1.3.6.1.4.1.1588.2.1.1.1.26.10	Read only	The action to be taken if the memory usage exceed the specified threshold limit. **NOTE:** This object is not supported on MAPS-enabled switches.
swMemUsageLimit1 1.3.6.1.4.1.1588.2.1.1.1.26.11	Read only	This OID specifies the low threshold value. **NOTE:** This object is not supported on MAPS-enabled switches.
swMemUsageLimit3 1.3.6.1.4.1.1588.2.1.1.1.26.12	Read only	This OID specifies the high threshold value. **NOTE:** This object is not supported on MAPS-enabled switches.

Switch connectivity unit port statistics extension table

This table is an extension of connectivity unit port statistics table. This table can be queried only if the FA-MIB is enabled.

TABLE 28

Object and OID	Access	Description
swConnUnitPortStatExtentionTable 1.3.6.1.4.1.1588.2.1.1.1.27	Not accessible	This table represents the connectivity unit port statistics.
swConnUnitPortStatEntry 1.3.6.1.4.1.1588.2.1.1.1.27.1	Not accessible	This represents the connectivity unit port statistics.
swConnUnitCRCWithBadEOF 1.3.6.1.4.1.1588.2.1.1.1.27.1.1	Read only	The number of frames with CRC error having Bad EOF.
swConnUnitZeroTenancy 1.3.6.1.4.1.1588.2.1.1.1.27.1.2	Read only	This counter is incremented when the FL_port acquires the loop, but does not transmit a frame.
swConnUnitFLNumOfTenancy 1.3.6.1.4.1.1588.2.1.1.1.27.1.3	Read only	This counter is incremented when the FL_port acquires the loop.
swConnUnitNLNumOfTenancy 1.3.6.1.4.1.1588.2.1.1.1.27.1.4	Read only	This counter is incremented when the NL_port acquires the loop.
swConnUnitStopTenancyStarVation 1.3.6.1.4.1.1588.2.1.1.1.27.1.5	Read only	This counter is incremented when the FL_port cannot transmit a frame because of lack of credit.
swConnUnitOpend 1.3.6.1.4.1.1588.2.1.1.1.27.1.6	Read only	The number of times FC port entered OPENED state.
swConnUnitTransferConnection 1.3.6.1.4.1.1588.2.1.1.1.27.1.7	Read only	The number of times FC port entered TRANSFER state.
swConnUnitOpen 1.3.6.1.4.1.1588.2.1.1.1.27.1.8	Read only	The number of times FC port entered OPEN state.
swConnUnitInvalidARB 1.3.6.1.4.1.1588.2.1.1.1.27.1.9	Read only	The number of times FC port received invalid ARB.
swConnUnitFTB1Miss 1.3.6.1.4.1.1588.2.1.1.1.27.1.10	Read only	This counter is incremented when the port receives a frame with a DID that cannot be routed by FCR. Applicable to 8G platforms only.
swConnUnitFTB2Miss 1.3.6.1.4.1.1588.2.1.1.1.27.1.11	Read only	This counter is incremented when the port receives a frame with an SID/DID combination that cannot be routed by the VF module. Applicable to 8G platforms only.

TABLE 28

Object and OID	Access	Description
swConnUnitFTB6Miss 1.3.6.1.4.1.1588.2.1.1.1.27.1.12	Read only	This counter is incremented when port receives a frame with an SID that cannot be routed by FCR. Applicable to 8G platforms only.
swConnUnitZoneMiss 1.3.6.1.4.1.1588.2.1.1.1.27.1.13	Read only	This counter is incremented when the port receives a frame with an SID and DID that are not zoned together.
swConnUnitLunZoneMiss 1.3.6.1.4.1.1588.2.1.1.1.27.1.14	Read only	This counter is incremented when the port receives a frame with an SID, DID, and LUN that are not zoned together. This is not currently used.
swConnUnitBadEOF 1.3.6.1.4.1.1588.2.1.1.1.27.1.15	Read only	The number of frames with bad EOF.
swConnUnitLCRX 1.3.6.1.4.1.1588.2.1.1.1.27.1.16	Read only	The number of link control frames received.
swConnUnitRDYPriority 1.3.6.1.4.1.1588.2.1.1.1.27.1.17	Read only	The number of times that sending R_RDY or VC_RDY primitive signals was a higher priority than sending frames, due to diminishing credit reserves in the transmitter at the other end of the fibre.
swConnUnitLli 1.3.6.1.4.1.1588.2.1.1.1.27.1.18	Read only	The number of low level interrupts generated by the physical and link layer.
swConnUnitInterrupts 1.3.6.1.4.1.1588.2.1.1.1.27.1.19	Read only	The object represents all the interrupts received on a port. The interrupt includes LLI, unknown, and so on.
swConnUnitUnknownInterrupts 1.3.6.1.4.1.1588.2.1.1.1.27.1.20	Read only	The object represents the unknown interrupts received on a port.
swConnUnitTimedOut 1.3.6.1.4.1.1588.2.1.1.1.27.1.21	Read only	The object represents the number of frames that have been timed out due to any reason.
swConnUnitProcRequired 1.3.6.1.4.1.1588.2.1.1.1.27.1.22	Read only	The object represents the number of frames trapped by CPU.
swConnUnitTxBufferUnavailable 1.3.6.1.4.1.1588.2.1.1.1.27.1.23	Read only	The object shows the count for the number of times the port failed to transmit frames.
swConnUnitStateChange 1.3.6.1.4.1.1588.2.1.1.1.27.1.24	Read only	The object shows the count for the number of times the port has gone to offline, online, and faulty state.
swConnUnitC3DiscardDueToRXTimeout 1.3.6.1.4.1.1588.2.1.1.1.27.1.25	Read only	The number of Class 3 receive frames discarded due to timeout.

TABLE 28

Object and OID	Access	Description
swConnUnitC3DiscardDueToDestUnreachable 1.3.6.1.4.1.1588.2.1.1.1.27.1.26	Read only	The number of Class 3 frames discarded due to destination unreachable.
swConnUnitC3DiscardDueToTXTimeout 1.3.6.1.4.1.1588.2.1.1.1.27.1.27	Read only	The number of Class 3 transmit frames discarded due to timeout.
swConnUnitC3DiscardOther 1.3.6.1.4.1.1588.2.1.1.1.27.1.28	Read only	The number of Class 3 frames discarded due to unknown reasons.
swConnUnitPCSErrorCounter 1.3.6.1.4.1.1588.2.1.1.1.27.1.29	Read only	The number of Physical Coding Sublayer (PCS) block errors.
swConnUnitUnroutableFrameCounter 1.3.6.1.4.1.1588.2.1.1.1.27.1.30	Read only	The object represents the unroutable frame counter.
swConnUnitFECCorrectedCounter 1.3.6.1.4.1.1588.2.1.1.1.27.1.31	Read only	The object indicates the Forward Error Correction (FEC) corrected blocks count. The FEC feature is applicable only on 10G and 16G platforms.
swConnUnitFECUnCorrectedCounter 1.3.6.1.4.1.1588.2.1.1.1.27.1.32	Read only	The object indicates the Forward Error Correction uncorrected blocks count. The FEC feature is applicable only on 10G and 16G platforms.

Chapter

4

MAPS-MIB Objects

In this chapter

- MAPS-MIB overview 87
- MAPS Traps 87
- MAPS configuration 88

MAPS-MIB overview

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

MAPS Traps

The OID represents the MAPS traps.

TABLE 29

Trap name and OID	Variables	Description
mapsTrapAM 1.3.6.1.4.1.1588.3.1.4.0.1	mapsConfigRuleName mapsConfigObjectGroupType mapsConfigObjectKeyType mapsConfigObjectKeyValue mapsConfigNumOfMS mapsConfigMsList mapsConfigSeverityLevel mapsConfigCondition mapsConfigAction swVfId	This trap is sent for MAPS threshold events.

MAPS configuration

The OID represents the MAPS configuration.

TABLE 30

Object and OID	Access	Description
mapsConfig		This object represents the MAPS configuration parameters.
mapsConfigRuleName 1.3.6.1.4.1.1588.3.1.4.1.1	Read only	This object indicates the rule name which associates a condition with actions that must be triggered when the specified condition is evaluated to be true.
mapsConfigCondition 1.3.6.1.4.1.1588.3.1.4.1.2	Read only	This object indicates the condition defined in the rule. It includes the counter, time base, and threshold value with the logical operation that must be evaluated. For example, (CRC/MIN > 10).
mapsConfigNumOfMS 1.3.6.1.4.1.1588.3.1.4.1.3	Read only	This object indicates the number of monitoring system entries in the notifications.
mapsConfigMsName 1.3.6.1.4.1.1588.3.1.4.1.4	Read only	This object indicates the monitoring system name like CRC, ITW, PS, FAN.
mapsConfigObjectGroupType 1.3.6.1.4.1.1588.3.1.4.1.5	Read only	This object indicates the object group type like circuit, PS, FAN.
mapsConfigObjectKeyType 1.3.6.1.4.1.1588.3.1.4.1.6	Read only	This object indicates the object key type. The object helps the NMS applications to interpret the data easily. For example, if the mapsConfigObjectGroupType is port, then the key type is an integer, and the key value is the port number.
mapsConfigObjectKeyValue 1.3.6.1.4.1.1588.3.1.4.1.7	Read only	This object indicates the object key value. For example, • For integer the value is 1, 2, 3, 4, ... • For string the value is flowname1, flowname2, ... • If group type is port, then the object key value is the port number.
mapsConfigValueType 1.3.6.1.4.1.1588.3.1.4.1.8	Read only	This object indicates the value type which can be an integer, float, or string. The object helps NMS applications to interpret data easily.
mapsConfigCurrentValue 1.3.6.1.4.1.1588.3.1.4.1.9	Read only	This object indicates the actual value of the monitoring system.
mapsConfigTimeBase 1.3.6.1.4.1.1588.3.1.4.1.10	Read only	This object indicates the time period across which the change in a counter is to be monitored.
mapsConfigSeverityLevel 1.3.6.1.4.1.1588.3.1.4.1.11	Read only	This object indicates the severity level of the condition triggered.

TABLE 30

Object and OID	Access	Description
mapsConfigMsList 1.3.6.1.4.1.1588.3.1.4.1.12	Read only	This object indicates the list of the monitoring systems. The format is <msname>,<value-type>,<current-value>,<time-base> ::<msName>,<value-type>,<current-value>,<time-base>::.
mapsConfigAction 1.3.6.1.4.1.1588.3.1.4.1.13	Read only	This object indicates the actions (bitmask value) that must be triggered when the specified condition is evaluated to be true. Action bitmask value mapping are, none (0), raslog (1), snmp (2), portlog (4), port-fence (8), email (16), hareboot (32), switchpolicy (64) For example, mapsConfigAction value 3 represents both raslog and snmp actions.

Chapter

5

High-Availability MIB Objects

In this chapter

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- High-Availability group 92
- FRU table 92
- FRU history table 94
- CP table 95
- BP table 95
- HA-MIB traps 96

HA-MIB overview

The HA-MIB provides information about the High Availability features of Fabric OS v6.3.0. 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 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

Table 31 lists the objects or definitions that are imported into the HA-MIB and the modules from which they are imported.

TABLE 31 Objects imported into the HA-MIB

Object	Imported from this module
MODULE-IDENTITY	SNMPv2-SMI
OBJECT-TYPE	
NOTIFICATION-TYPE	
TimeTicks	
Integer32	
IpAddress	
mib-2	
fibrechannel	SW-MIB
entPhysicalIndex	ENTITY-MIB
entPhysicalName	

TABLE 31 Objects imported into the HA-MIB (Continued)

Object	Imported from this module
DisplayString	SNMPv2-TC
TimeStamp	

High-Availability group

This section describes the MIB objects in the High-Availability group.

TABLE 32

Object and OID	Access	Description
haStatus 1.3.6.1.4.1.1588.2.1.2.1 .1	Read only	Indicates whether the system is redundant. Possible values are: • redundant (0) Dual CP with standby CP ready to take over. • nonredundant (1) Single or Dual CP system where the standby CP is not available to take over operation of the switch.

FRU table

TABLE 33

Object and OID	Access	Description
fruTable 1.3.6.1.4.1.1588.2.1.2.1.5	Not accessible	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 v6.1.0 and later, the chassis is marked as a FRU. Unlike other FRUs, the chassis FRU does not have a corresponding container entry. Table 34 includes information on all FRUs except the chassis.
fruEntry 1.3.6.1.4.1.1588.2.1.2.1.5.1	Not accessible	An entry for FRU slot in the fruTable.
fruClass 1.3.6.1.4.1.1588.2.1.2.1.5.1.1	Read only	The type of the FRU object that this slot can hold. • other (1) • unknown (2) • chassis (3) • cp (4) • other-CP (5) • switchblade (6) • wwn (7) • powerSupply (8) • fan (9) • CoreBlade (10) • ApplicationBlade (11)

TABLE 33

Object and OID	Access	Description
fruStatus 1.3.6.1.4.1.1588.2.1.2.1.5.1.2	Read only	The current status of the FRU object in the slot. Valid values: • other (1) • unknown (2) • on (3) • off (4) • faulty (5)
fruObjectNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.3	Read only	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	Read only	The supplier ID.
fruSupplierPartNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.5	Read only	The supplier part number.
fruSupplierSerialNum 1.3.6.1.4.1.1588.2.1.2.1.5.1.6	Read only	The supplier serial number.
fruSupplierRevCode 1.3.6.1.4.1.1588.2.1.2.1.5.1.7	Read only	The supplier revision code.
fruPowerConsumption 1.3.6.1.4.1.1588.2.1.2.1.5.1.8	Read only	The power consumption of the switch blades. This object has values only for the following blades: • FC16-32 port blade • FC16-48 port blade • CR16-8 core blade • CR16-4 core blade This object returns zero for other FRUs.

TABLE 34 Valid FRU counts for the various Brocade switches

Platform	Blades	Fans	Power supply	WWN card
Brocade DCX	8 port blades 2 CP blades	3 fans	4 PS	2 WWNs
Brocade DCX-4S	4 port blades 2 CP blades	2 fans	4 PS	2 WWNs
Brocade 300	NA	3 fans	1 PS	NA
Brocade 5100	NA	2 fans	2 PS	NA
Brocade 5300	NA	3 fans	2 PS	NA
Brocade 7800 Extension Switch	NA	2 fans	2 PS	NA
Brocade 6505	1	2 fans	2 PS	1 WWN
Brocade 6510	1	2 fans	2 PS	1 WWN
Brocade 6520	1	2 fans	2 PS	1 WWN
Brocade DCX 8510-8 Backbone	8 port blades 2 CP blades	3 fans	4 PS	2 WWNs

TABLE 34 Valid FRU counts for the various Brocade switches (Continued)

Platform	Blades	Fans	Power supply	WWN card
Brocade DCX 8510-4 Backbone	4 port blades 2 CP blades	2 fans	4 PS	2 WWNs
Brocade VA-40FC	NA	2 FRUs	2 PS	NA

FRU history table

TABLE 35

Object and OID	Access	Description
fruHistoryTable 1.3.6.1.4.1.1588.2.1.2.1.6	Not accessible	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	Not accessible	An entry in this table represents a particular FRU event.
fruHistoryIndex 1.3.6.1.4.1.1588.2.1.2.1.6.1.1	Read only	Index of the FRU event in the history table.
fruHistoryClass 1.3.6.1.4.1.1588.2.1.2.1.6.1.2	Read only	The type of the FRU object related to the event. Valid values: • other (1) • unknown (2) • chassis (3) • cp (4) • other-CP (5) • switchblade (6) • wwn (7) • powerSupply (8) • fan (9) • CoreBlade (10) • ApplicationBlade (11)
fruHistoryObjectNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.3	Read only	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	Read only	The type of the FRU event. Valid values: • added (1) • removed (2) • invalid (3)
fruHistoryTime 1.3.6.1.4.1.1588.2.1.2.1.6.1.5	Read only	The time at which this event happened.
fruHistoryFactoryPartNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.6	Read only	The Brocade part number of the FRU object.
fruHistoryFactorySerialNum 1.3.6.1.4.1.1588.2.1.2.1.6.1.7	Read only	The Brocade serial number of the FRU object.

CP table

TABLE 36

Object and OID	Access	Description
cpTable 1.3.6.1.4.1.1588.2.1.2.1.7	Not accessible	This table lists all the CPs in the system.
cpEntry 1.3.6.1.4.1.1588.2.1.2.1.7.1	Not accessible	An entry represents a single CP in the system.
cpStatus 1.3.6.1.4.1.1588.2.1.2.1.7.1.1	Read only	The current status of the CP. Valid values: other (1) unknown (2) active (3) standby (4) failed (5)
cpIpAddress 1.3.6.1.4.1.1588.2.1.2.1.7.1.2	Read only	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	Read only	The IP mask of the Ethernet interface of this CP.
cpIpGateway 1.3.6.1.4.1.1588.2.1.2.1.7.1.4	Read only	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	Read only	The last event related to this CP. Valid values: • other (1) • unknown (2) • haSync (3) • haOutSync (4) • cpFaulty (5) • cpHealthy (6) • cpActive (7) • configChange (8) • failOverStart (9) • failOverDone (10) • firmwareCommit (11) • firmwareUpgrade (12)

BP table

TABLE 37

Object and OID	Access	Description
bpTable 1.3.6.1.4.1.1588.2.1.2.1.8	Not accessible	This table lists all the blade processor entries.
bpEntry 1.3.6.1.4.1.1588.2.1.2.1.8.1	Not accessible	An entry of the blade processor information.

TABLE 37

Object and OID	Access	Description
bpStatus 1.3.6.1.4.1.1588.2.1.2.1.8.1.1	Read only	The current status of the BP. Valid values: on(1) off(2) faulty(3) unknow(4) others(5
bpeth0IpAddress 1.3.6.1.4.1.1588.2.1.2.1.8.1.2	Read only	The IP address of the Ethernet interface Eth0 of the Scimitar blade.
bpeth1IpAddress 1.3.6.1.4.1.1588.2.1.2.1.8.1.3	Read only	The IP address of the Ethernet interface Eth1 of the Scimitar blade.
bpsubNetMaskIpaddress 1.3.6.1.4.1.1588.2.1.2.1.8.1.4	Read only	The IP mask of the Ethernet interface of this CP.
bpIpGateway 1.3.6.1.4.1.1588.2.1.2.1.8.1.5	Read only	The IP address of the IP Gateway for this CP.
bpSasPriVersion 1.3.6.1.4.1.1588.2.1.2.1.8.1.6	Read only	The current primary version of the SAS.
bpSasSecVersion 1.3.6.1.4.1.1588.2.1.2.1.8.1.7	Read only	The current secondary version of the SAS.

HA-MIB traps

This section lists the HA-MIB traps.

TABLE 38

Trap name and OID	Variables	Description
fruStatusChanged 1.3.6.1.4.1.1588.2.1.2.2.0.1	entPhysicalName fruStatus fruClass fruObjectNum	This trap will be generated under the following events: • When FRU is added, removed, or failed • When FRU is powered on or off • When the switch is rebooted • When there is a fault in the blade

TABLE 38

Trap name and OID	Variables	Description
cpStatusChanged 1.3.6.1.4.1.1588.2.1.2.2.0.2	cpStatus cpLastEvent swID swSsn	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 • fastboot • HA failover
fruHistoryTrap 1.3.6.1.4.1.1588.2.1.2.2.0.3	fruHistoryClass fruHistoryObjectNum fruHistoryEvent fruHistoryTime fruHistoryFactoryPartNum fruHistoryFactorySerialNum	This trap is generated when a FRU is added, removed, or failed.

Chapter

6

FICON MIB Objects

In this chapter

- FICON MIB overview 99
- FICON RNID group 101
- FICON LIRR group 103
- FICON RLIR group 104
- LinkIncident MIB traps group 105

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

Textual conventions

Table 39 lists the textual conventions for the FICON MIB.

TABLE 39 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))

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),
			e-port (3)
			}

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))

TABLE 39 FICON MIB textual conventions (Continued)

Name	Status	Description	Syntax
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))

FICON RNID group

This group contains all Request Node Identification Data (RNID) group objects for FICON.

TABLE 40

Object and OID	Access	Description
nodeRNIDTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.2.1	Read only	The number of entries in Request Node Identification Data (RNID) table. For additional information on FICON MIB tables, refer to the **ficonShow** command in the *Fabric OS Command Reference*.
nodeRNIDTable 1.3.6.1.4.1.1588.2.1.1.50.2.2	Not accessible	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	Not accessible	A entry containing the RNID information for a FICON node.
nodeRNIDIndex 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.1	Read only	Index into the nodeRNIDTable.
nodeRNIDIncidentPortWWN 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.2	Read only	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	Read only	PID for an Incident port.
nodeRNIDFlags 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.4	Read only	RNID flags for an Incident port. Bits 0 to 2 of the flag describe the validity of bits 3 to 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 to 7 of the flag are reserved.
nodeRNIDType 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.5	Read only	Number associated with a node.
nodeRNIDModel 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.6	Read only	Model number of the RNID node.

TABLE 40

Object and OID	Access	Description
nodeRNIDManufacturer 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.7	Read only	Identifies the manufacturer of the node.
nodeRNIDManufacturerPlant 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.8	Read only	Identifies the manufacturer plant of the node.
nodeRNIDSequenceNumber 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.9	Read only	Identifies the sequence number of the node.
nodeRNIDConnectedPortWWN 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.10	Read only	WWN of the connected port.
nodeRNIDPortType 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.11	Read only	Port type (N, NL, E, or virtual port) of the connected port.
nodeRNIDFormat 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.12	Read only	Node identification data format of the connected port.
nodeRNIDTag 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.13	Read only	Node identification tag of the connected port.
nodeRNIDParams 1.3.6.1.4.1.1588.2.1.1.50.2.2.1.14	Read only	Node parameters of the connected port.
switchRNIDTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.2.3	Read only	The number of entries in an RNID table that corresponds to the switch. For additional information on FICON MIB tables, refer to the **ficonShow** command in the *Fabric OS Command Reference*.
switchRNIDTable 1.3.6.1.4.1.1588.2.1.1.50.2.4	Not accessible	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	Not accessible	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	Read only	Index into switchRNIDTable.
switchRNIDSwitchWWN 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.2	Read only	WWN of the switch.
switchRNIDFlags 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.3	Read only	RNID flags for the switch.

TABLE 40

Object and OID	Access	Description
switchRNIDType 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.4	Read only	Type Number associated with the switch.
switchRNIDModel 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.5	Read only	Model number of the RNID switch.
switchRNIDManufacturer 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.6	Read only	Identifies the manufacturer of the switch.
switchRNIDManufacturerPlant 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.7	Read only	Identifies the manufacturer plant of the switch.
switchRNIDSequenceNumber 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.8	Read only	Identifies the sequence number of the switch.
switchRNIDTag 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.9	Read only	Identification tag of the switch.
switchRNIDParams 1.3.6.1.4.1.1588.2.1.1.50.2.4.1.10	Read only	Identifies the parameters of the switch.
nodeVfId 1.3.6.1.4.1.1588.2.1.1.50.2.5	Read only	The Virtual Fabric ID of the switch. For VF-unaware switches, this value will be 0.

FICON LIRR group

This group contains all Link Incident Record Registration (LIRR) group objects for FICON.

TABLE 41

Object and OID	Access	Description
LIRRTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.3.1	Read only	The number of entries in an LIRR table. For additional information on FICON MIB tables, refer to the **ficonShow** command in the *Fabric OS Command Reference*.
LIRRTable 1.3.6.1.4.1.1588.2.1.1.50.3.2	Not accessible	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	Not accessible	An entry containing LIRR information.
LIRRIndex 1.3.6.1.4.1.1588.2.1.1.50.3.2.1.1	Read only	Index into the LIRR table.

TABLE 41

Object and OID	Access	Description
LIRRListenerPortWWN 1.3.6.1.4.1.1588.2.1.1.5 0.3.2.1.2	Read only	WWN of the Listener port.
LIRRListenerPID 1.3.6.1.4.1.1588.2.1.1.5 0.3.2.1.3	Read only	PID for the Listener port.
LIRRRegType 1.3.6.1.4.1.1588.2.1.1.5 0.3.2.1.4	Read only	Registration type: conditional or unconditional.
LIRRProtocol 1.3.6.1.4.1.1588.2.1.1.5 0.3.2.1.5	Read only	Protocol type supported.
LIRRPortType 1.3.6.1.4.1.1588.2.1.1.5 0.3.2.1.6	Read only	Attached port type.
LIRRFormat 1.3.6.1.4.1.1588.2.1.1.5 0.3.2.1.7	Read only	Registration type: conditional or unconditional.

FICON RLIR group

This group contains all Registered Link Incident Report (RLIR) group objects for FICON.

TABLE 42

Object and OID	Access	Description
rLIRTableNumEntries 1.3.6.1.4.1.1588.2.1.1.50.4.1	Read only	The number of entries in a switch RLIR table. For additional information on FICON MIB tables, refer to the **ficonShow** command in the *Fabric OS Command Reference*.
rLIRTable 1.3.6.1.4.1.1588.2.1.1.50.4.2	Not accessible	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	Not accessible	An entry containing RLIR information.
rLIRIndex 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.1	Read only	Index into the RLIR table.
rLIRIncidentPortWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.2	Read only	Port WWN for RLIR Incident port.
rLIRIncidentNodeWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.3	Read only	Incident node WWN.
rLIRIncidentPortType 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.5	Read only	RLIR Incident port type.
rLIRIncidentPID 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.6	Read only	RLIR Incident PID.

TABLE 42

Object and OID	Access	Description
rLIRIncidentPortNumber 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.7	Read only	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	Read only	RLIR Connected port WWN.
rLIRConnectedNodeWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.9	Read only	RLIR Connected node WWN.
rLIRFabricWwn 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.10	Read only	RLIR Fabric WWN.
rLIRLinkFailureType 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.11	Read only	RLIR Link failure type.
rLIRTimeStamp 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.12	Read only	RLIR time stamp.
rLIRFormat 1.3.6.1.4.1.1588.2.1.1.50.4.2.1.13	Read only	RLIR Format.

LinkIncident MIB traps group

TABLE 43

Trap name and OID	Variables	Description
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	nodeRNIDIndex nodeRNIDIncidentPortWWN nodeRNIDConnectedPortWWN nodeVfId	A device registered with the switch.
linkRNIDDeviceDeRegistration 1.3.6.1.4.1.1588.2.1.1.50.21.0.2	nodeRNIDIndex nodeRNIDIncidentPortWWN nodeRNIDConnectedPortWWN nodeVfId	A device deregistered with the switch.
linkLIRRListenerAdded 1.3.6.1.4.1.1588.2.1.1.50.21.0.3	lIRRListenerPortWWN lIRRListenerPID lIRRIndex nodeVfId	A listener for link failure incident is added.

TABLE 43

Trap name and OID	Variables	Description
linkLIRRListenerRemoved 1.3.6.1.4.1.1588.2.1.1.50.21.0.4	lIRRListenerPortWWN lIRRListenerPID lIRRIndex nodeVfId	A listener for link failure incident was removed.
linkRLIRFailureIncident 1.3.6.1.4.1.1588.2.1.1.50.21.0.5	nodeRNIDIndex lIRRIndex rLIRIncidentPortWwn rLIRConnectedPortWwn rLIRIndex rLIRLinkFailureType lIRRListenerPID nodeVfId	A link failure incident has occurred. The value of lIRRIndex will be -2147483647 and lIRRListenerPID will be 0 if there is no listener for incident.

Chapter

7

FibreAlliance MIB Objects

In this chapter

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- Statistics group 129
- Service group 134
- SNMP trap registration group 136
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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

NOTE
The port swap feature will not have any effect on SNMP for FA MIB.

Definitions for FCMGMT-MIB

Table 44 lists the definitions used for FCMGMT-MIB.

TABLE 44 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.

TABLE 44 Definitions for FCMGMT-MIB (Continued)

Type definition	Value	Description
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.

Connectivity unit group

Implementation of the connectivity group is mandatory for all systems.

TABLE 45

Object and OID	Access	Description
uNumber 1.3.6.1.3.94.1.1	Read only	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 one.

systemURL
1.3.6.1.3.94.1.2
	Read only	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	Not accessible	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	Not accessible	A connectivity unit entry containing objects for a particular unit.
connUnitId 1.3.6.1.3.94.1.6.1.1	Read only	This object indicates the WWN of the switch. The Brocade implementation maps the switch WWN to the first 8 octets of this object and sets the remaining 8 octets to 0.

TABLE 45

Object and OID	Access	Description

connUnitGlobalId
1.3.6.1.3.94.1.6.1.2
	Read only	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 through 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.
		For example:
		If Brocade's switch WWN is 10:0:0:60:69:10:02:18, then use the SNMP GET command on connUnitGlobalId.10.0.0.60.69.10.02.18.0.0.0.0.0.0.0.0 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	Read only	The type of this connectivity unit. Set to 4 for Fibre Channel switches or to 14 for Brocade Access Gateway.

TABLE 45

Object and OID	Access	Description
connUnitNumports 1.3.6.1.3.94.1.6.1.4	Read only	Number of physical ports (between 0 and the maximum number of system supported ports) in the connectivity unit (external). The Brocade switches support 0 to maximum number of system supported ports. **NOTE:** The ConnUnitNumports will not count the GE ports present on the FC4-16IP blade. The maximum number of supported ports are as follows. Brocade 300 — 24 ports Brocade 5100 — 40 ports Brocade 5300 — 80 ports Brocade 7800 Extension Switch — 24 ports Brocade Encryption Switch — 32 ports Brocade DCX — 640 ports Brocade DCX-4S — 320 ports Brocade 6505 — 24 ports Brocade 6510 — 48 ports Brocade 6520 — 96 ports Brocade DCX 8510-4 Backbone — 320 ports Brocade DCX 8510-8 Backbone — 640 ports Brocade VA-40FC — 40 ports

connUnitState
1.3.6.1.3.94.1.6.1.5
	Read only	Overall state of the connectivity unit.
		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	Read only	Overall status of the connectivity unit. This switch status is based on the most severe status of contributors like Power supplies, Temperatures, Fans, WWN servers, Standby CP, Blades, Flash, Marginal ports, Faulty ports, Missing SFPs, and so on. **switchStatusPolicyShow** command displays the policy parameters that determines the overall switch status. Possible values are: • unknown (1) - Unknown • unused (2) - Unmonitored • ok (3) - Healthy/ok • warning (4) - Marginal/Warning • failed (5) - Down/Failed
connUnitProduct 1.3.6.1.3.94.1.6.1.7	Read only	The connectivity unit vendor's product model name. This is the same as for sysDescr (set for as many as 79 bytes). If the switch is in Access Gateway mode, the default value is Access Gateway.
connUnitSn 1.3.6.1.3.94.1.6.1.8	Read only	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	Read only	The number of centiseconds since the last unit initialization.

TABLE 45

Object and OID	Access	Description
connUnitUrl 1.3.6.1.3.94.1.6.1.10	Read-write	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	Read only	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 one. Set to the switch domain ID (as per FC-SW). For a Brocade Access Gateway device, the value is hard coded as "11 11 11". A Brocade Access Gateway does not have a domain ID.
connUnitProxyMaster 1.3.6.1.3.94.1.6.1.12	Read only	A value of "yes" means this is the proxy master unit for a set of managed units. 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	Read only	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, for a fabric switch it is set to 2 (no). For a Brocade Access Gateway device, since the switch is behaving as a device management tool and not a Fibre Channel switch, the value is set to 1 (unknown). Possible values are: • unknown (1) • no (2) • yes (3)
connUnitNumSensors 1.3.6.1.3.94.1.6.1.14	Read only	Number of sensors (between 0 and maximum number of sensors) in the connUnitSensorTable. For specific sensor counts on the various switches, refer to Table 13 on page 58.
connUnitStatusChangeTime 1.3.6.1.3.94.1.6.1.15	Read only	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. **NOTE:** This object is not supported.

TABLE 45

Object and OID	Access	Description
connUnitConfigurationChangeTime 1.3.6.1.3.94.1.6.1.16	Read only	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 **NOTE:** This object is not supported.
connUnitNumRevs 1.3.6.1.3.94.1.6.1.17	Read only	The number of revisions in connUnitRevsTable. Set to 2.
connUnitNumZones 1.3.6.1.3.94.1.6.1.18	Read only	Number of zones defined in connUnitZoneTable. **NOTE:** This object is not supported.
connUnitModuleId 1.3.6.1.3.94.1.6.1.19	Read only	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	Read-write	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	Read-write	A display string containing information about this connectivity unit. This object value should be persistent between boots. For a Fabric switch set to sysDescr and read only. For a Brocade Access Gateway device set to “Access Gateway.”

TABLE 45

Object and OID	Access	Description
connUnitControl 1.3.6.1.3.94.1.6.1.22	Read-write	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. 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	Read-write	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	Read-write	Location information for this connectivity unit. Displays the same value as sysLocation.
connUnitEventFilter 1.3.6.1.3.94.1.6.1.25	Read only	Defines the event severity logged by this connectivity unit. All events of severity less than or equal to connUnitEventFilter are logged in connUnitEventTable. Always returns value 9 (debug).
connUnitNumEvents 1.3.6.1.3.94.1.6.1.26	Read only	Number of events currently in connUnitEventTable. Fabric OS currently supports 1024 raslog events.
connUnitMaxEvents 1.3.6.1.3.94.1.6.1.27	Read only	Maximum number of events that can be defined in connUnitEventTable. This value ranges from 0 to 1024.
connUnitEventCurrID 1.3.6.1.3.94.1.6.1.28	Read only	The last-used event ID (connUnitEventId). Every RASLOG message has RASLOG number and this represents the RASLOG number. Maximum is 2147483647 (2^{31}-1).

TABLE 45

Object and OID	Access	Description
connUnitRevsTable 1.3.6.1.3.94.1.7	Not accessible	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 Brocade 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	Not accessible	Each entry contains the information for a specific revision.
connUnitRevsUnitId 1.3.6.1.3.94.1.7.1.1	Read only	The connUnitId value for the connectivity unit that contains this revision table.
connUnitRevsIndex 1.3.6.1.3.94.1.7.1.2	Read only	A unique value among all connUnitRevsEntrys 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	Read only	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	Read only	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	Not accessible	Table of the sensors supported by each connectivity unit managed by this agent. For specific sensor counts on the various switches., refer to Table 13 on page 58.
connUnitSensorEntry 1.3.6.1.3.94.1.8.1	Not accessible	Each entry contains the information for a specific sensor.
connUnitSensorUnitId 1.3.6.1.3.94.1.8.1.1	Read only	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	Read only	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	Read only	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	Read only	The status indicated by the sensor. 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).

TABLE 45

Object and OID	Access	Description
connUnitSensorInfo 1.3.6.1.3.94.1.8.1.5	Read only	Miscellaneous static information about the sensor, such as its serial number. Each contains textual information about the sensor. 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	Read only	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	Read only	The type of component being monitored by this sensor. 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	Read only	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) 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	Not accessible	Generic information on ports for a specific connUnit **NOTE:** Information about the GbE ports on a Brocade 7500 or FR4-18i blade is not supported.

TABLE 45

Object and OID	Access	Description
connUnitPortEntry 1.3.6.1.3.94.1.10.1	Not accessible	Each entry contains the information for a specific port.
connUnitPortUnitId 1.3.6.1.3.94.1.10.1.1	Read only	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	Read only	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 Brocade switches support 0 to *maximum number of system supported ports*. The maximum number of supported physical ports are as follows: **NOTE:** The following list does not includes the virtual ports. You can create additional virtual ports in virtual fabrics. Brocade 300 — 24 ports Brocade 5100 — 40 ports Brocade 5300 — 80 ports Brocade 7800 Extension Switch — 24 ports Brocade Encryption Switch — 32 ports Brocade DCX — 640 ports Brocade DCX-4S — 320 ports Brocade 6505 — 24 ports Brocade 6510 — 48 ports Brocade 6520 — 96 ports Brocade DCX 8510-4 Backbone — 320 ports Brocade DCX 8510-8 Backbone — 640 ports Brocade VA-40FC — 40 ports

TABLE 45

Object and OID	Access	Description
connUnitPortType 1.3.6.1.3.94.1.10.1.3	Read only	The port type. For EX_Port, VEX_Port and VE_Port, the port type will be shown as other. For a Brocade Access Gateway device, the port type can be either F_Port (f-port) or N_Port (n-port) only. 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	Read only	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. For a Brocade Access Gateway, both the F_Port and N_Port this value is 0x0008. An Access Gateway supports class-three services only, therefore the value is 8 for both port types. connUnitPortFCClassCap attribute is dependent on the state of the port, that is, whether the port is online or offline. If the port is offline, the class service of U port will be shown as value of onnUnitPortFCClassCap. If it is online, then this mib attribute value will be equal to class service corresponding to the port type (F, E, L port.)

TABLE 45

Object and OID	Access	Description
connUnitPortFCClassOp 1.3.6.1.3.94.1.10.1.5	Read only	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. For a Brocade Access Gateway both the F_Port and N_Port this value is 0x0008. A Brocade Access Gateway supports class-three services only, therefore the value is 8 for both port types. connUnitPortFCClassOp is independent of the state of the port (online or offline). Its value is only dependent on the port type.
connUnitPortState 1.3.6.1.3.94.1.10.1.6	Read only	The state of the port hardware. 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	Read only	An overall protocol status for the port. For a U_Port, the status should be ols (9). 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 Fabric OS 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 Fabric OS v3.x and later, 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 portype and offline port state, the value is 1 (unknown).

TABLE 45

Object and OID	Access	Description
connUnitPortTransmitterType 1.3.6.1.3.94.1.10.1.8	Read only	The technology of the port transceiver. 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	Read only	The module type of the port connector. 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	Read only	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.

TABLE 45

Object and OID	Access	Description
connUnitPortFCId 1.3.6.1.3.94.1.10.1.11	Read only	This is the assigned Fibre Channel ID of the port. If the port does not have a Fibre Channel address, this object 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. For a U or E_Port, this is similar to F_Port. The FC ID is formatted “DD AA PP” (for example, “02 00 02”). The Brocade Access Gateway port FC ID differs from a Fibre Channel switch. A Fibre Channel switch port FC ID has the same DD with a different AA value for each link. The Brocade Access Gateway “PP” is the port number for F_Ports and is always zero for N_Ports. Therefore the N_Port FC ID always appears as “DD AA 00” (for example, “02 00 00”). On a Brocade Access Gateway the FC ID of different ports can have the same “AA” value but different “DD” values and vice versa.
connUnitPortSn 1.3.6.1.3.94.1.10.1.12	Read only	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	Read only	The port revision (for example, GBIC). 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	Read only	The port vendor (for example, for a GBIC). 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	Read only	The speed of the port, in kilobytes per second. For example, the valid values for Brocade 12000, 24000, and 48000 directors: 250,000 KBps, 500,000 KBps, 1,000,000 KBps, 1,250,000 KBps, 2,000,000 KBps depending on the configuration.

TABLE 45

Object and OID	Access	Description
connUnitPortControl 1.3.6.1.3.94.1.10.1.16	Read-write	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

TABLE 45

Object and OID	Access	Description
connUnitPortControl 1.3.6.1.3.94.1.10.1.16 (continued)	Read-write	• 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	Read-write	A string describing the addressed port. **NOTE:** This object is read only for Brocade switches.
connUnitPortPhysicalNumber 1.3.6.1.3.94.1.10.1.18	Read only	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 Brocade switches support 0 through maximum number of ports. The maximum number of supported ports are as follows. Brocade 300 — 24 ports Brocade 5100 — 40 ports Brocade 5300 — 80 ports Brocade 7800 Extension Switch — 24 ports Brocade Encryption Switch — 32 ports Brocade DCX — 640 ports Brocade DCX-4S — 320 ports Brocade 6505 — 24 ports Brocade 6510 — 48 ports Brocade 6520 — 96 ports Brocade DCX 8510-4 Backbone — 320 ports Brocade DCX 8510-8 Backbone — 640 ports Brocade VA-40FC — 40 ports
connUnitPortStatObject 1.3.6.1.3.94.1.10.1.19	Read only	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.

TABLE 45

Object and OID	Access	Description
connUnitPortProtocolCap 1.3.6.1.3.94.1.10.1.20	Read only	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	Read only	This is the bit mask that specifies the driver level protocols 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	Read only	The node World Wide Name of the port, if applicable; otherwise, an empty string. 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. The N_Ports on a Brocade Access Gateway are the WWN of the switch (that is, it is the same as the connUnitId). The F_Ports are the WWN of the HBA host. If the F_Port is offline, the value of the WWN is zero (00:00:00:00:00:00:00:00).
connUnitPortHWState 1.3.6.1.3.94.1.10.1.23	Read only	The state of the port as detected by the hardware. 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).

TABLE 45

Object and OID	Access	Description
connUnitEventTable 1.3.6.1.3.94.1.11	Not accessible	The table of connectivity unit events. Errors, warnings, and information should be reported in this table. This table contains the 1024 most-recent event log entries. Only external RASlog messages are supported. Fabric OS v4.4.0 and later releases do not have Panic or Debug level messages. All external messages are documented in the *Fabric OS Message Reference*.
connUnitEventEntry 1.3.6.1.3.94.1.11.1	Not accessible	Each entry contains information on a specific event for the given connectivity unit.
connUnitEventUnitId 1.3.6.1.3.94.1.11.1.1	Read only	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	Read only	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	Read only	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.
connUnitREventTime 1.3.6.1.3.94.1.11.1.4	Read only	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.

TABLE 45

Object and OID	Access	Description
connUnitSEventTime 1.3.6.1.3.94.1.11.1.5	Read only	This is the sysuptime time stamp when the event occurred.
connUnitEventSeverity 1.3.6.1.3.94.1.11.1.6	Read only	The event severity level. The mapping between error log 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) For more information about severity, refer to "FcEventSeverity" in Table 44 on page 107.
connUnitEventType 1.3.6.1.3.94.1.11.1.7	Read only	The type of this event. 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	Read only	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. Always set to null.
connUnitEventDescr 1.3.6.1.3.94.1.11.1.9	Read only	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 v6.2.0 and later releases, 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, refer to *Fabric OS Message Reference*.

TABLE 45

Object and OID	Access	Description
connUnitLinkTable 1.3.6.1.3.94.1.12	Not accessible	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. A Brocade Access Gateway has no ISLs (InterSwitch Links); therefore all F_Port and N_Port connections display in ag --show for online F_Ports. Dedicated ISL DISL — An ISL physically connected between two virtual switches belonging to same VF ID. A DISL is dedicated to carry frames only related to VF ID of connected virtual switches. Extended ISL XISL — A XISL belongs to the base fabric and by default carries frames of the base fabric and for other fabrics using the encapsulation and IFR header. Logical ISL LISL — A virtual link between 2 virtual switches that is used for control frames. LISL might not map directly to a single physical ISL depending on topology.
connUnitLinkEntry 1.3.6.1.3.94.1.12.1	Not accessible	An entry describing a particular link to another.
connUnitLinkUnitId 1.3.6.1.3.94.1.12.1.1	Read only	The connUnitId of the connectivity unit that contains this link table. Set to WWN of the local switch.

TABLE 45

Object and OID	Access	Description
connUnitLinkIndex 1.3.6.1.3.94.1.12.1.2	Read only	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 devices.
connUnitLinkNodeIdX 1.3.6.1.3.94.1.12.1.3	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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	Read only	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).

TABLE 45

Object and OID	Access	Description
connUnitLinkUnitTypeY 1.3.6.1.3.94.1.12.1.12	Read only	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 46 displays the types of the connectivity unit.
connUnitLinkConnIdY 1.3.6.1.3.94.1.12.1.13	Read only	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 this is an F_Port, then it contains both the area and 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	Read only	The last-used link index.

TABLE 46 connUnitLinkUnitTypeY end devices

Storage system	Storage sub-system	Unknown	Other
Direct Access Sequential Access Write-Once CD-ROM Optical	Medium Changer Array SES	Unknown	Anything else (printer device, processor device, scanner, and so on)

Statistics group

The 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.

TABLE 47

Object and OID	Access	Description
connUnitPortStatTable 1.3.6.1.3.94.4.5	Not accessible	A list of statistics for the fabric port types.
connUnitPortStatEntry 1.3.6.1.3.94.4.5.1	Not accessible	An entry describing port statistics.
connUnitPortStatUnitId 1.3.6.1.3.94.4.5.1.1	Read only	The connUnitId of the connectivity unit that contains this port statistics table.

TABLE 47

Object and OID	Access	Description
connUnitPortStatIndex 1.3.6.1.3.94.4.5.1.2	Read only	This object represents the port index.
connUnitPortStatCountErro 1.3.6.1.3.94.4.5.1.3	Read only	A count of the errors that have occurred on this port.
connUnitPortStatCountTxObjects 1.3.6.1.3.94.4.5.1.4	Read only	The number of frames 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 transmitted objects.
connUnitPortStatCountRxObjects 1.3.6.1.3.94.4.5.1.5	Read only	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 received objects.
connUnitPortStatCountTxElements 1.3.6.1.3.94.4.5.1.6	Read only	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.
connUnitPortStatCountRxElements 1.3.6.1.3.94.4.5.1.7	Read only	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.
connUnitPortStatCountBBCreditZero 1.3.6.1.3.94.4.5.1.8	Read only	The number of transitions in or out of BB credit zero state.
connUnitPortStatCountInputBuffersFull 1.3.6.1.3.94.4.5.1.9	Read only	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 - 800000000 This is a Fibre Channel statistic only. **NOTE:** This object is not supported.
connUnitPortStatCountFBSYFrames 1.3.6.1.3.94.4.5.1.10	Read only	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. **NOTE:** This object is not supported.
connUnitPortStatCountPBSYFrames 1.3.6.1.3.94.4.5.1.11	Read only	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 - 800000000 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. **NOTE:** This object is not supported.
connUnitPortStatCountFRJTFrames 1.3.6.1.3.94.4.5.1.12	Read only	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. **NOTE:** This object is not supported.

TABLE 47

Object and OID	Access	Description
connUnitPortStatCountPRJTFrames 1.3.6.1.3.94.4.5.1.13	Read only	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 - 800000000 This is the total for all classes and is a Fibre Channel only statistic. **NOTE:** This object is not supported.
connUnitPortStatCountClass1RxFrames 1.3.6.1.3.94.4.5.1.14	Read only	The number of Class 1 Frames received at this port. This is a Fibre Channel only statistic. Brocade does not support Class 1 Frames. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass1TxFrames 1.3.6.1.3.94.4.5.1.15	Read only	The number of Class 1 Frames transmitted out this port. This is a Fibre Channel only statistic. Brocade does not support Class 1 Frames. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass1FBSYFrames 1.3.6.1.3.94.4.5.1.16	Read only	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. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass1PBSYFrames 1.3.6.1.3.94.4.5.1.17	Read only	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. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass1FRJTFrames 1.3.6.1.3.94.4.5.1.18	Read only	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. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass1PRJTFrames 1.3.6.1.3.94.4.5.1.19	Read only	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. Return value- 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass2RxFrames 1.3.6.1.3.94.4.5.1.20	Read only	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	Read only	The number of Class 2 Frames transmitted out this port. This is a Fibre Channel only statistic. Return value - 800000000 **NOTE:** This object is not supported.

TABLE 47

Object and OID	Access	Description
connUnitPortStatCountClass2FBSYFrames 1.3.6.1.3.94.4.5.1.22	Read only	The number of times that FBSY was returned to this port because 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). This is a Fibre Channel only statistic. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass2PBSYFrames 1.3.6.1.3.94.4.5.1.23	Read only	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). This is a Fibre Channel only statistic. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass2FRJTFrames 1.3.6.1.3.94.4.5.1.24	Read only	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. This is a Fibre Channel only statistic. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass2PRJTFrames 1.3.6.1.3.94.4.5.1.25	Read only	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. This is a Fibre Channel only statistic. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass3RxFrames 1.3.6.1.3.94.4.5.1.26	Read only	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	Read only	The number of Class 3 Frames transmitted out this port. This is a Fibre Channel only statistic. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountClass3Discards 1.3.6.1.3.94.4.5.1.28	Read only	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 sum of all Class 3 discards. This is a Fibre Channel only statistic.
connUnitPortStatCountRxMulticastObjects 1.3.6.1.3.94.4.5.1.29	Read only	The number of multicast frames or packets received at this port.
connUnitPortStatCountTxMulticastObjects 1.3.6.1.3.94.4.5.1.30	Read only	The number of multicast frames or packets transmitted out this port.
connUnitPortStatCountRxBroadcastObjects 1.3.6.1.3.94.4.5.1.31	Read only	The number of broadcast frames or packets received at this port. Return value - 800000000 **NOTE:** This object is not supported.

TABLE 47

Object and OID	Access	Description
connUnitPortStatCountTxBroadcastObjects 1.3.6.1.3.94.4.5.1.32	Read only	The number of broadcast frames or packets transmitted out this port. On a Fibre Channel loop, count only OPNr frames generated. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountRxLinkResets 1.3.6.1.3.94.4.5.1.33	Read only	The number of link resets received. This is a Fibre Channel only statistic.
connUnitPortStatCountTxLinkResets 1.3.6.1.3.94.4.5.1.34	Read only	The number of link resets transmitted. This is a Fibre Channel only statistic.
connUnitPortStatCountNumberLinkResets 1.3.6.1.3.94.4.5.1.35	Read only	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. Return value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountRxOfflineSequences 1.3.6.1.3.94.4.5.1.36	Read only	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	Read only	The number of offline primitive OLS transmitted from this port. This is a Fibre Channel only statistic.
connUnitPortStatCountNumberOfflineSequences 1.3.6.1.3.94.4.5.1.38	Read only	The number of offline primitive sequence received at this port. This is a Fibre Channel only statistic. Return Value - 800000000 **NOTE:** This object is not supported.
connUnitPortStatCountLinkFailures 1.3.6.1.3.94.4.5.1.39	Read only	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	Read only	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	Read only	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. This is the sum of encoding in and encoding out error.
connUnitPortStatCountPrimitiveSequenceProtocolErrors 1.3.6.1.3.94.4.5.1.42	Read only	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	Read only	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	Read only	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.

TABLE 47

Object and OID	Access	Description
connUnitPortStatCountInvalidOrderedSets 1.3.6.1.3.94.4.5.1.45	Read only	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	Read only	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	Read only	The number of frames that are less than the Fibre Channel minimum frame size of 36 bytes.
connUnitPortStatCountAddressErrors 1.3.6.1.3.94.4.5.1.48	Read only	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	Read only	The count of frames that have either a bad start of frame or end of frame.
connUnitPortStatCountEncodingDisparityErrors 1.3.6.1.3.94.4.5.1.50	Read only	The number of encoding errors inside of frames.

Service group

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.

TABLE 48

Object and OID	Access	Description
connUnitSnsMaxEntry 1.3.6.1.3.94.5.1.1	Read only	The maximum number of entries in the table.
connUnitSnsTable 1.3.6.1.3.94.5.2.1	Not accessible	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. A Brocade Access Gateway has no name server information; therefore this table is disabled.
connUnitSnsEntry 1.3.6.1.3.94.5.2.1.1	Not accessible	The simple name server (SNS) table for the port represented by connUnitSnsPortIndex.
IconnUnitSnsId 1.3.6.1.3.94.5.2.1.1.1	Read only	The connUnitId of the connectivity unit that contains this name server table.

TABLE 48

Object and OID	Access	Description
connUnitSnsPortIndex 1.3.6.1.3.94.5.2.1.1.2	Read only	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). Chassis switches containing the FC4-16IP blade will have eight GbE ports and treated as iSCSI Virtual Initiator. These ports will be part of the name server (NS) database. connUnitTable will display each of these ports as a separate NS entry. Because no user ports are associated to GbE ports/virtual initiators, the connUnitSnsPortIndex for virtual initiators is shown as 999.
connUnitSnsPortIdentifier 1.3.6.1.3.94.5.2.1.1.3	Read only	The port identifier for this entry in the SNS table.
connUnitSnsPortName 1.3.6.1.3.94.5.2.1.1.4	Read only	The port name for this entry in the SNS table.
connUnitSnsNodeName 1.3.6.1.3.94.5.2.1.1.5	Read only	The node name for this entry in the SNS table.
connUnitSnsClassOfSvc 1.3.6.1.3.94.5.2.1.1.6	Read only	The Classes of Service offered by this entry in the SNS table.
connUnitSnsNodeIPAddress 1.3.6.1.3.94.5.2.1.1.7	Read only	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	Read only	The process associator for this entry in the SNS table. Hard coded to FF.
connUnitSnsFC4Type 1.3.6.1.3.94.5.2.1.1.9	Read only	The FC-4 types supported by this entry in the SNS table.
connUnitSnsPortType 1.3.6.1.3.94.5.2.1.1.10	Read only	The port type of this entry in the SNS table.
connUnitSnsPortIPAddress 1.3.6.1.3.94.5.2.1.1.11	Read only	The IPv6 formatted address of this entry in the SNS table.
connUnitSnsFabricPortName 1.3.6.1.3.94.5.2.1.1.12	Read only	The fabric port name of this entry in the SNS table.
connUnitSnsHardAddress 1.3.6.1.3.94.5.2.1.1.13	Read only	The hard address of this entry in the SNS table.
connUnitSnsSymbolicPortName 1.3.6.1.3.94.5.2.1.1.14	Read only	The symbolic port name of this entry in the SNS table. If the attached device has only the symbolicPortName, the symbolicPortName is shown and the symbolicNodeName appears as “null”.
connUnitSnsSymbolicNodeName 1.3.6.1.3.94.5.2.1.1.15	Read only	The symbolic node name of this entry in the SNS table. If the attached device has only the symbolicNodename, the symbolicNodename is shown and the symbolicPortname appears as “null”.

SNMP trap registration group

TABLE 49

Object and OID	Access	Description
trapMaxClients 1.3.6.1.3.94.2.1	Read only	The maximum number of SNMP trap recipients supported by the connectivity unit. Set to 6.
trapClientCount 1.3.6.1.3.94.2.2	Read only	The current number of rows in the trap table.
trapRegTable 1.3.6.1.3.94.2.3	Not accessible	A table containing a row for each IP address or port number to which traps are sent.
trapRegEntry 1.3.6.1.3.94.2.3.1	Not accessible	IP/port pair for a specific client.
trapRegIpAddress 1.3.6.1.3.94.2.3.1.1	Read only	The IP address of a client registered for traps.
trapRegPort 1.3.6.1.3.94.2.3.1.2	Read only	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	Read-write	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 shown in Table 50. For severity level, refer to "FcEventSeverity" in Table 44 on page 107. The values 1, 3, 7, and 10 are not valid for SET operations.
trapRegRowState 1.3.6.1.3.94.2.3.1.4	Read-write	Specifies the state of the row. This entry always returns rowActive and allows for read only. For the state of the row, refer to Table 51.

TABLE 50 trapRegFilter for errorlog severity level

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)

TABLE 51 trapRegRowState for Read/Write

State	Description (Read)	Description (Write)
rowDestroy (1)	Can never happen.	Remove this row from the table.
rowInactive (2)	Indicates that this row does exist but that traps are not enabled to be sent to the target.	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 exists, then traps are disabled from being sent to the target.
rowActive (3)	Indicates that this row exists and that traps are enabled to be sent to the target.	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

TABLE 52

Object and OID	Access	Description
revisionNumber 1.3.6.1.3.94.3	Read only	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 (connUnitPortStatTable) is supported in FOS v2.6.1, v5.x, and v6.0 and later versions.

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

TABLE 53

Trap name and OID	Variables	Description

connUnitStatusChange
1.3.6.1.3.94.0.1
	connUnitStatus
	connUnitState
		The overall status of the connectivity unit has changed.
		Recommended severity level (for filtering) - alert.
		Generated when connUnitStatus changes. For a description of how the value is calculated, refer to "connUnitStatus" on page 111.
		Sample trap output for Fabric OS v6.1.0.
		
		`connUnitStatus.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.1 = warning(4)`
		`connUnitState.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.0.1 = offline(3)`
		
		For information on how the switch status is determined, refer to the *Fabric Watch Administrator's Guide*.

connUnitDeletedTrap 1.3.6.1.3.94.0.3	connUnitId	A connUnit has been deleted from this agent. Recommended severity level (for filtering) - warning. Not implemented.

connUnitEventTrap
1.3.6.1.3.94.0.4
	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 v6.1.0.
		
		`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.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.354 = null`
		`connUnitEventDescr.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.354 = FW-1425`
		`Switch status changed from MARGINAL to HEALTHY.`
		
		For more information, refer to "swEventTrap".

TABLE 53

Trap name and OID	Variables	Description
connUnitSensorStatusChange 1.3.6.1.3.94.0.5	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 v6.1.0. `connUnitSensorStatus.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.7 = failed(5)` For information on configuring thresholds that generate these traps, refer to the *Fabric Watch Administrator's Guide*.

connUnitPortStatusChange
1.3.6.1.3.94.0.6
	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 v6.1.0.
		
		`connUnitPortStatus.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.29 = ready(3)`
		`connUnitPortState.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.29 = online(2)`
		`connUnitPortName.16.0.0.96.105.144.109.136.0.0.0.0.0.0.0.29 = test`
		For more information, refer to "swFCPortScn".

Chapter

FibreAlliance Extension MIB Objects

8

In this chapter

- FibreAlliance extension MIB overview 141
- SFP statistics table 142
- Port configuration table for Fabric Assigned PWWN feature 142
- Port configuration table for encryption or compression feature 143

FibreAlliance extension MIB overview

The MIB module is an extension for FA MIB. The descriptions of each of the MIB variables in this chapter come directly from the FA-EXT-MIB itself.

NOTE
The port swap feature will not have any effect on SNMP for FA-EXT-MIB.

Textual conventions for FA-EXT-MIB

Table 54 lists the textual conventions used for FA-EXT-MIB.

TABLE 54 Textual conventions for FA-EXT-MIB

Type definition	Value	Description
FapwwnType	Integer	Represents the type of FAPWWN assigned to the port. 1 unknown 2 auto 3 userConfigured
CiperMode	Integer	Represents the cipher mode. 1 none 2 allFrames 3 fcpAndNonFCP 4 onlyFCP
EncryptCompressStatus	Integer	Represents the status of encryption or compression feature on a port. 1 enabled 2 disabled 3 unknown

SFP statistics table

TABLE 55

Object and OID	Access	Description
swSfpStatTable 1.3.6.1.4.1.1588.2.1.1.1.28.1	Not accessible	This table represents the diagnostic statistics of Small Form-factor Pluggable (SFP) optical transceivers.
swSfpStatEntry 1.3.6.1.4.1.1588.2.1.1.1.28.1.1	Not accessible	An entry containing the diagnostic statistics of SFPs.
swSfpTemperature 1.3.6.1.4.1.1588.2.1.1.1.28.1.1.1	Read only	This object identifies the temperature of the SFP.
swSfpVoltage 1.3.6.1.4.1.1588.2.1.1.1.28.1.1.2	Read only	This object identifies the voltage of the SFP.
swSfpCurrent 1.3.6.1.4.1.1588.2.1.1.1.28.1.1.3	Read only	This object identifies the current of the SFP.
swSfpRxPower 1.3.6.1.4.1.1588.2.1.1.1.28.1.1.4	Read only	This object identifies the received optical power of the SFP.
swSfpTxPower 1.3.6.1.4.1.1588.2.1.1.1.28.1.1.5	Read only	This object identifies the transmitted optical power of the SFP.
swSfpPoweronHrs 1.3.6.1.4.1.1588.2.1.1.1.28.1.1.6	Read only	This object identifies the power on hours of the SFP. This is applicable only to 16 Gb SFPs.
swSfpUnitId 1.3.6.1.4.1.1588.2.1.1.1.28.1.1.7	Read only	This object identifies the unit ID of the SFP. This is applicable only to the Quad Small Form-factor Pluggable (QSFP).

Port configuration table for Fabric Assigned PWWN feature

TABLE 56

Object and OID	Access	Description
swFapwwnFeature 1.3.6.1.4.1.1588.2.1.1.1.28.2	Not accessible	The OID sub-tree for Fabric Assigned PWWN (FAPWWN) feature.
swPortFapwwnConfigTable 1.3.6.1.4.1.1588.2.1.1.1.28.2.1	Not accessible	The table represents the FAPWWN configuration of ports.
swPortFapwwnConfigEntry 1.3.6.1.4.1.1588.2.1.1.1.28.2.1.1	Not accessible	An entry in this table that represents the FAPWWN configuration of ports.

TABLE 56

Object and OID	Access	Description
swPortFapwwnConfigEnable 1.3.6.1.4.1.1588.2.1.1.1.28.2.1.1.1	Read only	This object indicates whether or not the FAPWWN is enabled on the port: • true (1) • false (2)
swPortFapwwnConfigFapwwn 1.3.6.1.4.1.1588.2.1.1.1.28.2.1.1.2	Read only	The object represents the FAPWWN assigned to the port. It returns the WWN irrespective of the state of the FAPWWN.
swPortFapwwnConfigType 1.3.6.1.4.1.1588.2.1.1.1.28.2.1.1.3	Read only	The object represents the type of FAPWWN. Valid values: • unknown (1) • auto (2) • userconfigured (3)

Port configuration table for encryption or compression feature

TABLE 57

Object and OID	Access	Description
swPortConfigTable 1.3.6.1.4.1.1588.2.1.1.1.28.3	Not accessible	This table represents the configuration of the encryption or compression feature on a port.
swPortConfigEntry 1.3.6.1.4.1.1588.2.1.1.1.28.3.1	Not accessible	An entry in the table that represents the configuration of the encryption or compression feature on a port.
swPortEncrypt 1.3.6.1.4.1.1588.2.1.1.1.28.3.1.1	Read only	The object represents the encryption status on a port. Valid values: • enabled - The port is enabled for encryption. • disabled - The port is not enabled for encryption.
swPortCompression 1.3.6.1.4.1.1588.2.1.1.1.28.3.1.2	Read only	The object represents the compression status on a port. Valid values: • enabled - The port is enabled for compression. • disabled - The port is not enabled for compression.
swPortCipherKeySize 1.3.6.1.4.1.1588.2.1.1.1.28.3.1.3	Read only	The object represents the cipher key size. Fabric OS supports 256 bytes per key.
swPortCipherMode 1.3.6.1.4.1.1588.2.1.1.1.28.3.1.4	Read only	The object represents the cipher mode. Valid values: • none (1) • allFrames (2) • fcpAndNonFCP(3) • onlyFCP (4)

Switch connectivity unit port table

TABLE 58

Object and OID	Access	Description
swConnUnitPortTable 1.3.6.1.4.1.1588.2.1.1.1.28.4	Not accessible	This table represents the port entry of the connectivity unit.
swConnUnitPortEntry 1.3.6.1.4.1.1588.2.1.1.1.28.4.1	Not accessible	This represents the port entry of the connectivity unit.
swConnUnitPortCapableSpeeds 1.3.6.1.4.1.1588.2.1.1.1.28.4.1.1	Read only	This represents the capable port speed of the connectivity unit.
swConnUnitPortSpeedMode 1.3.6.1.4.1.1588.2.1.1.1.28.4.1.2	Read only	This represents the configured speed mode of the particular port.
swConnUnitPortFECMode 1.3.6.1.4.1.1588.2.1.1.1.28.4.1.3	Read only	This represents the port Forward Error Correction (FEC) mode. The FEC feature is applicable only on 10G and 16G platforms.
swConnUnitPortFECState 1.3.6.1.4.1.1588.2.1.1.1.28.4.1.4	Read only	This represents the FEC state (active or inactive) of a port.

Chapter

9

BD MIB Objects

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- BD Traps 145
- BD configuration 146
- BD statistics 146

BD MIB objects overview

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

This MIB module is for the Brocade Bottleneck Detection feature.

BD Traps

The OID represents the BD traps.

TABLE 59

Trap name and OID	Variables	Description
bdTrap 1.3.6.1.4.1.1588.2.1.1.5 1.0.1	userPortNumber bdWinAvgTime nBdType bdThreshold bdAggrStats bdAbsoluteValue swVfId bdAvgFrameSize slotPort	This trap is sent for both latency bottleneck and congestion bottleneck with nBDType accordingly. This trap is triggered when the threshold is exceeded.
bdClearTrap 1.3.6.1.4.1.1588.2.1.1.5 1.0.2	userPortNumber bdWinAvgTime nBdType bdThreshold bdAggrStats bdAbsoluteValue swVfId bdAvgFrameSize slotPort	This trap is sent after a latency or congestion bottleneck is cleared.

BD configuration

The OID represents the Bottleneck configuration.

When Fabric Performance Impact (FPI) monitoring is enabled, BD is disabled, because BD and FPI are mutually exclusive.

NOTE
When alerting is never enabled in the lifetime of the daemon, junk values are expected for alert-related parameters.
When alerting is enabled before being disabled, non-junk values are expected for alert-related parameters.

TABLE 60

Object and OID	Access	Description
bdStatus 1.3.6.1.4.1.1588.2.1.1.51.1.1	Read only	This object represents the status of bottleneck detection feature if enabled in the switch. Valid values: • true (1) • false (2)
bdLThreshold 1.3.6.1.4.1.1588.2.1.1.51.1.2	Read only	This object is the severity threshold for latency bottleneck. This threshold indicates the percentage of one-second intervals affected by latency conditions within a specified time window. The value of this OID is between 0 and 1.
bdCThreshold 1.3.6.1.4.1.1588.2.1.1.51.1.3	Read only	This object is the severity threshold for congestion bottleneck. This threshold indicates the percentage of one-second intervals affected by congestion conditions within a specified time window. The value of this OID is between 0 and 1.
bdQTime 1.3.6.1.4.1.1588.2.1.1.51.1.4	Read only	The minimum number of seconds between consecutive alerts. The value assigned to this parameter applies to both latency and congestion monitoring. In this duration, there will not be any traps sent.
bdWinAvgTime 1.3.6.1.4.1.1588.2.1.1.51.1.5	Read only	The time window in seconds over which the percentage of seconds affected by bottleneck conditions is computed and compared with the threshold.
bdThreshold 1.3.6.1.4.1.1588.2.1.1.51.1.6	accessible-for-notify	This object represents the threshold for BD. This is accessible only for bdTrap and bdClearTrap.
nBdType 1.3.6.1.4.1.1588.2.1.1.51.1.7	accessible-for-notify	This object represents the BD type.This is accessible only for bdTrap and bdClearTrap.

BD statistics

This OID represents the BD statistics.

TABLE 61

Object and OID	Access	Description
bdNumOfEntries 1.3.6.1.4.1.1588.2.1.1.51.2.1	Read only	The number of entries in the statistics table.
bdStatsTable 1.3.6.1.4.1.1588.2.1.1.51.2.2	Not accessible	The table of stats entries represents both types of BD. This can have maximum 30 samples per port for congestion bottleneck and 30 samples per port for latency bottleneck. Each sample in the statistics is taken every 10 seconds.
bdStatsEntry 1.3.6.1.4.1.1588.2.1.1.51.2.2.1	Not accessible	An entry of BD statistics.
userPortNumber 1.3.6.1.4.1.1588.2.1.1.51.2.2.1.1	Read only	This object represents the user port indices of bottleneck monitored ports like F_port, E_port, L_port, and FCOE_port.
bdSampleTime 1.3.6.1.4.1.1588.2.1.1.51.2.2.1.2	Read only	This object represents the sample time. The value is returned in Epoch[Unix] time.
bdType 1.3.6.1.4.1.1588.2.1.1.51.2.2.1.3	Read only	This object represents the bottleneck type. • congestion (1) • latency (2)
bdStatsValue10SecsSample 1.3.6.1.4.1.1588.2.1.1.51.2.2.1.4	Read only	This sample is an average of 10 samples collected every second.
bdStatsValue60SecsSample 1.3.6.1.4.1.1588.2.1.1.51.2.2.1.5	Read only	This sample is an average of 60 samples collected every second.
bdStatsValue300SecsSample 1.3.6.1.4.1.1588.2.1.1.51.2.2.1.6	Read only	This sample is an average of 300 samples collected every second.
bdAggrStats 1.3.6.1.4.1.1588.2.1.1.51.2.3	accessible-for-notify	This object represents the aggregrate stats value. This value is the sum of all the samples divided by the average window and multiplied by 100. This object is accessible only for bdTrap and bdClearTrap.
bdAbsoluteValue 1.3.6.1.4.1.1588.2.1.1.51.2.4	accessible-for-notify	This is the absolute value of bdAggrStats. It is the number of affected seconds. This is accessible only for bdTrap and bdClearTrap.
bdAvgFrameSize 1.3.6.1.4.1.1588.2.1.1.51.2.5	accessible-for-notify	This object represents the average size in bytes of all frames that were transmitted on the ports during the averaging window. This is accessible only for bdTrap and bdClearTrap.

Appendix

MIB Object Groupings

A

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- Sensor variables 149
- Port variables 149
- Event variables 150
- ISL and end device variables 150
- SNMP configuration variables 150

Switch variables

MIB variables that assist in monitoring or modifying the status of switches are in the following tables or groups.

- connUnitTable 109
- connUnitRevsTable 115
- FIBRE-CHANNEL-FE-MIB (MIB-II branch) 30
- Flash administration 54

Sensor variables

MIB variables that assist in monitoring or modifying the status or state of fans, power supply, and temperature are in the following tables or groups.

- connUnitSensorTable 115
- swNumSensors 55

Port variables

MIB variables that assist in monitoring or modifying ports are in the following tables or groups.

Variables for state and status

- Connectivity unit group 109
- Fibre Channel port group 62

- fcFxPortTable

- fcFxConfTable
- fcFxPortStatusTable
- fcFxPortPhysTable
- fcFxPortCapTable

Variables for statistics and measurement

- Statistics group 129
- fcFxPortErrorTable
- fcFxPortC2AccountingTable
- fcFeCapabilities group

Event variables

MIB variables that assist in monitoring or modifying events are in the following tables or groups.

- connUnitEventTable. 125
- Event group 68

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. 127
- Switch Fabric group. 59

End Device variables

- connUnitLinkTable. 127
- swFCPortName 66

- fcFxLoginTable

SNMP configuration variables

MIB variables that assist in configuring SNMP are in the following tables or groups.

- trapRegTable 136
- Switch agent configuration group. 61

Appendix

Mapping of CLI Counters to MIB Objects

B

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- portErrShow command 152
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- portShow command 154

This appendix maps the counters displayed by the CLI commands to the corresponding MIB objects.

portStatsShow command

Table 62 lists the counters displayed by the **portStatsShow** command and the corresponding MIB objects.

TABLE 62 portStatsShow command

Counters	MIB Object	MIB OID
stat_wtx	connUnitPortStatCountTxElements multiplied by four	1.3.6.1.3.94.4.5.1.6
stat_wrx	connUnitPortStatCountRxElements multiplied by four	1.3.6.1.3.94.4.5.1.7
stat_ftx	connUnitPortStatCountTxObjects	1.3.6.1.3.94.4.5.1.4
stat_frx	connUnitPortStatCountRxObjects	1.3.6.1.3.94.4.5.1.5
stat_c2_frx	connUnitPortStatCountClass2RxFrames	1.3.6.1.3.94.4.5.1.20
stat_c3_frx	connUnitPortStatCountClass3RxFrames	1.3.6.1.3.94.4.5.1.26
stat_lc_rx	swConnUnitLCRX	1.3.6.1.4.1.1588.2.1.1.1.27.1.16
stat_mc_rx	connUnitPortStatCountRxMulticastObjects	1.3.6.1.3.94.4.5.1.29
stat_mc_to	Not supported	
stat_mc_tx	connUnitPortStatCountTxMulticastObjects	1.3.6.1.3.94.4.5.1.30
tim_rdy_pri	swConnUnitRDYPriority	1.3.6.1.4.1.1588.2.1.1.1.27.1.17
tim_txcrd_z	connUnitPortStatCountBBCreditZero	1.3.6.1.3.94.4.5.1.8
er_enc_in	connUnitPortStatCountEncodingDisparityErrors	1.3.6.1.3.94.4.5.1.50
er_crc	swConnUnitCRCWithBadEOF	1.3.6.1.4.1.1588.2.1.1.1.27.1.1
er_trunc	connUnitPortStatCountFramesTruncated	1.3.6.1.3.94.4.5.1.47
er_toolong	connUnitPortStatCountFramesTooLong	1.3.6.1.3.94.4.5.1.50
er_bad_eof	swConnUnitBadEOF	1.3.6.1.4.1.1588.2.1.1.1.27.1.15

TABLE 62 portStatsShow command (Continued)

Counters	MIB Object	MIB OID
er64_enc_out	connUnitPortStatCountEncodingDisparityErrors subtracted from connUnitPortStatCountInvalidTxWords	1.3.6.1.3.94.4.5.1.50 - 1.3.6.1.3.94.4.5.1.41
er_bad_os	connUnitPortStatCountInvalidOrderedSets	1.3.6.1.3.94.4.5.1.45
er_rx_c3_timeout	swConnUnitC3DiscardDueToRXTimeout	1.3.6.1.4.1.1588.2.1.1.1.27.1.25
er_tx_c3_timeout	swConnUnitC3DiscardDueToTXTimeout	1.3.6.1.4.1.1588.2.1.1.1.27.1.27
er_c3_dest_unreach	swConnUnitC3DiscardDueToDestUnreachable	1.3.6.1.4.1.1588.2.1.1.1.27.1.26
er_other_discard	swConnUnitC3DiscardOther	1.3.6.1.4.1.1588.2.1.1.1.27.1.28
er_pcs_blk	swConnUnitPCSErrorCounter	1.3.6.1.4.1.1588.2.1.1.1.27.1.29
er_type1_miss	swConnUnitFTB1Miss	1.3.6.1.4.1.1588.2.1.1.1.27.1.10
er_type2_miss	swConnUnitFTB2Miss	1.3.6.1.4.1.1588.2.1.1.1.27.1.11
er_type6_miss	swConnUnitFTB6Miss	1.3.6.1.4.1.1588.2.1.1.1.27.1.12
er_zone_miss	swConnUnitZoneMiss	1.3.6.1.4.1.1588.2.1.1.1.27.1.13
er_lun_zone_miss	swConnUnitLunZoneMiss	1.3.6.1.4.1.1588.2.1.1.1.27.1.14
er_crc_good_eof	connUnitPortStatCountInvalidCRC	1.3.6.1.3.94.4.5.1.40
er_inv_arb	swConnUnitInvalidARB	1.3.6.1.4.1.1588.2.1.1.1.27.1.9
open	swConnUnitOpen	1.3.6.1.4.1.1588.2.1.1.1.27.1.8
transfer	swConnUnitTransferConnection	1.3.6.1.4.1.1588.2.1.1.1.27.1.7
opened	swConnUnitOpend	1.3.6.1.4.1.1588.2.1.1.1.27.1.6
starve_stop	swConnUnitStopTenancyStarVation	1.3.6.1.4.1.1588.2.1.1.1.27.1.5
fl_tenancy	swConnUnitFLNumOfTenancy	1.3.6.1.4.1.1588.2.1.1.1.27.1.3
nl_tenancy	swConnUnitNLNumOfTenancy	1.3.6.1.4.1.1588.2.1.1.1.27.1.4
zero_tenancy	swConnUnitZeroTenancy	1.3.6.1.4.1.1588.2.1.1.1.27.1.2

portErrShow command

Table 63 lists the counters displayed by the **portErrShow** command and the corresponding MIB objects.

TABLE 63 portErrShow command

Counters	MIB Object	MIB OID
frames_tx	connUnitPortStatCountTxObjects	1.3.6.1.3.94.4.5.1.4
frames_rx	connUnitPortStatCountRxObjects	1.3.6.1.3.94.4.5.1.5
er_enc_in	connUnitPortStatCountEncodingDisparityErrors	1.3.6.1.3.94.4.5.1.50
crc_err	swConnUnitCRCWithBadEOF	1.3.6.1.4.1.1588.2.1.1.1.27.1.1
crc_g_eof	connUnitPortStatCountInvalidCRC	1.3.6.1.3.94.4.5.1.40
too_short	connUnitPortStatCountFramesTruncated	1.3.6.1.3.94.4.5.1.47

TABLE 63 portErrShow command (Continued)

Counters	MIB Object	MIB OID
too_long	connUnitPortStatCountFramesTooLong	1.3.6.1.3.94.4.5.1.46
bad_eof	swConnUnitBadEOF	1.3.6.1.4.1.1588.2.1.1.1.27.1.15
enc_out	connUnitPortStatCountEncodingDisparityErrors subtracted from connUnitPortStatCountInvalidTxWords	1.3.6.1.3.94.4.5.1.50 - 1.3.6.1.3.94.4.5.1.41
disc_c3	connUnitPortStatCountClass3Discards	1.3.6.1.3.94.4.5.1.28
link_fail	connUnitPortStatCountLinkFailures	1.3.6.1.3.94.4.5.1.39
loss_of_sync	connUnitPortStatCountLossofSynchronization	1.3.6.1.3.94.4.5.1.44
loss_of_sig	connUnitPortStatCountLossofSignal	1.3.6.1.3.94.4.5.1.43
frjt	connUnitPortStatCountFRJTFrames	1.3.6.1.3.94.4.5.1.12
fbsy	connUnitPortStatCountFBSYFrames	1.3.6.1.3.94.4.5.1.10

portStats64Show command

Table 64 lists the counters displayed by the **portStats64Show** command and the corresponding MIB objects.

TABLE 64 portStats64Show command

Counters	MIB Object	MIB OID
stat64_wtx	connUnitPortStatCountTxElements multiplied by four	1.3.6.1.3.94.4.5.1.6
stat64_wrx	connUnitPortStatCountRxElements multiplied by four	1.3.6.1.3.94.4.5.1.7
stat64_ftx	connUnitPortStatCountTxObjects	1.3.6.1.3.94.4.5.1.4
stat64_frx	connUnitPortStatCountRxObjects	1.3.6.1.3.94.4.5.1.5
stat64_c2_frx	connUnitPortStatCountClass2RxFrames	1.3.6.1.3.94.4.5.1.20
stat64_c3_frx	connUnitPortStatCountClass3RxFrames	1.3.6.1.3.94.4.5.1.26
stat64_lc_rx	swConnUnitLCRX	1.3.6.1.4.1.1588.2.1.1.1.27.1.16
stat64_mc_rx	connUnitPortStatCountRxMulticastObjects	1.3.6.1.3.94.4.5.1.29
stat64_mc_to	Not supported	
stat64_mc_tx	connUnitPortStatCountTxMulticastObjects	1.3.6.1.3.94.4.5.1.30
tim64_rdy_pri	swConnUnitRDYPriority	1.3.6.1.4.1.1588.2.1.1.1.27.1.17
tim64_txcrd_z	connUnitPortStatCountBBCreditZero	1.3.6.1.3.94.4.5.1.8
er64_enc_in	connUnitPortStatCountEncodingDisparityErrors	1.3.6.1.3.94.4.5.1.50
er64_crc	connUnitPortStatCountInvalidCRC	1.3.6.1.4.1.1588.2.1.1.1.27.1.1
er64_trunc	connUnitPortStatCountFramesTruncated	1.3.6.1.3.94.4.5.1.47
er64_toolong	connUnitPortStatCountFramesTooLong	1.3.6.1.3.94.4.5.1.50
er64_bad_eof	swConnUnitBadEOF	1.3.6.1.4.1.1588.2.1.1.1.27.1.15

TABLE 64 portStats64Show command (Continued)

Counters	MIB Object	MIB OID
er64_enc_out	connUnitPortStatCountEncodingDisparityErrors subtracted from connUnitPortStatCountInvalidTxWords	1.3.6.1.3.94.4.5.1.50 - 1.3.6.1.3.94.4.5.1.41
er64_disc_c3	connUnitPortStatCountClass3Discards	1.3.6.1.3.94.4.5.1.28
stat64_PRJTFrames	Not supported	
stat64_PBSYFrames	Not supported	
stat64_inputBuffersFull	Not supported	
stat64_rxClass1Frames	Not supported	

portShow command

Table 65 lists the counters displayed by the **portShow** command and the corresponding MIB objects.

TABLE 65 portShow command

Counters	MIB Object	MIB OID
Interrupts	swConnUnitInterrupts	1.3.6.1.4.1.1588.2.1.1.1.27.1.19
Unknown	swConnUnitUnknownInterrupts	1.3.6.1.4.1.1588.2.1.1.1.27.1.20
Lli	swConnUnitLli	1.3.6.1.4.1.1588.2.1.1.1.27.1.18
Proc_rqrd	swConnUnitProcRequired	1.3.6.1.4.1.1588.2.1.1.1.27.1.22
Timed_out	swConnUnitTimedOut	1.3.6.1.4.1.1588.2.1.1.1.27.1.21
portState	swConnUnitStateChange	1.3.6.1.4.1.1588.2.1.1.1.27.1.24
Tx_unavail	swConnUnitTxBufferUnavailable	1.3.6.1.4.1.1588.2.1.1.1.27.1.23
er64_pcs_blk	swConnUnitPCSErrorCounter	1.3.6.1.4.1.1588.2.1.1.1.27.1.29
stat64_fec_cor	swConnUnitFECCorrectedCounter	1.3.6.1.4.1.1588.2.1.1.1.27.1.31
stat64_fec_uncor	swConnUnitFECUnCorrectedCounter	1.3.6.1.4.1.1588.2.1.1.1.27.1.32
Link_failure	connUnitPortStatCountLinkFailures	1.3.6.1.3.94.4.5.1.39
Loss_of_sig	connUnitPortStatCountLossofSignal	1.3.6.1.3.94.4.5.1.43
Loss_of_sync	connUnitPortStatCountLossofSynchronization	1.3.6.1.3.94.4.5.1.44
Protocol_err	connUnitPortStatCountPrimitiveSequenceProtocolErrors	1.3.6.1.3.94.4.5.1.42
Invalid_word	connUnitPortStatCountInvalidTxWords	1.3.6.1.3.94.4.5.1.41
Invalid_crc	connUnitPortStatCountInvalidCRC	1.3.6.1.3.94.4.5.1.40
Delim_err	connUnitPortStatCountDelimiterErrors	1.3.6.1.3.94.4.5.1.49
Address_err	connUnitPortStatCountAddressErrors	1.3.6.1.3.94.4.5.1.48
Lr_in	connUnitPortStatCountTxLinkResets	1.3.6.1.3.94.4.5.1.34
Lr_out	connUnitPortStatCountRxLinkResets	1.3.6.1.3.94.4.5.1.33
Ols_in	connUnitPortStatCountRxOfflineSequences	1.3.6.1.3.94.4.5.1.36

TABLE 65 portShow command (Continued)

Counters	MIB Object	MIB OID
Ols_out	connUnitPortStatCountTxOfflineSequences	1.3.6.1.3.94.4.5.1.37
frjt	connUnitPortStatCountFRJTFrames	1.3.6.1.3.94.4.5.1.12
fbsy	connUnitPortStatCountFBSYFrames	1.3.6.1.3.94.4.5.1.10

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