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IronWare

MIB Reference

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About This Document

Audience

This manual is designed for network administrators with a working knowledge of the following:

- Layer 2 and Layer 3 switching and routing concepts
- Layer 4 to 7 networking concepts

If you are using a Layer 3 Switch, you should be familiar with the following protocols if applicable to your network: IP, RIP, OSPF, BGP4, IGMP, PIM, DVMRP, IPX, AppleTalk, FSRP, and VRRP.

Document conventions

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

Text formatting

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

bold text	Identifies command names
	Identifies the names of user-manipulated GUI elements
	Identifies keywords
	Identifies text to enter at the GUI or CLI
italic text	Provides emphasis
	Identifies variables
	Identifies document titles
`code` text	Identifies CLI output

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Email access and telephone numbers

Go to http://www.brocade.com/services-support/index.page for e-mail and telephone contact information.

Chapter

1 Overview of the IronWare MIB

Introduction

The Management Information Base (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 Simple Network Management Protocol (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.

This document has been updated to reflect the MIBs supported up to the following software releases:

- Enterprise IronWare software releases 07.6.04 and later. These releases apply to the following products:
  - NetIron 400/800/1500 Chassis devices with IronCore or JetCore management modules
  - BigIron 4000/8000/15000 Chassis devices with IronCore or JetCore management modules
  - FastIron II, FastIron II Plus, and FastIron III with M2 or higher management modules
  - FastIron 400/800/1500 Chassis devices with JetCore modules
  - FastIron 4802 Stackable device
- Service Provider IronWare software releases 09.1.00 and later. These releases apply to the following products:
  - NetIron 400/800/1500 Chassis devices with IronCore or JetCore management modules
  - BigIron 4000/8000/15000 Chassis devices with IronCore or JetCore management modules
  - NetIron 4802 Stackable device
  - FastIron 4802 Stackable device
- IronWare software release 09.0.00 and later for the NetIron 4802
- IronWare software releases 03.0.00 and later for the following products:
  - FastIron Edge Switch (FES) 2402, FES 4802, FES 9604, and FES 12GCF
  - FES Power Over Ethernet (POE) series
  - FastIron GS (FGS), FastIron LS (FLS), FastIron GS Stack (FGS-STK), and FastIron LS Stack (FLS-STK) switches
  - FastIron CX
- IronWare software release 01.0.00 and later for the FastIron Edge Switch X Series (FESX), FastIron SuperX (FSX), and FastIron SX 800 and 1600.
- Terathon IronWare software releases 01.0.00 through 03.2.00. These releases apply to the following products:
  - BigIron MG8
  - NetIron MG8

  - NetIron IMR 640
- BigIron RX Series RX-4, RX-8, RX-16, RX-32 Chassis devices software release 02.2.00 and later
- Multi-Service IronWare release 03.1.00 and later for the NetIron MLX Series and NetIron XMR-Series Routers
- Multi-Service IronWare release for the NetIron CES and NetIron CER
- Brocade MLXe Core Router
- Switch software release 02.0.00 and later for SecureIron Traffic Managers and LAN switches
- Switch software release 09.0.00S and later for ServerIron Chassis devices
- Router software release 08.0.00 and 08.1.00R for ServerIron Chassis devices
- Software release 07.3.07XL and 07.4.00XL for the ServerIronXL Stackable device
- IronPoint-FES devices
- FastIron WS (FWS)
- FastIron CX
- ServerIron ADX

NOTE
For a list of standard MIBs supported on EdgeIron devices, refer to the EdgeIron Release Notes.

Obtaining and installing the IronWare MIBs

You can obtain the IronWare MIBs by downloading the file from Brocade Technical Support site .

After obtaining the MIB, follow the instructions for your network management system to be able to use the MIB with your system.

Downloading the MIB from technical support web site

To download the MIB from the Brocade Technical Support Web site, you must have a user name and password to access the Brocade support site. Then do the following.

1. Open your Web browser and go to my.brocade.com.
2. Login with your user name and password.
3. Click the downloads tab, then click the Knowledge Portal link.
4. Login to the Knowledge portal, then click the Software tab.
5. Click the product name. Each IronWare product release has a link for its corresponding MIB.
6. Navigate to the link for the MIB and either open the file or save it to disk.

Downloading the MIB from Brocade FTP site

You can also download the MIB from the Knowledge Portal. Contact Brocade Technical Support for details. For the latest edition of this document, which contains the most up-to-date information, see the Product Manuals tab at https:/kp.foundrynet.com.

Importing IronWare MIB into a UNIX environment

You can import the IronWare MIB into third-party Network Management Applications, such as HP OpenView. By default, the IronWare MIB files are in DOS ASCII format that uses the following characters:

- CR/LF – Indicates the end of a line
- ^Z - Indicates the end of a file

However, in a UNIX environment, the characters LF are used to indicate the end of a line. No character indicates the end of a file. Therefore, if you need to import the IronWare MIB into a UNIX environment, you must use a tool that converts the DOS ASCII into UNIX ASCII, such as the dos2unix tool.

Reloading MIBs into a HP environment

HP OpenView may have problems reloading MIB files. When reloading the IronWare MIBs for the NetIron XMR and NetIron MLX into third-party Network Management Applications such as HP OpenView, you must:

- Unload the IronWare Enterprise MIBs which were installed from the previous upgrade before reloading any new Enterprise MIB file.
- Unload the Standard MIBs which were installed from the previous upgrade before reloading any new Standard MIB file.

Standard objects

The IronWare MIB supports certain standard MIB objects, which are derived from Request for Comments (RFCs) documents. Refer to “Supported Standard MIBs” on page 11 for details on the supported standard MIBs.

Proprietary objects

Proprietary objects are MIB objects that have been developed specifically to manage Foundry products. This section presents a summarized list of these objects.

Table 1 shows the hierarchy of the MIB objects that are proprietary to Foundry products. These objects may also be referred to as the private (or enterprise) MIBs.

On the MIB tree, the object named “foundry” marks the start of the IronWare MIB objects. The “foundry” object branches into the “products” branch, which branches further into three major nodes:

- switch – Includes general SNMP MIB objects and objects related to switching functions.
- router – Contains objects for routing protocols, such as IP, OSPF, BGP.
- registration – Includes the objects for each model of the Foundry product line.

Each of these major nodes are further divided into smaller categories.

Table 1 contains a summary of the major categories or MIB object groups under each major node. The MIB object groups can be divided into the individual MIB objects or additional object groups.

The column "Object Group Name"presents the name of the MIB object. The "Object Identifier"column shows the MIB object's identifier (OID). In this guide, the IronWare objects are presented with their object names and object their identifiers (OIDs). As shown in Table 1, OIDs are presented in the format brcdIp.x.x.x.x, where:

- "brcdIp" represents the number 1.3.6.1.4.1.1991
- .x.x.x.x is the remainder of the number

For example, the OID for the object snChassis is 1.3.6.1.4.1.1991.1.1.1, but appears as brcdIp.1.1.1 in this guide.

The Description column indicates the section in this guide that contains details for that object.

TABLE 1 Summary of MIB Objects Proprietary to IronWare Products

Object Group Name	Object Identifier	Sections to Refer To
foundry	brcdIp	All sections in this manual
products	brcdIp.1	All sections in this manual
switch	brcdIp.1.1	All sections under the switch branch
snChassis	brcdIp.1.1.1	
snChasGen	brcdIp.1.1.1.1	"Common objects" on page 87
snChasPwr	brcdIp.1.1.1.2	"Power supply table" on page 114
snChasFan	brcdIp.1.1.1.3	"Fan" on page 87
snAgentSys	brcdIp.1.1.2	
snAgentBrd	brcdIp.1.1.2.2	"Agent board table" on page 90
snAgenTrp	brcdIp.1.1.2.3	"Trap receiver table (IPv4)" on page 628
snAgentBoot	brcdIp.1.1.2.4	"Boot sequence table" on page 126
snAgCfgEos	brcdIp.1.1.2.5	"Encoded octet strings table" on page 143
snAgentLog	brcdIp.1.1.2.6	"System logging" on page 510
snAgentSysParaConfig	brcdIp.1.1.2.7	"Agent system parameters configuration table" on page 128
snAgentConfigModule	brcdIp.1.1.2.8	"Configured module table" on page 99
snAgentUser	brcdIp.1.1.2.9	"Agent user access group" on page 157
snAgentRedundant	brcdIp.1.1.2.10	"Redundant modules" on page 104
snAgentCpu	brcdIp.1.1.2.11	"CPU utilization" on page 496
snAgSystemDRAM and snCAM	brcdIp.1.1.2.12	"System DRAM information group" on page 500 and "CAM statistics" on page 514 and "CAM usage tables" on page 518
snSwitch	brcdIp.1.1.3	"Basic Configuration and Management" on page 119
snSwInfo	brcdIp.1.1.3.1	"Switch group configuration" on page 129
snVLanInfo	brcdIp.1.1.3.2	"VLAN by port information table" on page 289
snSwPortInfo	brcdIp.1.1.3.3	"Switch port information group" on page 205

TABLE 1 Summary of MIB Objects Proprietary to IronWare Products (Continued)

Object Group Name		Object Identifier	Sections to Refer To
	snFdbInfo	brcdIp.1.1.3.4	"Forwarding database static table information" on page 241
	snPortStpInfo	brcdIp.1.1.3.5	"Port STP configuration groups" on page 227
	snTrunkInfo	brcdIp.1.1.3.6	"Trunk port configuration group" on page 216
	snSwSummary	brcdIp.1.1.3.7	"Switch configuration summary group" on page 135
	snDnsInfo	brcdIp.1.1.3.9	"DNS group (IPv4)" on page 135
	snMacFilter	brcdIp.1.1.3.10	"MAC filter table" on page 239 and "MAC filter port access tables" on page 241
	snNTP	brcdIp.1.1.3.11	"NTP general group" on page 139 and "NTP server table (IPv4)" on page 141
	snRadius	brcdIp.1.1.3.12	"Authorization and accounting" on page 165 and "RADIUS general group" on page 166
	snTacacs	brcdIp.1.1.3.13	"TACACS general objects" on page 170 and "TACACS server table (FastIron X series IPv6 devices)" on page 172
	snQos	brcdIp.1.1.3.14	"QoS profile table" on page 263 and "QoS bind table" on page 264
	snAAA	brcdIp.1.1.3.15	"Authorization and accounting" on page 165
	snCAR	brcdIp.1.1.3.16	"CAR" on page 264
	snVLanCAR	brcdIp.1.1.3.17	"VLAN CAR objects" on page 266
	snNetFlow	brcdIp.1.1.3.18	"NetFlow Export" on page 507
	sFlowCollectorTable	brcdIp.1.1.3.19.2	"sFlow" on page 505
	snFdp	brcdIp.1.1.3.20.1	"FDP and CDP" on page 145
	snvsrp	brcdIp.1.1.3.21	"VSRP" on page 325
	snarp	brcdIp.1.1.3.22	"Static ARP table" on page 502
	fdryDns **NOTE:** The fdryDns MIB was replaced by fdryDns2MIB (below) in software release FSX 05.1.00.	brcdIp.1.1.3.30	"DNS address table (FSX 04.1.00 to 04.3.00)" on page 136 and "Domain name server table (FSX 04.1.00 to 04.3.00)" on page 137
snL4		brcdIp.1.1.4	"Layer 4 Switch Group" on page 545
	snL4Gen	brcdIp.1.1.4.1	"Layer 4 Switch Group" on page 545
	snL4Bind	brcdIp.1.1.4.6	"Bind table" on page 590
	snL4Policy	brcdIp.1.1.4.11	"Layer 4 policy table" on page 567
	snL4PolicyPortAccess	brcdIp.1.1.4.12	"Layer 4 policy port access table" on page 568
	snL4Trap	brcdIp.1.1.4.13	"Layer 4 traps" on page 663
	snL4WebCache	brcdIp.1.1.4.14	"Web cache table" on page 571 and "Server cache groups" on page 569

TABLE 1 Summary of MIB Objects Proprietary to IronWare Products (Continued)

Object Group Name		Object Identifier	Sections to Refer To
	snL4WebCacheGroup	brcdIp.1.1.4.15	"Web cache group table" on page 570
	snL4WebCacheTrafficStats	brcdIp.1.1.4.16	"Web cache traffic statistics table" on page 573
	snL4WebUncachedTrafficStats	brcdIp.1.1.4.17	"Web uncached traffic statistics table" on page 575
	snL4WebCachePort	brcdIp.1.1.4.18	"Web cache real server port table" on page 572
	snL4RealServerCfg	brcdIp.1.1.4.19	"Real server configuration table" on page 576
	snL4RealServerPortCfg	brcdIp.1.1.4.20	"Real server port configuration table" on page 577
	snL4VirtualServerCfg	brcdIp.1.1.4.21	"Virtual server configuration table" on page 584
	snL4VirtualServerPortCfg	brcdIp.1.1.4.22	"Virtual server port configuration table" on page 585
	snL4RealServerStatistic	brcdIp.1.1.4.23	"Real server statistics table" on page 578
	snL4RealServerPortStatistic	brcdIp.1.1.4.24	"Real server port configuration table" on page 577
	snL4VirtualServerStatistic	brcdIp.1.1.4.25	"Virtual server statistic table" on page 587
	snL4VirtualServerPortStatistic	brcdIp.1.1.4.26	"Virtual server port statistics table" on page 589
	snL4GslbSiteRemoteServerIrons	brcdIp.1.1.4.27	"GSLB site remote ServerIron configuration table" on page 592
	snL4History	brcdIp.1.1.4.28	"Monitor groups" on page 596
fdrySntp		brcdIp.1.1.7	
	fdrySntpMIB	brcdIp.1.1.7.1	"SNTP server table (FastIron X series IPv6 devices)" on page 142
fdryRadius		brcdIp.1.1.8	
	fdryRadiusMIB	brcdIp.1.1.8.1	"RADIUS server table (FastIron X series IPv6 devices)" on page 169
fdryTacacs		brcdIp.1.1.9	
	fdryTacacsMIB	brcdIp.1.1.9.1	"TACACS server table (FastIron X series IPv6 devices)" on page 172
fdryTrap		brcdIp.1.1.10	
	fdryTrapMIB	brcdIp.1.1.10.1	"Trap receiver table (FastIron X series IPv6 devices)" on page 629
router		brcdIp.1.2	All sections under the router branch
snIpx		brcdIp.1.2.1	"IPX" on page 443
	snIpxGen	brcdIp.1.2.1.1	"IPX general objects" on page 443
	snIpxCache	brcdIp.1.2.1.2	"IPX cache table" on page 445
	snIpxRoute	brcdIp.1.2.1.3	"IPX route table" on page 446

TABLE 1 Summary of MIB Objects Proprietary to IronWare Products (Continued)

Object Group Name		Object Identifier	Sections to Refer To
	snIpxServer	brcdIp.1.2.1.4	"IPX server table" on page 447
	snIpxFwdFilter	brcdIp.1.2.1.5	"IPX forward filter table" on page 447
	snIpxRipFilter	brcdIp.1.2.1.6	"IPX RIP filter table" on page 448
	snIpxSapFilter	brcdIp.1.2.1.7	"IPX SAP filter table" on page 449
	snIpxIfFwdAccess	brcdIp.1.2.1.8	"IPX IF forward access table" on page 450
	snIpxIfRipAccess	brcdIp.1.2.1.9	"IPX IF RIP access table" on page 451
	snIpxIfSapAccess	brcdIp.1.2.1.10	"IPX IF SAP access table" on page 451
	snIpxPortAddr	brcdIp.1.2.1.11	"IPX port address table" on page 452
	snIpxPortCounters	brcdIp.1.2.1.12	"IPX port counters tables" on page 453
snIp		brcdIp.1.2.2	"Global Router and IP" on page 347
	snRtIpGeneral	brcdIp.1.2.2.1	"Global Router and IP" on page 347
	snAgAcl	brcdIp.1.2.2.15	"Filtering Traffic" on page 239
	snIPAsPathAccessListStringTable	brcdIp.1.2.2.16	"IP AS-Path access list table" on page 365
	snIpCommunityListStringTable	brcdIp.1.2.2.17	"IP community list string table" on page 163
	snRtIpPortIfAddrTable	brcdIp.1.2.2.18	"IP interface port address table" on page 353
	snRtIpPortIfAccessTable	brcdIp.1.2.2.19	"IP interface port access table" on page 354
snRip		brcdIp.1.2.3	"RIP" on page 337
	snRtIpRipGeneral	brcdIp.1.2.3.1	"IP RIP general group" on page 337
snOspf		brcdIp.1.2.4	"OSPF" on page 369
	snOspfGen	brcdIp.1.2.4.1	"OSPF general objects" on page 369
	snOspfArea	brcdIp.1.2.4.2	"OSPF area table" on page 373
	snOspfAddrRange	brcdIp.1.2.4.3	"Area range table" on page 375
	snOspfIntf	brcdIp.1.2.4.4	"OSPF interface configuration tables" on page 376
	snOspfVirtIf	brcdIp.1.2.4.5	"OSPF virtual interface table" on page 382
	snOspfRedis	brcdIp.1.2.4.6	"OSPF redistribution of routes table" on page 384
	snOspfNbr	brcdIp.1.2.4.7	"OSPF neighbor table" on page 386
	snOspfVirtNbr	brcdIp.1.2.4.8	"OSPF virtual neighbor table" on page 388
	snOspfLsdb	brcdIp.1.2.4.9	"OSPF link-state database" on page 391
	snOspfExtLsdb	brcdIp.1.2.4.10	"OSPF link state database, external" on page 392
	snOspfAreaStatus	brcdIp.1.2.4.11	"OSPF area status table" on page 393
	snOspfIfStatus	brcdIp.1.2.4.12	"OSPF interface status table" on page 395
	snOspfVirtIfStatus	brcdIp.1.2.4.13	"OSPF virtual interface status table" on page 398

TABLE 1 Summary of MIB Objects Proprietary to IronWare Products (Continued)

Object Group Name		Object Identifier	Sections to Refer To
	snOspfRoutingInfo	brcdIp.1.2.4.14	"OSPF routing information table" on page 400
	snOspfTrapControl	brcdIp.1.2.4.15	"OSPF traps" on page 657 section in the "Traps and Objects to Enable Traps" on page 627 chapter
snDvmrp		brcdIp.1.2.5	"DVMRP" on page 280
	snDvmrpMIBObjects	brcdIp.1.2.5.1	
snIgmp		brcdIp.1.2.6	"IGMP" on page 269
	snIgmpMIBObjects	brcdIp.1.2.6.1	
snFsrp		brcdIp.1.2.7	"FSRP objects" on page 311
	snFsrpGlobal	brcdIp.1.2.7.1	"FSRP global variables" on page 312
	snFsrpIntf	brcdIp.1.2.7.2	"FSRP interface table" on page 312
snGblRt		brcdIp.1.2.8	"Global router objects" on page 347
	snGblRtGeneral	brcdIp.1.2.8.1	
snPim		brcdIp.1.2.9	"PIM" on page 272
	snPimMIBObjects	brcdIp.1.2.9.1	"Common PIM objects" on page 272, "PIM virtual interface table" on page 273, "PIM neighbor table" on page 275, and "PIM virtual interface statistics table" on page 276
	snPimSMMIBObjects	brcdIp.1.2.9.2	"PIM-SM" on page 278
snAppleTalk		brcdIp.1.2.10	"AppleTalk" on page 455
	snRtATGeneral	brcdIp.1.2.10.1	
snBgp4		brcdIp.1.2.11	"BGP4" on page 403
	snBgp4Gen	brcdIp.1.2.11.1	"BGP4 general variables" on page 403
	snBgp4AddrFilter	brcdIp.1.2.11.2	"BGP4 address filter table" on page 413
	snBgp4AggregateAddr	brcdIp.1.2.11.3	"BGP4 aggregate address table" on page 414
	snBgp4AsPathFilter	brcdIp.1.2.11.4	"BGP4 AS-path filter table" on page 418
	snBgp4CommunityFilter	brcdIp.1.2.11.5	"BGP4 community filter table" on page 418
	snBgp4NeighGenCfg	brcdIp.1.2.11.6	"BGP4 neighbor general configuration table" on page 428
	snBgp4NeighDistGroup	brcdIp.1.2.11.7	"BGP4 neighbor distribute group table" on page 431
	snBgp4NeighFilterGroup	brcdIp.1.2.11.8	"BGP4 neighbor filter group table" on page 433
	snBgp4NeighRouteMap	brcdIp.1.2.11.9	"BGP4 neighbor route map table" on page 434
	snBgp4Network	brcdIp.1.2.11.10	"BGP4 network table" on page 412
	snBgp4Redis	brcdIp.1.2.11.11	"BGP4 redistribution of routes table" on page 425
	snBgp4RouteMapFilter	brcdIp.1.2.11.12	"BGP4 route map filter table" on page 420

TABLE 1 Summary of MIB Objects Proprietary to IronWare Products (Continued)

Object Group Name		Object Identifier	Sections to Refer To
	snBgp4RouteMapMatch	brcdIp.1.2.11.13	"BGP4 route map match configuration table" on page 421
	snBgp4RouteMapSet	brcdIp.1.2.11.14	"BGP4 route map set configuration table" on page 423
	snBgp4NeighOperStatus	brcdIp.1.2.11.15	"BGP4 neighbor operational status table" on page 435
	snBgp4NeighborSummary	brcdIp.1.2.11.17	"BGP4 neighbor summary table" on page 437
	snBgp4Attribute	brcdIp.1.2.11.18	"BGP4 attribute entries table" on page 416
	snBgp4ClearNeighborCmd	brcdIp.1.2.11.19	"BGP4 clear neighbor command table" on page 439
	snBgp4NeighPrefixGroup	brcdIp.1.2.11.20	"BGP4 neighbor prefix group table" on page 439
snVrrp		brcdIp.1.2.12	"Router Redundancy Protocols" on page 311
	snVrrpGlobal	brcdIp.1.2.12.1	"VRRP global variables" on page 314
	snVrrpIf2Table	brcdIp.1.2.12.4.1	"VRRP and VRRPE interface table 2" on page 316
	snVrrpVirRtr2Table	brcdIp.1.2.12.5.	"VRRP and VRRPE parameter table 2" on page 321
snLoopbackIf		brcdIp.1.2.13	"Loopback interface configuration table" on page 227
snPOS		brcdIp.1.2.14	"Packet port information table" on page 222 and
	snPOSInfo	brcdIp.1.2.14.1	
fdryAcl		brcdIp.1.2.16	
	fdryAclMIB	brcdIp.1.2.16.1	"IPv6 ACL table (FastIron X series IPv6 devices)" on page 260
registration		brcdIp.1.3	Product identification

Structure of this guide

All chapters in this guide contain details about the MIB objects that are in the IronWare MIB. Each object is presented with its object name and OID, the access type available for that object (for example, read-write or read only), and a description. Objects are grouped according to their function.

The chapter "Traps and Objects to Enable Traps" on page 627 contains both the objects used to enable a particular type of trap and the objects that are available for a trap type. For example, objects to enable Layer 4 traps as well as the Layer 4 trap objects are in the chapter.

About SNMPv3 support on enterprise software releases

On devices running Enterprise software, SNMPv3 engine is supported in Foundry devices, beginning with IronWare release 07.5.01; however, there are no MIB objects specific to SNMPv3. The SNMPv3 engine can accept V1, V2c and V3 packet formats. IronWare releases prior to 07.5.01 support SNMP v1 and v2c engine. No V3 packet can be accepted by these engines.

Also, in IronWare releases earlier than 07.5.00, the SNMP agent does not check for type validity with the SNMP version. In IronWare release 07.5.00 and above, if the manager sends an SNMP request with a varbind of an invalid type for that version of SNMP, the SNMP agent sends a response with the error “noSuchName” for that varbind. For example, MIB objects of type Counter64 cannot be retrieved using a v1 packet, as Counter64 is a v2c and v3 type.

Chapter

2

Supported Standard MIBs

This section summarizes the standard objects that are supported in the IronWare MIB. It does not document all the supported standard objects, but present those standard MIBs that are not fully supported.

For example, although RFC1213 is supported in the IronWare MIB, some groups and tables in that MIB are not supported. The section "RFC 1213: Management Information Base (MIB-II)" on page 18 identifies the groups and tables that are supported and the ones not supported.

Supported on FastIron X series IPv6 devices

FastIron X Series IPv6 devices support the following standard MIBs in software release 04.1.00 and later:

- RFC 2465 – Management Information Base for IP Version 6: Textual Conventions and General Group

  NOTE
  RFC 2465 MIB support on FastIron X Series IPv6 devices is limited to **ipv6NetToMediaTable** and **ipv6AddrTable** only.

- RFC 2466 – Management Information Base for IP Version 6: ICMPv6 Group
- RFC 2454 – IP Version 6 Management Information Base for the User Datagram Protocol
- RFC 2452 – IP Version 6 Management Information Base for the Transmission Control Protocol
- RFC 2932 - IPv4 Multicast Routing MIB (software release 07.2.02)
- RFC 2933 – Internet Group Management Protocol MIB (software release 07.2.02)
- RFC 2934 – Protocol Independent Multicast MIB for IPv4 (software release 07.2.02)
- RFC 4001 – Textual Conventions for Internet Network Addresses

Supported on BigIron and FastIron devices

Enterprise software release 07.8.02 and later and FastIron devices running software release 03.0.00 and later support the following RFCs:

- Enterprise Trap MIB was rewritten in SNMPv2 format
- RFC 3411 – SNMP Framework MIB
- RFC 3412 - Message Processing and Dispatching (MPD) for the SNMP MIB.
- RFC 3413 – SNMP Target MIB
- RFC 3414 – User-Security Model for SNMPv3 MIB
- RFC 3415 – View-based Access Control Model for SNMP MIB
- Changes to snAgTrpRcvrTable

- The Object snAgTrpRcvrCommunity has been renamed to snAgTrpRcvrCommunityOrSecurityName to indicate that this object can also have the v3 security name (user name), instead of community string.
- Added support for RFC 4273 –Definitions of Managed Objects for BGP-4
- Added support for RFC 4188 – Definitions of Managed Objects for Bridges
- Added support for RFC 2863 –The Interfaces Group MIB

The following are supported in BigIron Enterprise software release 07.6.02 and later.

- RFC 1850: OSPF Version 2 Management Information Base
- RFC 1657: Definitions of Managed Objects for the Fourth Version of the Border Gateway Protocol (BGP-4) using SMIv2
- RFC 3812: MPLS-TE-STD-MIB

Support for proprietary MIB objects for OSPF and BGP is available in the IronWare MIB in addition to support for standard OSPF and BGP MIBs.

On devices running Enterprise software release 07.6.05 and later, the following SNMP v3 standard MIBs are supported:

- RFC 3411: An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks
- RFC 3412: Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
- RFC 3414: User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
- RFC 3415: View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
- RFC 4382: MPLS/BGP Layer 3 Virtual Private Network (VPN) Management Information Base

Partial support for the following standard MIBs were added on FastIron X series devices running software release 07.2.02.

- RFC 2932 - IPv4 Multicast Routing MIB (only FastIron software release 07.2.02 and later)
- RFC 2933 – Internet Group Management Protocol MIB (only FastIron software release 07.2.02 and later)
- RFC 2934 – Protocol Independent Multicast MIB for IPv4 (only FastIron software release 07.2.02 and later)

Supported on Terathon devices

The following standard MIBs are supported on the BigIron MG8 and NetIron 40G.

- 1155 – Structure and Identification of Management Information (SMI)
- 1157 – Simple Network Management Protocol (SNMP) version 1
- 1212 – Concise MIB Definitions
- 1215 – SNMP generic traps
- 1493 – Bridge MIB (excluding filtering of objects)
- 1657 – Definitions of Managed Objects for the Fourth Version of the Border Gateway Protocol (BGP-4) using SMIv2

- 1724 – RIP Version 2 MIB Extension
- 1850 – OSPF Version 2 Management Information Base
- 1905 – Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2)
- 1906 – Transport Mappings for Version 2 of the Simple Network Management Protocol (SNMPv2)
- 2011 – SNMPv2 Management Information Base for the Internet Protocol using SMIv2
- 2012 – SNMPv2 Management Information Base for the Transmission Control Protocol using SMIv2
- 2013 – SNMPv2 Management Information Base for the User Datagram Protocol using SMIv2
- 2096 – IP Forwarding MIB
- 2233 – The Interfaces Group MIB using SMIv2
- 2452 - IP Version 6 Management Information Base for the Transmission Control Protocol
- 2454 - IP Version 6 Management Information Base for the User Datagram Protocol
- 2465 - Management Information Base for IP Version 6: Textual Conventions and General Group
- 2466 - Management Information Base for IP Version 6: ICMPv6 Group
- 2570 – Introduction to Version 3 of the Internet-standard Network Management Framework
- 2571 – An Architecture of Describing SNMP Management Frameworks
- 2572 – Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
- 2574 – User-based Security (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
- 2575 – View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)
- 2578 – Structure of Management Information Version 2 (SMIv2)
- 2580 – Conformance Statements for SMIv2
- 2665 – Ethernet Like MIB (incorporates RFC 1398)
- 2674 – Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering and Virtual LAN Extensions
- 2787 – Definitions of Managed Objects for the Virtual Router Redundancy Protocol
- 2933 – Internet Group Management Protocol MIB
- 2934 – Protocol Independent Multicast MIB for IPv4
- 3176 – InMon Corporation's sFlow: A Method for Monitoring Traffic in Switched and Routed Networks
- 3411 – Simple Network Management Protocol (SNMP) Management Frameworks
- 3412 – Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)
- 3414 – User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)
- 3415 – View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)

- 3418 – Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)
- rstpmib Internet draft

Supported on the FastIron Edge switch

RFC 1850: OSPF Version 2 Management Information Base - Supported on FastIron Edge Switch devices beginning with release 03.1.02.

Supported on the Brocade MLXe and NetIron

The following RFCs are supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER.

RFC compliance - management

- 854 — TELNET
- 1213 — MIB II

  See the *IronWare MIB Reference* for details.
- 1445 — Administrative Model for SNMPv2 - Support for View Subtree (partially supported)
- 1492 —TACACS+
- 1493 – Bridge MIB (excluding filtering of objects)
- 1724 — RIPv2 MIB
- 1757 — RMON Groups 1, 2, 3, 9

  NOTE
  On NetIron XMR and NetIron MLX devices running software release 04.0.01, this RFC 1757 has been obsoleted by RFC 2819. RFC 1757 is not supported on Brocade MLXe devices, NetIron CES, and NetIron CER.
- 2011 — SNMPv2 MIB SMIv2
- 2012 — MIB for TCP (Replaced by RFC 4022 on NetIron XMR and NetIron MLX devices running software release 04.0.00 and later). RFC 2012 is not supported on Brocade MLXe, NetIron CES, and NetIron CER devices.

  2013 — MIB for UDP (Replaced by RFC 4113 on NetIron XMR and NetIron MLX devices running software release 04.0.00 and later). RFS 2013 is not supported on Brocade MLXe, NetIron CES, and NetIron CER devices.
- 2030 — SNTP
- 2068 — HTTP
- 2096 — IP Forwarding Table MIB (Replaced by RFC 4292 on NetIron XMR and NetIron MLX devices running software release 04.0.00 and later). RFC 2096 is not supported on Brocade MLXe, NetIron CES, and NetIron CER devices.
- 2284 — PPP EAP -Support EAP extension
- 2578 — SNMPV2

- 2579 —Textual Conventions for SMIv2
- 2665 — Ethernet-Like MIB
- 2674— 802.1Q and 802.1p Bridge MIB
- 2787— VRRP-MIB
- 2819 — Remote Network Monitoring Management Information Base
- 2863 — Interfaces Group MIB
- 2865 — RADIUS
- 2866 — RADIUS Accounting
- 2868 — RADIUS Attributes for Tunnel Protocol (partially supported)
- 2869 — RADIUS Extensions - EAP Message (type 79) and Message-Authenticator (type 80)
- 2933 — IGMP MIB (See "RFC 2933 IGMP MIB" on page 32 for details.)
- 2934 — PIM MIB (See "RFC 2934 PIM MIB for IPv4" on page 35 details.)
- 3164 — BSD Syslog Protocol
- 3176 — sFlow (See "RFC 3176: InMon corporation's sFlow: A method for monitoring traffic in switched and routed networks" on page 39 for details.)
- 3410 — SNMPV3
- 3411— Architecture for SNMP
- 3412 — Message Processing and Dispatching for SNMP
- 3413 — Simple Network Management Protocol (SNMP) Applications (partially supported)
- 3414 — USM for SNMPV3
- 3415 — VACM for SNMPV3
- 3416 — Version 2 of the Protocol Operations for the SNMP
- 3418 — Management Information Base (MIB) for the SNMP
- 3579 — RADIUS Support for Extensible Authentication Protocol (EAP) (partially supported)
- 3584 — Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework
- 3592 — SDH/SONET MIB (partially supported)
- 3812 — MPLS TE Standard MIB
- 3815 — Managed Objects for the Multiprotocol Label Switching (MPLS) and Label Distribution Protocol (LDP)

  See the *IronWare MIB Reference* for details.
- 3826 — The Advanced Encryption Standard (AES) Cipher Algorithm in the SNMP User-based Security Model
- 4022 — Management Information Base for the Transmission Control Protocol (TCP)

  This RFC is supported on the following devices:

  - NetIron XMR and NetIron MLX running software release 04.0.00 and later
  - Brocade MLXe running software release 05.0.00c and later
  - NetIron CES and NetIron CER running software release 05.1.00 and later.
- 4087 — IP Tunnel MIB (NetIron XMR and NetIron MLX running software release 04.0.00)
- 4113 — Management Information Base for the User Datagram Protocol (UDP)

This RFC is supported on the following devices:

- NetIron XMR and NetIron MLX running software release 04.0.00 and later
- Brocade MLXe running software release 05.0.00c and later
- NetIron CES and NetIron CER running software release 05.1.00 and later.

- 4188 — Definitions of Managed Objects for Bridges
- 4251 — The Secure Shell (SSH) Protocol Architecture
- 4252 — The Secure Shell (SSH) Authentication Protocol
- 4253 — The Secure Shell (SSH) Transport Protocol
- 4254 — The Secure Shell (SSH) Connection Protocol
- 4273 — Definitions of Managed Objects for BGP-4 (See "RFC 4273: Definitions of managed objects for BGP-4" on page 48 for details.)
- 4292 — IP Forwarding MIB. This RFC obsoletes the following on NetIron XMR and NetIron MLX devices running software release 04.0.00 and later:
  - RFC 2465 — Management Information Base for IP Version 6: Textual Conventions and General Group
  - RFC 2096 — IP Forwarding Table MIB

  RFC 2465 and RFC 2096 are not supported on Brocade MLXe, NetIron CES, and NetIron CER devices.
- 4293 — Management Information Base for the Internet Protocol (IP). (See "RFC 4293: MIB for the Internet Protocol (IP)" on page 50 for details.) This RFC obsoletes the following on NetIron XMR and NetIron MLX devices running software release 04.0.00:
  - RFC 2011 - SNMPv2 Management Information Base for the Internet Protocol using SMIv2
  - RFC 2465 - Management Information Base for IP Version 6: Textual Conventions and General Group
  - RFC 2466 - Management Information Base for IP Version 6: ICMPv6 Group

  The obsoleted RFS are not supported on Brocade MLXe, NetIron CES, and NetIron CER devices.
- 4382 — MPLS/BGP Layer 3 Virtual Private Network (VPN) Management Information Base

  On NetIron CES and NetIron CER, this RFC is supported on software release 05.1.00.
- 4444 — Management Information Base for Intermediate System to Intermediate System (IS-IS) (See "RFC 4444: MIB for Intermediate System to Intermediate System (IS-IS)" on page 51 for details.)
- 4330 - Simple Network Time Protocol (SNTP) Version 4 for IPv4 and IPv6
- draft-grant-tacacs-02.txt — The TACACS+ Protocol
- draft-ietf-bfd-mib — Bidirectional Forwarding Detection Management Information Base
- draft-ietf-pwe3-enet-mib-11.txt — Ethernet Pseudo Wire (PW) Management Information Base
- draft-ietf-pwe3-pw-mib-11.txt — PW-STD-MIB Definitions (read-only)

RFC compliance - IPv6 management

- 2466 — IPv6 MIB for ICMPv6 Group

IEEE standards

- IEEE8021-CFM-MIB — IEEE 802.1ag CFM MIB

LLDP/LLDP-MED MIB support

The following standard MIBs are supported on devices with LLDP/LLDP-MED capability.

The following MIBs are in the 802.1AB standard, *Station and Media Access Control Connectivity Discovery*.

- LLDP-MED
- LLDP-EXT-DOT1-MIB
- LLDP-EXT-DOT3-MIB

The following MIB is in the ANSI/TIA-1057 standard, *LLDP for Media Endpoint Devices*.

- LLDP-EXT-MED-MIB

Partially supported standards

Portions of the following standard MIBs are supported on the devices. Refer to the following sections for a list of supported objects:

- "RFC 1213: Management Information Base (MIB-II)" on page 18
- "RFC 1493: Definitions of managed objects for bridges" on page 20
- "RFC 1643: Ethernet-like interface types" on page 21
- "RFC 1742: AppleTalk management information base II" on page 22
- "RFC 1757: Remote network monitoring management information base" on page 22
- "RFC 2096: IP forwarding table MIB" on page 23
- "" on page 23
- "RFC 2515: Definitions of textual conventions and object identities for ATM management" on page 24
- "RFC 2674: Definitions of managed objects for bridges with traffic classes, multicast filtering and virtual LAN extensions" on page 25
- "RFC 2933 IGMP MIB" on page 32 (devices running Enterprise software release 08.0.00.)
- "RFC 2933 IGMP MIB" on page 32 (devices running Enterprise software release 08.0.00.)
- "RFC 2934 PIM MIB for IPv4" on page 35 (devices running Enterprise software release 08.0.00.)
- "RFC 3176: InMon corporation's sFlow: A method for monitoring traffic in switched and routed networks" on page 39
- "RFC 3815: Managed objects for MPLS and LDP" on page 40
- "RFC 4273: Definitions of managed objects for BGP-4" on page 48
- "RFC 4293: MIB for the Internet Protocol (IP)" on page 50
- "RFC 4444: MIB for Intermediate System to Intermediate System (IS-IS)" on page 51

RFC 1213: Management Information Base (MIB-II)

NOTE
On FastIron devices running software release 07.1.00 and later, the ipRouteTable in RFC 1213 has been replaced the the one in RFC 2096.

NOTE
Instead of RFC 1213, RFC 2863 is supported on the NetIron XMR Series routers and the NetIron MLX Series routers Multi-Service IronWare software release 03.6.00 and later. It is also supported on Brocade MLXe, NetIron CES and NetIron CER devices.

The following objects from RFC1213 are supported on devices.

Object Group Name	Object Identifier
system	1.3.6.1.2.1.1
interfaces	1.3.6.1.2.1.2
ifTable	1.3.6.1.2.1.2.2
ifEntry	1.3.6.1.2.1.2.2.1
ifIndex (See note below.)	1.3.6.1.2.1.2.2.1.1
ip	1.3.6.1.2.1.4
icmp	1.3.6.1.2.1.5
tcp	1.3.6.1.2.1.6
udp	1.3.6.1.2.1.7
transmission	1.3.6.1.2.1.10
snmp	1.3.6.1.2.1.11
rmon	1.3.6.1.2.1.16
dot1dBridge	1.3.6.1.2.1.17

The following groups from RFC 1213 are not supported.

- at

  NOTE
  The table ipNetToMediaTable (OID 1.3.6.1.2.1.4.22) is used instead of the atTable. The atTable has been obsoleted in RFC 1213.
  Configuration Considerations when using the ipNetToMediaTable:
  Disabling forwarding using ipForwarding objects is not supported.
  Changing dynamic ARP entries using ipNetToMediaType is not supported. You may only create or delete static ARP entries.

- egp

Notes about the ifIndex

The ifIndex values allocated for physical ports do not change as modules are inserted and removed. However, they may have changed between software releases of products to accommodate a greater number of ports per module.

IronCore and JetCore devices

In IronWare software previous to release 07.1.xx, a block of 32 ifIndex values was allocated for each slot. Ports in slot 1 would have ifIndex values from 1 to 32, slot 2 would have values from 33 to 64, and so on.

In IronWare TrafficWorks software release 07.2.xx:

- The number of allocated ifindex was changed to allow 64 ports for modules. Ports in slot 1 would have ifIndex values from 1 to 64, slot 2 would have values from 65 to 128, and so on.
- Virtual and loopback interface ifIndex values are allocated from ranges above those used for physical ports
- ATM subinterfaces and PVCs have ifIndex values allocated in a dynamic fashion, which is not readily predictable.

In IronWare software release 07.5.00 and TrafficWorks software release 08.0.00, the following blocks of ifIndexes have been allocated:

Physical ports:	1 – 680 (48-T blades * 14 slots + 8 management ports)
VE:	255 (configurable to 2048)
Loopback: :	8
Multicast tunnel	32
IP tunnel	4
ATM subinterface	10
Unused	10
MPLS tunnel	8192
PVC tunnel	4096

BigIron RX

In BigIron RX, the ifindex allocation per slot is 64.

In the BigIron RX Multi-Service IronWare software release 02.5.00 and later, every trunk group will appear as a row within the ifTable and ifXTable.

Use the Get operations on snInterfaceLookupIfIndex (indexed by ifIndex) to get InterfaceId (in a simple OID form.)

TABLE 2 BigIron RX Index Ranges

	4-slot	8-slot	16-slot	32-slot	Allocation
Physical port	1-192	1-384	1-768	1-1536	64 per slot (Release 02.5.00 and later) 48 per slot (Releases prior to 02.5.00)
Mgmt port	2	2	2	2	1 active, 1 stanby
Virtual port	255 default, 40 minimum, 4096 maximum	255 default, 40 minimum, 4096 maximum	255 default, 40 minimum, 4096 maximum	255 default, 40 minimum, 4096 maximum	
Loopback port	64 default	64 default	64 default	64 default	
Mcast port	32	32	32	32	
GRE tunnels	256 default, 1 min, 8192 maximum	256 default, 1 min, 8192 maximum	256 default, 1 min, 8192 maximum	256 default, 1 min, 8192 maximum	
Unused	10	10	10	10	
Trunk	128 default, 128 min, max 256	128 default, 128 min, max 256	128 default, 128 min, max 256	128 default, 128 min, max 256	

RFC 1493: Definitions of managed objects for bridges

The following groups are supported on devices.

NOTE
RFC 4188 obsoletes RFC 1493 on the NetIron XMR Series routers and the NetIron MLX Series routers Multi-Service IronWare software release 03.6.00 and later. It is not supported on Brocade MLXe, NetIron CES and NetIron CER devices.

Object Group Name	Object Identifier
dot1dBridge	1.3.6.1.2.1.17
dot1dBase	1.3.6.1.2.1.17.1
dot1dStp	1.3.6.1.2.1.17.2
dot1dTp	1.3.6.1.2.1.17.4

NOTE
The dot1dTpFdbTable (OID 1.3.6.1.2.1.17.4) in RFC 1493 is used to find dynamically learned MAC addresses. Statically configured MAC addresses are in the snFdbTable (refer to "Forwarding database static table information" on page 241).

NOTE
The SNMP MIB object dot1dDtpPortTable (OID: 1.3.6.1.2.1.17.2.15) does not display information for tagged ports that belong to an 802.1W RSTP configuration. The design of that MIB table is based on Single STP standard, and does not accommodate Multiple STPs. Therefore, the table displays information only for SSTP and for untagged port.

NOTE
The MIB 4188 has been converted to SMIv2 format. The object dot1dStpPortPathCost32 was added to support IEEE 802. The existing MIB dot1dStpPortPathCost has upper range of 65535. Over that value, this MIB stays at the upper value and user should access dot1dStpPortPathCost32 which has a bigger upper range value.

RFC 1643: Ethernet-like interface types

The following groups are supported on devices.

NOTE
RFC 2665 obsoletes RFC 1643 on the NetIron Multi-Service XMR Series routers and the NetIron Multi-Service MLX Series routers, as well as FastIron devices running software release 07.1.00 and later. It is not supported on Brocade MLXe, NetIron CES and NetIron CER devices.

Object Group Name	Object Identifier
dot3	1.3.6.1.2.1.10.7
dot3StatsTable	1.3.6.1.2.1.10.7.2
dot3CollTable	1.3.6.1.2.1.10.7.5
dot3Tests	1.3.6.1.2.1.10.7.6
dot3Errors	1.3.6.1.2.1.10.7.7
dot3ChipSets	1.3.6.1.2.1.10.7.8 **NOTE:** This table is not supported on FastIron devices running software release 07.1.00 and later.

RFC 1742: AppleTalk management information base II

The following groups from this RFC are supported on devices that support AppleTalk.

Object Group Name	Object Identifier
appletalk	1.3.6.1.2.1.13
aarp	1.3.6.1.2.1.13.2
atport	1.3.6.1.2.1.13.3
ddp	1.3.6.1.2.1.13.4
rtmp	1.3.6.1.2.1.13.5
zipRouter	1.3.6.1.2.1.13.7
rtmpStub	1.3.6.1.2.1.13.16
zipEndNode	1.3.6.1.2.1.13.17
perPort	1.3.6.1.2.1.13.18

The following object groups from RFC 1742 are not supported on devices.

- llap
- ddp
- kip
- nbp
- atecho
- atp
- pap
- asp
- adsp
- atportptop

RFC 1757: Remote network monitoring management information base

The following groups from this RFC are supported on devices.

NOTE
On NetIron XMR and NetIron MLX devices running software release 04.0.01, this RFC has been obsoleted by RFC 2819. It is not supported on Brocade MLXe, NetIron CES and NetIron CER devices.

Object Group Name	Object Identifier
rmon	1.3.6.1.2.1.16 **NOTE:** This group is not supported on FastIron devices.
statistics	1.3.6.1.2.1.16.1
history	1.3.6.1.2.1.16.2
alarm	1.3.6.1.2.1.16.3
event	1.3.6.1.2.1.16.9

The following object groups in RFC 1757 are not supported on devices.

- hosts
- hostTopN
- matrix
- filter
- capture (packet capture)

RFC 2096: IP forwarding table MIB

On FastIron devices running software release 07.1.00 and later, this RFC replaces RFS 1213.

In software release 04.0.00 and later for NetIron XMR and NetIron MLX, this RFC has been replaced by RFC 4292. It is not supported on Brocade MLXe, NetIron CES and NetIron CER devices.

RFC 2233 The Interfaces Group MIB using SMIv2

The Interface Entry Table or ifXTable is based on RFC 2233. It contains information about the interfaces. Each sub-layer is considered to be an interface. This table will contain entries for the ATM physical ports, as well as for any sub-interfaces that have been configured.

Object Group Name	Object Identifier
ipCidrRouteDest	1.3.6.1.2.1.4.24.4.1.1
ipCidrRouteMask	1.3.6.1.2.1.4.24.4.1.2
ipCidrRouteTos	1.3.6.1.2.1.4.24.4.1.3
ipCidrRouteNextHop	1.3.6.1.2.1.4.24.4.1.4
ipCidrRouteIfIndex	1.3.6.1.2.1.4.24.4.1.5
ipCidrRouteType	1.3.6.1.2.1.4.24.4.1.6
ipCidrRouteProto	1.3.6.1.2.1.4.24.4.1.7
ipCidrRouteAge	1.3.6.1.2.1.4.24.4.1.8

Object Group Name	Object Identifier
ipCidrRouteInfo	1.3.6.1.2.1.4.24.4.1.9
ipCidrRouteNextHopAS	1.3.6.1.2.1.4.24.4.1.10
ipCidrRouteMetric1	1.3.6.1.2.1.4.24.4.1.11
ipCidrRouteMetric2	1.3.6.1.2.1.4.24.4.1.12
ipCidrRouteMetric3	1.3.6.1.2.1.4.24.4.1.13
ipCidrRouteMetric4	1.3.6.1.2.1.4.24.4.1.14 (BigIron MG8, Brocade MLXe, NetIron XMR, NetIron MLX devices only)
ipCidrRouteMetric5	1.3.6.1.2.1.4.24.4.1.15 (BigIron MG8, Brocade MLXe, NetIron XMR, NetIron MLX devices only)
ipCidrRouteStatus	1.3.6.1.2.1.4.24.4.1.16 (BigIron MG8, Brocade MLXe, NetIron XMR, NetIron MLX devices only)
ifMIB	1.3.6.1.2.1.31
ifMIBObjects	1.3.6.1.2.1.31.1
ifXtable	1.3.6.1.2.1.31.1.1
ifStackTable	1.3.6.1.2.1.31.1.2
ifConformance	1.3.6.1.2.1.31.2
ifCounterDiscontinuityGroup **NOTE:** Supported on the NetIron XMR Series routers and the NetIron MLX Series routers Multi-Service IronWare software release 03.6.00 and later. It is also supported on Brocade MLXe, NetIron CES and NetIron CER devices.	1.3.6.1.2.1.31.2.1.13

RFC 2515: Definitions of textual conventions and object identities for ATM management

Only The following objects groups from RFC 2515 are supported on devices that support ATM.

ATM interface configuration parameters table

The ATM Interface Configuration Table from RFC 2515 contains the configuration of cell layers on the ATM interface of a local device. This information is in addition to the information contained in the ifTable.

The table contains one entry for each ATM interface port. The object identifiers for the table begin with the following objects:

ATM interface transmission convergence sub-layer table

The ATM Interface Transmission Convergence sub-layer table from RFC 2515 contains configuration and state parameters of the ATM interfaces that use Transmission Convergence sub-layer for carrying ATM cells over SONET/SDH or DS3. The object identifiers for the table begin with the following objects

AAL5 virtual channel connection performance statistics table

The ATM Adaptation Layer Type 5 (AAL5) Virtual Channel Connection Performance Statistics Table from RFC 2515 contains the performance statistics of a virtual channel connection at the interface associated with an AAL5 entity in an ATM host or ATM switch. The object identifiers for the table begin with the following objects.

Object Group Name	Object Identifier
atmMIB	1.3.6.1.2.1.37
atmMIBObjects	1.3.6.1.2.1.37.1
atmInterfaceConfTable	1.3.6.1.2.1.37.1.2
atmInterfaceTCTable	1.3.6.1.2.1.37.1.4
aal5VccTable	1.3.6.1.2.1.37.1.12
atmTCMIB	1.3.6.1.2.1.37.3

Other object groups from this RFC are not supported.

RFC 2665: Ethernet-like MIB

On NetIron and Brocade MLXe devices running software release 05.0.00 and later, interface statistics from the following objects of the dot3StatsTable are preserved when the **clear statistics** command is entered on the CLI, if the **snmp-server preserve-statistics** command is enabled:

- dot3StatsAlignmentErrors
- dot3StatsFCSErrors
- dot3StatsFrameTooLongs
- dot3StatsLateCollisions
- dot3StatsSingleCollisionFrames

RFC 2674: Definitions of managed objects for bridges with traffic classes, multicast filtering and virtual LAN extensions

The following groups from this RFC are supported on devices.

Object Group Name	Object Identifier
pBridgeMib	1.3.6.1.2.1.17.6
qBridgeMib	1.3.6.1.2.1.17.7

RFC 2819: Remote Network Monitoring Management Information Base

On NetIron and Brocade MLXe devices running software release 05.0.00 and later, interface statistics from the following objects of the etherStatsTable are preserved when the **clear statistics** command is entered on the CLI, if the **snmp-server preserve-statistics** command is enabled:

- etherStatsDropEvents
- etherStatsOctets
- etherStatsPkts
- etherStatsBroadcastPkts
- etherStatsMulticastPkts
- etherStatsCRCAlignErrors
- etherStatsUndersizePkts
- etherStatsOversizePkts
- etherStatsFragments
- etherStatsPkts64Octets
- etherStatsPkts65to127Octets
- etherStatsPkts128to255Octets
- etherStatsPkts256to511Octets
- etherStatsPkts512to1023Octets
- etherStatsPkts1024to1518Octets

RFC 2863: The interfaces group MIB

RFC 2863 is supported on the NetIron XMR and the NetIron MLX devices running software release 03.6.00 and later. It is also supported on Brocade MLXe, NetIron CES and NetIron CER devices.

ifIndex

On NetIron XMR and NetIron MLX, starting with software release 03.7.00, the number of ifindexes allocated per module has been reduced from 40 to 20 to accommodate the double port density due to the introduction of the 32-slot chassis. This change affects the ifindex for Slot 2 and higher. If you need the ifindexes to remain at 40 (for example, for backward compatibility), issue the **snmp-server max-ifindex-per-module 40** CLI command; otherwise, the default is 20.

Beginning with NetIron software release 04.0.00, there can be 20, 40, or 64 Ifindexes per module. (Refer to the “Configuring SNMP ifIndex” section of the “Configuring Basic Parameters” chapter in the *NetIron Configuration Guide* for details.)

On the NetIron XMR and MLX Multi-Service IronWare software release 03.6.00 and later, and on Brocade MLXe, NetIron CES, and NetIron CER devices, every trunk group will appear as a row within the ifTable and ifXTable. The ifIndex range involves all the physical ports, virtual ports, loopback ports, multicast tunnels, GRE tunnels and MPLS tunnels in that order.

Use the Get operations on snInterfaceLookupIfIndex (indexed by ifIndex) to get InterfaceId (in a simple OID form)

These allocations are subject to change from one release to the next.

TABLE 3 XMR/MLX Index Ranges

	4-slot	8-slot	16-slot	32-slot	Allocation
Physical port	1-160	1-320	1-640	1-1280	20 per slot (Release 3.7 and later) 40 per slot (Releases prior to 3.7)
Mgmt port	2	2	2	2	1 active, 1 stanby
Virtual port	255 default, 40 minimum, 4096 maximum	255 default, 40 minimum, 4096 maximum	255 default, 40 minimum, 4096 maximum	255 default, 40 minimum, 4096 maximum	
Loopback port	64 default	64 default	64 default	64 default	
IP tunnels	8192	8192	8192	8192	
MPLS tunnels	16384	16384	16384	16384	
Trunk	128 default, 128 min, max 256	128 default, 128 min, max 256	128 default, 128 min, max 256	128 default, 128 min, max 256	

IfIndex assignment persistance

The following interfaces on the Brocade MLXe, NetIron XMR, NetIron MLX devices have ifIndex assignment that are persistent across reboots and switchover operations:

- Physical ports
- Virtual ports
- Loopback ports

NOTE
The ifIndex should be derived from the snIfIndexLookupTable using the InterfaceId (in OID form), instead of assuming that the ifIndex to always stay persistent across reloads.

On the following interfaces, IfIndex assignments are not persistent across reboots and switchover operations:

- MPLS tunnel interfaces
- Trunk ports

ifType for interfaces

On NetIron XMR Series and the NetIron MLX Series routers running software release 04.0.00 and later and on Brocade MLXe, NetIron CES, and NetIron CER devices, ifType for all Ethernet interfaces (10/100/1G/10G) returns the value ethernetCsmacd(6) as mandated by RFC 2665.

If the command **snmp-server legacy iftype** is configured on the device CLI, ifType returns gigabitEthernet(117) or fastEther(62). If the command is not configured (or **no snmp-server legacy iftype** is issued), then ifType returns the value ethernetCsmacd(6).

Statistics for virtual routing interfaces on 8x10 modules

The ifTable and ifXTable display information for switched and routed packets on virtual routing interface of the 8x10 modules installed on Brocade MLXe, NetIron XMR, NetIron MLX devices. This feature is available on NetIron XMR, NetIron MLX, and Brocade MLXe devices running NetIron software release 05.0.00 and later. The **extended-counter routed-switched** command must be configured to enable separate accounting of routed and switched packets on virtual routing interfaces.

ifTable attributes

The following MIB attributes of the ifTable return information for switched and routed packets for the 8x10 modules.

MIB attribute	Information attribute returns
ifInOctets	Total Rx bytes in this virtual routing interface (32 bit counter)
ifOutOctets	Total Tx bytes in this virtual routing interface (32 bit counter)
ifInUcastPkts	Total Rx packets in this virtual routing interface (32 bit counter)
ifOutUcastPkts	Total Tx packets in this virtual routing interface (32 bit counter)
ifInNUcastPkts	Always returns 0
ifInDiscards	Always returns 0
ifInErrors	Always returns 0
ifInUnknownProtos	Always returns 0
ifOutNUcastPkts	Always returns 0
ifOutDiscards	Always returns 0
ifOutErrors	Always returns 0

ifXTable attributes

The following MIB attributes of the ifXTable return information for switched and routed packets for the 8x10 modules.

MIB attribute	Information attribute returns
ifHCInOctets	Total Rx bytes in this virtual routing interface (64 bit counter)
ifHCOutOctets	Total Tx bytes in this virtual routing interface (64 bit counter)
ifHCInUcastPkts	Total Rx packets in this virtual routing interface (64 bit counter)

MIB attribute	Information attribute returns
ifHCOutUcastPkts	Total Tx packets in this virtual routing interface (64 bit counter)
ifInMulticastPkts	Always returns 0
ifInBroadcastPkts	Always returns 0
ifOutMulticastPkts	Always returns 0
ifOutBroadcastPkts	Always returns 0
ifHCInMulticastPkts	Always returns 0
ifHCInBroadcastPkts	Always returns 0
ifHCOutMulticastPkts	Always returns 0
ifHCOutBroadcastPkts	Always returns 0

Preserved SNMP statistics on interfaces

SNMP statistics in the ifTable and IFXTable for physical interfaces on Broccade MLXe and NetIron devices running software release 05.0.00 and later are preserved when the **snmp-server preserve-statistics** command is enabled on the CLI. After configuring the **snmp-server preserve-statistics,** the SNMP statistics listed below are separated from the CLI statistics. This means that when the command **clear statistics** <*interface-type*> <*interface-id*> is entered on the CLI, the command clears only CLI statistics, leaving the SNMP statistics intact.

IF-MIB (RFC 2863) ifTable Objects

Statistics from the following objects in the ifTable are preserved when the **snmp-server preserve-statistics** command is enabled on the CLI.

ifInOctets	Counter32
ifInUcastPkts	Counter32
ifInNUcastPkts	Counter32-- deprecated
ifInDiscards	Counter32
ifInErrors	Counter32
ifInUnknownProtos	Counter32
ifOutOctets	Counter32
ifOutUcastPkts	Counter32
ifOutNUcastPkts	Counter32 – deprecated
ifOutDiscards	Counter32
ifOutErrors	Counter32

IF-MIB (RFC 2863) ifXTable Objects

Statistics from the following objects in the ifXTable are preserved when the **snmp-server preserve-statistics** command is enabled on the CLI.

ifInMulticastPkts	Counter32
ifInBroadcastPkts	Counter32
ifOutMulticastPkts	Counter32
ifOutBroadcastPkts	Counter32
ifHCInOctets	Counter64
ifHCInUcastPkts	Counter64
ifHCInMulticastPkts	Counter64
ifHCInBroadcastPkts	Counter64
ifHCOutOctets	Counter64
ifHCOutUcastPkts	Counter64
ifHCOutMulticastPkts	Counter64
ifHCOutBroadcastPkts	Counter64
snSwIfInOctets	Counter32
snSwIfOutOctets	Counter32

EtherLike-MIB (RFC 2665) dot3StatsTable Objects (Ethernet Ports only)

Statistics from the following objects in the dot3StatsTable are preserved when the **snmp-server preserve-statistics** command is enabled on the CLI.

dot3StatsAlignmentErrors	Counter32
dot3StatsFCSErrors	Counter32
dot3StatsFrameTooLongs	Counter32
dot3StatsLateCollisions	Counter32
dot3StatsSingleCollisionFrames	Counter32

RMON-MIB (RFC 2819) etherStatsTable Objects (Ethernet ports only)

Statistics from the following objects in the etherStatsTable are preserved when the **snmp-server preserve-statistics** command is enabled on the CLI.

etherStatsDropEvents	Counter32
etherStatsOctets	Counter32
etherStatsPkts	Counter32

etherStatsBroadcastPkts	Counter32
etherStatsMulticastPkts	Counter32
etherStatsCRCAlignErrors	Counter32
etherStatsUndersizePkts	Counter32
etherStatsOversizePkts	Counter32
etherStatsFragments	Counter32
etherStatsPkts64Octets	Counter32
etherStatsPkts65to127Octets	Counter32
etherStatsPkts128to255Octets	Counter32
etherStatsPkts256to511Octets	Counter32
etherStatsPkts512to1023Octets	Counter32
etherStatsPkts1024to1518Octets	Counter32

RFC 2932 IPv4 multicast routing MIB

The following objects from RFC 2932 are supported in FastIron devices running software release 07.2.02.

General scalar

Object	Object Identifier
ipMRouteEnable	1.3.6.1.2.1.83.1.1.1

ipMRouteTable

The following objects in the IP multicast route table (ipMRouteTable) are supported on the FastIron device.

Object	Object Identifier
ipMRouteUpstreamNeighbor	1.3.6.1.2.1.83.1.1.2.1.4
ipMRouteInIfIndex	1.3.6.1.2.1.83.1.1.2.1.5
ipMRouteUpTime	1.3.6.1.2.1.83.1.1.2.1.6
ipMRouteExpiryTime	1.3.6.1.2.1.83.1.1.2.1.7
ipMRoutePkts	1.3.6.1.2.1.83.1.1.2.1.8
ipMRouteOctets	1.3.6.1.2.1.83.1.1.2.1.10
ipMRouteProtocol	1.3.6.1.2.1.83.1.1.2.1.11

ipMRouteNextHopTable

The following object in the IP Multicast Routing Next Hop Table (ipMRouteNextHopTable) is supported on FastIron devices.

Object	Object Identifier
ipMRouteNextHopState	1.3.6.1.2.1.83.1.1.3.1.6

ipMRouteInterfaceTable

The following objects in the IP Multicast Routing Interface Table (ipMRouteInterfaceTable) are supported on FastIron devices.

Object	Object Identifier
ipMRouteInterfaceInMcastOctets	1.3.6.1.2.1.83.1.1.4.1.5
ipMRouteInterfaceOutMcastOctets	1.3.6.1.2.1.83.1.1.4.1.6
ipMRouteInterfaceHCOutMcastOctets	1.3.6.1.2.1.83.1.1.4.1.7
ipMRouteInterfaceHCInMcastOctets	1.3.6.1.2.1.83.1.1.4.1.8

RFC 2933 IGMP MIB

Support on FastIron devices

FastIron devices running software release 07.2.02 and later, support the following objects from RFC 2933.

igmpInterfaceTable (IGMP interface table)

Object	Object Identifier
igmpInterfaceStatus	1.3.6.1.2.1.85.1.1.1.3
igmpInterfaceQuerier	1.3.6.1.2.1.85.1.1.1.5

igmpCacheTable (IGMP cache table)

Object	Object Identifier
igmpCacheSelf	1.3.6.1.2.1.85.1.2.1.3
igmpCacheStatus	1.3.6.1.2.1.85.1.2.1.7

Support on other devices

On other Brocade devices, RFC 2933 is supported on the following devices:

- Devices running Enterprise software release 08.0.00 and later
- NetIron XMR and NetIron MLX Series devices
- NetIron CES and NetIron CER devices
- Brocade MLXe devices

NOTE

The following are limitations for the support of RFC 2933 on the Brocade MLXe, NetIron devices:

- IGMP Snooping is not supported
- Tables are read-only
- VRF support is only for the default VRF
- Data is available only for physical ports

Support for the RFC in the devices the devices is presented below.

igmpInterfaceTable (IGMP interface table)

Object	Object Identifier	Supported?
igmpInterfaceIfIndex	1.3.6.1.2.1.85.1.1.1.1	Yes
igmpInterfaceQueryInterval	1.3.6.1.2.1.85.1.1.1.2	Yes. Global value only.
igmpInterfaceStatus	1.3.6.1.2.1.85.1.1.1.3	Yes **NOTE:** On Brocade MLXe, NetIron XMR, MLX, CES, CER devices, the constant value for this object is active(1).
igmpInterfaceVersion	1.3.6.1.2.1.85.1.1.1.4	Yes
igmpInterfaceQuerier	1.3.6.1.2.1.85.1.1.1.5	Yes
igmpInterfaceQueryMaxResponseTime	1.3.6.1.2.1.85.1.1.1.6	Yes. Global value only.
igmpInterfaceQuerierUpTime	1.3.6.1.2.1.85.1.1.1.7	Yes
igmpInterfaceQuerierExpiryTime	1.3.6.1.2.1.85.1.1.1.8	Yes
igmpInterfaceVersion1QuerierTimer	1.3.6.1.2.1.85.1.1.1.9	The constant value for this object is -1.
igmpInterfaceWrongVersionQueries	1.3.6.1.2.1.85.1.1.1.10	Yes
igmpInterfaceJoins	1.3.6.1.2.1.85.1.1.1.11	Yes
igmpInterfaceProxyIfIndex	1.3.6.1.2.1.85.1.1.1.12	No
igmpInterfaceGroups	1.3.6.1.2.1.85.1.1.1.13	Yes

Object	Object Identifier	Supported?
igmpInterfaceRobustness	1.3.6.1.2.1.85.1.1.1.14	Yes. Global value only.
igmpInterfaceLastMemQueryIntvl	1.3.6.1.2.1.85.1.1.1.15	Yes **NOTE:** On Brocade MLXe, and NetIron XMR, MLX, CES, and CER, devices, the constant value for this object is Global.

igmpCacheTable (IGMP cache table)

NOTE
GET-NEXT is not supported for MIB walks on Brocade MLXe, NetIron XMR, MLX, CES, and CER devices,

Object	Object Identifier	Supported?
igmpCacheAddress	1.3.6.1.2.1.85.1.2.1.1	Yes
igmpCacheIfIndex	1.3.6.1.2.1.85.1.2.1.2	Yes
igmpCacheSelf	1.3.6.1.2.1.85.1.2.1.3	Yes
igmpCacheLastReporter	1.3.6.1.2.1.85.1.2.1.4	Yes **NOTE:** On Brocade MLXe and NetIron XMR, MLX, CES, and CER and devices, the constant value for this object is 0.
igmpCacheUpTime	1.3.6.1.2.1.85.1.2.1.5	Yes
igmpCacheExpiryTime	1.3.6.1.2.1.85.1.2.1.6	Yes
igmpCacheStatus	1.3.6.1.2.1.85.1.2.1.7	Yes **NOTE:** On Brocade MLXe and NetIron XMR, MLX, CES, and CER and devices, the constant value for this object is active(1).
igmpCacheVersion1HostTimer	1.3.6.1.2.1.85.1.2.1.8	Yes

RFC 2934 PIM MIB for IPv4

Support on FastIron devices

FastIron devices running software release 07.2.02 and later, the following objects from RFC 2934.

Object	Object Identifier
pimJoinPruneInterval	1.3.6.1.3.61.1.1.1

pimInterfaceTable (PIM interface table)

Object	Object Identifier
pimInterfaceIfIndex	1.3.6.1.3.61.1.1.2.1.1
pimInterfaceAddress	1.3.6.1.3.61.1.1.2.1.2
pimInterfaceNetMask	1.3.6.1.3.61.1.1.2.1.3
pimInterfaceMode	1.3.6.1.3.61.1.1.2.1.4
pimInterfaceDR	1.3.6.1.3.61.1.1.2.1.5
pimInterfaceHelloInterval	1.3.6.1.3.61.1.1.2.1.6
pimInterfaceStatus	1.3.6.1.3.61.1.1.2.1.7
pimInterfaceJoinPruneInterval	1.3.6.1.3.61.1.1.2.1.8
pimInterfaceCBSRPreference	1.3.6.1.3.61.1.1.2.1.9

pimNeighborTable (PIM neighbor table)

Object	Object Identifier
pimNeighborAddress	1.3.6.1.3.61.1.1.3.1.1
pimNeighborIfIndex	1.3.6.1.3.61.1.1.3.1.2

pimComponentTable (PIM component table)

FastIron devices do not support PIM Border.

Object	Object Identifier
pimComponentIndex	1.3.6.1.3.61.1.1.12.1.1
pimComponentBSRAddress	1.3.6.1.3.61.1.1.12.1.2
pimComponentBSRExpiryTime	1.3.6.1.3.61.1.1.12.1.3

Support on other devices

On other devices, support for RFC 2934 is available on the following devices:

- Devices running Enterprise software release 08.0.00 and later
- NetIron XMR and NetIron MLX Series devices
- NetIron CES and NetIron CER devices
- Brocade MLXe devices

NOTE
On Brocade MLXe and NetIron XMR, MLX, CES, and CER and devices, only default VRF is supported.

Support for the RFC in these devices is presented below.

Object	Object Identifier	Supported?
pimJoinPruneInterval	1.3.6.1.3.61.1.1.1	Yes

pimInterfaceTable (PIM interface table)

Object	Object Identifier	Supported?
pimInterfaceIfIndex	1.3.6.1.3.61.1.1.2.1.1	Yes
pimInterfaceAddress	1.3.6.1.3.61.1.1.2.1.2	Yes
pimInterfaceNetMask	1.3.6.1.3.61.1.1.2.1.3	Yes
pimInterfaceMode	1.3.6.1.3.61.1.1.2.1.4	Yes
pimInterfaceDR	1.3.6.1.3.61.1.1.2.1.5	Yes
pimInterfaceHelloInterval	1.3.6.1.3.61.1.1.2.1.6	Yes. Global value only. **NOTE:** On Brocade MLXe and NetIron XMR, MLX, CES, and CER and devices, only read-only is supported for this object.
pimInterfaceStatus	1.3.6.1.3.61.1.1.2.1.7	Yes
pimInterfaceJoinPruneInterval	1.3.6.1.3.61.1.1.2.1.8	Yes. Global value only. **NOTE:** On Brocade MLXe and NetIron XMR, MLX, CES, and CER and devices, only read-only is supported for this object.
pimInterfaceCBSRPreference	1.3.6.1.3.61.1.1.2.1.9	Yes. Global value only. **NOTE:** On Brocade MLXe and NetIron XMR, MLX, CES, and CER and devices, only read-only is supported for this object. The constant value for this object is 0.

pimNeighborTable (PIM neighbor table)

Object	Object Identifier	Supported?
pimNeighborAddress	1.3.6.1.3.61.1.1.3.1.1	Yes
pimNeighborIfIndex	1.3.6.1.3.61.1.1.3.1.2	Yes
pimNeighborUpTime	1.3.6.1.3.61.1.1.3.1.3	Yes
pimNeighborExpiryTime	1.3.6.1.3.61.1.1.3.1.4	Yes
pimNeighborMode	1.3.6.1.3.61.1.1.3.1.5	Yes

pimIpMRouteTable (PIM IP multicast route table)

NOTE
The PIM IP Multicast Route Table MIBs are not supported on the following products:

- BigIron RX
- NetIron XMR and NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- NetIron CES and NetIron CER
- Brocade MLXe

Object	Object Identifier	Supported?
pimIpMRouteUpstreamAssertTimer	1.3.6.1.3.61.1.1.4.1.1	Yes
pimIpMRouteAssertMetric	1.3.6.1.3.61.1.1.4.1.2	Yes
pimIpMRouteAssertMetricPref	1.3.6.1.3.61.1.1.4.1.3	Yes
pimIpMRouteAssertRPTBit	1.3.6.1.3.61.1.1.4.1.4	Yes
pimIpMRouteFlags	1.3.6.1.3.61.1.1.4.1.5	Yes

pimIpMRouteNextHopTable (PIM next hop table)

The pimIpMRouteNextHopTable is not supported.

pimRpTable (PIM RP table)

NOTE
The pimRPTable has been deprecaed on the following products:

- BigIron RX
- NetIron XMR and NetIron MLX
- BigIron MG8
- NetIron 40G

- NetIron IMR 640 Router
- NetIron CES and NetIron CER
- Brocade MLXe
- FastIron devices

Object	Object Identifier	Supported?
pimRPGroupAddress	1.3.6.1.3.61.1.1.5.1.1	Yes, but read-only and only active groups.
pimRPAddress	1.3.6.1.3.61.1.1.5.1.2	Yes, but read-only.
pimRPState	1.3.6.1.3.61.1.1.5.1.3	Yes, but read-only and value is always up(1).
pimRPStateTimer	1.3.6.1.3.61.1.1.5.1.4	No
pimRPLastChange (	1.3.6.1.3.61.1.1.5.1.5	No
pimRPRowStatus	1.3.6.1.3.61.1.1.5.1.6	Yes, but read-only.

pimRpSetTable (PIM RP set table)

NOTE
This table is not supported on FastIron devices.

Object	Object Identifier	Supported?
pimRpSetGroupAddress	1.3.6.1.3.61.1.1.6.1.1	Yes
pimRpSetGroupMask	1.3.6.1.3.61.1.1.6.1.2	Yes
pimRpSetAddress	1.3.6.1.3.61.1.1.6.1.3	Yes
pimRpSetHoldTime	1.3.6.1.3.61.1.1.6.1.4	Yes
pimRpSetExpiryTime	1.3.6.1.3.61.1.1.6.1.5	Yes
pimRpSetComponent	1.3.6.1.3.61.1.1.6.1.6	Yes, but only one PIM domain is supported.

pimCandidateRPTable (PIM candidate-RP table)

NOTE
This table is not supported on FastIron devices.

Object	Object Identifier	Supported?
pimCandidateRPGroupAddress	1.3.6.1.3.61.1.1.11.1.1	Yes
pimCandidateRPGroupMask	1.3.6.1.3.61.1.1.11.1.2	Yes
pimCandidateRPAddress	1.3.6.1.3.61.1.1.11.1.3	Yes
pimCandidateRPRowStatus	1.3.6.1.3.61.1.1.11.1.4	Yes

pimComponentTable (PIM component table)

SET operation for this table is not available, since the BSR is in one domain only. This table has only one row.

Use the CLI command **ip pim border** at the interface level to stop the flooding of the bootstrap messages.

NOTE:

The pimComponentTable MIBs are not supported on the following products:

- BigIron RX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router

Object	Object Identifier	Supported?
pimComponentIndex	1.3.6.1.3.61.1.1.12.1.1	Yes
pimComponentBSRAddress	1.3.6.1.3.61.1.1.12.1.2	Yes
pimComponentBSRExpiryTime	1.3.6.1.3.61.1.1.12.1.3	Yes
pimComponentCRPHoldTime	1.3.6.1.3.61.1.1.12.1.4	Yes
pimComponentStatus	1.3.6.1.3.61.1.1.12.1.5	Yes, but read-only

RFC 3176: InMon corporation's sFlow: A method for monitoring traffic in switched and routed networks

RFC 3176 MIBS enable you to configure the sFlow Export feature. Support for this RFC is available on the following devices:

- Devices running Enterprise IronWare software release 07.5.01 and later provide
- NetIron XMR and NetIron MLX Series devices
- NetIron CES and NetIron CER devices
- Brocade MLXe devices

The following groups from this RFC are supported in these devices.

Object Name	Object Identifier	Description
sFlowAgent	1.3.6.1.4.1.4300.1.1	
sFlowVersion	1.3.6.1.4.1.4300.1.1.1	Returns a version string (for example, "1.2; Brocade"
sFlowAgentAddressType	1.3.6.1.4.1.4300.1.1.2	Returns value 1 (ipv4)
sFlowAgentAddress	1.3.6.1.4.1.4300.1.1.3	Management IP
sFlowTable	1.3.6.1.4.1.4300.1.1.4	sFlow Table
sFlowDataSource	1.3.6.1.4.1.4300.1.1.4.1.1	ifIndex of sFlow port
sFlowOwner	1.3.6.1.4.1.4300.1.1.4.1.2	Always null. Not supported in the CLI.
sFlowTimeout	1.3.6.1.4.1.4300.1.1.4.1.3	Always 0. Not supported in the CLI.

Object Name	Object Identifier	Description
sFlowPacketSamplingRate	1.3.6.1.4.1.4300.1.1.4.1.4	Port sampling rate. Set this value to 0 to disable sflow for a port.
sFlowCounterSamplingInterval	1.3.6.1.4.1.4300.1.1.4.1.5	Global counter poll interval
sFlowMaximumHeaderSize	1.3.6.1.4.1.4300.1.1.4.1.6	Always 128
sFlowMaximumDatagramSize	1.3.6.1.4.1.4300.1.1.4.1.7	Always 1400
sFlowCollectorAddressType	1.3.6.1.4.1.4300.1.1.4.1.8	Always 1 (ipv4)
sFlowCollectorAddress	1.3.6.1.4.1.4300.1.1.4.1.9	Address of first collector. For other collectors, use snSflowCollectorTable. (Refer to "sFlow collector" on page 505.)
sFlowCollectorPort	1.3.6.1.4.1.4300.1.1.4.1.10	Port of first collector. For other collectors, use snSflowCollectorTable. (Refer to "sFlow collector" on page 505.)
sFlowDatagramVersion	1.3.6.1.4.1.4300.1.1.4.1.11	Always 4

RFC 3815: Managed objects for MPLS and LDP

Multi-Service IronWare release 03.7.00 and later for the NetIron XMR and MLX Series provides support for RFC 3815, Managed Objects for the Multiprotocol Label Switching (MPLS), and Label Distribution Protocol (LDP). This MIB is also supported on Brocade MLXe, NetIron CES, and NetIron CER devices.

Support for this MIB enables configuration and monitoring of the Label Distribution Protocol (LDP).

mplsLdpLsr objects

Object Name	Object Identifier	Supported
mplsLdpLsrId	1.3.6.1.2.1.10.166.4.1.1	Yes
mplsLdpLsrLoopDetectionCapable	1.3.6.1.2.1.10.166.4.1.2	Returns none(1) or hopCountAndPathVector(5)

mplsLdpEntity objects

Object Name	Object Identifier	Supported
mplsLdpEntityLastChange	1.3.6.1.2.1.10.166.4.1.2.1	Always returns 0.
mplsLdpEntityIndexNext	1.3.6.1.2.1.10.166.4.1.2.2	Always returns 0.

mplsLdpEntity table

This mplsLdpEntity table contains information about MPLS Label Distribution Protocol Entities which exist on this Label Switching Router (LSR) or Label Edge Router (LER).

NOTE
This table currently supports read-only access.

Object Name	Object Identifier	Supported
mplsLdpEntityLdpId	1.3.6.1.2.1.10.166.4.1.2.3.1.1	Index
mplsLdpEntityIndex	1.3.6.1.2.1.10.166.4.1.2.3.1.2	Index
mplsLdpEntityProtocolVersion	1.3.6.1.2.1.10.166.4.1.2.3.1.3	Yes
mplsLdpEntityAdminStatus	1.3.6.1.2.1.10.166.4.1.2.3.1.4	The administrative status of this LDP Entity. The values are: • up(1) mapped to enable(1) • down(2)/testing(3) mapped to disable(2)
mplsLdpEntityOperStatus	1.3.6.1.2.1.10.166.4.1.2.3.1.5	Displays the operational status of this LDP Entity. The values are: • up(1) mapped to enabled (2) • down(2) mapped to disabled(3) • testing(3) mapped to disabled(3) • unknown(4) mapped to unknown(1) • dormant(5) mapped to disabled(3) • notpresent(6) mapped to disabled(3)
mplsLdpEntityTcpPort	1.3.6.1.2.1.10.166.4.1.2.3.1.6	Yes
mplsLdpEntityUdpDscPort	1.3.6.1.2.1.10.166.4.1.2.3.1.7	Yes
mplsLdpEntityMaxPduLength	1.3.6.1.2.1.10.166.4.1.2.3.1.8	Yes
mplsLdpEntityKeepAliveHoldTimer	1.3.6.1.2.1.10.166.4.1.2.3.1.9	Yes
mplsLdpEntityHelloHoldTimer	1.3.6.1.2.1.10.166.4.1.2.3.1.10	Yes
mplsLdpEntityInitSessionThreshold	1.3.6.1.2.1.10.166.4.1.2.3.1.11	Yes
mplsLdpEntityLabelDistMethod	1.3.6.1.2.1.10.166.4.1.2.3.1.12	Yes
mplsLdpEntityLabelRetentionMode	1.3.6.1.2.1.10.166.4.1.2.3.1.13	Yes
mplsLdpEntityPathVectorLimit	1.3.6.1.2.1.10.166.4.1.2.3.1.14	Yes
mplsLdpEntityHopCountLimit	1.3.6.1.2.1.10.166.4.1.2.3.1.15	Yes
mplsLdpEntityTransportAddrKind	1.3.6.1.2.1.10.166.4.1.2.3.1.16	Displays the IP address of the interface from which hello messages are sent is used as the transport address in the hello message. Returns interface(1)
mplsLdpEntityTargetPeer	1.3.6.1.2.1.10.166.4.1.2.3.1.17	Yes

Object Name	Object Identifier	Supported
mplsLdpEntityTargetPeerAddrType	1.3.6.1.2.1.10.166.4.1.2.3.1.18	Displays the type of the internetwork layer address used for the Extended Discovery. Possible types: • ipv4(1) • ipv6(2) • unknown(0)
mplsLdpEntityTargetPeerAddr	1.3.6.1.2.1.10.166.4.1.2.3.1.19	Yes
mplsLdpEntityLabelType	1.3.6.1.2.1.10.166.4.1.2.3.1.20	Yes
mplsLdpEntityDiscontinuityTime	1.3.6.1.2.1.10.166.4.1.2.3.1.21	Yes
mplsLdpEntityStorageType	1.3.6.1.2.1.10.166.4.1.2.3.1.22	Yes
mplsLdpEntityRowStatus	1.3.6.1.2.1.10.166.4.1.2.3.1.23	Yes

mplsLdpEntityStats Table

The mplsLdpEntityStats table is a read-only table which augments the mplsLdpEntityTable. This table keeps statistical information about the LDP Entities on the LSR. This table is read-only.

Object Name	Object Identifier	Supported
mplsLdpEntityStatsSessionAttempts	1.3.6.1.2.1.10.166.4.1.2.4.1.1	Yes
mplsLdpEntityStatsSessionRejectedNoHelloErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.2	Yes
mplsLdpEntityStatsSessionRejectedAdErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.3	Yes
mplsLdpEntityStatsSessionRejectedMaxPduErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.4	Yes
mplsLdpEntityStatsSessionRejectedLRErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.5	Yes
mplsLdpEntityStatsBadLdpIdentifierErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.6	Yes
mplsLdpEntityStatsBadPduLengthErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.7	Yes
mplsLdpEntityStatsBadMessageLengthErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.8	Yes
mplsLdpEntityStatsBadTlvLengthErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.9	Yes
mplsLdpEntityStatsMalformedTlvValueErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.10	Yes
mplsLdpEntityStatsKeepAliveTimerExpErrors	1.3.6.1.2.1.10.166.4.1.2.4.1.11	Yes
mplsLdpEntityStatsShutdownReceivedNotifications	1.3.6.1.2.1.10.166.4.1.2.4.1.12	Yes
mplsLdpEntityStatsShutdownSentNotifications	1.3.6.1.2.1.10.166.4.1.2.4.1.13	Yes

mplsLdpSession objects

Object Name	Object Identifier	Supported
mplsLdpPeerLastChange	1.3.6.1.2.1.10.166.4.1.3.1	Unsupported, Always returns 0
mplsLdpLspFecLastChange	1.3.6.1.2.1.10.166.4.1.3.2	Yes

mplsLdpPeer table

The mplsLdpPeer table has Information about LDP peers known by Entities in the mplsLdpEntityTable. The information in this table is based on information from the Entity-Peer interaction during session initialization but is not appropriate for the mplsLdpSessionTable, because objects in this table may or may not be used in session establishment.

Object Name	Object Identifier	Supported
mplsLdpPeerLdpId	1.3.6.1.2.1.10.166.4.1.3.2.1.1	Yes
mplsLdpPeerLabelDistMethod	1.3.6.1.2.1.10.166.4.1.3.2.1.2	Yes
mplsLdpPeerPathVectorLimit	1.3.6.1.2.1.10.166.4.1.3.2.1.3	Yes
mplsLdpPeerTransportAddrType	1.3.6.1.2.1.10.166.4.1.3.2.1.4	Displays the type of the Internet address for the mplsLdpPeerTransportAddr object. Possible types: • ipv4(1) • ipv6(2) • unknown(0)
mplsLdpPeerTransportAddr	1.3.6.1.2.1.10.166.4.1.3.2.1.5	Yes

mplsLdpSession table

The mplsLdpSession table contains information of sessions between the LDP Entities and LDP Peers. This table augments the mplsLdpPeerTable. Each row in this table represents a single session. This table is read-only.

Object Name	Object Identifier	Supported
mplsLdpSessionStateLastChange	1.3.6.1.2.1.10.166.4.1.3.3.1.1	Unsupported. Returns 0
mplsLdpSessionState	1.3.6.1.2.1.10.166.4.1.3.3.1.2	Yes
mplsLdpSessionRole	1.3.6.1.2.1.10.166.4.1.3.3.1.3	Yes
mplsLdpSessionProtocolVersion	1.3.6.1.2.1.10.166.4.1.3.3.1.4	Yes
mplsLdpSessionKeepAliveHoldTimeRem	1.3.6.1.2.1.10.166.4.1.3.3.1.5	Yes
mplsLdpSessionKeepAliveTime	1.3.6.1.2.1.10.166.4.1.3.3.1.6	Yes
mplsLdpSessionMaxPduLength	1.3.6.1.2.1.10.166.4.1.3.3.1.7	Yes
mplsLdpSessionDiscontinuityTime	1.3.6.1.2.1.10.166.4.1.3.3.1.8	Yes

mplsLdpSessionStats table

A table of statistics between the LDP entities and LDP peers. This table is read-only.

Object Name	Object Identifier	Supported
mplsLdpSessionStatsUnknownMesType Errors	1.3.6.1.2.1.10.166.4.1.3.4.1.1	Yes
mplsLdpSessionStatsUnknownTlvErrors	1.3.6.1.2.1.10.166.4.1.3.4.1.2	Yes

mplsLdpHelloAdjacency table

A table of hello adjacencies for the sessions. This table is read-only.

Object Name	Object Identifier	Supported
mplsLdpHelloAdjacencyIndex	1.3.6.1.2.1.10.166.4.1.3.5.1.	Index
mplsLdpHelloAdjacencyHoldTimeRem	1.3.6.1.2.1.10.166.4.1.3.5.1.1.2	Yes
mplsLdpHelloAdjacencyHoldTime	1.3.6.1.2.1.10.166.4.1.3.5.1.1.3	Yes
mplsLdpHelloAdjacencyType	1.3.6.1.2.1.10.166.4.1.3.5.1.1.4	Yes

mplsFec objects

Object Name	Object Identifier	Supported
mplsFecLastChange	1.3.6.1.2.1.10.166.4.1.3.8.1	Same data as mplsLdpLspFecLastChange
mplsFecIndexNext	1.3.6.1.2.1.10.166.4.1.3.8.2	Unsupported. Always returns 0.

mplsFec table

The mplsFec table represents the FEC (Forwarding Equivalence Class) information associated with an LSP.

NOTE
This table currently supports read-only access.

Object Name	Object Identifier	Supported
mplsFecIndex	1.3.6.1.2.1.10.166.4.1.3.8.3.1.1	Index
mplsFecType	1.3.6.1.2.1.10.166.4.1.3.8.3.1.2	Yes
mplsFecAddrPrefixLength	1.3.6.1.2.1.10.166.4.1.3.8.3.1.3	Yes
mplsFecAddrType	1.3.6.1.2.1.10.166.4.1.3.8.3.1.4	Displays the value of this object and the type of the Internet address. Possible values: • ipv4(1) • ipv6(2) • unknown(0)

mplsFecAddr	1.3.6.1.2.1.10.166.4.1.3.8.3.1.5	Yes
mplsFecStorageType	1.3.6.1.2.1.10.166.4.1.3.8.3.1.6	Yes
mplsFecRowStatus	1.3.6.1.2.1.10.166.4.1.3.8.3.1.7	Yes

mplsLdpSessionPeerAddr table

The mplsLdpSessionPeerAddr table 'extends' the mplsLdpSessionTable. This table is used to store Label Address Information from Label Address Messages received by this LSR from Peers. This table is read-only and should be updated when Label Withdraw Address Messages are received, i.e., Rows should be deleted as appropriate.

NOTE
Since more than one address may be contained in a Label Address Message, this table 'sparse augments', the mplsLdpSessionTable's information.

Object Name	Object Identifier	Supported
mplsLdpSessionPeerAddrIndex	1.3.6.1.2.1.10.166.4.1.3.11.1.1	Index
mplsLdpSessionPeerNextHopAddrType	1.3.6.1.2.1.10.166.4.1.3.11.1.2	Displays the internetwork layer address type of this Next Hop Address as specified in the Label Address Message associated with this Session. Possible values: • ipv4(1) • ipv6(2) • unknown(0)
mplsLdpSessionPeerNextHopAddr	1.3.6.1.2.1.10.166.4.1.3.11.1.3	Yes

RFC 4022: MIB for the Transmission Control Protocol (TCP)

RFC 4022 replaces RFC 2012 and RFC 2452.

The following devices supports RFC 4022:

- NetIron XMR and NetIron MLX devices running software release 04.0.00 and later.
- Brocade MLXe running software release 05.0.00 and later.
- NetIron CES and NetIron CER devices running software release 05.1.00 ad later.

These devices support the entire RFC 4022. All objects have read-only access, except for the tcpConnectionState object in the tcpConnectionTable. The tcpConnectionState object has read-write access.

RFC 4087: IP Tunnel MIB

The following tables in RFC 4087 are supported on the NetIron XMR and NetIron MLX software release 04.0.00 and later. The tables are also supported on Brocade MLXe, NetIron CES, and NetIron CER devices.

tunnelIfTable

The tunnelIfTable contains information on configured tunnels. Support for this table is as given below.

tunnelInetConfigTable

tunnelIfLocalAddress	Not supported as it is deprecated.
tunnelIfRemoteAddress	Not supported as it is deprecated.
tunnelIfEncapsMethod	Read-only. Only 6to4 and GRE tunnel types are suppored. This is the encapsulation method used by the tunnel.
tunnelIfHopLimit	Read-only. This is the IPv4 TTL or IPv6 Hop Limit to use in the outer IP header. A value of 0 indicates that the value is copied from the payload's header.
tunnelIfSecurity	Read-only. Always returns "none(1)".
tunnelIfTOS	Read-only.
tunnelIfFlowLabel	Read-only. Always returns -1 which indicates a wildcard as suggested by RFC3595.
tunnelIfAddressType	Read-only.
tunnelIfLocalInetAddress	Read-only.
tunnelIfRemoteInetAddress	Read-only.
tunnelIfEncapsLimit	Read-only. This is the maximum number of additional encapsulations permitted for packets undergoing encapsulation at this node. A value of -1 indicates that no limit is present, except as a result of the packet size.

The tunnelInetConfigTable can be used to map a set of tunnel endpoints to the associated ifIndex value. Every row in the tunnelIfTable with a fixed destination address should have a corresponding row in the tunnelInetConfigTable.

Support for this table is as follows.

tunnelInetConfigAddressType	Read-only. Index value
tunnelInetConfigLocalAddress	Read-only. Index value
tunnelInetConfigRemoteAddress	Read-only. Index value
tunnelInetConfigEncapsMethod	Read-only. Index value. This is the encapsulation method used by the tunnel. Only 6to4 and GRE tunnel types are supported.
tunnelInetConfigID	Read-only. Index value. Always 1 in 6to4 tunnel type.
tunnelInetConfigIfIndex	Read-only.
tunnelInetConfigStatus	Read-only. Always returns active(1).
tunnelInetConfigStorageType	Read-only. Always returns nonVolatile(3).

ifTable support

Support for the tunnelIfTable and tunnelInetConfigTable affects the ifTable (RFC 1213) support as follows.

ifIndex	Read-only. Index value.
ifDescr	Read-only.
ifType	Read-only.
ifMtu	Read-only.
ifSpeed	Not supported.
ifPhysAddress	Not supported.
ifAdminStatus	Read-only.
ifOperStatus	Read-only.
ifLastChange	Read-only. Always return 0.
ifInOctets	Not supported.
ifInUcastPkts	Read-only. Reports total received packet count from tunnel.
ifInNUcastPkts	Not supported. Returns 0.
ifInDiscards	Not supported.
ifInErrors	Not supported.
ifInUnknownProtos	Not supported.
ifOutOctets	Not supported.
ifOutUcastPkts	Read-only. Reports total transmitted packet count to tunnel and total received packet count from tunnel.
ifOutNUcastPkts	Not supported. Returns 0.
ifOutDiscards	Not supported.
ifOutErrors	Not supported.

ifXTable

Support for the tunnelIfTable and tunnelInetConfigTable also affects ifXTable (RFC 2233) as follows.

ifName	Read-only.
ifInMulticastPkts	Not supported. Returns 0
ifInBroadcastPkts	Not supported. Returns 0
ifOutMulticastPkts	Not supported. Returns 0
ifOutBroadcastPkts	Not supported. Returns 0
ifHCInOctets	Not supported. Returns 0
ifHCInUcastPkts	Read-only. Reports total received packet count from tunnel.
ifHCInBroadcastPkts	Not supported. Returns 0
ifHCOutOctets	Not supported. Returns 0

ifHCOutUcastPkts	Read-only. Reports total received packet count from tunnel.
ifHCOutMulticastPkts	Not supported. Returns 0
ifHCOutBroadcastPkts	Not supported. Returns 0
ifLinkUpDownTrapEnable	Read-only. Always returns disabled(2).
ifHighSpeed	Not supported. Returns 0
ifPromiscuousMode	Read-only. Always returns true(1).
ifConnectorPresent	Read-only. Always returns false(2).
ifAlias	Read-only.
ifCounterDiscontinuityTime	Read-only.

RFC 4113: MIB for the User Datagram Protocol (UDP)

RFC 4113 replaces RFC 2013 and RFC 2454.

The following devices supports RFC 4113:

- NetIron XMR and NetIron MLX devices running software release 04.0.00 and later.
- Brocade MLXe running software release 05.0.00 and later.
- NetIron CES and NetIron CER devices running software release 05.1.00 ad later.

All objects have read-only access.

RFC 4273: Definitions of managed objects for BGP-4

RFC 4273 is supported on the NetIron XMR Series routers and the NetIron MLX Series routers Multi-Service IronWare software release 03.6.00 and later. RFC 4273 is also supported on Brocade MLXe, NetIron CES and NetIron CER devices.

NOTE
The Definitions of Managed Objects for BGP-4 (OID 1.3.6.1.2.1.15.3) is used instead of RFC 1657. The Definitions of Managed Objects for the Fourth Version of the Border Gateway Protocol (BGP-4) using SMIv2 has been obsoleted in RFC 4273.

Object Group Name	Object Identifier	Notes
bgpLocalAS	1.3.6.1.2.1.15.2	The local autonomous system number. The Brocade MLXe and NetIron devices running release 04.0.00 and later, returns “AS_TRANS (23456)” if the number is greater than 16 bits.
bgpPeerTable	1.3.6.1.2.1.15.3	The “bgpPeerRemoteAs” object is the remote autonomous system number received in the BGP OPEN message. The Brocade MLXe and NetIron devices running release 04.0.00 and later, returns “AS_TRANS (23456)” for this object, if the number is greater than 16 bits.

Object Group Name	Object Identifier	Notes
bgpPeerEntry	1.3.6.1.2.1.15.3.1	
bgpPeerIdentifier	1.3.6.1.2.1.15.3.1.1	
bgpPeerState	1.3.6.1.2.1.15.3.1.2	
bgpPeerAdminStatus	1.3.6.1.2.1.15.3.1.3	
bgpPeerNegotiatedVersion	1.3.6.1.2.1.15.3.1.4	
bgpPeerLocalAddr	1.3.6.1.2.1.15.3.1.5	
bgpPeerLocalPort	1.3.6.1.2.1.15.3.1.6	
bgpPeerRemoteAddr	1.3.6.1.2.1.15.3.1.7	
bgpPeerRemotePort	1.3.6.1.2.1.15.3.1.8	
bgpPeerRemoteAs	1.3.6.1.2.1.15.3.1.9	
bgpPeerInUpdates	1.3.6.1.2.1.15.3.1.10	
bgpPeerOutUpdates	1.3.6.1.2.1.15.3.1.11	
bgpPeerInTotalMessages	1.3.6.1.2.1.15.3.1.12	
bgpPeerOutTotalMessages	1.3.6.1.2.1.15.3.1.13	
bgpPeerLastError	1.3.6.1.2.1.15.3.1.14	
bgpPeerFsmEstablishedTransitions	1.3.6.1.2.1.15.3.1.15	
bgpPeerFsmEstablishedTime	1.3.6.1.2.1.15.3.1.16	
bgpPeerConnectRetryInterval	1.3.6.1.2.1.15.3.1.17	
bgpPeerHoldTime	1.3.6.1.2.1.15.3.1.18	
bgpPeerKeepAlive	1.3.6.1.2.1.15.3.1.19	
bgpPeerHoldTimeConfigured	1.3.6.1.2.1.15.3.1.20	
bgpPeerKeepAliveConfigured	1.3.6.1.2.1.15.3.1.21	
bgpPeerMinASOriginationInterval	1.3.6.1.2.1.15.3.1.22	
bgpPeerMinRouteAdvertisementInterval	1.3.6.1.2.1.15.3.1.23	
bgpPeerInUpdateElapsedTime	1.3.6.1.2.1.15.3.1.24	
bgp4PathAttrTable	1.3.6.1.2.1.15.6	This table is supported on the Brocade MLXe and NetIron devices running release 04.0.00 and later.

Object Group Name	Object Identifier	Notes
bgp4PathAttrASPathSegment	1.3.6.1.2.1.15.6.1.5	This object is the sequence of AS path segments. Each AS path segment is represented by a triplet of <type>, <length>, and <value>. The NetIron XMR or NetIron MLX running release 04.0.00 and later, as well as the NetIron CES and NetIron CER running release 04.1.00 and later, returns “AS_TRANS” if the AS number is greater than 2 bytes. The value is also return on Brocade MLXe devices.
bgp4PathAttrAggregatorAS	1.3.6.1.2.1.15.6.1.10	The AS number of the last BGP4 speaker that performed route aggregation. A value of zero (0) indicates the absence of this attribute. The NetIron XMR or NetIron MLX running release 04.0.00 and later, as well as the NetIron CES and NetIron CER running release 04.1.00 and later, returns “AS_TRANS (23456)” for this object, if remote AS is greater than 16 bits. The value is also returned on Brocade MLXe devices.

RFC 4292 IP forwarding table MIB

The NetIron XMR and NetIron MLX devices running software release 04.0.00 and later supports the entire RFC 4292, with the following exceptions:

- The object inetCidrRouteDiscards is not supported
- The objects inetCidrRouteMetric2, inetCidrRouteMetric3, inetCidrRouteMetric4, and inetCidrRouteMetric5 in the inetCidrRouteTable are not supported.
- All objects have read-only access.

In the NetIron XMR and NetIron MLX software release 04.0.00, this RFC replaces RFC 2096 and RFC 2465. ***Is this supported on Brocade MLXe, NetIron CES and NetIron CER?***

RFC 4293: MIB for the Internet Protocol (IP)

RFC 4293 obsoletes the following:

- RFC 2011 - SNMPv2 Management Information Base for the Internet Protocol using SMIv2
- RFC 2465 - Management Information Base for IP Version 6: Textual Conventions and General Group
- RFC 2466 - Management Information Base for IP Version 6: ICMPv6 Group

This RFC is supported on the NetIron XMR and MLX devices, running software release 03.9.00 and later. It is also supported on Brocade MLXe, NetIron CES, and NetIron CER devices.

The following summarizes the tables from the RFC that are supported.

Object Group Name	Object Identifier	Supported IP Version	Access
IP scalar variables	1.3.6.1.2.1.4	IPv4 and IPv6	Only the following objects have read-write access: ipDefaultTTL ipv6IpDefaultHopLimit ipv6IpForwarding All other scalar variable are read-only,
ipv4InterfaceTable	1.3.6.1.2.1.4.28	IPv4	All objects are read-only.
ipv6InterfaceTable	1.3.6.1.2.1.4.30	IPv6	All objects are read-only.
ipSystemStatsTable	1.3.6.1.2.1.4.31.1	IPv4 and IPv6	All objects are read-only.
ipIfStatsTableLastChange	1.3.6.1.2.1.4.31.2	IPv4 and IPv6	All objects are read-only.
ipIfStatsTable	1.3.6.1.2.1.4.31.3	IPv4 and IPv6	Not supported
ipAddressPrefixTable	1.3.6.1.2.1.4.32	IPv4 and IPv6	All objects are read-only.
ipAddressTable	1.3.6.1.2.1.4.34	IPv4 and IPv6	All objects are read-only.
ipNetToPhysicalTable Only ARP entries that are currently being used are included in the ARP table.	1.3.6.1.2.1.4.35	IPv4 and IPv6	Only the following objects have read-create access. ipNetToPhysicalPhysAddress ipNetToPhysicalType ipNetToPhysicalRowStatus All other object are read-only.
ipv6ScopeZoneIndexTable	1.3.6.1.2.1.4.36	IPv6	All objects are read-only
ipDefaultRouterTable	1.3.6.1.2.1.4.37	IPv4 and IPv6	All objects are read-only.
Ipv6RouterAdvertTable	1.3.6.1.2.1.4.39	IPv6	Only the following objects have read-write access; all others are read-only: • ipv6RouterAdvertSendAdverts • ipv6RouterAdvertManagedFlag • ipv6RouterAdvertOtherConfigFlag • ipv6RouterAdvertReachableTime • ipv6RouterAdvertRetransmitTime • ipv6RouterAdvertCurHopLimit • ipv6RouterAdvertDefaultLifetime
icmpStatsTable	1.3.6.1.2.1.5.29	IPv4 and IPv6	All objects are read-only.
icmpMsgStatsTable	1.3.6.1.2.1.5.30	IPv4 and IPv6	All objects are read-only.

RFC 4444: MIB for Intermediate System to Intermediate System (IS-IS)

This RFC is supported on the NetIron Series routers Multi-Service IronWare software release 03.8.00 and later. It is also supported on Brocade MLXe, NetIron CES, and NetIron CER devices. Refer to the RFC for details.

Scalar isisSysobject

The following scaler objects are supported in the IronWare MIB; however, only read only access is provided.

Object Group Name	Object Identifier	Supported?	Notes
isisSysVersion	1.3.6.1.2.1.138.1.1.1.1	Yes	Always returns 1
isisSysLevelType	1.3.6.1.2.1.138.1.1.1.2	Yes	• level1(1) • Level2(2) • level 1 and 2(3)
isisSysID	1.3.6.1.2.1.138.1.1.1.3	Yes	
isisSysMaxPathSplits	1.3.6.1.2.1.138.1.1.1.4	Yes	
isisSysMaxLSPGenInt	1.3.6.1.2.1.138.1.1.1.5	Yes	
isisSysPollESHelloRate	1.3.6.1.2.1.138.1.1.1.6	No	
isisSysWaitTime	1.3.6.1.2.1.138.1.1.1.7	No	
isisSysAdminState	1.3.6.1.2.1.138.1.1.1.8	Yes	• on(1) • off(2)
isisSysL2toL1Leaking	1.3.6.1.2.1.138.1.1.1.9	Yes	
isisSysMaxAge	1.3.6.1.2.1.138.1.1.1.10	Yes	
isisSysReceiveLSPBufferSize	1.3.6.1.2.1.138.1.1.1.11	Yes	
isisSysProtSupported	1.3.6.1.2.1.138.1.1.1.12	Yes	BITS: • ipv4(1) • ipv6(2)
isisSysNotificationEnable	1.3.6.1.2.1.138.1.1.1.13	Yes	

Supported tables

The following tables in RFC 4444 are supported; however only read-only access is allowed.

NOTE
Tables in RFC 4444 not listed in the table below are not supported. For example, the isisRATable is not supported.

Object Group Name	Object Identifier	Comments
isisManAreaAddrTable	1.3.6.1.2.1.138.1.1.2	
isisAreaAddrTable	1.3.6.1.2.1.138.1.1.3	
isisSummAddrTable	1.3.6.1.2.1.138.1.1.4	
isisRedistributeAddrTable	1.3.6.1.2.1.138.1.1.5	
isisRouterTable	1.3.6.1.2.1.138.1.1.6	
isisSysLevelTable	1.3.6.1.2.1.138.1.2.1	

Object Group Name	Object Identifier	Comments
isisCircTable	1.3.6.1.2.1.138.1.3.2	The following objects from this table are not supported: • isisCircMeshGroupEnabled - will return INACTIVE • isisCircMeshGroup will return zero (0). Also, the object isisCirc3WayEnabled is always ON for Pt 2 Pt.
isisCircLevelTable	1.3.6.1.2.1.138.1.4.1	
isisSystemCounterTable	1.3.6.1.2.1.138.1.5.1	
isisCircuitCounterTable	1.3.6.1.2.1.138.1.5.2	
isisPacketCounterTable	1.3.6.1.2.1.138.1.5.3	
isisIsAdjTable	1.3.6.1.2.1.138.1.6.1	
isisIsAdjAreaAddrTable	1.3.6.1.2.1.138.1.6.2	
isisIsAdjIPAddrTable	1.3.6.1.2.1.138.1.6.3	
isisIsAdjProtSuppTable	1.3.6.1.2.1.138.1.6.4	
isisIPRATable	1.3.6.1.2.1.138.1.8.1	
isisLSPSummaryTable	1.3.6.1.2.1.138.1.9.1	
isisLSPTLVTable	1.3.6.1.2.1.138.1.9.2	
isisNOTIFICATION	1.3.6.1.2.1.138.1.10	

Notifications

IS-IS notification is enabled by default. To disable notification, issue the command **no snmp-server enable traps isis** at the device CLI. Use the **snmp-server enable traps isis** to re-enable notification.

Table 4 list the notifications in RFC 4444 that are supported in NetIron Multi-Service IronWare software release 03.8.00 and later.

NOTE
Only one IS-IS trap is generated for each notification type within a 60 second (1 minute) period. For example, if several authentication failure notification types occur within a 60 second period, only one trap is generated for the authentication failure notification type. This duration is different from what is specified in RFC 4444.

TABLE 4 Support RFC 4444 Notifications

Object Group Name	Object Identifier
isisDatabaseOverload	1.3.6.1.2.1.138.1.10.1
isisAttemptToExceedMaxSequence	1.3.6.1.2.1.138.1.10.4
isisIDLenMismatch	1.3.6.1.2.1.138.1.10.5
isisMaxAreaAddressesMismatch	1.3.6.1.2.1.138.1.10.6
isisOwnLSPPurge	1.3.6.1.2.1.138.1.10.7
isisSequenceNumberSkip	1.3.6.1.2.1.138.1.10.8

TABLE 4 Support RFC 4444 Notifications

Object Group Name	Object Identifier
isisAuthenticationFailure	1.3.6.1.2.1.138.1.10.10
isisAreaMismatch	1.3.6.1.2.1.138.1.10.12
isisAdjacencyChange	1.3.6.1.2.1.138.1.10.17
isisLSPErrorDetected	1.3.6.1.2.1.138.1.10.18

Table 5 list the notifications in RFC 4444 that are not supported in NetIron Multi-Service IronWare software release 03.8.00 and later.

TABLE 5 Unsupported RFC 4444 Notifications

Object Group Name	Object Identifier
isisManualAddressDrops	1.3.6.1.2.1.138.1.10.2
isisCorruptedLSPDetected	1.3.6.1.2.1.138.1.10.3
isisAuthenticationTypeFailure	1.3.6.1.2.1.138.1.10.9
isisVersionSkew	1.3.6.1.2.1.138.1.10.11
isisRejectedAdjacency	1.3.6.1.2.1.138.1.10.13
isisLSPTooLargeToPropagate	1.3.6.1.2.1.138.1.10.14
isisOrigLSPBuffSizeMismatch	1.3.6.1.2.1.138.1.10.15
isisProtocolsSupportedMismatch	1.3.6.1.2.1.138.1.10.16

IEEE8021-CFM-MIB

The following tables in the IEEE8021-CFM-MIB are supported on NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices running software release 04.1.00 and later. It is also supported on Brocade MLXe devices.

The following scalars are supported, but read-only access is available.

- dot1agCfmDefaultMdDefLevel (OID: 1.3.111.2.802.1.1.8.1.2.1) - This object always returns 0.
- dot1agCfmDefaultMdDefMhfCreation (OID: 1.3.111.2.802.1.1.8.1.2.2) - This object always returns defMHFdefault(2).
- dot1agCfmDefaultMdDefIdPermission (OID: 1.3.111.2.802.1.1.8.1.2.3) - This object always returns sendIdNone(1).

The following table are supported, but read-only access for these tables is available at this time:

- dot1agCfmMdTable
- dot1agCfmMaNetTable
- dot1agCfmMaCompTable
- dot1agCfmMaMepListTable
- dot1agCfmMepTable
- dot1agCfmLtrTable
- dot1agCfmMepDbTable

Other tables or the dot1agCfmFaultAlarm notification are not supported.

dot1agCfmMdTable

The dot1agCfmMdTable is the Maintenance Domain table. Each row in the domain represents a different Maintenance Domain. It is indexed by the dot1agCfmMdIndex object. Only read-only access is available for these objects.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmMdIndex	Unsigned32	1.3.111.2.802.1.1.8.1.5.2.1.1	Index variable. Supported.
dot1agCfmMdFormat	Dot1agCfmMaintDomainNameType	1.3.111.2.802.1.1.8.1.5.2.1.2	Supported
dot1agCfmMdName	Dot1agCfmMaintDomainName	1.3.111.2.802.1.1.8.1.5.2.1.3	Supported
dot1agCfmMdMdLevel	Dot1agCfmMDLevel	1.3.111.2.802.1.1.8.1.5.2.1.4	Supported
dot1agCfmMdMhfCreation	Dot1agCfmMhfCreation	1.3.111.2.802.1.1.8.1.5.2.1.5	Supported
dot1agCfmMdMhfIdPermission	Dot1agCfmIdPermission	1.3.111.2.802.1.1.8.1.5.2.1.6	Always returns sendIdNone(1).
dot1agCfmMdMaNextIndex	Dot1afCfmIndexIntegerNextFree	1.3.111.2.802.1.1.8.1.5.2.1.7	Supported
dot1agCfmMdRowStatus	RowStatus	1.3.111.2.802.1.1.8.1.5.2.1.8	Always return active(1).

dot1agCfmMaNetTable

Each row in the dot1agCfmMaNetTable represents a MA, which is a set of MEPs. Each MEP is configured with a single service instance. It is indexed by the dot1agCfmMdIndex and dot1agCfmMaIndex objects.

Only read-only access is available for these objects.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmMaIndex	Unsigned32	1.3.111.2.802.1.1.8.1.6.1.1.1	Index variable. Supported.
dot1agCfmMaNetFormat	Dot1agCfmMaintAssocNameType	1.3.111.2.802.1.1.8.1.6.1.1.2	Supported.
dot1agCfmMaNetName	Dot1agCfmMaintAssocName	1.3.111.2.802.1.1.8.1.6.1.1.3	Supported.
dot1agCfmMaNetCcmInterval	Dot1agCfmCcmInterval	1.3.111.2.802.1.1.8.1.6.1.1.4	Supported.
dot1agCfmMaNetRowStatus	RowStatus	1.3.111.2.802.1.1.8.1.6.1.1.5	Always return active(1).

dot1agCfmMaCompTable

The dot1agCfmMaCompTable is the Maintenance Association Component table. Each row in the table represents a MA, which is a set of MEPs. Each MEP is configured with a single service instance. It is indexed by dot1agCfmMaComponentId, dot1agCfmMdIndex, and dot1agCfmMaIndex. Only read-only access is available for this table.

Object Group Name	Type	Object Identifier	Comments
ieee8021CfmMaComponentId	IEEE8021PbbComponentIdentifierTC	1.3.111.2.802.1.1.8.1.6.4.1.1	Index variable. Supported.
ieee8021CfmMaCompPrimarySelectorType	Integer: • vlandid(1) • isid(2)	1.3.111.2.802.1.1.8.1.6.4.1.2	Supported.
ieee8021CfmMaCompPrimarySelectorOrNone	ieee8021ServiceSelectorValueOrNone	1.3.111.2.802.1.1.8.1.6.4.1.3	Supported.
ieee8021CfmMaCompMhfCreation	Dot1agCfmMhfCreation	1.3.111.2.802.1.1.8.1.6.4.1.4	Supported.
ieee8021CfmMaCompIdPermission	Dot1agCfmIdPermission	1.3.111.2.802.1.1.8.1.6.4.1.5	Always return sendIdNone(1).
ieee8021CfmMaCompNumberOfVids	Unsigned32	1.3.111.2.802.1.1.8.1.6.4.1.6	Supported.
ieee8021CfmMaCompRowStatus	RowStatus	1.3.111.2.802.1.1.8.1.6.4.1.7	Always return active(1).

dot1agCfmMaMepListTable

The table contains the list of known MEPs for a given MA. It is indexed by dot1agCfmMdIndex, dot1agCfmMaIndex, and dot1agCfmMaMepListIdentifier.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmMaMepListIdentifier	Dot1agCfmMepId	1.3.111.2.802.1.1.8.1.6.3.1.1	Index variable. Supported.
dot1agCfmMaMepListRowStatus	RowStatus	1.3.111.2.802.1.1.8.1.6.3.1.2	Always return active(1).

dot1agCfmMepTable

The dot1agCfmMepTable is the Maintenance Association End Point (MEP) table. Each row in the table represents a different MEP. It is indexed by dot1agCfmMdIndex, dot1agCfmMaIndex, and dot1agCfmMepIdentifier.

Unless otherwise noted, all objects have read-only access.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmMepIdentifier	Dot1agCfmMepId	1.3.111.2.802.1.1.8.1.7.1.1.1	Index variable. Supported. Read-only.
dot1agCfmMepIfIndex	InterfaceIndexOrZero	1.3.111.2.802.1.1.8.1.7.1.1.2	Supported. Read-only.
dot1agCfmMepDirection	Dot1agCfmMpDirection	1.3.111.2.802.1.1.8.1.7.1.1.3	Supported. Read-only.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmMepPrimaryVid	Unsigned32	1.3.111.2.802.1.1.8.1.7.1.1.4	Always returns 0. Read-only.
dot1agCfmMepActive	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.5	Supported. Read-only.
dot1agCfmMepFngState	Dot1agCfmFngState	1.3.111.2.802.1.1.8.1.7.1.1.6	Supported. Read-only.
dot1agCfmMepCciEnabled	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.7	Supported. Read-only.
dot1agCfmMepCcmLtmPriority	Unsigned32	1.3.111.2.802.1.1.8.1.7.1.1.8	Supported. Read-only.
dot1agCfmMepMacAddress	MacAddress	1.3.111.2.802.1.1.8.1.7.1.1.9	Supported. Read-only.
dot1agCfmMepLowPrDef	Dot1agCfmLowestAlarmPri	1.3.111.2.802.1.1.8.1.7.1.1.10	Supported. Read-only.
dot1agCfmMepFngAlarmTime	TimeInterval	1.3.111.2.802.1.1.8.1.7.1.1.11	Supported. Read-only.
dot1agCfmMepFngResetTime	TimeInterval	1.3.111.2.802.1.1.8.1.7.11.12	Supported. Read-only.
dot1agCfmMepHighestPrDefect	Dot1agCfmHighestDefectPri	1.3.111.2.802.1.1.8.1.7.1.1.13	Supported. Read-only.
dot1agCfmMepDefects	Dot1agCfmMepDefects	1.3.111.2.802.1.1.8.1.7.1.1.14	Supported. Read-only.
dot1agCfmMepErrorCcmLastFailure	OCTET STRING	1.3.111.2.802.1.1.8.1.7.1.1.15	Supported. Read-only.
dot1agCfmMepXconCcmLastFailure	OCTET STRING	1.3.111.2.802.1.1.8.1.7.1.1.16	Supported. Read-only.
dot1agCfmMepCcmSequenceErrors	Counter32	1.3.111.2.802.1.1.8.1.7.1.1.17	Supported. Read-only.
dot1agCfmMepCciSentCcms	Counter32	1.3.111.2.802.1.1.8.1.7.1.1.18	Supported. Read-only.
dot1agCfmMepNextLbmTransId	Unsigned32	1.3.111.2.802.1.1.8.1.7.1.1.19	Supported. Read-only.
dot1agCfmMepLbrIn	Counter32	1.3.111.2.802.1.1.8.1.7.1.1.20	Supported. Read-only.
dot1agCfmMepLbrInOutOfOrder	Counter32	1.3.111.2.802.1.1.8.1.7.1.1.21	Supported. Read-only.
dot1agCfmMepLbrBadMsdu	Counter32	1.3.111.2.802.1.1.8.1.7.1.1.22	Always returns 0. Read-only.
dot1agCfmMepLtmNextSeqNumber	Unsigned32	1.3.111.2.802.1.1.8.1.7.1.1.23	Supported. Read-only.
dot1agCfmMepUnexpLtrIn	Counter32	1.3.111.2.802.1.1.8.1.7.1.1.24	Supported. Read-only.
dot1agCfmMepLbrOut	Counter32	1.3.111.2.802.1.1.8.1.7.1.1.25	Supported. Read-only.
dot1agCfmMepTransmitLbmStatus	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.26	Supported. Read-only.
dot1agCfmMepTransmitLbmDestMacAddress	MacAddress	1.3.111.2.802.1.1.8.1.7.1.1.27	Supported. Read-write
dot1agCfmMepTransmitLbmDestMepId	Dot1agCfmMepIdOrZero	1.3.111.2.802.1.1.8.1.7.1.1.28	Supported. dot1agCfmMepTransmitLbmDestMepId Read-only.
dot1agCfmMepTransmitLbmDestIsMepId	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.29	Supported. Read-write
dot1agCfmMepTransmitLbmMessages	Integer32	1.3.111.2.802.1.1.8.1.7.1.1.30	Supported. Read-write.
dot1agCfmMepTransmitLbmDataTlv	OCTET STRING	1.3.111.2.802.1.1.8.1.7.1.1.31	Always returns Null string. Read-only.
dot1agCfmMepTransmitLbmVlanPriority	Integer32	1.3.111.2.802.1.1.8.1.7.1.1.32	Supported. Read-only.
dot1agCfmMepTransmitLbmVlanDropEnable	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.33	Al wy as returns false(2). Read-only.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmMepTransmitLbmResultOK	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.34	Supported. Read-only.
dot1agCfmMepTransmitLbmSeqNumber	Unsigned32	1.3.111.2.802.1.1.8.1.7.1.1.35	Supported. Read-only.
dot1agCfmMepTransmitLtmStatus	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.36	Supported. Read-write.
dot1agCfmMepTransmitLtmFlags	BITS	1.3.111.2.802.1.1.8.1.7.1.1.37	Always returns "0". Read-write.
dot1agCfmMepTransmitLtmTargetMacAddress	MacAddress	1.3.111.2.802.1.1.8.1.7.1.1.38	Supported. Read-write.
dot1agCfmMepTransmitLtmTargetMepId	Dot1agCfmMepIdOrZero	1.3.111.2.802.1.1.8.1.7.1.1.39	Supported. Read-write.
dot1agCfmMepTransmitLtmTargetIsMepId	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.40	Supported. Read-write.
dot1agCfmMepTransmitLtmTtl	Unsigned32	1.3.111.2.802.1.1.8.1.7.1.1.41	Supported. Read-write.
dot1agCfmMepTransmitLtmResult	TruthValue	1.3.111.2.802.1.1.8.1.7.1.1.42	Supported.
dot1agCfmMepTransmitLtmSeqNumber	Unsigned32	1.3.111.2.802.1.1.8.1.7.1.1.43	Supported. Read-only.
dot1agCfmMepTransmitLtmEgressIdentifier	OCTET STRING	1.3.111.2.802.1.1.8.1.7.1.1.44	Supported. Read-only.
dot1agCfmMepRowStatus	RowStatus	1.3.111.2.802.1.1.8.1.7.1.1.45	Always return active(1). Read-only.

dot1agCfmLtrTable

The dot1agCfmLtrTable extends the MEP table and contains a list of Linktrace replies received by a specific MEP in response to a Linktrace message. It is indexed by dot1agCfmMdIndex, dot1agCfmMaIndex, dot1agCfmMepIdentifier, dot1agCfmLtrSeqNumber, and dot1agCfmLtrReceiveOrder.

Only one Linktrace number sequence, which is the last one sent, is supported in this table. Only read-only access is available for this table.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmLtrSeqNumber	Unsigned32	1.3.111.2.802.1.1.8.1.7.2.1.1	Supported.
dot1agCfmLtrReceiveOrder	Unsigned32	1.3.111.2.802.1.1.8.1.7.2.1.2	Supported.
dot1agCfmLtrTtl	Unsigned32	1.3.111.2.802.1.1.8.1.7.2.1.3	Supported.
dot1agCfmLtrForwarded	TruthValue	1.3.111.2.802.1.1.8.1.7.2.1.4	Supported.
dot1agCfmLtrTerminalMep	TruthValue	1.3.111.2.802.1.1.8.1.7.2.1.5	Supported.
dot1agCfmLtrLastEgressIdentifier	OCTET STRING	1.3.111.2.802.1.1.8.1.7.2.1.6	Supported.
dot1agCfmLtrNextEgressIdentifier	OCTET STRING	1.3.111.2.802.1.1.8.1.7.2.1.7	Supported.
dot1agCfmLtrRelay	Dot1agCfmRelayActionFieldValue	1.3.111.2.802.1.1.8.1.7.2.1.8	Supported.
dot1agCfmLtrChassisIdSubtype	LldpChassisIdSubtype	1.3.111.2.802.1.1.8.1.7.2.1.9	Supported.

Object Group Name	Type	Object Identifier	Comments
dot1agCfmLtrChassisId	LldpChassisId	1.3.111.2.802.1.1.8.1.7.2.1.10	Always returns a NULL string.
dot1agCfmLtrManAddressDomain	TDomain	1.3.111.2.802.1.1.8.1.7.2.1.11	Always returns {0.0}.
dot1agCfmLtrManAddress	TAddress	1.3.111.2.802.1.1.8.1.7.2.1.12	Always returns a NULL string.
dot1agCfmLtrIngress	Dot1agCfmIngressActionFieldValue	1.3.111.2.802.1.1.8.1.7.2.1.13	Supported.
dot1agCfmLtrIngressMac	MacAddress	1.3.111.2.802.1.1.8.1.7.2.1.14	Supported.
dot1agCfmLtrIngressPortIdSubtype	LldpPortIdSubtype	1.3.111.2.802.1.1.8.1.7.2.1.15	Supported.
dot1agCfmLtrIngressPortId	Dot1agCfmEgressActionFieldValue	1.3.111.2.802.1.1.8.1.7.2.1.16	Supported.
dot1agCfmLtrEgress	Dot1agCfmEgressActionFieldValue	1.3.111.2.802.1.1.8.1.7.2.1.17	Supported.
dot1agCfmLtrEgressMac	MacAddress	1.3.111.2.802.1.1.8.1.7.2.1.19	Supported.
dot1agCfmLtrEgressPortIdSubtype	LldpPortIdSubtype	1.3.111.2.802.1.1.8.1.7.2.1.19	Supported.
dot1agCfmLtrEgressPortId	LldpPortId	1.3.111.2.802.1.1.8.1.7.2.1.20	Supported.
dot1agCfmLtrOrganizationSpecificTlv	OCTET STRING	1.3.111.2.802.1.1.8.1.7.2.1.21	Always returns a NULL string.

dot1agCfmMepDbTable

The dot1agCfmMepDbTable is the MEP Database. This database is maintained by every MEP. It maintains the information received about other MEPs in the Maintenance Domain. It is indexed by dot1agCfmMdIndex, dot1agCfmMaIndex, dot1agCfmMepIdentifier, and dot1agCfmMepDbRMepIdentifier. Only read-only access is available.

dot1agCfmMepDbRMepIdentifier	Dot1agCfmMepId	1.3.111.2.802.1.1.8.1.7.3.1.1	Supported.
dot1agCfmMepDbRMepState	Dot1agCfmRemoteMepState	1.3.111.2.802.1.1.8.1.7.3.1.2	Supported.
dot1agCfmMepDbRMepFailedOkTime	TimeStamp	1.3.111.2.802.1.1.8.1.7.3.1.3	Supported.
dot1agCfmMepDbMacAddress	MacAddress	1.3.111.2.802.1.1.8.1.7.3.1.4	Supported.
dot1agCfmMepDbRdi	TruthValue	1.3.111.2.802.1.1.8.1.7.3.1.5	Supported.
dot1agCfmMepDbPortStatusTlv	Dot1agCfmPortStatus	1.3.111.2.802.1.1.8.1.7.3.1.6	Supported.
dot1agCfmMepDbInterfaceStatusTlv	Dot1agCfmInterfaceStatus	1.3.111.2.802.1.1.8.1.7.3.1.7	Supported.
dot1agCfmMepDbChassisIdSubtype	LldpChassisIdSubtype	1.3.111.2.802.1.1.8.1.7.3.1.8	Supported.
dot1agCfmMepDbChassisId	LldpChassisId	1.3.111.2.802.1.1.8.1.7.3.1.9	Always returns a Null string.
dot1agCfmMepDbManAddressDomain	TDomain	1.3.111.2.802.1.1.8.1.7.3.1.10	Always returns {0,0}.
dot1agCfmMepDbManAddress	TAddress	1.3.111.2.802.1.1.8.1.7.3.1.11	Always returns a Null string.

Chapter

Registration 3

Registration objects identify the Foundry product that is being managed. The following table presents the objects for product registration. The sysOID will return one of these values.

Object Name and Identifier	Description
snFIWGSwitch brcdIp.1.3.1.1	Stackable FastIron Workgroup Switch
snFIBBSwitch brcdIp.1.3.1.2	Stackable FastIron Backbone Switch
snNIRouter brcdIp.1.3.2.1	Stackable NetIron Router
snSI brcdIp.1.3.3.1	Stackable ServerIron
snSIXL brcdIp.1.3.3.2	Stackable ServerIronXL
snSIXLTCS brcdIp.1.3.3.3	Stackable ServerIronXL TCS
snTISwitch brcdIp.1.3.4.1	Stackable TurboIron/8 Switch
snTIRouter brcdIp.1.3.4.2	Stackable TurboIron/8 Router
snT8Switch brcdIp.1.3.5.1	Stackable TurboIron/8 Switch
snT8Router brcdIp.1.3.5.2	Stackable TurboIron/8 Router
snT8SI brcdIp.1.3.5.3	Stackable ServerIronXL
snT8SIXLG brcdIp.1.3.5.4	Stackable ServerIronXLG
snBI4000Switch brcdIp.1.3.6.1	BigIron 4000 Switch
snBI4000Router brcdIp.1.3.6.2	BigIron 4000 Router
snBI4000SI brcdIp.1.3.6.3	BigServerIron, 4-slot
snBI8000Switch brcdIp.1.3.7.1	BigIron 8000 Switch
snBI8000Router brcdIp.1.3.7.2	BigIron 8000 Router

Object Name and Identifier	Description
snBI8000SI brcdIp.1.3.7.3	BigServerIron
snFI2Switch brcdIp.1.3.8.1	FastIron II Switch
snFI2Router brcdIp.1.3.8.2	FastIron II Router
snFI2PlusSwitch brcdIp.1.3.9.1	FastIron II Plus switch
snFI2PlusRouter brcdIp.1.3.9.2	FastIron II Plus router
snNI400Router brcdIp.1.3.10.1	NetIron Router
snNI800Router brcdIp.1.3.11.1	NetIron 800 Router
snFI2GCSwitch brcdIp.1.3.12.1	FastIron II GC switch
snFI2GCRouter brcdIp.1.3.12.2	FastIron II GC router
snFI2PlusGCSwitch brcdIp.1.3.13.1	FastIron II Plus GC switch
snFI2PlusGCRouter brcdIp.1.3.13.2	FastIron II Plus GC router
snBigIron15000 brcdIp.1.3.14.1	BigIron 15000 Switch
snBI15000Router brcdIp.1.3.14.2	BigIron 15000 Router
snBI15000SI brcdIp.1.3.14.3	BigIron 15000 ServerIron for M2-M4 modules running the BS2 ServerIron code
snNI1500Router brcdIp.1.3.15.1	NetIron 1500 Router
snFI3Switch brcdIp.1.3.16.1	FastIron III Switch
snFI3Router brcdIp.1.3.16.2	FastIron III Router
snFI3GCSwitch brcdIp.1.3.17.1	FastIron III GC switch
snFI3GCRouter brcdIp.1.3.17.2	FastIron III GC router
snSI400Switch brcdIp.1.3.18.1	ServerIron 400 switch
snSI400Router brcdIp.1.3.18.2	ServerIron 400 router

Object Name and Identifier	Description
snSI800Switch brcdIp.1.3.19.1	ServerIron 800 switch
snSI800Router brcdIp.1.3.19.2	ServerIron 800 router
snSI1500Switch brcdIp.1.3.20.1	ServerIron 1500 switch
snSI1500Router brcdIp.1.3.20.2	ServerIron 1500 router
snSI1500Switch brcdIp.1.3.20.1	ServerIron 1500 switch for M5 modules running the WSM ServerIron code.
snSI1500Router brcdIp.1.3.20.2	ServerIron 1500 router for M5 modules running the WSM ServerIron code.
sn4802Switch brcdIp.1.3.21.1	Stackable FastIron 4802 switch
sn4802Router brcdIp.1.3.21.2	Stackable FastIron 4802 router
sn4802SI brcdIp.1.3.21.3	Stackable FastIron 4802 ServerIron
snFI400Switch brcdIp.1.3.22.1	FastIron 400 switch
snFI400Router brcdIp.1.3.22.2	FastIron 400 router
snFI800Switch brcdIp.1.3.23.1	FastIron 800 switch
snFI800Router brcdIp.1.3.23.2	FastIron 800 router
snFI1500Switch brcdIp.1.3.24.1	FastIron 1500 switch
snFI1500Router brcdIp.1.3.24.2	FastIron 1500 router
snFES2402Switch brcdIp.1.3.25.1	FastIron Edge Switch 2402 Switch
snFES2402Router brcdIp.1.3.25.2	FastIron Edge Switch 2402 Router
snFES4802Switch brcdIp.1.3.26.1	FastIron Edge Switch 4802 Switch
snFES4802Router brcdIp.1.3.26.2	FastIron Edge Switch 4802 Router
snFES9604Switch brcdIp.1.3.27.1	FastIron Edge Switch 9604 Switch
snFES9604Router brcdIp.1.3.27.2	FastIron Edge Switch 9604 Router

Object Name and Identifier	Description
snFES12GCFSwitch brcdIp.1.3.28.1	FastIron Edge Switch 12GCF Switch
snFES12GCFRouter brcdIp.1.3.28.2	FastIron Edge Switch 12GCF Router
snFES2402POESwitch brcdIp.1.3.29.1	FastIron Edge Switch 2402 Power Over Ethernet Switch
snFES2402POERouter brcdIp.1.3.29.2	FastIron Edge Switch 2402 Power Over Ethernet Router
snFES4802POESwitch brcdIp.1.3.30.1	FastIron Edge Switch 4802 Power Over Ethernet Switch
snFES4802POERouter brcdIp.1.3.30.2	FastIron Edge Switch 4802 Power Over Ethernet Router
snNI4802Switch brcdIp.1.3.31.1	NetIron 4802 Switch
snNI4802Router brcdIp.1.3.31.2	NetIron 4802 Router
snBIMG8Switch brcdIp.1.3.32.1	BigIron MG8 Switch
snBIMG8Router brcdIp.1.3.32.2	BigIron MG8 Router
snNI40GRouter brcdIp.1.3.33.2	NetIron 40G Router
snFESXFamily brcdIp.1.3.34	FastIron Edge Switch X Series Family
snFESX424Family brcdIp.1.3.34.1	FastIron Edge Switch X Series 424 Family
snFESX424BaseFamily brcdIp.1.3.34.1.1	FastIron Edge Swtich X Series 424 Base Family
snFESX424 brcdIp.1.3.34.1.1.1	FastIron Edge Swtich X Series 424
snFESX424Switch brcdIp.1.3.34.1.1.1.1	FastIron Edge Switch X Series 424 Switch
snFESX424Router brcdIp.1.3.34.1.1.1.2	FastIron Edge Switch X Series 424 Router
snFESX424Prem brcdIp.1.3.34.1.1.2	FastIron Edge Switch X Series 424 Premium
snFESX424PremSwitch brcdIp.1.3.34.1.1.2.1	FastIron Edge Switch X Series 424 Premium Switch
snFESX424PremRouter brcdIp.1.3.34.1.1.2.2	FastIron Edge Switch X Series 424 Premium Router
snFESX424Plus1XGSwitch brcdIp.1.3.34.1.2.1.1	FastIron Edge Switch X Series 424 Plus 1XG Switch

Object Name and Identifier	Description
snFESX424Plus1XGRouter brcdIp.1.3.34.1.2.1.2	FastIron Edge Switch X Series 424 Plus 1XG Router
snFESX424Plus1XGPremSwitch brcdIp.1.3.34.1.2.2.1	FastIron Edge Switch X Series 424 Plus 1XG Premium Switch
snFESX424Plus1XGPremRouter brcdIp.1.3.34.1.2.2.2	FastIron Edge Switch X Series 424 Plus 1XG Premium Router
snFESX424Plus2XGSwitch brcdIp.1.3.34.1.3.1.1	FastIron Edge Switch X Series 424 Plus 2XG Switch
snFESX424Plus2XGRouter brcdIp.1.3.34.1.3.1.2	FastIron Edge Switch X Series 424 Plus 2XG Router
snFESX424Plus2XGPremSwitch brcdIp.1.3.34.1.3.2.1	FastIron Edge Switch X Series 424 Plus 2XG Premium Switch
snFESX424Plus2XGPremRouter brcdIp.1.3.34.1.3.2.2	FastIron Edge Switch X Series 424 Plus 2XG Premium Router
snFESX448Switch brcdIp.1.3.34.2.1.1.1	FastIron Edge Switch X Series 448 Switch
snFESX448Router brcdIp.1.3.34.2.1.1.2	FastIron Edge Switch X Series 448 Router
snFESX448PremSwitch brcdIp.1.3.34.2.1.2.1	FastIron Edge Switch X Series 448 Premium Switch
snFESX448PremRouter brcdIp.1.3.34.2.1.2.2	FastIron Edge Switch X Series 448 Premium Router
snFESX448Plus1XGSwitch brcdIp.1.3.34.2.2.1.1	FastIron Edge Switch X Series 448 Plus 1XG Switch
snFESX448Plus1XGRouter brcdIp.1.3.34.2.2.1.2	FastIron Edge Switch X Series 448 1XG Router
snFESX448Plus1XGPremSwitch brcdIp.1.3.34.2.2.2.1	FastIron Edge Switch X Series 448 Plus 1XG Premium Switch
snFESX448Plus1XGPremRouter brcdIp.1.3.34.2.2.2.2	FastIron Edge Switch X Series 448 Plus 1XG Premium Router
snFESX448Plus2XGSwitch brcdIp.1.3.34.2.3.1.1	FastIron Edge Switch X Series 448 Plus 2XG Switch
snFESX448Plus2XGRouter brcdIp.1.3.34.2.3.1.2	FastIron Edge Switch X Series 448 Plus 2XG Router
snFESX448Plus2XGPremSwitch brcdIp.1.3.34.2.3.2.1	FastIron Edge Switch X Series 448 Plus 2XG Premium Switch
snFESX448Plus2XGPremRouter brcdIp.1.3.34.2.3.2.2	FastIron Edge Switch X Series 448 Plus 2XG Premium Router
snFESX424FiberSwitch brcdIp.1.3.34.3.1.1.1	FastIron Edge Switch X Series 424 Fiber Switch
snFESX424FiberRouter brcdIp.1.3.34.3.1.1.2	FastIron Edge Switch X Series 424 Fiber Router

Object Name and Identifier	Description
snFESX424FiberPremSwitch brcdIp.1.3.34.3.1.2.1	FastIron Edge Switch X Series 424 Fiber Premium Switch
snFESX424FiberPremRouter brcdIp.1.3.34.3.1.2.2	FastIron Edge Switch X Series 424 Fiber Premium Router
snFESX424FiberPlus1XGSwitch brcdIp.1.3.34.3.2.1.1	FastIron Edge Switch X Series 424 Fiber plus 1 10-Gb port Switch
snFESX424FiberPlus1XGRouter brcdIp.1.3.34.3.2.1.2	FastIron Edge Switch X Series 424 Fiber plus 1 10-Gb port Router
snFESX424FiberPlus1XGPremSwitch brcdIp.1.3.34.3.2.2.1	FastIron Edge Switch X Series 424 Fiber plus 1 10-Gb port Premium Switch
snFESX424FiberPlus1XGPremRouter brcdIp.1.3.34.3.2.2.2	FastIron Edge Switch X Series 424 Fiber plus 1 10-Gb port Premium Router
snFESX424FiberPlus2XGSwitch brcdIp.1.3.34.3.3.1.1	FastIron Edge Switch X Series 424 Fiber plus 2 10-Gb ports Switch
snFESX424FiberPlus2XGRouter brcdIp.1.3.34.3.3.1.2	FastIron Edge Switch X Series 424 Fiber plus 2 10-Gb ports Router
snFESX424FiberPlus2XGPremSwitch brcdIp.1.3.34.3.3.2.1	FastIron Edge Switch X Series 424 Fiber plus 2 10-Gb ports Premium Switch
snFESX424FiberPlus2XGPremRouter brcdIp.1.3.34.3.3.2.2	FastIron Edge Switch X Series 424 Fiber plus 2 10-Gb ports Premium Router
snFESX448FiberSwitch brcdIp.1.3.34.4.1.1.1	FastIron Edge Switch X Series 448 Fiber Switch
snFESX448FiberRouter brcdIp.1.3.34.4.1.1.2	FastIron Edge Switch X Series 448 Fiber Router
snFESX448FiberPremSwitch brcdIp.1.3.34.4.1.2.1	FastIron Edge Switch X Series 448 Fiber Premium Switch
snFESX448FiberPremRouter brcdIp.1.3.34.4.1.2.2	FastIron Edge Switch X Series 448 Fiber Premium Router
snFESX448FiberPlus1XGSwitch brcdIp.1.3.34.4.2.1.1	FastIron Edge Switch X Series 448 Fiber plus 1 10-Gb port Switch
snFESX448FiberPlus1XGRouter brcdIp.1.3.34.4.2.1.2	FastIron Edge Switch X Series 448 Fiber plus 1 10-Gb port Router
snFESX448FiberPlus1XGPremSwitch brcdIp.1.3.34.4.2.2.1	FastIron Edge Switch X Series 448 Fiber plus 1 10-Gb port Premium Switch
snFESX448FiberPlus1XGPremRouter brcdIp.1.3.34.4.2.2.2	FastIron Edge Switch X Series 448 Fiber plus 1 10-Gb port Premium Router
snFESX448FiberPlus2XGSwitch brcdIp.1.3.34.4.3.1.1	FastIron Edge Switch X Series 448 Fiber plus 2 10-Gb ports Switch
snFESX448FiberPlus2XGRouter brcdIp.1.3.34.4.3.1.2	FastIron Edge Switch X Series 448 Fiber plus 2 10-Gb ports Router
snFESX448FiberPlus2XGPremSwitch brcdIp.1.3.34.4.3.2.1	FastIron Edge Switch X Series 448 Fiber plus 2 10-Gb ports Premium Switch

Object Name and Identifier	Description
snFESX448FiberPlus2XGPremRouter brcdIp.1.3.34.4.3.2.2	FastIron Edge Switch X Series 448 Fiber plus 2 10-Gb ports Premium Router
snFESX424POESwitch brcdIp.1.3.34.5.1.1.1	FastIron Edge Switch X Series 424 POE Switch
snFESX424POERouter brcdIp.1.3.34.5.1.1.2	FastIron Edge Switch X Series 424 POE Router
snFESX424POEPremSwitch brcdIp.1.3.34.5.1.2.124	FastIron Edge Switch X Series 424 POE Premium Switch
snFESX424POEPremRouter brcdIp.1.3.34.5.1.2.2	FastIron Edge Switch X Series 424 POE Premium Router
snFESX424POEPrem6Router brcdIp.1.3.34.5.1.2.3	FastIron Edge Switch X Series 424 POE PREM6 Router
snFESX424POEPlus1XGSwitch brcdIp.1.3.34.5.2.1.1	FastIron Edge Switch X Series 424 POE plus 1 10-Gb port Switch
snFESX424POEPlus1XGRouter brcdIp.1.3.34.5.2.1.2	FastIron Edge Switch X Series 424 POE plus 1 10-Gb port Router
snFESX424POEPlus1XGPremSwitch brcdIp.1.3.34.5.2.2.1	FastIron Edge Switch X Series 424 POE plus 1 10-Gb port Premium Switch
snFESX424POEPlus1XGPremRouter brcdIp.1.3.34.5.2.2.2	FastIron Edge Switch X Series 424 POE plus 1 10-Gb port Premium Router
snFESX424POEPlus2XGSwitch brcdIp.1.3.34.5.3.1.1	FastIron Edge Switch X Series 424 POE plus 2 10-Gb ports Switch
snFESX424POEPlus2XGRouter brcdIp.1.3.34.5.3.1.2	FastIron Edge Switch X Series 424 POE plus 2 10-Gb ports Router
snFESX424POEPlus2XGPremSwitch brcdIp.1.3.34.5.3.2.1	FastIron Edge Switch X Series 424 POE plus 2 10-Gb ports Premium Switch
snFESX424POEPlus2XGPremRouter brcdIp.1.3.34.5.3.2.2	FastIron Edge Switch X Series 424 POE plus 2 10-Gb ports Premium Router
snFESX624Switch brcdIp.1.3.34.6.1.1.1	FastIron Edge Switch X Series 624 Switch
snFESX624Router brcdIp.1.3.34.6.1.1.2	FastIron Edge Switch X Series 624 Router
snFESX624PremSwitch brcdIp.1.3.34.6.1.2.1	FastIron Edge Switch X Series 624 Premium Switch
snFESX624PremRouter brcdIp.1.3.34.6.1.2.2	FastIron Edge Switch X Series 624 Premium Router
snFESX624Prem6Router brcdIp.1.3.34.6.1.2.3	FastIron Edge Switch X Series 624 PREM6 Router
snFESX624Plus1XGSwitch brcdIp.1.3.34.6.2.1.1	FastIron Edge Switch X Series 624 plus 1 10-Gb port Switch
snFESX624Plus1XGRouter brcdIp.1.3.34.6.2.1.2	FastIron Edge Switch X Series 624 plus 1 10-Gb port Router

Object Name and Identifier	Description
snFESX624Plus1XGPremSwitch brcdIp.1.3.34.6.2.2.1	FastIron Edge Switch X Series 624 plus 1 10-Gb port Premium Switch
snFESX624Plus1XGPremRouter brcdIp.1.3.34.6.2.2.2	FastIron Edge Switch X Series 624 plus 1 10-Gb port Premium Router
snFESX624Plus1XGPrem6Router brcdIp.1.3.34.6.2.2.3	FastIron Edge Switch X Series 624 plus 1 10-Gb port PREM6 Router
snFESX624Plus2XGSwitch brcdIp.1.3.34.6.3.1.1	FastIron Edge Switch X Series 624 plus 2 10-Gb ports Switch
snFESX624Plus2XGRouter brcdIp.1.3.34.6.3.1.2	FastIron Edge Switch X Series 624 plus 2 10-Gb ports Router
snFESX624Plus2XGPremSwitch brcdIp.1.3.34.6.3.2.1	FastIron Edge Switch X Series 624 plus 2 10-Gb ports Premium Switch
snFESX624Plus2XGPremRouter brcdIp.1.3.34.6.3.2.2	FastIron Edge Switch X Series 624 plus 2 10-Gb ports Premium Router
snFESX624Plus2XGPrem6Router brcdIp.1.3.34.6.3.2.3	FastIron Edge Switch X Series 624 plus 2 10-Gb ports PREM6 Router
snFESX648PremSwitch brcdIp.1.3.34.7.1.2.1	FastIron Edge Switch X Series 648 Premium Switch
snFESX648PremRouter brcdIp.1.3.34.7.1.2.2	FastIron Edge Switch X Series 648 Premium Router
snFESX648Prem6Router brcdIp.1.3.34.7.1.2.3	FastIron Edge Switch X Series 648 PREM6 Router
snFESX648Plus1XGSwitch brcdIp.1.3.34.7.2.1.1	FastIron Edge Switch X Series 648 plus 1 10-Gb port Switch
snFESX648Plus1XGRouter brcdIp.1.3.34.7.2.1.2	FastIron Edge Switch X Series 648 plus 1 10-Gb port Router
snFESX648Plus1XGPremSwitch brcdIp.1.3.34.7.2.2.1	FastIron Edge Switch X Series 648 plus 1 10-Gb port Premium Switch
snFESX648Plus1XGPremRouter brcdIp.1.3.34.7.2.2.2	FastIron Edge Switch X Series 648 plus 1 10-Gb port Premium Router
snFESX648Plus1XGPrem6Router brcdIp.1.3.34.7.2.2.3	FastIron Edge Switch X Series 648 plus 1 10-Gb port PREM6 Router
snFESX648Plus2XGSwitch brcdIp.1.3.34.7.3.1.1	FastIron Edge Switch X Series 648 plus 2 10-Gb ports Switch
snFESX648Plus2XGRouter brcdIp.1.3.34.7.3.1.2	FastIron Edge Switch X Series 648 plus 2 10-Gb ports Router
snFESX648Plus2XGPremSwitch brcdIp.1.3.34.7.3.2.1	FastIron Edge Switch X Series 648 plus 2 10-Gb ports Premium Switch
snFESX648Plus2XGPremRouter brcdIp.1.3.34.7.3.2.2	FastIron Edge Switch X Series 648 plus 2 10-Gb ports Premium Router
snFESX648Plus2XGPrem6Router brcdIp.1.3.34.7.3.2.3	FastIron Edge Switch X Series 648 plus 2 10-Gb ports PREM6 Router

Object Name and Identifier	Description
snFESX624FiberSwitch brcdIp.1.3.34.8.1.1.1	FastIron Edge Switch X Series 624 Fiber Switch
snFESX624FiberRouter brcdIp.1.3.34.8.1.1.2	FastIron Edge Switch X Series 624 Fiber Router
snFESX624FiberPremSwitch brcdIp.1.3.34.8.1.2.1	FastIron Edge Switch X Series 624 Fiber Premium Switch
snFESX624FiberPremRouter brcdIp.1.3.34.8.1.2.2	FastIron Edge Switch X Series 624 Fiber Premium Router
snFESX624FiberPrem6Router brcdIp.1.3.34.8.1.2.3	FastIron Edge Switch X Series 624 Fiber PREM6 Router
snFESX624FiberPlus1XGSwitch brcdIp.1.3.34.8.2.1.1	FastIron Edge Switch X Series 624 Fiber plus 1 10-Gb port Switch
snFESX624FiberPlus1XGRouter brcdIp.1.3.34.8.2.1.2	FastIron Edge Switch X Series 624 Fiber plus 1 10-Gb port Router
snFESX624FiberPlus1XGPremSwitch brcdIp.1.3.34.8.2.2.1	FastIron Edge Switch X Series 624 Fiber plus 1 10-Gb port Premium Switch
snFESX624FiberPlus1XGPremRouter brcdIp.1.3.34.8.2.2.2	FastIron Edge Switch X Series 624 Fiber plus 1 10-Gb port Premium Router
snFESX624FiberPlus1XGPrem6Router brcdIp.1.3.34.8.2.2.3	FastIron Edge Switch X Series 624 Fiber plus 1 10-Gb port PREM6 Router
snFESX624FiberPlus2XGSwitch brcdIp.1.3.34.8.3.1.1	FastIron Edge Switch X Series 624 Fiber plus 2 10-Gb ports Switch
snFESX624FiberPlus2XGRouter brcdIp.1.3.34.8.3.1.2	FastIron Edge Switch X Series 624 Fiber plus 2 10-Gb ports Router
snFESX624FiberPlus2XGPremSwitch brcdIp.1.3.34.8.3.2.1	FastIron Edge Switch X Series 624 Fiber plus 2 10-Gb ports Premium Switch
snFESX624FiberPlus2XGPremRouter brcdIp.1.3.34.8.3.2.2	FastIron Edge Switch X Series 624 Fiber plus 2 10-Gb ports Premium Router
snFESX624FiberPlus2XGPrem6Router brcdIp.1.3.34.8.3.2.3	FastIron Edge Switch X Series 624 Fiber plus 2 10-Gb ports PREM6 Router
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snFESX648FiberSwitch brcdIp.1.3.34.9.1.1.1	FastIron Edge Switch X Series 648 Fiber Switch
snFESX648FiberRouter brcdIp.1.3.34.9.1.1.2	FastIron Edge Switch X Series 648 Fiber Router
snFESX648FiberPremSwitch brcdIp.1.3.34.9.1.2.1	FastIron Edge Switch X Series 648 Fiber Premium Switch
snFESX648FiberPremRouter brcdIp.1.3.34.9.1.2.2	FastIron Edge Switch X Series 648 Fiber Premium Router
snFESX648FiberPrem6Router brcdIp.1.3.34.9.1.2.3	FastIron Edge Switch X Series 648 Fiber PREM6 Router

Object Name and Identifier	Description
snFESX648FiberPlus1XGSwitch brcdIp.1.3.34.9.2.1.1	FastIron Edge Switch X Series 648 Fiber plus 1 10-Gb port Switch
snFESX648FiberPlus1XGRouter brcdIp.1.3.34.9.2.1.2	FastIron Edge Switch X Series 648 Fiber plus 1 10-Gb port Router
snFESX648FiberPlus1XGPremSwitch brcdIp.1.3.34.9.2.2.1	FastIron Edge Switch X Series 648 Fiber plus 1 10-Gb port Premium Switch
snFESX648FiberPlus1XGPremRouter brcdIp.1.3.34.9.2.2.2	FastIron Edge Switch X Series 648 Fiber plus 1 10-Gb port Premium Router
snFESX648FiberPlus1XGPrem6Router brcdIp.1.3.34.9.2.2.3	FastIron Edge Switch X Series 648 Fiber plus 1 10-Gb port PREM6 Router
snFESX648FiberPlus2XGSwitch brcdIp.1.3.34.9.3.1.1	FastIron Edge Switch X Series 648 Fiber plus 2 10-Gb ports Switch
snFESX648FiberPlus2XGRouter brcdIp.1.3.34.9.3.1.2	FastIron Edge Switch X Series 648 Fiber plus 2 10-Gb ports Router
snFESX648FiberPlus2XGPremSwitch brcdIp.1.3.34.9.3.2.1	FastIron Edge Switch X Series 648 Fiber plus 2 10-Gb ports Premium Switch
snFESX648FiberPlus2XGPremRouter brcdIp.1.3.34.9.3.2.2	FastIron Edge Switch X Series 648 Fiber plus 2 10-Gb ports Premium Router
snFESX648FiberPlus2XGPrem6Router brcdIp.1.3.34.9.3.2.3	FastIron Edge Switch X Series 648 Fiber plus 2 10-Gb ports PREM6 Router
snFESX624POESwitch brcdIp.1.3.34.10.1.1.1	FastIron Edge Switch X Series 624 POE Switch
snFESX624POERouter brcdIp.1.3.34.10.1.1.2	FastIron Edge Switch X Series 624 POE Router
snFESX624POEPremSwitch brcdIp.1.3.34.10.1.2.124	FastIron Edge Switch X Series 624 POE Premium Switch
snFESX624POEPremRouter brcdIp.1.3.34.10.1.2.2	FastIron Edge Switch X Series 624 POE Premium Router
snFESX624POEPrem6Router brcdIp.1.3.34.10.1.2.3	FastIron Edge Switch X Series 624 POE PREM6 Router
snFESX624POEPlus1XGSwitch brcdIp.1.3.34.10.2.1.1	FastIron Edge Switch X Series 624 POE plus 1 10-Gb port Switch
snFESX624POEPlus1XGRouter brcdIp.1.3.34.10.2.1.2	FastIron Edge Switch X Series 624 POE plus 1 10-Gb port Router
snFESX624POEPlus1XGPremSwitch brcdIp.1.3.34.10.2.2.1	FastIron Edge Switch X Series 624 POE plus 1 10-Gb port Premium Switch
snFESX624POEPlus1XGPremRouter brcdIp.1.3.34.10.2.2.2	FastIron Edge Switch X Series 624 POE plus 1 10-Gb port Premium Router
snFESX624POEPlus1XGPrem6Router brcdIp.1.3.34.10.2.2.3	FastIron Edge Switch X Series 624 POE plus 1 10-Gb port PREM6 Router
snFESX624POEPlus2XGSwitch brcdIp.1.3.34.10.3.1.1	FastIron Edge Switch X Series 624 POE plus 2 10-Gb ports Switch

Object Name and Identifier	Description
snFESX624POEPlus2XGRouter brcdIp.1.3.34.10.3.1.2	FastIron Edge Switch X Series 624 POE plus 2 10-Gb ports Router
snFESX624POEPlus2XGPremSwitch brcdIp.1.3.34.10.3.2.1	FastIron Edge Switch X Series 624 POE plus 2 10-Gb ports Premium Switch
snFESX624POEPlus2XGPremRouter brcdIp.1.3.34.10.3.2.2	FastIron Edge Switch X Series 624 POE plus 2 10-Gb ports Premium Router
snFESX624POEPlus2XGPrem6Router brcdIp.1.3.34.10.3.2.3	FastIron Edge Switch X Series 624 POE plus 2 10-Gb ports PREM6 Router
snFESX624ESwitch brcdIp.1.3.34.11.1.1.1	FastIron Edge Switch X Series 624E Switch
snFESX624ERouter brcdIp.1.3.34.11.1.1.2	FastIron Edge Switch X Series 624E Router
snFESX624EPremSwitch brcdIp.1.3.34.11.1.2.1	FastIron Edge Switch X Series 624E Premium Switch
snFESX624EPremRouter brcdIp.1.3.34.11.1.2.2	FastIron Edge Switch X Series 624E Premium Router
snFESX624EPrem6Router brcdIp.1.3.34.11.1.2.3	FastIron Edge Switch X Series 624E PREM6 Router
snFESX624EPlus1XGSwitch brcdIp.1.3.34.11.2.1.1	FastIron Edge Switch X Series 624E plus 1 10-Gb port Switch
snFESX624EPlus1XGRouter brcdIp.1.3.34.11.2.1.2	FastIron Edge Switch X Series 624E plus 1 10-Gb port Router
snFESX624EPlus1XGPremSwitch brcdIp.1.3.34.11.2.2.1	FastIron Edge Switch X Series 624E plus 1 10-Gb port Premium Switch
snFESX624EPlus1XGPremRouter brcdIp.1.3.34.11.2.2.2	FastIron Edge Switch X Series 624E plus 1 10-Gb port Premium Router
snFESX624EPlus1XGPrem6Router brcdIp.1.3.34.11.2.2.3	FastIron Edge Switch X Series 624E plus 1 10-Gb port PREM6 Router
snFESX624EPlus2XGSwitch brcdIp.1.3.34.11.3.1.1	FastIron Edge Switch X Series 624E plus 2 10-Gb ports Switch
snFESX624EPlus2XGRouter brcdIp.1.3.34.11.3.1.2	FastIron Edge Switch X Series 624E plus 2 10-Gb ports Router
snFESX624EPlus2XGPremSwitch brcdIp.1.3.34.11.3.2.1	FastIron Edge Switch X Series 624E plus 2 10-Gb ports Premium Switch
snFESX624EPlus2XGPremRouter brcdIp.1.3.34.11.3.2.2	FastIron Edge Switch X Series 624E plus 2 10-Gb ports Premium Router
snFESX624EPlus2XGPrem6Router brcdIp.1.3.34.11.3.2.3	FastIron Edge Switch X Series 624E plus 2 10-Gb ports PREM6 Router
snFESX624EFiberSwitch brcdIp.1.3.34.12.1.1.1	FastIron Edge Switch X Series 624E Fiber Switch
snFESX624EFiberRouter brcdIp.1.3.34.12.1.1.2	FastIron Edge Switch X Series 624E Fiber Router

Object Name and Identifier	Description
snFESX624EFiberPremSwitch brcdIp.1.3.34.12.1.2.1	FastIron Edge Switch X Series 624E Fiber Premium Switch
snFESX624EFiberPremRouter brcdIp.1.3.34.12.1.2.2	FastIron Edge Switch X Series 624E Fiber Premium Router
snFESX624EFiberPrem6Router brcdIp.1.3.34.12.1.2.3	FastIron Edge Switch X Series 624E Fiber PREM6 Router
snFESX624EFiberPlus1XGSwitch brcdIp.1.3.34.12.2.1.1	FastIron Edge Switch X Series 624E Fiber plus 1 10-Gb port Switch
snFESX624EFiberPlus1XGRouter brcdIp.1.3.34.12.2.1.2	FastIron Edge Switch X Series 624E Fiber plus 1 10-Gb port Router
snFESX624EFiberPlus1XGPremSwitch brcdIp.1.3.34.12.2.2.1	FastIron Edge Switch X Series 624E Fiber plus 1 10-Gb port Premium Switch
snFESX624EFiberPlus1XGPremRouter brcdIp.1.3.34.12.2.2.2	FastIron Edge Switch X Series 624E Fiber plus 1 10-Gb port Premium Router
snFESX624EFiberPlus1XGPrem6Router brcdIp.1.3.34.12.2.2.3	FastIron Edge Switch X Series 624E Fiber plus 1 10-Gb port PREM6 Router
snFESX624EFiberPlus2XGSwitch brcdIp.1.3.34.12.3.1.1	FastIron Edge Switch X Series 624E Fiber plus 2 10-Gb ports Switch
snFESX624EFiberPlus2XGRouter brcdIp.1.3.34.12.3.1.2	FastIron Edge Switch X Series 624E Fiber plus 2 10-Gb ports Router
snFESX624EFiberPlus2XGPremSwitch brcdIp.1.3.34.12.3.2.1	FastIron Edge Switch X Series 624E Fiber plus 2 10-Gb ports Premium Switch
snFESX624EFiberPlus2XGPremRouter brcdIp.1.3.34.12.3.2.2	FastIron Edge Switch X Series 624E Fiber plus 2 10-Gb ports Premium Router
snFESX624EFiberPlus2XGPrem6Router brcdIp.1.3.34.12.3.2.3	FastIron Edge Switch X Series 624E Fiber plus 2 10-Gb ports PREM6 Router
snFESX648ESwitch brcdIp.1.3.34.13.1.1.1	FastIron Edge Switch X Series 648E Switch
snFESX648ERouter brcdIp.1.3.34.13.1.1.2	FastIron Edge Switch X Series 648E Router
snFESX648EPremSwitch brcdIp.1.3.34.13.1.2.1	FastIron Edge Switch X Series 648E Premium Switch
snFESX648EPremRouter brcdIp.1.3.34.13.1.2.2	FastIron Edge Switch X Series 648E Premium Router
snFESX648EPrem6Router brcdIp.1.3.34.13.1.2.3	FastIron Edge Switch X Series 648E PREM6 Router
snFESX648EPlus1XGSwitch brcdIp.1.3.34.13.2.1.1	FastIron Edge Switch X Series 648E plus 1 10-Gb port Switch
snFESX648EPlus1XGRouter brcdIp.1.3.34.13.2.1.2	FastIron Edge Switch X Series 648E plus 1 10-Gb port Router
snFESX648EPlus1XGPremSwitch brcdIp.1.3.34.13.2.2.1	FastIron Edge Switch X Series 648E plus 1 10-Gb port Premium Switch

Object Name and Identifier	Description
snFESX648EPlus1XGPremRouter brcdIp.1.3.34.13.2.2.2	FastIron Edge Switch X Series 648E plus 1 10-Gb port Premium Router
snFESX648EPlus1XGPrem6Router brcdIp.1.3.34.13.2.2.3	FastIron Edge Switch X Series 648E plus 1 10-Gb port PREM6 Router
snFESX648EPlus2XGSwitch brcdIp.1.3.34.13.3.1.1	FastIron Edge Switch X Series 648E plus 2 10-Gb ports Switch
snFESX648EPlus2XGRouter brcdIp.1.3.34.13.3.1.2	FastIron Edge Switch X Series 648E plus 2 10-Gb ports Router
snFESX648EPlus2XGPremSwitch brcdIp.1.3.34.13.3.2.1	FastIron Edge Switch X Series 648E plus 2 10-Gb ports Premium Switch
snFESX648EPlus2XGPremRouter brcdIp.1.3.34.13.3.2.2	FastIron Edge Switch X Series 648E plus 2 10-Gb ports Premium Router
snFESX648EPlus2XGPrem6Router brcdIp.1.3.34.13.3.2.3	FastIron Edge Switch X Series 648E plus 2 10-Gb ports PREM6 Router
snFWSX424Switch brcdIp.1.3.35.1.1.1.1	FastIron Workgroup Switch X Series (FWSX) 424 Switch
snFWSX424Router brcdIp.1.3.35.1.1.1.2	FastIron Workgroup Switch X Series (FWSX) 424 Router
snFWSX424Plus1XGSwitch brcdIp.1.3.35.1.2.1.1	FastIron Workgroup Switch X Series (FWSX) 424 plus 1 10-Gb port switch
snFWSX424Plus1XGRouter brcdIp.1.3.35.1.2.1.2	FastIron Workgroup Switch X Series (FWSX) 424 plus 1 10-Gb port router
snFWSX424Plus2XGSwitch brcdIp.1.3.35.1.3.1.1	FastIron Workgroup Switch X Series (FWSX) 424 Plus 2 10-Gb ports switch
snFWSX424Plus2XGRouter brcdIp.1.3.35.1.3.1.2	FastIron Workgroup Switch X Series (FWSX) 424 Plus 2 10-Gb ports router
snFWSX448Switch brcdIp.1.3.35.2.1.1.1	FastIron Workgroup Switch X Series (FWSX) 448 switch
snFWSX448Router brcdIp.1.3.35.2.1.1.2	FastIron Workgroup Switch X Series (FWSX) 448 router
snFWSX448Plus1XGSwitch brcdIp.1.3.35.2.2.1.1	FastIron Workgroup Switch X Series (FWSX) 448 switch plus 1 10-Gb port switch
snFWSX448Plus1XGRouter brcdIp.1.3.35.2.2.1.2	FastIron Workgroup Switch X Series (FWSX) 448 switch plus 1 10-Gb port router
snFWSX448Plus2XGSwitch brcdIp.1.3.35.2.3.1.1	FastIron Workgroup Switch X Series (FWSX) 448 switch plus 2 10-Gb port switch
snFWSX448Plus2XGRouter brcdIp.1.3.35.2.3.1.2	FastIron Workgroup Switch X Series (FWSX) 448 switch plus 2 10-Gb port router
snFastIronSuperXSwitch brcdIp.1.3.36.1.1	FastIron SuperX Switch
snFastIronSuperXRouter brcdIp.1.3.36.1.2	FastIron SuperX Router

Object Name and Identifier	Description
snFastIronSuperXBaseL3Switch brcdIp.1.3.36.1.3	FastIron SuperX Base L3 Switch
snFastIronSuperXPremSwitch brcdIp.1.3.36.2.1	FastIron SuperX Premium Switch
snFastIronSuperXPremRouter brcdIp.1.3.36.2.2	FastIron SuperX Premium Router
snFastIronSuperXPremBaseL3Switch brcdIp.1.3.36.2.3	FastIron SuperX Premium Base Layer 3 Switch
snFastIronSuperX800Switch brcdIp.1.3.36.3.1	FastIron SuperX 800 Switch
snFastIronSuperX800Router brcdIp.1.3.36.3.2	FastIron SuperX 800 Router
snFastIronSuperX800BaseL3Switch brcdIp.1.3.36.3.3	FastIron SuperX 800 Base Layer 3 Switch
snFastIronSuperX800PremSwitch brcdIp.1.3.36.4.1	FastIron SuperX 800 Premium Switch
snFastIronSuperX800PremRouter brcdIp.1.3.36.4.2	FastIron SuperX 800 Premium Router
snFastIronSuperX800PremBaseL3Switch brcdIp.1.3.36.4.3	FastIron SuperX 800 Premium Base Layer 3 Switch
snFastIronSuperX1600Switch brcdIp.1.3.36.5.1	FastIron SuperX 1600 Switch
snFastIronSuperX1600Router brcdIp.1.3.36.5.2	FastIron SuperX 1600 Router
snFastIronSuperX1600BaseL3Switch brcdIp.1.3.36.5.3	FastIron SuperX 1600 Base Layer 3 Switch
snFastIronSuperX1600PremSwitch brcdIp.1.3.36.6.1	FastIron SuperX 1600 Premium Switch
snFastIronSuperX1600PremRouter brcdIp.1.3.36.6.2	FastIron SuperX 1600 Premium Router
snFastIronSuperX1600PremBaseL3Switch brcdIp.1.3.36.6.3	FastIron SuperX 1600 Premium Base Layer 3 Switch
snFastIronSuperXV6Switch brcdIp.1.3.36.7.1	FastIron SuperX IPv6 Switch
snFastIronSuperXV6Router brcdIp.1.3.36.7.2	FastIron SuperX IPv6 Router
snFastIronSuperXV6BaseL3Switch brcdIp.1.3.36.7.3	FastIron SuperX IPv6 Base Layer 3 Switch
snFastIronSuperXV6PremSwitch brcdIp.1.3.36.8.1	FastIron SuperX IPv6 Premium Switch
snFastIronSuperXV6PremRouter brcdIp.1.3.36.8.2	FastIron SuperX IPv6 Premium Router

Object Name and Identifier	Description
snFastIronSuperXV6PremBaseL3Switch brcdIp.1.3.36.8.3	FastIron SuperX IPv6 Premium Base Layer 3 Switch
snFastIronSuperXV6Prem6Router brcdIp.1.3.36.8.4	FastIron SuperX IPv6 PREM6 Router
snFastIronSuperX800V6Switch brcdIp.1.3.36.9.1	FastIron SuperX 800 IPv6 Switch
snFastIronSuperX800V6Router brcdIp.1.3.36.9.2	FastIron SuperX 800 IPv6 Router
snFastIronSuperX800V6BaseL3Switch brcdIp.1.3.36.9.3	FastIron SuperX 800 IPv6 Base Layer 3 Switch
snFastIronSuperX800V6PremSwitch brcdIp.1.3.36.10.1	FastIron SuperX 800 IPv6 Premium Switch
snFastIronSuperX800V6PremRouter brcdIp.1.3.36.10.2	FastIron SuperX 800 IPv6 Premium Router
snFastIronSuperX800V6PremBaseL3Switch brcdIp.1.3.36.10.3	FastIron SuperX 800 IPv6 Premium Base Layer 3 Switch
snFastIronSuperX800V6Prem6Router brcdIp.1.3.36.10.4	FastIron SuperX 800 IPv6 PREM6 Router
snFastIronSuperX1600V6Switch brcdIp.1.3.36.11.1	FastIron SuperX 1600 IPv6 Switch
snFastIronSuperX1600V6Router brcdIp.1.3.36.11.2	FastIron SuperX 1600 IPv6 Router
snFastIronSuperX1600V6BaseL3Switch brcdIp.1.3.36.11.3	FastIron SuperX 1600 IPv6 Base Layer 3 Switch
snFastIronSuperX1600V6PremSwitch brcdIp.1.3.36.12.1	FastIron SuperX 1600 IPv6 Premium Switch
snFastIronSuperX1600V6PremRouter brcdIp.1.3.36.12.2	FastIron SuperX 1600 IPv6 Premium Router
snFastIronSuperX1600V6PremBaseL3Switch brcdIp.1.3.36.12.3	FastIron SuperX 1600 IPv6 Premium Base Layer 3 Switch
snFastIronSuperX1600V6Prem6Router brcdIp.1.3.36.12.4	FastIron SuperX 1600 IPv6 PREM6 Router
snBigIronSuperXFamily brcdIp.1.3.37	BigIron SuperX Family
snBigIronSuperX brcdIp.1.3.37.1	BigIron SuperX
snBigIronSuperXSwitch brcdIp.1.3.37.1.1	BigIron SuperX Switch
snBigIronSuperXRouter brcdIp.1.3.37.1.2	BigIron SuperX Router
snBigIronSuperXBaseL3Switch brcdIp.1.3.37.1.3	BigIron SuperX Base L3 Switch

Object Name and Identifier	Description
snTurboIronSuperXFamily brcdIp.1.3.38	TurboIron SuperX Family
snTurboIronSuperX brcdIp.1.3.38.1	TurboIron SuperX
snTurboIronSuperXSwitch brcdIp.1.3.38.1.1	TurboIron SuperX Switch
snTurboIronSuperXRouter brcdIp.1.3.38.1.2	TurboIron SuperX Router
snTurboIronSuperXBaseL3Switch brcdIp.1.3.38.1.3	TurboIron SuperX Base L3 Switch
snTurboIronSuperXPrem brcdIp.1.3.38.2	TurboIron SuperX Premium
snTurboIronSuperXPremSwitch brcdIp.1.3.38.2.1	TurboIron SuperX Premium Switch
snTurboIronSuperXPremRouter brcdIp.1.3.38.2.2	TurboIron SuperX Premium Router
snTurboIronSuperXPremBaseL3Switch brcdIp.1.3.38.2.3	TurboIron SuperX Premium Base Layer 3 Switch
snIMRFamily brcdIp.1.3.39	IMR family
snNetIronIMR brcdIp.1.3.39.1	NetIron IMR 640 family
snNIIMRRouter brcdIp.1.3.39.1.2	NetIron IMR 640 router
snBIRX16Switch brcdIp.1.3.40.1.1	BigIron RX-16 Switch
snBIRX16Router brcdIp.1.3.40.1.2	BigIron RX-16 Router
snBIRX8Switch brcdIp.1.3.40.2.1	BigIron RX-8 Switch
snBIRX8Router brcdIp.1.3.40.2.2	BigIron RX-8 Router
snBIRX4Switch brcdIp.1.3.40.3.1	BigIron RX-4 Switch
snBIRx32Router brcdIp.1.3.40.4.2	BigIron RX-32 Router
snBIRX4Router brcdIp.1.3.40.3.2	BigIron RX-4 Router
snNetIronXMR16000 brcdIp.1.3.41.1	NetIron XMR-16000 Family
snNIXMR16000Router brcdIp.1.3.41.1.2	NetIron XMR-16000 Router

Object Name and Identifier	Description
snNetIronXMR8000 brcdIp.1.3.41.2	NetIron XMR-8000 Family
snNIXMR8000Router brcdIp.1.3.41.2.2	NetIron XMR-8000 Router
snNetIronXMR4000 brcdIp.1.3.41.3	NetIron XMR-4000 Family
snNIXMR4000Router brcdIp.1.3.41.3.2	NetIron XMR-4000 Router
snNetIronXMR32000 brcdIp.1.3.41.4	NetIron XMR32000 Family
snNetIronXMR32000Router brcdIp.1.3.41.4.2	NetIron XMR32000 Router
snSecureIronFamily brcdIp.1.3.42	SecureIron Product Family
snSecureIronLSFamily brcdIp.1.3.42.9	SecureIron LS Product Family
snSecureIronLS100 brcdIp.1.3.42.9.1	SecureIron LS 100 Group
snSecureIronLS100Switch brcdIp.1.3.42.9.1.1	SecureIron LS 100 Switch
snSecureIronLS100Router brcdIp.1.3.42.9.1.2	SecureIron LS 100 Router
snSecureIronLS300 brcdIp.1.3.42.9.2	SecureIron LS 300 Group
snSecureIronLS300Switch brcdIp.1.3.42.9.2.1	SecureIron LS 300 Switch
snSecureIronLS300Router brcdIp.1.3.42.9.2.2	SecureIron LS 300 Router
snSecureIronTMFamily brcdIp.1.3.42.10	SecureIron TM Product Family
snSecureIronTM100 brcdIp.1.3.42.10.1	SecureIron TM 100 Group
snSecureIronTM100Switch brcdIp.1.3.42.10.1.1	SecureIron TM 100 Switch
snSecureIronTM100Router brcdIp.1.3.42.10.1.2	SecureIron TM 100 Router
snSecureIronTM300 brcdIp.1.3.42.10.2	SecureIron TM300 Group
snSecureIronTM300Switch brcdIp.1.3.42.10.2.1	SecureIron TM 300 Switch
snSecureIronTM300Router brcdIp.1.3.42.10.2.2	SecureIron TM 300 Router

Object Name and Identifier	Description
snNetIronMLX16Router brcdIp.1.3.44.1.2	NetIron MLX-16 Router
snNetIronMLX8Router brcdIp.1.3.44.2.2	NetIron MLX-8 Router
snNetIronMLX4Router brcdIp.1.3.44.3.2	NetIron MLX-4 Router
snNetIronMLX-32Router brcdIp.1.3.44.4	NetIron MLX-32Router
snFGSFamily brcdIp.1.3.45	FastIron GS Series Family
snFGS624Family brcdIp.1.3.45.1	FastIron GS624 Series Family
snFGS624PBaseFamily brcdIp.13.45.1.1	FastIron GS624P Base Series Family
snFGS624P brcdIp 1.3.45.1.1.1	FastIron GS Switch (FGS) 24-port 10/100/1000 POE-Ready
snFGS624PSwitch brcdIp.1.3.45.1.1.1.1	FastIron GS624P Switch
snFGS624PRouter brcdIp.1.3.45.1.1.1.2	FastIron GS624P Router
snFGS624XGPFamily brcdIp.1.3.45.1.2	FastIron GS624XGP Series Family
snFGS624XGP brcdIp.1.3.45.1.2.1	FastIron GS Switch (FGS) 24-port 10/100/1000 POE-Ready +1 10G
snFGS624XGP brcdIp.1.2.45.1.2.1.1	FastIron GS624XGP Switch
snFGS624XGPRouter brcdIp.1.3.45.1.2.1.2	FastIron GS624XGP Router
snFGS624PPOEFamily brcdIp.1.3.45.1.3	FastIron GS624PPOE Series Family
snFGS624PPOE brcdIp.1.3.45.1.3.1	FastIron GS Switch (FGS) 24-port 10/100/1000 POE
snFGS624PPOESwitch brcdIp.1.3.45.1.3.1.1	FastIron GS624PPOE Switch
snFGS624PPOERouter brcdIp.1.3.45.1.3.1.2	FastIron GS624PPOE Router
snFGS624XGPPOEFamily brcdIp.1.2.45.1.4	FastIron GS624XGPPOE Series Family
snFGS624XGPPOE brcdIp.1.3.45.1.4.1	FastIron GS624XGPPOE Switch (FGS) 24-port 10/100/1000 POE +1 10G
snFGS624XGPPOESwitch brcdIp.1.3.45.1.4.1.1	FastIron GS624XGPPOE Switch

Object Name and Identifier	Description
snFGS624XGPPOERouter brcdIp.1.3.45.1.4.1.2	FastIron GS624XGPPOE Router
snFGS648Family brcdIp.1.3.45.2.1	FastIron GS648 Series Family
snFGS648PBaseFamily brcdIp.1.3.45.2.1	Fastiron GS648P Base Family
snFGS648P brcdIp.1.3.45.2.1.1	FastIron GS Switch (FGS) 48-port 10/100/1000 POE ready
snFGS648PSwitch brcdIp.1.3.45.2.1.1.1	FastIron GS648P Switch
snFGS648PRouter brcdIp.1.3.45.2.1.1.2	FastIron GS648P Router
snFSG648PPOEFamily brcdIp.1.3.45.2.2	FastIron GS648P POE Series Family
snFGS648PPOE brcdIp.1.3.45.2.2.1	FastIron GS648 Switch (FGS) 48-port 10/100/1000 POE
snFGS648PPOESwitch brcdIp.1.3.45.2.2.1.1	FastIron GS648PPOE Switch
snFGS648PPOERouter brcdIp.1.3.45.2.2.1.2	FastIron GS648PPOE Router
snFLSFamily brcdIp.1.3.46	FastIron LS Series Family
snFLS624Family brcdIp.1.3.46.1	FastIron LS624 Family
snFLS624BaseFamily brcdIp.1.3.46.1.1	FastIron LS624 Base Family
snFLS624 brcdIp.1.3.46.1.1.1	FastIron LS Switch (FLS) 24-port 10/100/1000
serverIronAdx1000 brcdIp.1.3.47.12	ServerIron ADX 1000 series
serverIronAdx1000Switch brcdIp.1.3.47.12.1	ServerIron ADX 1000 switch
serverIronAdx1000Router brcdIp.1.3.47.12.2	ServerIron ADX 1000 router
serverIronAdx1000Ssl brcdIp.1.3.47.13	ServerIron ADX 1000 SSL series
serverIronAdx1000SslSwitch brcdIp.1.3.47.13.1	ServerIron ADX 1000 SSL switch
serverIronAdx1000SslRouter brcdIp.1.3.47.13.2	ServerIron ADX 1000 SSL router
serverIronAdx4000 brcdIp.1.3.47.14	ServerIron RouterADX 4000 series

Object Name and Identifier	Description
serverIronAdx4000Switch brcdIp.1.3.47.14.1	ServerIron ADX 4000 switch
serverIronAdx4000Router brcdIp.1.3.47.14.2	ServerIron ADX 4000 router
serverIronAdx4000Ssl brcdIp.1.3.47.15	ServerIron ADX 4000 SSL series
serverIronAdx4000SslSwitch brcdIp.1.3.47.15.1	ServerIron ADX 4000 SSL switch
serverIronAdx4000SslRouter brcdIp.1.3.47.15.2	ServerIron ADX 4000 SSL router
serverIronAdx8000 brcdIp.1.3.47.16	ServerIron ADX 8000 series
serverIronAdx8000Switch brcdIp.1.3.47.16.1	ServerIron ADX 8000 switch
serverIronAdx8000Router brcdIp.1.3.47.16.2	ServerIron ADX 8000 router
serverIronAdx8000Ssl brcdIp.1.3.47.17	ServerIron ADX 8000 SSL series
serverIronAdx8000SslSwitch brcdIp.1.3.47.17.1	ServerIron ADX 8000 SSL switch
serverIronAdx8000SslRouter brcdIp.1.3.47.17.2	ServerIron ADX 8000 SSL router
serverIronAdx10000 brcdIp.1.3.47.18	ServerIron ADX 10000 series
serverIronAdx10000Switch brcdIp.1.3.47.18.1	ServerIron ADX 10000 switch
serverIronAdx10000Router brcdIp.1.3.47.18.2	ServerIron ADX 10000 router
serverIronAdx10000Ssl brcdIp.1.3.47.19	ServerIron ADX 10000 SSL series
serverIronAdx10000SslSwitch brcdIp.1.3.47.19.1	ServerIron ADX 10000 SSL switch
serverIronAdx10000SslRouter brcdIp.1.3.47.19.2	ServerIron ADX 10000 SSL router
snFastIronStack brcdIp.1.3.48.1	FastIron stack family
snFastIronStackSwitch brcdIp.1.3.48.1.1	FGS/FLS switch in a stack
snFastIronStackRouter brcdIp.1.3.48.1.2	FGS/FLS router in a stack
snFastIronStackFCX brcdIp.1.3.48.2	FastIron FCX Switch Family in a stack

Object Name and Identifier	Description
snFastIronStackFCXSwitch brcdIp.1.3.48.2.1	FastIron FCX Switch in a stack
snFastIronStackFCXBaseL3Router brcdIp.1.3.48.2.2	FastIron FCX Base Layer 3 Router in a stack
snFastIronStackFCXRouter brcdIp.1.3.48.2.3	FastIron FCX Router in a stack
snFastIronStackFCXAdvRouter brcdIp.1.3.48.2.3	FastIron FCX Advanced Premium Router in a stack
snCes2024F brcdIp.1.3.49.1	NetIron CES 2024F Switch
snCes2024C brcdIp.1.3.49.2	NetIron CES 2024C Switch
snCes2048F brcdIp.1.3.49.2	NetIron CES 2048F Switch
snCes2048C brcdIp.1.3.49.4	NetIron CES 2048C Switch
snCes2048FX brcdIp.1.3.49.5	NetIron CES 2048FX Switch
snCes2048CX brcdIp.1.3.49.6	NetIron CES 2048CX Switch
snCer2024F brcdIp.1.3.51.1	NetIron CER 2024F Switch
snCer2024C brcdIp.1.3.51.2	NetIron CER 2024C Switch
snCer2048F brcdIp.1.3.51.3	NetIron CER 2048F Switch
snCer2048C brcdIp.1.3.51.4	NetIron DER 2048F Switch
snCer2048FX brcdIp.1.3.51.5	NetIron CER 2048FX Switch
snCer2048CX brcdIp.1.3.51.6	NetIron CER 2048CX Switch
snFWS624 brcdIp.1.3.52.1.1.1	FastIron WS Switches (FWS) 24-port 10/100
snFWS624Switch brcdIp.1.3.52.1.1.1.1	FWS624 switch
snFWS624BaseL3Router brcdIp.1.3.52.1.1.1.2	FWS624 Base L3 router
snFWS624EdgePremRouter brcdIp.1.3.52.1.1.1.3	FWS624 Edge Prem router
snFWS624G brcdIp.1.3.52.1.2.1	FastIron WS Switch (FWS) 24-port 10/100/1000

Object Name and Identifier	Description
snFWS624GSwitch brcdIp.1.3.52.1.2.1.1	FWS624G switch
snFWS624GBaseL3Router brcdIp.1.3.52.1.2.1.2	FWS624G Base L3 router
snFWS624GEdgePremRouter brcdIp.1.3.52.1.2.1.3	FWS624G Edge Prem router
snFWS648 brcdIp.1.3.52.2.1.1	FastIron WS Switch (FWS) 48-port 10/100 POE Ready
snFWS648Switch brcdIp.1.3.52.2.1.1.1	FWS648 switch
snFWS648BaseL3Router brcdIp.1.3.52.2.1.1.2	FWS648 Base L3 router
snFWS648EdgePremRouter brcdIp.1.3.52.2.1.1.3	FWS648 Edge Prem router
snFWS648G brcdIp.1.3.52.2.2.1	FastIron WS Switch (FWS) 48-port 10/100/1000 POE Ready
snFWS648GSwitch brcdIp.1.3.52.2.2.1.1	FWS648G switch
snFWS648GBaseL3Router brcdIp.1.3.52.2.2.1.2	FWS648G Base Layer3 router
snFWS648GEdgePremRouter brcdIp.1.3.52.2.2.1.3	FWS648G Edge Prem router
snTI2X24Switch brcdIp.1.3.53.1.1.1	TurboIron 24X Switch
snFCXFamily brcdIp.1.3.54	FastIron CX Family
snFCX624Family brcdIp.1.3.54.1	FastIron CX 624 Family
snFCX624BaseFamily brcdIp.1.3.54.1.1	FastIron CX 624 Base Family
snFCX624S brcdIp.1.3.54.1.1.1	FastIron CX 624S
snFCX624SSwitch brcdIp.1.3.54.1.1.1.1	FastIron CX 624S Switch
snFCX624SBaseL3Router brcdIp.1.3.54.1.1.1.2	FastIron 624S Base L3 Router
snFCX624SRouter brcdIp.1.3.54.1.1.1.3	FastIron CX 624S Router
snFCX624SAdvRouter brcdIp.1.3.54.1.1.1.4	FastIron CX 624S Advanced Router
snFCX624SHPOEFamily brcdIp.1.3.54.1.2	FastIron CX 624S HPOE Family

Object Name and Identifier	Description
snFCX624SHPOE brcdIp.1.3.54.1.2.1	FastIron CX 624S HPOE
snFCX624SHPOESwitch brcdIp.1.3.54.1.2.1.1	FastIron CX 624S HPOE Switch
snFCX624SHPOEBaseL3Router brcdIp.1.3.54.1.2.1.2	FastIron CX 624S HPOE Base L3 Router
snFCX624SHPOERouter brcdIp.1.3.54.1.2.1.3	FastIron CX 624S HPOE Router
snFCX624SHPOEAdvRouter brcdIp.1.3.54.1.2.1.4	FastIron CX 624S HPOE Advanced Router
snFCX624SFFamily brcdIp.1.3.54.1.3	FastIron 624S-F Family
snFCX624SF brcdIp.1.3.54.1.3.1	FastIron 624S-F
snFCX624SFSwitch brcdIp.1.3.54.1.3.1.1	FastIron 624S-F Switch
snFCX624SFBaseL3Router brcdIp.1.3.54.1.3.1.2	FastIron 624S-F Base Layer 3 Router
snFCX624SFRouter brcdIp.1.3.54.1.3.1.3	FastIron 624S-F Router
snFCX624SFAdvRouter brcdIp.1.3.54.1.3.1.4	FastIron 624S-F Advanced Router
snFCX624BaseFamily brcdIp.1.3.54.1.4	FastIron 24-port 10/100/1000 FCX624-E and FCX624-I Base Family
snFCX624 brcdIp.1.3.54.1.4.1	FastIron FCX624-E and FCX624-I family
snFCX624Switch brcdIp.1.3.54.1.4.1.1	FastIron FCX624-E or FCX624-I Switch
snFCX624BaseL3Router brcdIp.1.3.54.1.4.1.2	FastIron FCX624-E or FCX624-I Base Layer Router
snFCX624Router brcdIp.1.3.54.1.4.1.3	FastIron FCX624-E or FCX624-I Premium Router
snFCX624AdvRouter brcdIp.1.3.54.1.4.1.4	FastIron FCX624-E-ADV or FCX624-I-ADV Advanced Router
snFCX648Family brcdIp.1.3.54.2	FastIron CX 648 Family
snFCX648SBaseFamily brcdIp.1.3.54.2.1	FastIron CX 648S Base Family
snFCX648S brcdIp.1.3.54.2.1.1	FastIron CX 648S
snFCX648SSwitch brcdIp.1.3.54.2.1.1.1	FastIron CX 648S Switch

Object Name and Identifier	Description
snFCX648SBaseL3Router brcdIp.1.3.54.2.1.1.2	FastIron CX 648S Base L3 Router
snFCX648SRouter brcdIp.1.3.54.2.1.1.3	FastIron CX 648S Router
snFCX648SAdvRouter brcdIp.1.3.54.2.1.1.4	FastIron CX 648S Advanced Router
snFCX648SHPOEFamily brcdIp.1.3.54.2.2	FastIron CX 648S HPOE Family
snFCX648SHPOE brcdIp.1.3.54.2.2.1	FastIron CX 648S HPOE
snFCX648SHPOESwitch brcdIp.1.3.54.2.2.1.1	FastIron CX 648S HPOE Switch
snFCX648SHPOEBaseL3Router brcdIp.1.3.54.2.2.1.2	FastIron CX 648S HPOE Base L3 Router
snFCX648SHPOERouter brcdIp.1.3.54.2.2.1.3	FastIron CX 648S HPOE Router
snFCX648SHPOEAdvRouter brcdIp.1.3.54.2.2.1.4	FastIron CX 648S HPOE Advanced Router
snBrocadeMLXeFamily brcdIp.1.3.55	Brocade MLXe Core Router family
snBrocadeMLXeSlot16 brcdIp.1.3.55.1	Brocade MLXe 16-slot chassis family
snBrocadeMLXeSlot16Router brcdIp.1.3.55.1.2	Brocade MLXe16-slot router
snBrocadeMLXeSlot8 brcdIp.1.3.55.2	Brocade MLXe 8-slot chassis family
snBrocadeMLXeSlot8Router brcdIp.1.3.55.2.2	Brocade MLXe 8-slot router
snBrocadeMLXeSlot4 brcdIp.1.3.55.3	Brocade MLXe 4-slot chassis family
snBrocadeMLXeSlot4Router brcdIp.1.3.55.3.2	Brocade MLXe 4-slot router
snBrocadeMLXeSlot32 brcdIp.1.3.55.4	Brocade MLXe 32-slot chassis family
snBrocadeMLXeSlot32Router brcdIp.1.3.55.4.2	Brocade MLXe 32-slot router
edgeIron brcdIp.1.4	EdgeIron
adjourning brcdIp.1.4.1	EdgeIron MIB
edgeIronType2 brcdIp.1.5	EdgeIron Type 2

Object Name and Identifier	Description
edgeIronType2Mib brcdIp.1.5.1	EdgeIron Type 2 MIB
wirelessAp brcdIp.1.6	Iron Point 200 Access Point
wireless Probe brcdIp.1.7	Iron Point 200 Sensor
access Iron brcdIp.1.8	Access Iron
vendors brcdIp.2	
digitalChina brcdIp.2.1	Digital China
dcrs7504Switch brcdIp.2.1.1.1	DCRS 7504 switch
dcrs7504Router brcdIp.2.1.1.2	DCRS 7504 router
dcrs7508Switch brcdIp.2.1.2.1	DCRS 7508 switch
dcrs7508Router brcdIp.2.1.2.2	DCRS 7508 router
dcrs7515Switch brcdIp.2.1.3.1	DCRS 7508 switch
dcrs7515Router brcdIp.2.1.3.2	DCRS 7508 router

Physical Properties of a Device 4

Common objects

This chapter presents the global objects for the general management of a device's physical properties, such as the current status of the power supply, fan, and modules.

Refer to the configuration guide for a product for details on power supplies, fans, modules, and other features discussed in this chapter.

The objects in this section are common to most devices:

Power supply

The following object applies to all devices. Refer to the chapter, "Traps and Objects to Enable Traps" on page 627, for information on power supply traps.

Fan

The following object applies to all stackable devices. Refer to the chapter, "Traps and Objects to Enable Traps" on page 627, for information on traps for fans.

This table has been deprecated in NetIron XMR and NetIron MLX software release 03.6.00 and the BigIron RX 02.5.00 software release and is no longer supported. It has been replaced by the "Fan table" on page 115.

Name, Identifier, and Syntax	Access	Description
snChasFanStatus brcdIp.1.1.1.1.4 Syntax: Integer32	Read only	Shows the status of fans in stackable products. There are six fans per device. This is a packed bit string. Each bit shows one of the following values: • 0 – Fan failure. • 1 – Fan is operational The following shows the meaning of each bit: Bit positionMeaning 6 – 31reserved 5 Fan6 status 4 Fan5 status 3 Fan4 status 2 Fan3 status 1 Fan2 status 0 Fan1 status (Bit 0 is the least significant bit.)

Boards

Name, Identifier, and Syntax	Access	Description
snChasMainBrdId brcdIp.1.1.1.1.13 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies to all stackable products. It identifies the main board. This is an encoded octet string. Each octet provides the following information: **Octet 0** – Identifies the format of this octet string. Octets 1 and 2: If the value of Octet 0 is 1, then: **Octet 1** – Product type: • FIWG – 0x57 • FIBB – 0x42 • FIMLS – 0x4D • NI – 0x4E • TI – 0x54 • TIRT – 0x52 **Octet 2** – Board type: • POWERPC – 1 • ALPHA – 2 The length of the octet string is 27. If Octet 0 has a value of 2, then: **Octet 1** – Product type: • BI_WG – 0x57 • BI_BB – 0x42 • BI_NI – 0x4E • NI_M4 – 0x4D • BI_SLB – 0x53 **Octet 2** – Module type: • MASTER_FIBER_8G – 0x0 • MASTER_FIBER_4G – 0x1 • MASTER_COPPER_16 – 0x2 • FI_MASTER_FIBER_2G – 0x4 • FI_MASTER_FIBER_4G – 0x5 • MASTER_COPPER_8G – 0x6 FI_MASTER_FIBER_8G – 0x7

Name, Identifier, and Syntax	Access	Description
snChasMainBrdId (continued)		**Octet 2** – Module type (continued): • MASTER_COPPER_12_2 – 0x9 • MASTER_FIBER_2G – 0x12 • MASTER_FIBER_0G – 0x14 • FI_MASTER_COPPER_8G – 0x1D • FI_MASTER_COPPER_4G – 0x1F • FI_MASTER_COPPER_2G – 0x20 • MASTER_COPPER_4G – 0x21 • MASTER_COPPER_2G – 0x22 • MASTER_M4_8G – 0x23 • MASTER_M4_4G – 0x24 • MASTER_M4_0G – 0x26 The length of the octet string is 28.
		Octet 3 – Processor type (both format version 1 and 2): • PVR_M603 – 3 • PVR_M604 – 4 • PVR_M603E – 6 • PVR_M603EV – 7 • PVR_M604E – 9 **Octet 4 to Octet 5** – Processor speed in MHz (both format version 1 and 2): **Octet 6** – MAC type: • MAC_NONE – 0 • MAC_SEEQ_10_100 – 1 • MAC_DEC_10_100 – 2 • PHY_ICS – 3 • MAC_XI0GMAC_1000 – 4 • MAC_SEEQ_1000 – 5 • MAC_GMAC_1000 – 6 • MAC_VLSI_1000 – 7

Name, Identifier, and Syntax	Access	Description
snChasMainBrdId (continued)		**Octet 7** – PHY type (both format version 1 and 2): • PHY_NONE – 0 • PHY_QSI – 1 • PHY_BROADCOM – 2 • PHY_ICS – 3 • PHY_NATIONAL – 4 • PHY_LEVEL1 – 6 • PHY_LEVEL16 – 7 • PHY_LEVEL24 – 8 **Octet 8** – Port type: • COPPER – 0 • FIBER – 1 **Octet 9** – Fiber port type (both format version 1 and 2): • NONFIBER – 0 • SX_FIBER – 1 • LX_FIBER – 2 • LHX_FIBER – 3 • LX_SX_FIBER – 4 • LHB_FIBER – 5 **Octet 10 to Octet 13** – DRAM size in KBytes (both format version 1 and 2) **Octet 14 to Octet 17** – Boot flash size in KBytes (both format version 1 and 2) **Octet 18 to Octet 21** – Code flash size in KBytes (both format version 1 and 2) **Octet 22 to Octet 27** – Serial number (both format version 1 and 2) **Octet 28** – Chassis backplane type (format version 1 only): This octet applies only if Octet 0 is equal to 1. • chassis4000 – 0x00 • chassis8000 – 0x04 • chassis15000 – 0x05 • Turbo8 – 0x07 (stack2) • FastIron2 – 0x06 (stack1)

Chassis number

Name, OID, and Syntax	Access	Description
snChasIdNumber brcdIp.1.1.1.1.17 Syntax: DisplayString	Read only	Shows the device identity number. This not the number on the label of the device. It might be used by a distributor for the devices part number By default, this object displays a null string. It can have up to 64 characters.

Agent board table

The Agent Board Table provides information about the boards. It contains the board ID, board status, LEDs, status, and other information about the main and expansion board. The table applies to all devices, except for the ServerIron products and the stacking devices. For stacking devices, refer to “Agent board table for stacking” on page 533.

NOTE
The objects snAgentBrdStatusLedString, snAgentBrdTrafficLedString, snAgentBrdMediaLedString, snAgentBrdSpeedLedString, snAgentBrdAlarmLedString, snAgentBrdTxTrafficLedString, and snAgentBrdRxTrafficLedString provide information on the status LEDs on a device. However, some of these objects apply only to POS modules.

Name, OID, and Syntax	Access	Description
snAgentBrdTable brcdIp.1.1.2.2.1	None	A table of each physical board information.
snAgentBrdEntry brcdIp.1.1.2.2.1.1	None	A row in the Agent Board table.
snAgentBrdIndex brcdIp.1.1.2.2.1.1.1 Syntax: Integer32	Read only	The index to the Agent Board Table. Valid values: 1 – 32
snAgentBrdMainBrdDescription brcdIp.1.1.2.2.1.1.2 Syntax: DisplayString	Read only	Contains the main board description. This object can have up to 128 characters.
snAgentBrdMainBrdId brcdIp.1.1.2.2.1.1.3 Syntax: OctetString	Read only	The main board identifier, which can uniquely identify a board type. It is an encoded octet string. The octets in the string provide the following information: **Octet 0** – Identifies the format of this object's octet string. If the format version has a value of 2, the octets after the version octel have the following meaning: **Octet 1** – Product type: • BI_WG – 0x57 • BI_BB – 0x42 • BI_NI – 0x4E • NI_M4 – 0x4D • BI_SLB – 0x53

Name, OID, and Syntax	Access	Description
snAgentBrdMainBrdId (continued)		**Octet 2** – Module type: • MASTER_FIBER_8G – 0x0 • MASTER_FIBER_4G – 0x1 • MASTER_COPPER_16 – 0x2 • SLAVE_FIBER_4G – 0x3 • FI_MASTER_FIBER_2G – 0x4 • FI_MASTER_FIBER_4G – 0x5 • MASTER_COPPER_8G – 0x6 • FI_MASTER_FIBER_8G – 0x7 • SLAVE_FIBER_8G – 0x8 • MASTER_COPPER_12_2 – 0x9 • SLAVE_COPPER_24 – 0xA • FI_SLAVE_COPPER_24 – 0xB • SLAVE_100FX_16 – 0xC • SLAVE_100FX_8 – 0xD • SLAVE_COPPER_8G – 0xE • SLAVE_COPPER_16_2 – 0xF • STACK_FIBER_8G – 0x10 • STACK_COPPER_8G – 0x11 • MASTER_FIBER_2G – 0x12 • SLAVE_100FX_24 – 0x13 • MASTER_FIBER_0G – 0x14 • POS_622M – 0x15 • POS_155M – 0x16 • SLAVE_FIBER_2G – 0x17 • SLAVE_COPPER_2G – 0x18 • FI_SLAVE_FIBER_2G – 0x19 • FI_SLAVE_FIBER_4G – 0x1A • FI_SLAVE_FIBER_8G – 0x1B • FI_SLAVE_COPPER_8G – 0x1C • FI_MASTER_COPPER_8G – 0x1D • POS_155M2P – 0x1E • FI_MASTER_COPPER_4G – 0x1F • FI_MASTER_COPPER_2G – 0x20 • MASTER_COPPER_4G – 0x21

Name, OID, and Syntax	Access	Description
snAgentBrdMainBrdId (continued)		**Octet 2** – Module type (continued): • MASTER_COPPER_2G – 0x22 • MASTER_M4_8G – 0x23 • MASTER_M4_4G – 0x24 • MASTER_M4_2G – 0x25 • MASTER_M4_0G – 0x26 • MASTER_M5_0G – 0x27 • POS_2488M – 0x28 • SLAVE_M5_0G – 0x29 • POS_N2488M – 0x2A • STACK_IPC_48_2 – 0x2B • SLAVE_NPA_FIBER_4G – 0x2C • ATM_2PORT – 0x2D • ATM_4PORT – 0x2E • SLAVE_FIBER_10G – 0x2F • SLAVE_JC_48E – 0xC3 • SLAVE_JC_48T – 0xC4 • MASTER_JC_M4_8G – 0xC5 • SLAVE_JC_8G – 0xC6 • SLAVE_JC_B16GF – 0xC8 • MASTER_JC_B2404 – 0xC9 • SLAVE_JC_B16GC – 0xCA • SLAVE_JC_B24FX – 0xCE **Octet 3** – Processor type: • PVR_M603 – 3 • PVR_M604 – 4 • PVR_M603E – 6 • PVR_M603EV – 7 • PVR_M750 – 8 • PVR_M604E – 9 **Octet 4 to Octet 5** – Processor speed in MHz

Name, OID, and Syntax	Access	Description
snAgentBrdMainBrdId (continued)		**Octet 6** – MAC type: • MAC_None – 0 • MAC_SEEQ_10_100 – 1 • MAC_DEC_10_100 – 2 • MAC_3COM_10_100 – 3 • MAC_X10GMAC_10000 – 4 • MAC_SEEQ_1000 – 5 • MAC_GMAC_1000 – 6 • MAC_VLSI_1000 – 7 • PHY_LEVEL24 – 8 **Octet 7** – PHY type: • PHY_NONE – 0 • PHY_QSI – 1 • PHY_BROADCOM – 2 • PHY_ICS – 3 • PHY_NATIONAL – 4 • PHY_LEVEL1 – 6 • PHY_LEVEL16 – 7 • PHY_LEVEL24 – 8 • PHY_BROADCOM_10000 – 9 **Octet 8** – Port type: • COPPER – 0 • FIBER – 1 **Octet 9** – Fiber port type: • NONFIBER – 0 • SX_FIBER – 1 • LX_FIBER – 2 • LHX_FIBER – 3 **Octet 10 to Octet 13** – Size of DRAM in KBytes **Octet 14 to Octet 17** – Size of boot flash in KBytes **Octet 18 to Octet 21** – Size of code flash in KBytes **Octet 22 to Octet 27** – Serial number **Octet 28** – Chassis backplane type. • chassis4000 = 0x00 • chassis8000 = 0x02 • chassis15000 = 0x01 • chassisFISX = 0x04 • Turbo8 = 0x07 (stack2) • FastIron2 = 0x06 (stack1)
snAgentBrdMainPortTotal brcdIp.1.1.2.2.1.1.4 Syntax: Integer32	Read only	Shows the total number of ports on the main board.

Name, OID, and Syntax	Access	Description
snAgentBrdExpBrdDescription brcdIp.1.1.2.2.1.1.5 Syntax: DisplayString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Contains the expansion board description string. Expansion boards are those boards attached to the main board. This object can have up to 128 characters.
snAgentBrdExpBrdId brcdIp.1.1.2.2.1.1.6 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	The expansion board identifier. Expansion boards are those boards attached to the main board. It is an encoded octet string with the following meaning: **Octet 0** – Identifies the format of this string. This octet has a value of 1. **Octet 1** – Expansion board type: • HUNDRED_MEG_1PORT – 1 • HUNDRED_MEG_2PORT – 2 • HUNDRED_MEG_1PORT_COPPER – 3 • HUNDRED_MEG_2PORT_COPPER – 4 • HUNDRED_MEG_2PORT_LX – 5 • GIGA_1PORT – 8 • GIGA_2PORT – 9 **Octet 2** – Fiber port type: • NONFIBER – 0 • SX_FIBER – 1 • LX_FIBER – 2 • LHX_FIBER – 3 • LX_SX_FIBER – 4
snAgentBrdExpPortTotal brcdIp.1.1.2.2.1.1.7 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Shows the total number of ports for the expansion board.
snAgentBrdStatusLeds brcdIp.1.1.2.2.1.1.8 Syntax: Integer32	Read only	Applies to devices running IronWare release 07.1.00 and earlier. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. It is replaced by the object snAgentBrdStatusLedString in Release 07.2. and later. The value of this LED can be one of the following: 0 – Link off 1 – Link on

Name, OID, and Syntax	Access	Description
snAgentBrdTrafficLeds brcdIp.1.1.2.2.1.1.9 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies to devices running IronWare release 07.1.00 and earlier. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. It is replaced by the object snAgentBrdTrafficLedString in Release 07.2. and later. The value of this LED can be one of the following: 0 – No traffic. 1 – Traffic is flowing.
snAgentBrdMediaLeds brcdIp.1.1.2.2.1.1.10 Syntax: Integer32	Read only	Applies to devices that have an LED for media type and are running IronWare release 07.1.00 and earlier. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. It is replaced by the object snAgentBrdMediaLedString in Release 07.2. and later. The value of this LED can be one of the following: 0 – Half duplex. 1 – Full duplex.
snAgentBrdSpeedLeds brcdIp.1.1.2.2.1.1.11 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies to devices that have an LED for board speed and are running IronWare release 07.1.00 and earlier. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. It is replaced by the object snAgentBrdSpeedLedString in Release 07.2. and later. The value of this LED can be one of the following: 0 – 10 Mbit 1 – 100Mbit
snAgentBrdModuleStatus brcdIp.1.1.2.2.1.1.12 Syntax: Integer	Read only	Shows the status of a module: • notActivated(0) – The module is not activated • moduleEmpty(0) – The slot of the chassis is empty • moduleGoingDown(2) – The module is going down • moduleRejected(3) – The module is being rejected due to a wrong configuration • moduleBad(4) – The module hardware is bad • moduleComingUp(9) – The module is in power-up cycle • moduleRunning(10) – The module is running By default, this mode is set to notActivated(0).
snAgentBrdRedundantStatus brcdIp.1.1.2.2.1.1.13 Syntax: Integer	Read only	Shows the status of the redundant module. Non-management modules always return other(1). The management module returns the rest of the states: • other(1) • active(2) • standby(3) • crashed(4) • comingUp(5)

Name, OID, and Syntax	Access	Description
snAgentBrdAlarmLeds brcdIp.1.1.2.2.1.1.14 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, and NetIron CES, NetIron CER devices.	Read only	Applies to devices with an alarm LED and are running IronWare release 07.1.00 and earlier. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. It is replaced by the object snAgentBrdAlarmLedString in Release 07.2. and later. The value of this LED can be one of the following: 0 – No alarm 1 – Alarm
snAgentBrdTxTrafficLeds brcdIp.1.1.2.2.1.1.15 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Applies only to POS modules that have an LED for transmit traffic and are running Release 07.1.00 and earlier. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. It is replaced by the object snAgentBrdTxTrafficLedString in Release 07.2. and later. The value of this LED can be one of the following: 0 – No transmit traffic 1 – Transmit traffic
snAgentBrdRxTrafficLeds brcdIp.1.1.2.2.1.1.16 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Applies only to POS modules that have an LED for transmit traffic and are running Release 07.1.00 and earlier. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. It is replaced by the object snAgentBrdRxTrafficLedString in Release 07.2. and later. The value of this LED can be one of the following: 0 – No receive traffic (off) 1 – Has receive traffic (on)
snAgentBrdStatusLedString brcdIp.1.1.2.2.1.1.17 Syntax: OctetString		Applies to devices IronWare release 07.2.00 and later. It contains an octet string that shows the value of the status of the link LED on the front panel. There are 64 bits per slot. The value of each bit can be one of the following: 0 – Link is off 1 – Link is on
snAgentBrdTrafficLedString brcdIp.1.1.2.2.1.1.18 Syntax: OctetString	Read only	Applies to devices running IronWare release 07.2.00 and later. It contains an octet string that shows the status of the traffic. There are 64 bits per slot. The value of each bit can be one of the following: 0 – No traffic 1 – Traffic is flowing
snAgentBrdMediaLedString brcdIp.1.1.2.2.1.1.19 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies to devices with an LED for media type and running Release 07.2.00 and later. It contains an octet string with 64 bits per slot. The value of each bit can be one of the following: 0 – Half duplex 1 – Full duplex

Name, OID, and Syntax	Access	Description
snAgentBrdSpeedLedString brcdIp.1.1.2.2.1.1.20 Syntax: OctetString	Read only	Applies to devices that have an LED for traffic speed and are running IronWare release 07.2.00 and later. Contains an octet string with 64 bits per slot. The value of each bit can be one of the following: 0 – 10 Mbit 1 – 100 Mbit
snAgentBrdAlarmLedString brcdIp.1.1.2.2.1.1.21 Syntax: OctetString	Read only	Applies to devices that have an alarm LED and are running IronWare release 07.2.00 and later. Contains an octet string with 64 bits per slot. The value of each bit can be one of the following: 0 – No alarm 1 – Alarm
snAgentBrdTxTrafficLedString brcdIp.1.1.2.2.1.1.22 Syntax: OctetString	Read only	Applies only to POS modules running IronWare release 07.2.00 and later. Contains an octet string with 64 bits per slot. The value of each bit can be one of the following: 0 – No transmit traffic 1 – Has transmit traffic
snAgentBrdRxTrafficLedString brcdIp.1.1.2.2.1.1.23 Syntax: OctetString	Read only	Applies only to POS modules running IronWare release 07.2.00 and later. Contains an octet string with 64 bits per slot. The value of each bit can be one of the following: 0 – No receive traffic 1 – Has receive traffic
snAgentBrdSerialNumber brcdIp.1.1.2.2.1.1.26 Syntax: DisplayString	Read-only	Only for NetIron XMR and NetIron MLX running software release 04.0.01 and later and for Brocade MLXe. Indicates the serial number of the board. No string is displayed if the serial number has not been programed in the EEPROM or the module does not support a serial number.
snAgentBrdPartNumber brcdIp.1.1.2.2.1.1.27 Syntax: DisplayString	Read-only	Only for NetIron XMR and NetIron MLX running software release 04.0.01 and later and for Brocade MLXe. Indicates the part number of the board. Nothing is displayed if the part number has not been programed in the EEPROM or the module does not support a part number.

Agent temperature table (snAgentTemp table)

This section displays the SNMP MIB objects for temperature readings on the following devices:

- FastIron series devices, excluding FastIron Edge Switch, IronCore and JetCore FastIron devices, and FastIron Workgroup (JetCore) Switches.
- BigIron RX
- NetIron XMR
- NetIron MLX
- Brocade MLXe

For Stacking devices, refer to “Agent temperature table for stacking” on page 542. The Agent Temperature Table shows temperature reading information for each module’s temperature sensor.

NOTE
When performing an SNMP ISO MIB walk of the BigIron RX, increase the snmpwalk timeout to 10 seconds; otherwise, the MIB walk may time out before SNMP obtains the temparature values for the modules.

The Agent Temperature Table shows temperature reading information for each module's temperature sensor.

Name, OID, and Syntax	Access	Description
snAgentTempTable brcdIp.1.1.2.13.1	N/A	A table that displays the temperature reading for each module's temperature sensor. Note that temperature readings are displayed only for those modules that have temperature sensors.
snAgentTempEntry brcdIp.1.1.2.13.1.1	N/A	A row in the Agent Temperature table.
snAgentTempSlotNum brcdIp.1.1.2.13.1.1.1 Syntax: Integer32	N/A	The slot number of the module to which the temperature sensor is attached.
snAgentTempSensorId brcdIp.1.1.2.13.1.1.2 Syntax: Integer32	N/A	The identification number of the module's temperature sensor. The following applies to the Management modules: • Sensor 1 – the intake temperature • Sensor 2 – the exhaust-side temperature
snAgentTempSensorDescr brcdIp.1.1.2.13.1.1.3 Syntax: Display string	Read only	A description of the temperature sensor.
snAgentTempValue brcdIp.1.1.2.13.1.1.4 Syntax: Integer	Read only	The temperature reading for the temperature sensor. This value is displayed in units of 0.5 degrees Celsius. Valid values: -110 – 250
snAgentTempThresholdModule brcdIp.1.1.2.13.2.1.3 Syntax: Integer	N/A	The module in the system for which threshold levels represented by this row are applicable.
snAgentTempThresholdLevel brcdIp.1.1.2.13.2.1.4 Syntax: Integer	N/A	The temperature threshold level of the module for which threshold levels represented by this row are applicable.

Configured module table

The Configured Module Table contains information about modules. It includes the object "snAgentConfigModuleSerialNumber", which contains the serial number of a device. These objects are available in the following devices:

- BigIron 4000, BigIron 8000, and BigIron 15000
- FastIron III
- FastIron 400, FastIron 800, and FastIron 1500
- NetIron 400, NetIron 800, and NetIron 1500
- NetIron XMR and NetIron MLX
- Brocade MLXe
- ServerIron JetCore

For Stacking devices, refer to “Configuration module table for stacking” on page 537. For ServerIron ADX products, refer to the section “CPU utilization table” on page 561.

Name, OID, and Syntax	Access	Description
snAgentConfigModuleTable brcdIp.1.1.2.8.1	None	A table of information about each configured module.
snAgentConfigModuleEntry brcdIp.1.1.2.8.1.1	None	A row in the Agent Configured Module table.
snAgentConfigModuleIndex brcdIp.1.1.2.8.1.1.1 Syntax: Integer32	Read only	The index to the Agent Configured Module Table. The modules configured are using the “#module“command. The “show run” command may list these modules at the beginning of the list, but these modules may not really exist in the system.
snAgentConfigModuleType brcdIp.1.1.2.8.1.1.2 Syntax: Integer32	Read-write	The module type that has been configured for the device: • bi8PortGigManagementModule(0) • bi4PortGigManagementModule(1) • bi16PortCopperManagementModule(2) • bi4PortGigModule(3) • fi2PortGigManagementModule(4) • fi4PortGigManagementModule(5) • bi8PortGigCopperManagementModule(6) • fi8PortGigManagementModule(7) • bi8PortGigModule(8) • bi12PortGigCopper2PortGigFiberManagement(9) • bi24PortCopperModule(10) • fi24PortCopperModule(11) • bi16Port100FXModule(12) • bi8Port100FXModule(13) • bi8PortGigCopperModule(14) • bi12PortGigCopper2PortGigFiber(15) • bi2PortGigManagementModule(18) • bi24Port100FXModule(19) • bi0PortManagementModule(20) • pos622MbsModule(21) • pos155MbsModule(22) • bi2PortGigModule(23) • bi2PortGigCopperModule(24) • fi2PortGigModule(25) • fi4PortGigModule(26) • fi8PortGigModule(27) • fi8PortGigCopperModule(28) • fi8PortGigCopperManagementModule(29) • pos155Mbs2PModule(30)

Name, OID, and Syntax	Access	Description
snAgentConfigModuleType (continued)		• fi4PortGigCopperManagementModule(31) • fi2PortGigCopperManagementModule(32) • bi4PortGigCopperManagementModule(33) • bi2PortGigCopperManagementModule(34) • bi8PortGigM4ManagementModule(35) • bi4PortGigM4ManagementModule(36) • bi2PortGigM4ManagementModule(37) • bi0PortGigM4ManagementModule(38) • bi0PortWSMManagementModule(39) • biPos2Port2488MbsModule(40) • bi0PortWSMModule(41) • niPos2Port2488MbsModule(42) • ni4802(43) • bi4PortGigNPAModule(44) • biAtm2Port155MbsModule(45) • biAtm4Port155MbsModule(46) • bi1Port10GigModule(47) • fes4802Module(48) • fes2402Module(49) • fes9604Module(50) • fes12GigCopperAndGigFiberModule(51) • fesx24GigModule(52) • fesx24Gig2TenGigModule(53) • fesx24Gig1TenGigModule(54) • fesx48GigModule(55) • fesx48Gig2TenGigModule(56) • fesx48Gig1TenGigModule(57) • superx12ComboPortManagementModule(64) • superx2PortTenGigModule(65) • superx24PortGigCopperModule(66) • superx24PortGigFiberModule(67) • superx2PortTenGigLanWanModule(68) • superx24Port100tx1PortGigFiberModule(69) • superx12ComboPortManagement2Module(74) • superxR2PortTenGigManagementModule(80) • superxRManagementModule(81)

Name, OID, and Syntax	Access	Description
snAgentConfigModuleType (continued)		• fesx24GigFiberGigCopperModule(112) • fesx24GigFiber2TenGigModule(113) • fesx24GigFiber1TenGigModule(114) • biFiJc48ePort100fxIpcModule(195) • biFiJc48tPort100fxIpcModule(196) • biFiJc8PortGigM4ManagementModule(197) • biFiJc8PortGigIgcModule(198) • biFiJc16PortGigIgcModule(200) • biJc24PortCopperIpc4GigIgcModule(201) • biJc16PortGigCopperIgcModule(202) • biFiJc24Port100fxIpcModule(206) • bi2Port10GigModule(207) • biJc48tPortRJ21OmpModule(208) • biJc48ePortRJ45OmpModule(209) • biJc24PortIpcRJ45PoeModule(212) • biJc2PortGigIgcM4ManagementModule(214) • fdryBi4Port10GigModule(1048) • fdryBi40PortGigModule(1049) • fdryBi1Port100FXManagementModule(1050) • fdryBi2Port10GigModule(1051) • fdryBi40PortGigCopperModule(1052) • fdryBi60PortGigCopperModule(1053) • fdryBi4Port10GigHVModule(1054) • fdryBi2Port10GigHVModule(1055) • fdryBi8Port10GigHVModule(1056) • fdryBi40PortGigHVModule(1057) • fdryBi40PortGigCopperHVModule(1058) • fdryBi60PortGigCopperHVModule(1059) • fdryBi8Port10GigModule(1060) • fdryBi10PortGigHVModule(1061) • fdryBi20PortGigHVModule(1062) • fdryBi24PortGigModule(1063) • fdryBi24PortGigCopperModule(1064) • fdryBi48PortGigCopperModule(1065) • fdryBi24PortGigFiberModule(1066) • fdryNi4Port10GigSPModule(1075)

Name, OID, and Syntax	Access	Description
snAgentConfigModuleType (continued)		• fdryNi40PortGigSPModule(1076) • fdryNi40PortGigCopperSPModule(1077) • fdryNi2Port10GigSPModule(1078) • fdryNi10PortGigSPModule(1079) • fdryNi20PortGigSPModule(1080) • fdryXmr4Port10GigSPModule(1081) • fdryXmr20PortGigSPModule(1082) • fdryXmr2Port10GigSPModule(1083) • fdryXmr20PortGigCopperSPModule(1084) • fdryXmr20PortGigFXSPModule(1085) • fdryNiImrMrManagementModule(1086) • fdryNiXmrMrManagementModule(1087) • fdryMlx4Port10GigSPModule(1088) • fdryMlx2Port10GigSPModule(1089) • fdryMlx20PortGigCopperSPModule(1090) • fdryMlx20PortGigFXSPModule(1091) • brMlx4Port10GigXModule(1093) • brMlx24PortGigCopperXModule(1094) • brMlx24PortGigSfpXModule(1095) • fdryMlx48PortGigMrj21SPModule(1103) • fdryXmr2PortOC192SPModule(1104) • fdryXmr1PortOC192SPModule(1105) • fdryXmr8PortOC48SPModule(1106) • fdryXmr4PortOC48SPModule(1107) • fdryXmr2PortOC48SPModule(1108) • niMlx8Port10GigMModule (1110) • niMlx8Port10GigDModule (1111)
snAgentConfigModuleRowStatus brcdIp.1.1.2.8.1.1.3 Syntax: Integer	Read-write	To create or delete a configured module table entry. • other(1) • valid(2) • delete(3) • create(4)
snAgentConfigModuleDescription brcdIp.1.1.2.8.1.1.4 Syntax: DisplayString	Read only	A description of the configured module.
snAgentConfigModuleOperStatus brcdIp.1.1.2.8.1.1.5 Syntax: DisplayString	Read only	Module operational status. A blank indicates that the physical module has not been inserted to the chassis.
snAgentConfigModuleSerialNumber brcdIp.1.1.2.8.1.1.6 Syntax: DisplayString	Read only	Module serial number. A blank indicates that the serial number has not been programmed in the module's EEPROM or the serial number is not supported in the module. In IronWare releases before 07.5.0, this object returns a NULL string, indicating that it is a place holder for a serial number. Beginning with IronWare release 07.5.0 this object returns the device serial number. **NOTE:** This object has been deprecated for the NetIron XMR and NetIron MLX running software release 04.0.01 and later. Use the snAgentBrdSerialNumber in the snAgentBrdTable instead.

Name, OID, and Syntax	Access	Description
snAgentConfigModuleNumberOfPorts brcdIp.1.1.2.8.1.1.7 Syntax: Integer32	Read only	The number of ports in the module.
snAgentConfigModuleMgmtModuleType brcdIp.1.1.2.8.1.1.8 Syntax: Integer	Read only	The management module type: • other(1) • nonManagementModule(2) • unknownManagementModule(3) • m1ManagementModule(4) • m2ManagementModule(5) • m3ManagementModule(6) • m4ManagementModule(7) • m5ManagementModule(8) • jetcoreStackManagementModule(9) • muchoManagementModule(10) • rottWeilerManagementModule(11) • fesXStackManagementModule(12) • fgsStackManagementModule(13)
snAgentConfigModuleNumberOfCpus brcdIp.1.1.2.8.1.1.9 Syntax: Integer32	Read only	The number of CPUs in the module.

Redundant modules

Use these objects to manage redundant management modules in all devices except for the ServerIron products. Refer to the chapter “Traps and Objects to Enable Traps” on page 627 for objects dealing with traps.

Name, OID, and Syntax	Access	Description
snAgentRedunActiveMgmtMod brcdIp.1.1.2.10.1.1 Syntax: Integer32	Read-write	Shows the slot number of the active management module. Setting this object does not take effect immediately. You must save the configuration data to flash storage, then reboot the system before the new value takes effect. Setting a value of 0 requests the system to auto-select an active management module after power up. Default: 0.
snAgentRedunSyncConfig brcdIp.1.1.2.10.1.2 Syntax: Integer32	Read-write	Shows how often the data in the active management module will be copied to the backup management module. The value for this object is in seconds. Setting this object to 0 disables the copy process. Setting it to a negative value starts the process immediately, but runs only once. Default: every 10 seconds

Name, OID, and Syntax	Access	Description
snAgentRedunBkupCopyBootCode brcdIp.1.1.2.10.1.3 Syntax: Integer	Read-write	If enabled, the backup management module copies the boot code of the active management module to its boot code flash storage after power up, and whenever the active management module's boot code is updated. The backup management module does not copy the boot code if is identical to what is already in flash storage: • Disabled(0) • Enabled(1) Default: disabled(0)
snAgentRedunBkupBootLoad brcdIp.1.1.2.10.1.5 Syntax: Integer	Read-write	Downloads a new boot code from boot flash storage of the active management module to the backup management module. In a set operation, enter the value downloadBackup(20) to download the boot code from the active management module to the backup management module. A set operation is rejected during a download until error or normal state is reached. One of the following values are returned by a get operation: • normal(1) – no operation • operationError(17) – error codes • downloadbackup(20) – download boot code from active module to backup to the backup module
snAgentRedunSwitchOver brcdIp.1.1.2.10.1.6 Syntax: Integer	Read-write	Switches a backup management module to an active management module. • other(1) • reset(2) – Resets the backup module to active.

Chassis table

The snChasUnitTable manages the temperature for the devices.

Name, OID, and Syntax	Access	Description
snChasUnitTable brcdIp.1.1.1.4.1	N/A	A table of information for each unit in a stack. Only active units appears in a table row.
snChasUnitEntry brcdIp.1.1.1.4.1.1	N/A	A row in the table for the unit.
snChasUnitIndex brcdIp.1.1.1.4.1.1.1 Syntax: Integer32	Read only	The index to the table
snChasUnitSerNum brcdIp.1.1.1.4.1.1.2 Syntax: DisplayString	Read only	The serial number of the unit. If the serial number is unknown or unavailable, then the value should be a zero length string There can be up to 128 characters for the serial number.
snChasUnitNumSlots brcdIp.1.1.1.4.1.1.3 Syntax: Integer32	Read only	Number of slots of the chassis for each unit.

Name, OID, and Syntax	Access	Description
snChasUnitActualTemperature brcdIp.1.1.1.4.1.1.4 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Temperature of the chassis. Each unit is 0.5 degrees Celsius. This object applies only to management modules with temperature sensors in hardware. For management modules without temperature sensors, it returns “no-such-name”. Values are from -110 to 250.
snChasUnitWarningTemperature brcdIp.1.1.1.4.1.1.5 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Actual temperature higher than this threshold value triggers the switch to send a temperature warning trap. Each unit is 0.5 degrees Celsius. This object applies only to management modules with temperature sensors in hardware. For management modules without temperature sensors, it returns “no-such-name”. Values are from 0 to 250 degrees Celsius.
snChasUnitShutdownTemperature brcdIp.1.1.1.4.1.1.6 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Actual temperature higher than this threshold value will shutdown a partial of the switch hardware to cool down the system. Each unit is 0.5 degrees Celsius. This object applies only to management modules with temperature sensors in hardware. For management modules without temperature sensors, it returns “no-such-name”. Values are from 0 to 250 degrees Celsius.
snChasUnitPartNum brcdIp. 1.1.1.4.1.1.7 Syntax: DisplayString	Read only	Only for NetIron XMR and NetIron MLX running software release 04.0.01 and later and for Brocade MLXe devices. Indicates the part number of the chassis. Nothing is displayed if the part number is unknown or unavailable.

Stackable products

The objects in this section are specific to IronCore/JetCore Stackable devices, which include the following models:

- FastIron
- ServerIron
- NetIron

The objects for stackable devices are presented in the following sections:

- “Boards” on page 108
- “LEDs” on page 110

Refer to the “Agent board table” on page 90 for objects that apply to chassis devices.

NOTES: The MIB contains objects under the snStackGen (General Stackable Management Information) and snStackSecSwitchInfo (Stackable Management Secondary Switch Information Table) groups are not supported. They include the following objects:

- snStackPriSwitchMode
- snStackMaxSecSwitch
- snStackTotalSecSwitch
- snStackSyncAllSecSwitch
- snStackSmSlotIndex
- snStackFmpSetProcess
- snStackSecSwitchTable
- snStackSecSwitchEntry
- snStackSecSwitchIndex
- snStackSecSwitchSlotId
- snStackSecSwitchPortCnts
- snStackSecSwitchEnabled
- snStackSecSwitchAck
- snStackSecSwitchMacAddr
- snStackSecSwitchSyncCmd
- snStackSecSwitchIpAddr
- snStackSecSwitchSubnetMask
- snStackSecSwitchCfgCmd

Boards

The following objects apply only to stackable ServerIron products.

Name, Identifier, and Syntax	Access	Description
snChasMainBrdDescription brcdIp.1.1.1.1.5 Syntax: DisplayString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Shows the main board. This object can have up to 128 characters.
snChasMainPortTotal brcdIp.1.1.1.1.6 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Shows the total number of ports on the main board. Valid values: 1 – 24

Name, Identifier, and Syntax	Access	Description
snChasExpBrdDescription brcdIp.1.1.1.1.7 Syntax: DisplayString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Shows the description of the expansion board. This object can have up to 128 characters.

Name, Identifier, and Syntax	Access	Description
snChasExpPortTotal brcdIp.1.1.1.1.8 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Shows the total number of ports ion the expansion board. Valid values: 1 – 24
snChasExpBrdId brcdIp.1.1.1.1.14 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies only to stackable ServerIron products. It identifies the expansion board, the board that attaches to the main board. It is an encoded octet string. The octets provide the following information: **Octet 0** – Identifies the format of this octet string. If Octet 0 has a value of 1, the values of the remaining octets are: **Octet 1** – Expansion board type: • HUNDRED_MEG_1PORT – 1 • HUNDRED_MEG_2PORT – 2 • HUNDRED_MEG_1PORT_COPPER – 3 • HUNDRED_MEG_2PORT_COPPER – 4 • HUNDRED_MEG_2PORT_LX – 5 • GIGA_1PORT – 8, GIGA_2PORT – 9 **Octet 2** – Fiber port type: • NONFIBER – 0 • SX_FIBER – 1 • LX_FIBER – 2 • LHX_FIBER – 3 • LX_SX_FIBER – 4

LEDs

This section presents the objects that apply to LEDs in stackable ServerIron devices. Figure 1 shows a bit map of LEDs in products. Some objects in the MIB refer to this bit map.

FIGURE 1 Bit Map of LEDs

	Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8
	Bit 0	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7
Byte 1	LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	LED 7	LED 8
Byte 2	LED 9	LED 10	LED 11	LED 12	LED 13	LED 14	LED 15	LED 16

Byte 3	LED 17	LED 18	LED 19	LED 20	LED 21	LED 22	LED 23	LED 24
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

Each LED contains one bit representing a switch port. Each bit shows the value of the LED. The expansion port number always begins from the last main port number.

Name, OID, and Syntax	Access	Description
snChasStatusLeds brcdIp.1.1.1.1.9 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies to devices running Release 07.1.00 and earlier. It is replaced by the object snAgentBrdStatusLedString in later releases. This LED on the front panel of a device shows the status of the link. It is represented by one bit. There can be up to 32 bits per slot. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. Status can be one of the following: 0 – Link off 1 – Link on
snChasTrafficLeds brcdIp.1.1.1.1.10 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies to devices running Release 07.1.00 and earlier. It is replaced by the object snAgentBrdTrafficLedString in later releases. This LED on the front panel of a device shows the traffic status. It is represented by one bit. There can be up to 32 bits per slot. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. Status can be one of the following: 0 – No traffic 1 – Traffic is flowing
snChasMediaLeds brcdIp.1.1.1.1.11 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies to devices that have an LED for media type and are running Release 07.1.00 and earlier. It is replaced by the object snAgentBrdMediaLedString in later releases. It is represented by one bit. There can be up to 32 bits per slot. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. Status can be one of the following: 0 – Half duplex 1 – Full duplex
snChasSpeedLeds brcdIp.1.1.1.1.15 Syntax: Integer	Read only	Applies to devices that have an LED for media speed and are running Release 07.1.00 and earlier. It is replaced by the object snAgentBrdSpeedLedString in later releases. It is represented by one bit. There can be up to 32 bits per slot. Refer to the "Bit Map of LEDs" in Figure 1 on page 110. Status can be one of the following: 0 – 10 Mbit 1 – 100 Mbit

Chassis products

The objects in this section apply to the following devices:

- BigIron 4000, BigIron 8000, and BigIron 15000
- FastIron 4802
- FastIron II, and FastIron III
- FastIron 400, FastIron 800, and FastIron 1500
- NetIron 400, NetIron 800, and NetIron 1500
- ServerIron 400 and ServerIron 800
- TurboIron/8
- BigIron RX
- NetIron XMR and NetIron MLX
- Brocade MLXe
- ServerIron ADX

The objects for these devices are presented in the following sections:

- “General chassis” on page 113
- “Power supply table” on page 114
- “Fan table” on page 115
- “Temperature” on page 115
- “Flash Card” on page 116

General chassis

The following objects apply to all chassis-based devices.

Name, Identifier, and Syntax	Access	Description
snChasType brcdIp.1.1.1.1.1 Syntax: DisplayString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Shows the type of device being managed. This object can have up to 128 characters. Possible value – 1
snChasSerNum brcdIp.1.1.1.1.2 Syntax: DisplayString	Read only	Shows the serial number of the device stored in the EEPROM of the device. This is not the serial number on the label of the device. If the device serial number is available, it is the lowest three octets of the lowest MAC address in the device. For example, if the lowest MAC address is 00e0 52a9 2b20, then the serial number of the chassis is a92b20. If the serial number is unknown or unavailable, then the value is a null string. This object can have up to 128 characters.
snchasProductType brcdIp.1.1.1.1.26 Syntax: Integer	Read only	Shows the product type. The following shows the meaning of each bit: • invalid(0) • BigIron MG8(1) • NetIron 40G(2) • NetIron IMR 640(3) • NetIron RX 800(4) • NetIron XMR 16000(5) • BigIron RX 400(6) • NetIron XMR 8000(7) • BigIron RX 200(8) • NetIron XMR 4000(9) • NetIron MLX-32(13) • NetIron XMR 32000(14) • BigIron RX-32(15) • niCES2000Series(16) • niCER2000Series(17) • brMlxESlot4(18) • brMlxESlot8(19) • brMlxESlot16(20) • brMlxESlot32(21)

Name, Identifier, and Syntax	Access	Description
snChasSystemMode brcdIp.1.1.1.1.27 Syntax: Integer	Read only	This object displays the mode of the Brocade MLXe, NetIron XMR, or NetIron MLX device. It returns one of the following values: • xmr(1) • mlx(2) Values are returned as follows: • If snChasProductType is niXmr4000, niXmr8000, niXmr160000, or niXmr32000, then this object returns xmr(1). • if snChasProductType is niMlx4, niMlx8, niMlx16, or niMlx32 then this object returns mlx(2). • If snChasProductType is brMlxE4, brMlxE8, brMlxE16, or brMlxE32 this object returns either xmr(1) or mlx(2)depending on the mode of the system. This object is not supported on other products.
snChasFactoryPartNumber brcdIp.1.1.1.1.28 Syntax: DisplayString	Read only	Manufacturer serial number. **NOTE:** This object is supported only on Brocade MLXe and NetIron devices running software release 05.1.00 and later.
snChasFactorySerialNumber brcdIp.1.1.1.1.29 Syntax: DisplayString	Read only	Distributor serial number **NOTE:** This object is supported only on Brocade MLXe and NetIron devices running software release 05.1.00 and later.

Power supply table

The following table applies to the power supplies in all devices, except for devices that support the Stacking functionality. For devices with Stacking functionality, refer to “Stacking power supply table” on page 541.

Name, OID, and Syntax	Access	Description
snChasPwrSupplyTable brcdIp.1.1.1.2.1	None	A table containing power supply information. Only installed power supplies appear in the table.
snChasPwrSupplyEntry brcdIp.1.1.1.2.1.1	None	A row in the power supply table. One row appears for each power supply.
snChasPwrSupplyIndex brcdIp.1.1.1.2.1.1.1 Syntax: Integer32	Read only	The index to power supply table.
snChasPwrSupplyDescription brcdIp.1.1.1.2.1.1.2 Syntax: DisplayString	Read only	The power supply description. For example, you may see the description, “right side power supply”. This object can have up to 128 characters.
snChasPwrSupplyOperStatus brcdIp.1.1.1.2.1.1.3 Syntax: Integer	Read only	Shows the status of the power supply: • other(1) – Status is neither normal(2) or failure(3). This value is not used for stackables including FastIron 4802, BigIron 4000, BigIron 8000, and BigIron 15000. • normal(2) • failure(3)

Fan table

The following table applies to the fans in all devices, except for devices that support the Stacking functionality. For devices with Stacking functionality, refer to “Stacking fan table” on page 541.

Name, Identifier, and Syntax	Access	Description
snChasFanTable brcdIp.1.1.1.3.1	None	A table containing fan information. Only installed fans appear in the table.
snChasFanEntry brcdIp.1.1.1.3.1.1	None	A row in the fan table. One row appears for each installed fan.
snChasFanIndex brcdIp.1.1.1.3.1.1.1 Syntax: Integer32	Read only	The index to the fan table.
snChasFanDescription brcdIp.1.1.1.3.1.1.2 Syntax: DisplayString	Read only	The fan description. For example, you may see the description “left side panel, back fan”. This object can have up to 128 characters.
snChasFanOperStatus brcdIp.1.1.1.3.1.1.3 Syntax: Integer	Read only	Shows the status of the fan operation: • other(1) – Beginning with IronWare software release 7.6.01, this value means “not manageable” to refer to Fans 5 and 6 in the BigIron 15000. It has no meaning for other devices. • normal(2) • failure(3)

Temperature

The following objects manage temperature sensors in all devices listed under “Chassis products” on page 112 except BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX. Also refer to “Chassis table” on page 105.

Refer to the chapter “Traps and Objects to Enable Traps” on page 627 for objects dealing with traps.

Name, OID, and Syntax	Access	Description
snChasActualTemperature brcdIp.1.1.1.1.18 Syntax: Integer	Read only	Applies only to management modules with temperature sensors. Shows the temperature of the chassis. Each unit is 0.5 degrees Celsius. **NOTE:** If you are comparing this value to the value you get when you enter a show chassis command on the CLI, divide this value by 2. The result is the actual temperature you see in the CLI. This was done intentionally to represent tenth decimal values in SNMP, as SNMP can only report INTEGER values. Valid values: 110 – 250

Name, OID, and Syntax	Access	Description
snChasWarningTemperature brcdIp.1.1.1.1.19 Syntax: Integer	Read-write	Applies only to management modules with temperature sensors. Shows the threshold for the warning temperature. When the actual temperature exceeds this value, the switch sends a temperature warning trap. Each unit is 0.5 degrees Celsius. Valid values: 0 – 250
snChasShutdownTemperature brcdIp.1.1.1.1.20 Syntax: Integer	Read-write	Applies only to management modules with temperature sensors. Shows the temperature threshold that triggers the device to shut down. When the actual temperature exceeds this value the switch shuts down a portion of the hardware to cool down the device. Each unit is 0.5 degrees Celsius. Valid values: 0 – 250

Flash Card

The following objects manage the flash cards in all devices, except the ServerIron products.

Name, OID, and Syntax	Access	Description
snChasFlashCard brcdIp.1.1.1.1.22 Syntax: Integer32	Read only	Applies only to M4 management modules. This object is a bit array that contains the flash card status. This is a packed bit string. The status of each flash card is encoded into one bit. There can be up to two flash cards. The bits are: • 2 to 31 – Reserved • 1 – Flash card 2 status • 0 – Flash card 1 status (Bit 0 is the least significant bit.) Flash card status can be one of the following: • 0 – Flash card is absent • 1 – Flash card is present
snChasFlashCardLeds brcdIp.1.1.1.1.23 Syntax: Integer32	Read only	Shows the status of LEDs on a flash card. This is a 32-bit integer type object. Each bit shows one of the following: • 0 – Flash card is off • 1 – Flash card is on
snChasNumSlots brcdIp.1.1.1.1.24 Syntax: Integer32	Read only	Shows the number of slots in the chassis.
snChasArchitectureType brcdIp.1.1.1.1.25 Syntax: Integer	Read only	Shows the architecture type. stackable(1), – old stackable bigIron(2), terathon(3), fifthGen(4)}

Optical monitoring MIB objects

The following MIB objects are available in software release 03.4.00 for the NetIron XMR Series and NetIron MLX Series. They are used to monitor optics on the fiber-optic modules installed on the Brocade MLXe, NetIron XMR, NetIron MLX devices.

Name, OID, and Syntax	Access	Description
snIfOpticalMonitoringInfoTable brcdIp.1.1.3.3.6	None	This table lists the instrumented parameters of all optical interfaces. REFERENCE: "ITU recommendations G.783, G.784, G.953"
snIfOpticalMonitoringInfoEntry brcdIp.1.1.3.3.6.1	None	This table is indexed by ifIndex standard MIB of the physical optical ports that are to be monitored. Only the ifIndexes of optical interfaces whose parameters need to be monitored will be used to index this table.
snIfOpticalMonitoringTemperature brcdIp.1.1.3.3.6.1.1.1 Syntax: DisplayString (SIZE(0..32))	Read only	This object shows the temperature of the transmitter laser diode for the interface, and indicates the health of the transmitter. The format is xxx.yyyy Celsius, followed by whether the measured value is normal, high/low alarm, or high/low warning. For example, you may see “30.9453 C: Normal”.
snIfOpticalMonitoringTxPower brcdIp.1.1.3.3.6.1.1.2 Syntax: DisplayString (SIZE(0..32))	Read only	This object shows the signal power for the transmitter optical signal for the interface. Signal power is measured in dBm, followed by whether this is a normal value, or high/low warning, or alarm. For example, you may see “-002.1119 dBm: Normal”.
snIfOpticalMonitoringRxPower brcdIp.1.1.3.3.6.1.1.3 Syntax: DisplayString (SIZE(0..32))	Read only	This object shows the signal power of the receiver optical for the interface. Signal power is measured in dBm, followed by whether this is a normal value, or high/low warning, or alarm. For example, you may see “-003.7582 dBm: Normal”.
snIfOpticalMonitoringTxBiasCurrent brcdIp.1.1.3.3.6.1.1.4 Syntax: DisplayString (SIZE(0..32))	Read only	This object shows the Transmit Bias Current. It is measured in mA, and is followed by whether this is a normal value, or high/low warning, or alarm. For example, you may see, “32.426 mA: Normal”.

Chapter

Basic Configuration and Management 5

Software Image

This chapter describes objects to manage the software image and configuration in a device.

Refer to the configuration guide for a product for detailed explanation on the features discussed in this chapter.

- “Reload” on page 119
- “NVRAM” on page 120
- “File download and upload” on page 121
- “Software image details” on page 125
- “Boot sequence table” on page 126

Reload

The following object allows you to reload the agent.

Name, OID, and Syntax	Access	Description
snAgReload brcdIp.1.1.2.1.1 Syntax: Integer	Read-write	Reboots the agent. The following value can be written: • reset(3) – Do a hard reset **NOTE:** To use reset(3), make sure that either the “**no snmp-server pw-check**" CLI command has been configured in the device or the varbind, and snAgGblPassword, with the appropriate password has been added to the SetRequest PDU. The default value of snAgGblPassword is the “enable” super-user password. If the CLI command "**aaa authentication snmp-server default...**" is configured, then the method list determines the value expected in the snAgGblPassword MIB object. The agent will return a response before the action occurs. The following values can only be read: • other(1) – Agent is in unknown or other state • running(2) – Agent is running This object requires a password to be set for the snAgGblPassword object.

NVRAM

The objects in this section apply to all devices that use non-volatile random access memory (NVRAM), a type of memory that retains its contents when power is turned off. These objects are available in all devices.

Name, OID, and Syntax	Access	Description
snAgEraseNVRAM brcdIp.1.1.2.1.2 Syntax: Integer	Read-write	Erases the NVRAM of the agent. This object can have one of the following values: • normal(1) – NVRAM is not being erased. • error(2) – Either the erase operation failed or the flash memory is bad • erase(3) – NVRAM is set to be erased • erasing(4) – NVRAM is being erased. Once the process starts, you cannot set this object to erase(3) until the process is finished and the value of this object is either normal(1) or error(2)
snAgWriteNVRAM brcdIp.1.1.2.1.3 Syntax: Integer	Read-write	Saves all configuration information to NVRAM of the agent. The following values can only be read: • normal(1) • error(2) – Operation failed or the flash is bad • writing(4) – Agent is writing NVRAM flash The following value can be written: • write(3) – Write operation The agent will return a response even before the write operation is complete. The read values will be written until write operation is finished. New write requests will be rejected until an error(2) or normal(1) value is obtained. **NOTE:** To use reset(3), make sure that either the "**no snmp-server pw-check**" CLI command has been configured in the device or the varbind and snAgGblPassword, with the appropriate password, has been added to the SetRequest PDU. The default value of snAgGblPassword is the "enable" super-user password. If the CLI command "**aaa authentication snmp-server default ...**" is configured, then the method list determines the value expected in the snAgGblPassword MIB object. This object requires a password to be set for the snAgGblPassword object.
snAgConfigFromNVRAM brcdIp.1.1.2.1.4 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	None	Configures the switch from NVRAM of the agent. The following value can be written: • config(3) – Do configuration The following values can only be read: • normal(1) • error(2) – Operation failed or bad flash • configing(4) – Configuring from NVRAM flash is in process. The agent returns a response after configuration is done. This object requires a password to be set for the snAgGblPassword object.

Configuration notes on snAgEraseNVRAM and snAgWriteNVRAM

Refer to configuration notes for the snAgGblPassword object in the section “General security objects” on page 158 for more information on how to use snAgEraseNVRAM and snAgWriteNVRAM.

File download and upload

The following objects manage file downloads and uploads. They are available in all devices.

NOTES: When uploading or downloading configuration files to and from the TFTP server using SNMP, check the following:

- If the SNMP password check is enabled on the device, the object “snAgGblPassword” on page 158 must be sent with the following information in the same PDU as the TFTP objects:
  - If the AAA is used for SNMP authentication and the authentication method is enable or line, then the value of snAgGlbPassword must be in cleartext format.
  - If the AAA is used for SNMP authentication and the authentication method is local, RADIUS, TELNET, TACACS, or TACACS+, then the value of the snAgGlbPassword must be in the <user> <password> format. The space between <user> and <password> is the delimiter.
  - If AAA is not used for authentication, then the value of snAgGlbPassword for the enable password must be in cleartext format.
- Make sure that user has administrative access (privilege=0) on the device; otherwise, the user will not be able to upload files to the TFTP server.

NOTE
An atomic set of snAgImgLoad, snAgImgFname, and snAgTftpServerIp (or snAgTftpServerAddrType and snAgTftpServerAddr), is required for a successful download or upload.

Name, OID, and Syntax	Access	Description
snAgTftpServerIp brcdIp.1.1.2.1.5 Syntax: IpAddress	Read-write	Shows the IP address of the TFTP server that will be used to download and upload image and configuration files. **NOTE:** FastIron X Series IPv6 switches running software release FSX 04.1.00 or later use **snAgTftpServerAddrType** and **snAgTftpServerAddr**.
snAgImgFname brcdIp.1.1.2.1.6 Syntax: DisplayString	Read-write	Shows the name of the image file, including path, that is currently associated with the system. When the object is not used, the value is blank. It can have up to 32 characters.

Name, OID, and Syntax	Access	Description
snAgImgLoad brcdIp.1.1.2.1.7 Syntax: Integer	Read-write	Downloads or uploads a new software image to the agent. Use one of the following values in an SNMP set: • uploadMPPrimary(19) – Uploads the primary image from the management processor flash memory to the TFTP server. • downloadMPPrimary(20) – Downloads the primary image from the TFTP server to management processor flash. • uploadMPSecondary(21) – Uploads the secondary image from the management processor flash memory to the TFTP server. • downloadMPSecondary(22) – Downloads the secondary image from the TFTP server to management processor flash. • downloadSPPrimary(24) – Downloads the secondary image from the TFTP server to secondary processor flash. • downloadSPSecondary(25) – Downloads the secondary image from the TFTP server to secondary processor flash. The following messages may be displayed: • normal(1) • flashPrepareReadFailure(2) • flashReadError(3) • flashPrepareWriteFailure(4) • flashWriteError(5) • tftpTimeoutError(6) • tftpOutOfBufferSpace(7) • tftpBusy(8) • tftpRemoteOtherErrors(9) • tftpRemoteNoFile(10) • tftpRemoteBadAccess(11) • tftpRemoteDiskFull(12) • tftpRemoteBadOperation(13) • tftpRemoteBadId(14) • tftpRemoteFileExists(15) • tftpRemoteNoUser(16) • operationError(17) • loading(18) – operation is in process • uploadMPPrimary(19)
snAgImgLoad (continued)		• downloadMPPrimary(20) • uploadMPSecondary(21) • downloadMPSecondary(22) • tftpWrongFileType(23) • downloadSPPrimary(24) • downloadSPSecondary(25) This object requires a password to be set for the snAgGblPassword object.
snAgCfgFname brcdIp.1.1.2.1.8 Syntax: DisplayString	Read-write	Shows the name of the configuration file, including its path, currently associated with the system. If there are multiple configuration files, the names are separated by semicolons (;). This object can have up to 32 characters.

Name, OID, and Syntax	Access	Description
snAgCfgLoad brcdIp.1.1.2.1.9 Syntax: Integer	Read-write	Downloads or uploads a configuration file to the agent. Use one of the following values for SNMP set: • uploadFromFlashToServer(20) – Uploads the configuration file from the flash to the TFTP server. • downloadToFlashFromServer(21) – Downloads the configuration file from the TFTP server to flash. • uploadFromDramToServer(22) – Uploads the configuration file from the DRAM to the TFTP server. • downloadToDramFromServer(23) – Downloads the configuration file from the TFTP server to DRAM. • uploadFromFlashToNMS(24) – Uploads the configuration file from flash to the network management system. • downloadToFlashFromNMS(25) – Downloads the configuration file from the network management system to flash. • uploadFromDramToNMS(26) – Uploads the configuration file from DRAM to a network management system. • downloadToDramFromNMS(27) – Downloads the configuration file from the network management system to DRAM. The following values may be read: • normal(1) • flashPrepareReadFailure(2) • flashReadError(3) • flashPrepareWriteFailure(4) • flashWriteError(5) • tftpTimeoutError(6) • tftpOutOfBufferSpace(7) • tftpBusy(8) • tftpRemoteOtherErrors(9) • tftpRemoteNoFile(10) • tftpRemoteBadAccess(11) • tftpRemoteDiskFull(12) • tftpRemoteBadOperation(13) • tftpRemoteBadId(14) • tftpRemoteFileExists(15) • tftpRemoteNoUser(16) • operationError(17) • loading(18) • tftpWrongFileType(29)
snAgCfgLoad (continued)		• operationDoneWithNMS(28) • tftpWrongFileType(29) • downloadToDramFromServerOverwrite(30) **NOTE:** The objects "snAgCfgFname" and "snAgTftpServerIp" are required to allow the download or upload process to occur. No write requests will be allowed while a download or upload process is in progress. The snAgCfgEosTable objects must be sent along in one PDU for network management systems to recognize values from (24) to (27). A separate write memory using the CLI or an SNMP "set snAgWriteNVRAM" is required to save the configuration to NVRAM. This object requires a password to be set for the snAgGblPassword object.

In addition to the objects above, the following objects are available in all devices except in the ServerIron products.

Name, OID, and Syntax	Access	Description
snAgImgLoadSPModuleType brcdIp.1.1.2.1.56 Syntax: Integer	Read-write	Shows the switch processor module type that receives the downloaded image: • other(1) • vm1(2) • pos12(3) • pos48(4) • atm(5) • gignpa(6)
snAgImgLoadSPModuleNumber brcdIp.1.1.2.1.57 Syntax: Integer32	Read-write	Shows the slot number of a switch processor module that receives the downloaded image. Setting this object to 0 means that switch processor modules will receive the image.

The following objects are available in FastIron X Series IPv6 switches running software release FSX 04.1.00 or later. Releases prior to FSX 04.1.00 use **snAgTftpServerIp**.

Name, OID, and Syntax	Access	Description
snAgTftpServerAddrType brcdIp.1.1.2.1.65 Syntax: InetAddressType **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Shows the IP address type of the TFTP server that will be used to download and upload image and configuration files.
snAgTftpServerAddr brcdIp.1.1.2.1.66 Syntax: InetAddress **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Shows the IP address of the TFTP server that will be used to download and upload image and configuration files.

Software image details

The following objects show information about software images in a device. These objects are available in all devices.

Name, OID, and Syntax	Access	Description
snAgImgVer brcdIp.1.1.2.1.11 Syntax: DisplayString	Read only	Shows the version of the running software. The software image file name is displayed in the format: `major.minor.maintenance[letters].` It can have up to 32 characters.
snAgFlashImgVer brcdIp.1.1.2.1.12 Syntax: DisplayString	Read only	Shows the version of the software image that has been saved in the local storage, such as the flash memory. The software image file name is displayed in the format: `major.minor.maintenance[letters]` It can have up to 32 characters. If this file is unknown or not available, then this object displays a a null string.
snAgSoftwareFeature brcdIp.1.1.2.1.41 Syntax: OctetString	Read only	Contains a bit string representing the software feature of the running software image. Each bit can have one of the following values: • 0 – The feature is available • 1 – The feature is available Bit 0 is the least significant bit of an octet, and bit 7 is the most significant bit of an octet. • Octet 0, bit 0 – RMON • Octet 0, bit 1 – IPX switching • Octet 0, bit 2 – Server Load Balancing • Octet 0, bit 3 – Layer 3 filter in switch • Octet 0, bit 4 – IPX routing • Octet 0, bit 5 – AppleTalk routing • Octet 0, bit 6 – IP multicast routing • Octet 0, bit 7 – Local access control • Octet 1, bit 0 – BGP routing • Octet 1, bit 1 – Loopback interface • Octet 1, bit 2 – BigIron multi-management module • Octet 1, bit 3 – BigIron SYSIF II • Octet 1, bit 4 – BigIron POS support • Octet 1, bit 5 – AppleTalk cable VLAN • Octet 1, bit 6 – 64 subnet • Octet 1, bit 7 – multi-slot trunk • Octet 2, bit 0 – TACACS • Octet 2, bit 1 – Gigabit Ethernet port auto-negotiation mode • Octet 2, bit 2 – FSRP • Octet 2, bit 3 – Exodus requested OSPF enhancement • Octet 2, bit 4 – OSPF NSSA • Octet 2, bit 5 – POS • Octet 2, bit 6 – QoS • Octet 2, bit 7 – Single Span

Name, OID, and Syntax	Access	Description
snAgSoftwareFeature (continued)		• Octet 3, bit 0 – Fast Span • Octet 3, bit 1 – Base L3 • Octet 3, bit 2 – static log buffer • Octet 3, bit 3 – L2 POS • Octet 3, bit 4 – BI15K • Octet 3, bit 5 - L2 ATM • Octet 3, bit 6 - ATM • Octet 3, bit 7 - NETFLOW • Octet 4, bit 0 - SFLOW • Octet 4, bit 1 - GVRP • Octet 4, bit 2 - GARP • Octet 4, bit 3 - Dynamic trunk • Octet 4, bit 4 - IGC 8G • Octet 4, bit 5 - Rate limit • Octet 4, bit 6 - IPC rate limit • Octet 4, bit 7 - MPLS • Octet 5, bit 0 - ISIS • Octet 5, bit 1 - Link aggregation • Octet 5, bit 2 - Port dual mode • Octet 5, bit 3 - Private vlan • Octet 5, bit 4 - MBGP • Octet 5, bit 5 - IPV6 protocol vlan • Octet 5, bit 6 - X10G • Octet 5, bit 7 - FastIron Edge switch/router • Octet 6, bit 0 - FDP • Octet 6, bit 1 – port tag Bit 0 is the least significant bit of an octet; bit 7 is the most significant bit. Additional bits are added for new features. Check the MIB file for the software version you are running.
snAgBuildDate brcdIp.1.1.2.1.47 Syntax: DisplayString	Read only	Shows the date when the software was built. It can display up to 32 characters.
snAgBuildtime brcdIp.1.1.2.1.48 Syntax: DisplayString	Read only	Shows the time when the software was built. It can display up to 32 characters.
snAgBuildVer brcdIp.1.1.2.1.49 Syntax: DisplayString	Read only	Shows the version of the software in the format: `major.minor.maintenance[letters]` It can display up to 32 characters.

Boot sequence table

This table shows a list of software image loads. The images are in the sequence that will be used at boot up. When the devices is booted, the first image in the table will be loaded into the device. If that software image fails, the second image will be tried. The process continues until a successful load is completed.

This table is available in all devices. The combination of all the objects in this table must be unique. Duplicate instructions are rejected.

NOTE
Make sure that each entry is unique. It is possible to create entries with the same instructions by creating a new sequence index. Duplicate instructions may cause loops.

Name, OID, and Syntax	Access	Description
snAgBootSeqTable brcdIp.1.1.2.4.1	None	Identifies the boot sequence table
snAgBootSeqEntry brcdIp.1.1.2.4.1.1	None	A row in the boot sequence table.
snAgBootSeqIndex brcdIp.1.1.2.4.1.1.1 Syntax: Integer	Read only	The index to the boot sequence table.
snAgBootSeqInstruction brcdIp.1.1.2.4.1.1.2 Syntax: Integer	Read-write	Shows the image from which the device will boot. • fromPrimaryFlash(1) • fromSecondaryFlash(2) • fromTftpServer(3) • fromBootpServer(4).
snAgBootSeqIpAddr brcdIp.1.1.2.4.1.1.3 Syntax: IpAddress	Read-write	If the object "snAgBootSeqInstruction" is set to "fromTftpServer", this object shows the IP address of the TFTP server that contains the image that will be used in the boot.
snAgBootSeqFilename brcdIp.1.1.2.4.1.1.4 Syntax: DisplayString	Read-write	Shows the name of the image filename on the TFTP server that will be used in the boot. This object applies only if the object "snAgBootSeqInstruction" is set to "fromTftpServer". This object can have up to 32 characters.
snAgBootSeqRowStatus brcdIp.1.1.2.4.1.1.5 Syntax: Integer	Read-write	Creates or deletes an entry in the Boot Sequence Table: • other(1) • valid(2) • delete(3) • create(4)

Software configuration

The following sections control common configurations for devices:

- "Switch IP configurations" on page 128
- "Agent system parameters configuration table" on page 128
- "Switch group configuration" on page 129
- "Switch configuration summary group" on page 135
- "DNS group (IPv4)" on page 135
- "DHCP gateway list table" on page 139
- "NTP general group" on page 139
- "NTP server table (IPv4)" on page 141
- "Banners" on page 143
- "Encoded octet strings table" on page 143

- “Agent’s global group” on page 144

Switch IP configurations

Name, OID, and Syntax	Access	Description
snAgGblIfIpAddr brcdIp.1.1.2.1.13 Syntax: Integer	Read-write	Shows the IP address of the interface.
snAgGblIfIpMask brcdIp.1.1.2.1.14 Syntax: Integer	Read-write	Shows the IP address mask of the interface.
snAgDefGwayIp brcdIp.1.1.2.1.10 Syntax: Integer	Read-write	Shows the IP address of the default gateway router.

Agent system parameters configuration table

The Agent System Parameters Configuration Table presents the definition of the configuration system parameters. For example, the table may show the maximum number of VLANs a network can have.

The table is available in the following chassis devices:

- BigIron
- ServerIron 400
- ServerIron 800

Name, OID, and Syntax	Access	Description
snAgentSysParaConfigTable brcdIp.1.1.2.7.1	None	A table of Agent of each board.
snAgentSysParaConfigEntry brcdIp.1.1.2.7.1.1	None	A row in the Agent System Parameters Configuration table.
snAgentSysParaConfigIndex brcdIp.1.1.2.7.1.1.1 Syntax: Integer32	Read only	The index to the Agent System Parameters Configuration Table.
snAgentSysParaConfigDescription brcdIp.1.1.2.7.1.1.2 Syntax: DisplayString	Read only	The parameter description string. This object can have up to 32 characters.
snAgentSysParaConfigMin brcdIp.1.1.2.7.1.1.3 Syntax: Integer32	Read only	The minimum value of this Agent System Parameter.
snAgentSysParaConfigMax brcdIp.1.1.2.7.1.1.4 Syntax: Integer32	Read only	The maximum value of this Agent System Parameter.

Name, OID, and Syntax	Access	Description
snAgentSysParaConfigDefault brcdIp.1.1.2.7.1.1.5 Syntax: Integer32	Read only	The default value of this Agent System Parameter.
snAgentSysParaConfigCurrent brcdIp.1.1.2.7.1.1.6 Syntax: Integer32	Read-write	The current configured value of this Agent System Parameter.

Switch group configuration

The objects in this group are available in BigIron and in ServerIron devices. Refer to the chapter “Traps and Objects to Enable Traps” on page 627 for switch group trap objects.

Name, OID, and Syntax	Access	Description
snSwGroupOperMode brcdIp.1.1.3.1.1 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Indicates if switch ports have VLANs defined: • noVLan(1) – All switch ports with no port VLANs and no tag assigned. • vlanByPort(2) – All switch ports with basic port-based VLANs.
snSwGroupIpL3SwMode brcdIp.1.1.3.1.2 Syntax: Integer	Read-write	Indicates if the Layer 3 IP switch is enabled for the switch group. • disabled(0) • enabled(1)
snSwGroupIpMcastMode brcdIp.1.1.3.1.3 Syntax: Integer	Read-write	Indicates if the IP multicast pruning mode is enabled for the switch group. • disabled(0) • enabled(1)
snSwGroupDefaultCfgMode brcdIp.1.1.3.1.4 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Indicates if the switch group contains a default configuration. If the default configuration is overwritten, the state will change to non-default. • default(1) – Has a default configuration • nonDefault(2) – Has a non-default configuration
snSwGroupSwitchAgeTime brcdIp.1.1.3.1.5 Syntax: Integer32	Read-write	Sets the aging period for ports on the device, defining how long a port address remains active in the address table. Valid values: 0 = no aging, or 67 – 65535 seconds Default: 300 seconds
snVLanGroupVlanCurEntry brcdIp.1.1.3.1.6 Syntax: Integer32	Read only	Shows the number of VLANs that are currently configured.

Name, OID, and Syntax	Access	Description
snVLanGroupSetAllVLan brcdIp.1.1.3.1.7 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Shows the VLanIndex of a particular entry in snVLanByPortTable (snVLanByPortVLanIndex). All the attributes of the row except for PortMask will be used to set the same attributes for the entire VLAN group. VLanId and PortMask must be set for the particular entry prior to setting this object. Switch software will be based on this VLAN information to set the entire VLAN. **NOTE:** All the intended attributes of the given row of the table (given VLAN) must be set prior setting this object. When this object is set, Set-All-VLAN action takes place simultaneously. The previous setting is overwritten by the new one.
snSwPortSetAll brcdIp.1.1.3.1.8 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	The value of this object is the index number of the snSwPortInfoTable (snSwPortInfoPortIndex). snSwPortInfoMonitorMode, snSwPortInfoTagType, snSwPortInfoChnMode, snSwPortInfoSpeed, snSwPortInfoAdminStatus are all the read-write attributes of that row of table. They will be used to set the same attributes for all the ports in the system. **NOTE:** Before setting this object, all the intended attributes of the given row of the table must be set. Otherwise, the current data of the row will be used to set the entire port-table. The previous setting will be overwritten by the new one.
snFdbTableCurEntry brcdIp.1.1.3.1.9 Syntax: Integer32	Read only	Shows the total number of entries in the Filtering Databse (FDB) that are configured currently.
snFdbTableStationFlush brcdIp.1.1.3.1.10 Syntax: Integer	Read-write	Shows the state of the flush operation for the FDB table. The following value can be written: • flush(3) – Perform the flush operation. Once the flush operation starts, any new flush requests will be rejected until the operation is complete or failed. The following values can only be read: • normal(1) – Normal state • error(2) – Operation failed • flushing(4) – Operation is in process
snPortStpSetAll brcdIp.1.1.3.1.11 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	The value of this object is 1, which means that Port STP Set-all command is invoked. The snPortStpPriority and, snPortStpPathCost, which are the read-write STP related attributes of the first row of table, will be used to set the same attributes for all the ports in the system. **NOTE:** Before setting this object, all the intended attributes of the given row of the table must be set. Otherwise, the current data of the row will be used to set the entire port-table. The previous setting will be overwritten by the new one.

Name, OID, and Syntax	Access	Description
snSwProbePortNum brcdIp.1.1.3.1.12 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Indicates which chassis port is assigned as the chassis switch probe port. That port operates as a traffic analyzer port. Only one port in the chassis or stackable switch can be assigned as the traffic analyzer port. The value of this object represents the following: • Bit 0 to bit 7 – Port number • Bit 8 to bit 11 – Slot number
snSw8021qTagMode brcdIp.1.1.3.1.13 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Indicates whether or not IEEE802.1q has been enabled for the switch group. • disabled(0) • enabled(1) Default: disabled(0)
snSwGlobalStpMode brcdIp.1.1.3.1.14 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Indicates whether or not Spanning Tree System Global Mode has been enabled for the switch group. • disabled(0) • enabled(1)
snSwIpMcastQuerierMode brcdIp.1.1.3.1.15 Syntax: Integer	Read-write	The IP Multicast pruning mode is configured either Non-Querier or Querier mode • querier(1) – Send out host queries. (active) • nonQuerier(2) – Do not send out host queries.(passive) Default: querier(1)
snSwViolatorPortNumber brcdIp.1.1.3.1.17 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Indicates the port number of the switch or router that receives the violator packet. This number is included in the locked address violation trap. The value of this object contains the following: • Bit 0 to bit 7 – Port number • Bit 8 to bit 11 – Slot number (for chassis devices only)
snSwViolatorMacAddress brcdIp.1.1.3.1.18 Syntax: MAC address	Read only	Indicates the source MAC address of the violator packet received by the switch or router. This number is included in the locked address violation trap.

Name, OID, and Syntax	Access	Description
snVLanGroupVlanMaxEntry brcdIp.1.1.3.1.19 Syntax: Integer32	Read-write	Shows the maximum number of VLAN entries that can be configured.
snSwEosBufferSize brcdIp.1.1.3.1.20 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Specifies buffer size for all the different EOS buffers.
snVLanByPortEntrySize brcdIp.1.1.3.1.21 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Specifies the size of each VLAN table entry.
snSwPortEntrySize brcdIp.1.1.3.1.22 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Specifies the size of each port table entry.
snFdbStationEntrySize brcdIp.1.1.3.1.23 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Specifies the size of each FDB station table entry.

Name, OID, and Syntax	Access	Description
snPortStpEntrySize brcdIp.1.1.3.1.24 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Specifies the size of each port STP table entry.
snSwIpxL3SwMode brcdIp.1.1.3.1.28 Syntax: Integer	Read-write	Indicates whether or not Layer 3 IPX Switch mode is enabled. • disabled(0) • enabled(1) Default: disabled(0)
snVLanByIpSubnetMaxSubnets brcdIp.1.1.3.1.29 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies only to ServerIron products. Shows the maximum number of subnets for each IP VLAN.
snVLanByIpxNetMaxNetworks brcdIp.1.1.3.1.30 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Applies only to ServerIron products. Shows the maximum number of networks for each IPX VLAN.
snSwProtocolVLanMode brcdIp.1.1.3.1.31 Syntax: Integer	Read-write	Indicates whether or not protocol VLAN is enabled. • disabled(0) • enabled(1)
snMacStationVLanId brcdIp.1.1.3.1.32 Syntax: Integer	Read-write	Shows the MAC Station's VLAN ID index in the standard Forwarding Database for Transparent Bridge Table. (dot1dTpFdbTable). Since the dot1dTpFdbTable index is the MAC Address assigned to one of the ports in the bridge (VLAN) and each MAC address can be re-assigned to different ports belonging to different bridges (VLANs), the snMacStationVLanId can be used to specify which bridge (VLAN) MAC Station information of the dot1dTpFdbTable to retrieve. If you do not specify the VLAN ID in this MIB, the default VLAN (bridge) ID will be used when dot1dTpFdbTable is retrieved. Valid values: 1 – 4095

Name, OID, and Syntax	Access	Description
snSwClearCounters brcdIp.1.1.3.1.33 Syntax: Integer	Read-write	Clears software counters: • valid(0) – an SNMP-GET of this MIB shows that it is valid command to use. • clear(1) – Clear counter command of the following counters: Dot3, MIB2, IP and IPX counters for all ports.
snSw8021qTagType brcdIp.1.1.3.1.34 Syntax: Integer32	Read-write	Specifies the IEEE802.1q tag type that is embedded in the length/type field of an Ethernet packet. It specifies that the two octets after the length/type field in an Ethernet packet are the tag value. Default: 33024
snSwBroadcastLimit brcdIp.1.1.3.1.35 Syntax: Integer32	Read-write	Specifies the number of broadcast packets per second. This limits the number of broadcast packets to forward out of the switch ports. Setting this object to 0 disables the limitation check. Default: 0
snSwMaxMacFilterPerSystem brcdIp.1.1.3.1.36 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Specifies the maximum number of MAC Filters per system in the MAC Filter table.
snSwMaxMacFilterPerPort brcdIp.1.1.3.1.37 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read only	Specifies the maximum number of MAC Filters per port in the Port MAC Access Filter table.
snSwDefaultVLanId brcdIp.1.1.3.1.38 Syntax: Integer	Read-write	Shows the VLAN ID of the default port VLAN. Valid values: 1 – 4095
snSwGlobalAutoNegotiate brcdIp.1.1.3.1.39 Syntax: Integer	Read-write	Applies only to Gigabit Ethernet ports. Specifies the negotiation mode of the port: • disable(0) – All Gigabit Ethernet ports are in non- negotiation mode. • enable(1) – All Gigabit Ethernet ports will start auto-negotiation indefinitely until they succeed. • negFullAuto(2) – All Gigabit Ethernet ports will start with auto-negotiation. If the negotiation fails, then they will automatically switch to non-negotiation mode. Gigabit Ethernet ports on all stackable products except for TurboIron/8 do not support negFullAuto(2). • other(3) Default: negFullAuto(2)

The following objects apply only to all devices, except ServerIron products.

snSwQosMechanism brcdIp.1.1.3.1.40 Syntax: Integer	Read-write	Specifies the quality of service (QoS) mechanism: • strict(0) • weighted(1) Default: weighted(1)
snSwSingleStpMode brcdIp.1.1.3.1.41 Syntax: Integer	Read-write	Specifies if the Single Spanning Tree System Mode in the Switch Group is enabled. • disabled(0) • enabled(1) Default: disabled(0)
snSwFastStpMode brcdIp.1.1.3.1.42 Syntax: Integer	Read-write	Indicates if Fast Spanning Tree System Mode in the Switch Group is enabled. • disabled(0) • enabled(1)
snSwViolatorIfIndex brcdIp.1.1.3.1.43 Syntax: Integer32	Read only	The port number of the device that received a violator packet. This number is included in the locked address violator trap.

Switch configuration summary group

The following object applies to all devices.

Name, OID, and Syntax	Access	Description
snSwSummaryMode brcdIp.1.1.3.7.1 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	Indicates whether or not the Switch Configuration Summary is enabled. • disabled(0) • enabled(1) Default: disabled(0)

DNS group (IPv4)

NOTE
Starting in software release FSX 04.1.00 to FSX 05.1.00, FastIron devices use the DNS Address Table on page 136 and the Domain Name Server Table on page 137. FastIron devices running software release FSX 05.1.00 or later use the DNS Address Table on page 136 and the Domain Name Server Table on page 138.

The Domain Name Server (DNS) resolver feature lets you use a host name to perform Telnet, ping, and traceroute commands. You can also define a DNS domain on a Layer 2 Switch or Layer 3 Switch and thereby recognize all hosts within that domain. For more information on DNS on devices, refer to the Configuration Guide for the device.

The following objects provide information on DNS. They apply to all IPv4 devices.

Name, OID, and Syntax	Access	Description
snDnsDomainName brcdIp.1.1.3.9.1 Syntax: DisplayString	Read-write	Shows the DNS Domain Name. This object can have up to 80 characters.
snDnsGatewayIpAddrList brcdIp.1.1.3.9.2 Syntax: OctetString	Read-write	Shows the DNS Gateway IP addresses. This list contains up to four IP addresses, represented by octet strings. This object has 16 octets.

DNS address table (FSX 04.1.00 to 04.3.00)

The Domain Name Server (DNS) address table lists the IPv4 and IPv6 DNS addresses. These objects apply to FastIron devices beginning with software release FSX 04.1.00 to pre-release FSX 05.1.00.

NOTE
FastIron devices running software release FSX 05.1.00 and later use the DNS Address Table on page page 136. Releases prior to FSX 04.1.00 use the snDnsGatewayIpAddrList in the table “DNS group (IPv4)” on page 135.

Name, OID, and Syntax	Access	Description
fdryDnsServerAddressTable brcdIp.1.1.3.30.1.2.1 Syntax: FdryDnsServerAddressEntry	None	The DNS address list table that lists the IPv4 and IPv6 DNS addresses.
fdryDnsServerAddressEntry brcdIp.1.1.3.30.1.2.1.1 Syntax: FdryDnsServerAddressEntry	None	An entry in the DNS address table. This table uses a running index as the index to the table.
fdryDnsServerAddressIndex brcdIp.1.1.3.30.1.2.1.1.1 Syntax: Unsigned32	None	The index to the DNS address table. Up to four DNS IP addresses are supported for each IPv4 and IPv6 protocol.
fdryDnsServerAddressAddrType brcdIp.1.1.3.30.1.2.1.1.2 Syntax: InetAddressType	Read-create	The DNS IP address type: • ipv4(1) • ipv6(2) Default: IPv4
fdryDnsServerAddressAddr brcdIp.1.1.3.30.1.2.1.1.3 Syntax: InetAddress	Read-create	The DNS IP address.
fdryDnsServerAddressRowStatus brcdIp.1.1.3.30.1.2.1.1.4 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except for this object.

DNS address table (FSX 05.1.00 and later)

The Domain Name Server (DNS) address table lists the IPv4 and IPv6 DNS addresses. These objects apply to FastIron devices running software release FSX 05.1.00 and later.

NOTE
FastIron devices running pre-release FSX 05.1.00 software use the DNS Address Table on page page 136. Releases prior to FSX 04.1.00 use the snDnsGatewayIpAddrList in the table “DNS group (IPv4)” on page 135.

NOTE
This objects in the table are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.

Name, OID, and Syntax	Access	Description
fdryDnsServerTable brcdIp.1.1.3.34.2.1 Syntax: FdryDnsServerTable	None	The DNS address list table that lists the IPv4 and IPv6 DNS addresses.
fdryDnsServerEntry brcdIp.1.1.3.34.2.1.1 Syntax: FdryDnsServerEntry	None	An entry in the DNS address table. This table uses a running index as the index to the table.
fdryDnsServerAddrType brcdIp.1.1.3.34.2.1.1.1 Syntax: InetAddressType	None	The DNS IP address type: • ipv4(1) • ipv6(2) Default: IPv4
fdryDnsServerIndex brcdIp.1.1.3.34.2.1.1.2 Syntax: Unsigned32	None	The index to the DNS address table. Up to four DNS IP addresses are supported for each IPv4 and IPv6 protocol.
fdryDnsServerAddr brcdIp.1.1.3.34.2.1.1.3 Syntax: InetAddress	Read-create	The DNS IP address.
fdryDnsServerRowStatus brcdIp.1.1.3.34.2.1.1.4 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except for this object.

Domain name server table (FSX 04.1.00 to 04.3.00)

This table applies only to FastIron X series devices running software release FSX 04.1.00 to pre-release FSX 05.1.00)

NOTE
This objects in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.

The Domain Name Server (DNS) name table lists the IPv4 and IPv6 DNS service names for FastIron devices running software release FSX 04.1.00 to pre-release FSX 05.1.00.

NOTE
Software releases FSX 05.1.00 and later use the Domain Name Server Table on page page 138. Releases prior to FSX 04.1.00 use the “DNS group (IPv4)” on page 135.

Name, OID, and Syntax	Access	Description
fdryDnsDomainNameTable brcdIp.1.1.3.30.1.1.1 Syntax: Sequence of FdryDnsDomainNameEntry	None	The Domain Name Service name table.
fdryDnsDomainNameEntry brcdIp.1.1.3.30.1.1.1.1 Syntax: FdryDnsDomainNameEntry	None	An entry in the DNS name table. This table uses a running index as the index to the table.
fdryDnsDomainNameIndex brcdIp.1.1.3.30.1.1.1.1.1 Syntax: Unsigned32	None	The index to the DNS name table.
fdryDnsServerAddressAddrType brcdIp.1.1.3.30.1.2.1.1.2 Syntax: InetAddressType	Read-create	The DNS IP address type: md • ipv4(1) • ipv6(2) Default: IPv4
fdryDnsDomainNameName brcdIp.1.1.3.30.1.1.1.1.3 Syntax: DisplayString (size(0..64))	Read-create	The DNS Domain Name string.
fdryDnsDomainNameRowStatus brcdIp.1.1.3.30.1.1.1.1.4 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except for this object.

Domain name server table (FSX 05.1.00 and later)

The Domain Name Server (DNS) name table lists the IPv4 and IPv6 DNS service names for FastIron devices running software release FSX 05.1.00 or later.

NOTE
Releases prior to FSX 05.1.00 use the Domain Name Server Table on page page 137. Releases prior to FSX 04.1.00 use the “DNS group (IPv4)” on page 135.

Name, OID, and Syntax	Access	Description
fdryDns2DomainNameTable brcdIp.1.1.3.34.1.1 Syntax: Sequence of FdryDns2DomainNameTable	None	The Domain Name Service name table.
fdryDns2DomainNameEntry brcdIp.1.1.3.34.1.1.1 Syntax: FdryDns2DomainNameEntry	None	An entry in the DNS name table. This table uses a running index as the index to the table.
fdryDns2DomainNameIndex brcdIp.1.1.3.34.1.1.1.1 Syntax: Unsigned32	None	The index to the DNS name table.

Name, OID, and Syntax	Access	Description
fdryDns2DomainNameAddrType brcdIp.1.1.3.34.1.1.1.2 Syntax: InetAddressType	Read-create	The DNS IP address type: • ipv4(1) • ipv6(2) Default: IPv4
fdryDns2DomainNameName brcdIp.1.1.3.34.1.1.1.3 Syntax: DisplayString (size(0..64))	Read-create	The DNS Domain Name string.
fdryDns2DomainNameRowStatus brcdIp.1.1.3.34.1.1.1.4 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except for this object.

DHCP gateway list table

The following objects provide information on DHCP gateways. They apply only to ServerIron products.

Name, OID, and Syntax	Access	Description
snDhcpGatewayListTable brcdIp.1.1.3.8.1	None	A table of DHCP gateway addresses.
snDhcpGatewayListEntry brcdIp.1.1.3.8.1.1	None	An entry in the IP Port Address table.
snDhcpGatewayListId brcdIp.1.1.3.8.1.1.1 Syntax: Integer	Read only	Shows the ID for a DHCP gateway. Valid values: 1 – 32.
snDhcpGatewayListAddrList brcdIp.1.1.3.8.1.1.2 Syntax: OctetString	Read-write	Lists the DHCP gateway addresses in each DHCP gateway list. This list contains 1 to 8 IP addresses represented by octet strings. This object can have 4 to 32 octets.
snDhcpGatewayListRowStatus brcdIp.1.1.3.8.1.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

NTP general group

You can configure Layer 2 and Layer 3 Switches to consult Simple Network Time Protocol (SNTP) servers for the current system time and date. Since Layer 2 and Layer 3 switches do not retain time and date information across power cycles, using the SNTP feature alleviates the need to reconfigure time and date after a system reset.

The following objects provide information on the network time processor (NTP) server. These objects apply to all devices.

Name, OID, and Syntax	Access	Description
snNTPGeneral brcdIp.1.1.3.11.1	None	Begins the NTP configuration objects.
snNTPPollInterval brcdIp.1.1.3.11.1.1 Syntax: Integer	Read-write	Specifies how often to poll the NTP server. Each unit is one second. Valid values: 1 – 65535 Default: 1800 seconds
snNTPTimeZone brcdIp.1.1.3.11.1.2 Syntax: Integer	Read-write	Time zone: • alaska(0) • aleutian(1) • arizona(2) • central(3) • eastIndiana(4) • eastern(5) • hawaii(6) • michigan(7) • mountain(8) • pacific(9) • samoa(10) • gmtPlus12(11) • gmtPlus11(12) • gmtPlus10(13) • gmtPlus9(14) • gmtPlus8(15) • gmtPlus7(16) • gmtPlus6(17) • gmtPlus5(18) • gmtPlus4(19) • gmtPlus3(20) • gmtPlus2(21) • gmtPlus1(22) • gmt(23) – The default • gmtMinus1(24) • gmtMinus2(25) • gmtMinus3(26) • gmtMinus4(27) • gmtMinus5(28) • gmtMinus6(29)
snNTPTimeZone (Continued)		• gmtMinus7(30) • gmtMinus8(31) • gmtMinus9(32) • gmtMinus10(33) • gmtMinus11(34) • gmtMinus12(35)}

Name, OID, and Syntax	Access	Description
snNTPSummerTimeEnable brcdIp.1.1.3.11.1.3 Syntax: Integer	Read-write	Indicates if daylight saving time is enabled: • disabled(0) • enabled(1) – Enables daylight saving time starting at 02:00:00 on the first Sunday in April and ending at 02:00:00 in last Sunday in October. Default: disabled(0)
snNTPSystemClock brcdIp.1.1.3.11.1.4 Syntax: OctetString	Read-write	Shows the format of the system clock: • octet 0 – Seconds after the minute [0-60] • octet 1 – Minutes after the hour [0-59] • octet 2 – Hours since midnight [0-23] • octet 3 – Day of the month [1-31] • octet 4 – Months since January [0-11] • octet 5 – Years since 1900 • octet 6 – Days since Sunday [0-6] Octets 0 to 5 must have valid values and Octet 6 must be set to 0. To disable the system clock set all octets to zero.
snNTPSync brcdIp.1.1.3.11.1.5 Syntax: Integer	Read-write	Initiates the time synchronization to the NTP servers. For set operation, only "synchronize(2)" is accepted. For get operation, always return "other(1)".

NTP server table (IPv4)

The following objects apply to all IPv4 devices. They provide information on the NTP server.

NOTE
For FastIron X Series devices running IPv6 (software releases FSX 04.1.00 and later), see “SNTP server table (FastIron X series IPv6 devices)” on page 142.

Name, OID, and Syntax	Access	Description
snNTPServerTable brcdIp.1.1.3.11.2	None	NTP (Network Time Protocol) server table.
snNTPServerEntry brcdIp.1.1.3.11.2.1	None	An entry in the NTP server table.
snNTPServerIp brcdIp.1.1.3.11.2.1.1 Syntax: IpAddress	Read only	Shows the IP address of the NTP server.
snNTPServerVersion brcdIp.1.1.3.11.2.1.2 Syntax: Integer	Read-write	Shows the version in the NTP server. Default: 1
snNTPServerRowStatus brcdIp.1.1.3.11.2.1.3 Syntax: Integer	Read-write	Creates or deletes an NTP server table entry: • other(1) • valid(2) • delete(3) • create(4)

SNTP server table (FastIron X series IPv6 devices)

The following objects apply to FastIron X Series IPv6 devices running software release FSX 04.1.00 or later. These objects provide information on the SNTP server.

NOTE
Releases prior to FSX 04.1.00 use the “NTP server table (IPv4)” on page 141.

NOTE
In a specific configuration and with IPv4 SNTP servers only, SNMP may stop working when the SNTP server table is viewed. If this occurs, add rfc4001-inetAddressMIB.mib or rfc4001.mib.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.

Name, OID, and Syntax	Access	Description
fdrySntpServerTable brcdIp.1.1.7.1.1.1	None	SNTP (Simple Network Time Protocol) server table.
fdrySntpServerEntry brcdIp.1.1.7.1.1.1.1	None	An entry in the SNTP server table.
fdrySntpServerIndex brcdIp.1.1.7.1.1.1.1.1 Syntax: Unsigned32	None	The index to the SNTP server table. A maximum of three SNTP servers are supported.
fdrySntpServerAddrType brcdIp.1.1.7.1.1.1.1.2 Syntax: InetAddressType	Read-create	The SNTP server IP address type: • ipv4(1) • ipv6(2) • Default: IPv4
fdrySntpServerAddr brcdIp.1.1.7.1.1.1.1.3 Syntax: InetAddress	Read-create	The SNTP server IP address.
fdrySntpServerVersion brcdIp.1.1.7.1.1.1.1.4 Syntax: Integer32	Read-create	The SNTP server version.
fdrySntpServerRowStatus brcdIp.1.1.7.1.1.1.1.5 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except this object.

Banners

Banners are messages that are displayed when a user logs into the device.

Name, OID, and Syntax	Access	Description
snAgGblBannerExec brcdIp.1.1.2.1.61 Syntax: DisplayString	Read-write	Enter a message that will be displayed when a user enters the Privileged EXEC CLI level of a device. Enter up to 2048 characters for this banner. Use the character "\n" within the string to start a new line. Leave this object blank if no message is to be displayed.
snAgGblBannerIncoming brcdIp.1.1.2.1.62 Syntax: DisplayString	Read-write	Enter a message that will be displayed on the console when a user establishes a Telnet session. This message includes the location where the user is connecting from and displays a text message that can be configured. Enter up to 2048 characters for this banner. Use the character "\n" within the string to start a new line. Leave this object blank if no message is to be displayed.
snAgGblBannerMotd brcdIp.1.1.2.1.63 Syntax: DisplayString	Read-write	Enter the message of the day that will be displayed on a user's terminal when he or she establishes a Telnet CLI session. Enter up to 2048 characters for this banner. Use the character "\n" within the string to start a new line. Leave this object blank if no message is to be displayed.

Encoded octet strings table

Each row in the Encoded Octet Strings (EOS) Table represents a fragmented configuration file data packet, including its checksum. An SNMP SET represents a configuration file download process, while an SNMP GET represents a configuration file upload.

This action occurs only if the SNMP-SET of snAgCfgLoad command is sent along with this table consecutively. Consecutive SETs are performed until the network management system has no more packets to send. Likewise, consecutive GETs are done until the agent has no more packets to send.

The applicable snAgCfgLoad command value is as follows:

- uploadFromFlashToNMS(23),
- downloadToFlashFromNMS(24),
- uploadFromDramToNMS(25),
- downloadToDramFromNMS(26)

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.

Name, OID, and Syntax	Access	Description
snAgCfgEosTable brcdIp.1.1.2.5.1	None	The EOS table
snAgCfgEosEntry brcdIp.1.1.2.5.1.1	None	An EOS row in the table of encoded octet strings for table snAgCfgEosTable.

Name, OID, and Syntax	Access	Description
snAgCfgEosIndex brcdIp.1.1.2.5.1.1.1 Syntax: Integer32	Read only	Each VLAN EOS Buffer Identifier has multiple VLAN table entries.
snAgCfgEosPacket brcdIp.1.1.2.5.1.1.2 Syntax: OctetString	Read-write	An encoded octet string. On reads it contains an integral number of configuration file data packets. The size of each encoded octet string is less than or equal to 1400 bytes. This object can contain up to 1000 octets.
snAgCfgEosChkSum brcdIp.1.1.2.5.1.1.3 Syntax: Integer32	Read-write	A checksum of each configuration file data packet.

Agent's global group

Name, OID, and Syntax	Access	Description
snAgGblDataRetrieveMode brcdIp.1.1.2.1.19 Syntax: Integer	Read-write	Retrieves the VLAN Table and Port-STP Table data as indicated by the selected mode. The mode can be one of the following: • nextbootCfg(0) – Retrieve the next boot configuration data • operationalData(1) – Retrieve the current running data Default: nextbootCfg(0).

Error management

The following objects are for general resource management in a device. They are available in all Foundry devices.

Name, OID, and Syntax	Access	Description
snAgGblQueueOverflow brcdIp.1.1.2.1.30 Syntax: Integer	Read only	The device queues are overflowing: • No(0) • Yes(1)
snAgGblBufferShortage brcdIp.1.1.2.1.31 Syntax: Integer	Read only	There is a shortage in the device buffers: • No(0) • Yes(1)
snAgGblDmaFailure brcdIp.1.1.2.1.32 Syntax: Integer	Read only	The device DMAs are in good condition: • No(0) • Yes(1)
snAgGblResourceLowWarning brcdIp.1.1.2.1.33 Syntax: Integer	Read only	The device has low resources available: • No(0) • Yes(1)
snAgGblExcessiveErrorWarning brcdIp.1.1.2.1.34 Syntax: Integer	Read only	The device has excessive collision, FCS errors, alignment warnings, and other excessive warnings: • No(0) • Yes(1)

FDP and CDP

This section presents the MIB objects and tables that can be used to manage FDP/CDP using SNMP.

- "FDP/CDP global configuration objects" on page 145
- "FDP interface table" on page 145
- "FDP cache table" on page 146
- "FDP cached address entry table" on page 148

FDP/CDP global configuration objects

The following objects are used to configure FDP globally.

In FES devices, these objects supported in release 03.1.02 and later.

Name, OID, and Syntax	Access	Description
snFdpGlobalRun brcdIp.1.1.3.20.1.3.1 Syntax: Integer	Read-write	Indicates if the Foundry Discovery Protocol (FDP) is enabled: • false(0) – FDP is disabled. FDP entries in the snFdpCacheTable are deleted when FDP is disabled. • true(1) – FDP is enabled. Enabling FDP automatically enables CDP globally. Default: false(0)
snFdpGlobalMessageInterval brcdIp.1.1.3.20.1.3.2 Syntax: Integer	Read-write	Indicates the interval at which FDP messages are to be generated. Valid values: 5 – 900 seconds Default: 60 seconds
snFdpGlobalHoldTime brcdIp.1.1.3.20.1.3.3 Syntax: Integer	Read-write	Indicates how long the receiving device will hold FDP messages. Valid values: 10 – 255 seconds Default: 180 seconds
snFdpGlobalCdpRun brcdIp.1.1.3.20.1.3.4 Syntax: Integer	Read-write	Shows if the Cisco Discovery Proctocol (CDP) is enabled: • false(0) – CDP is disabled. CDP entries in the snFdpCacheTable are deleted when FDP is disabled. • true(1) – CDP is enabled. Enabling CDP does not automatically enable FDP globally. Default: false (0)

FDP interface table

The FDP Interface Table shows whether or not FDP is enabled on a physical interface. You can use this table to disable or enable FDP on individual interfaces.

NOTE
You cannot disable CDP on individual interfaces. Also, in FES devices, this table is supported in release 03.1.02 and later.

Name, OID, and Syntax	Access	Description
snFdpInterfaceTable brcdIp.1.1.3.20.1.1.1	None	The FDP Interface table
snFdpInterfaceIfIndex brcdIp.1.1.3.20.1.1.1.1.1	None	An entry in the FDP Cache Table, showing the ifIndex value of the local interface.
snFdpInterfaceEnable brcdIp.1.1.3.20.1.1.1.1.2 Syntax: Integer	Read-write	Determines if FDP is enabled on the interface: • false(0) – FDP is disabled. • true(1) – FDP is enabled. Default: true(1)
snFdpInterfaceCdpEnable brcdIp.1.1.3.20.1.1.1.1.3 Syntax: Integer	Read-write	Determines if CDP is enabled on the interface: • false(0) – CDP is disabled. • true(1) – CDP is enabled. Default: true(1) This object is available beginning with IronWare software release 07.6.02.

FDP cache table

Each entry in the FDP Cache Table contains information received from FDP/CDP on one interface of one device. This table is available if FDP or CDP is enabled globally. Entries appear when an FDP/CDP advertisement is received from a neighbor device. Entries are deleted when FDP/CDP is disabled on an interface or globally.

In FES devices, this table is supported in release 03.1.02 and later.

Name, OID, and Syntax	Access	Description
snFdpCacheTable brcdIp.1.1.3.20.1.2.1	None	The FDP Cache Table
snFdpCacheEntry brcdIp.1.1.3.20.1.2.1.1	None	An entry in the FDP Cache Table.
snFdpCacheIfIndex brcdIp.1.1.3.20.1.2.1.1.1	None	An entry in the FDP Cache Table, showing the ifIndex value of the local interface.
snFdpCacheDeviceIndex brcdIp.1.1.3.20.1.2.1.1.2 Syntax: Integer32	Read only	A unique value for each device from which FDP or CDP messages are being received. For example, you may see 1.
snFdpCacheDeviceId brcdIp.1.1.3.20.1.2.1.1.3 Syntax: DisplayString	Read only	Shows a description for the device as reported in the most recent FDP or CDP message. For example, you may see DeviceB. A zero-length string indicates no Device-ID field (TLV) was reported in the most recent FDP or CDP message.

Name, OID, and Syntax	Access	Description
snFdpCacheAddressType brcdIp.1.1.3.20.1.2.1.1.4 Syntax: Integer	Read only	Indicates the type of address contained in the "snFdpCacheAddress" object for this entry: • ip(1) • ipx(2) • appletalk(3)
snFdpCacheAddress brcdIp.1.1.3.20.1.2.1.1.5 Syntax: OctetString	Read only	Shows the network-layer address of the device's SNMP-agent, as reported in the most recent FDP or CDP message. A device may have more than one address. This object shows the first address on the device. The format of this object depends on the value of the snFdpCacheAddressType object: • ip(1) – 4 octets • ipx(2) – 10 octets: Octets 1 – 4: Network number Octets 5 – 10: Host number • appletalk(3) – 3 octets: Octets 1 – 2: Network number Octet 3: Host number
snFdpCacheVersion brcdIp.1.1.3.20.1.2.1.1.6 Syntax: DisplayString	Read only	Shows the software version running in the device as reported in the most recent FDP or CDP message. For example, you may see the following: `Brocade Networks, Inc. Router, IronWare Version 07.6.01b1T53 Compiled on Aug 28 2002 at 20:23:58 labeled as B2R07601`
snFdpCacheDevicePort brcdIp.1.1.3.20.1.2.1.1.7 Syntax: DisplayString	Read only	Shows the port ID of the device as reported in the most recent FDP or CDP message. This will typically be the value of the ifName object. For example, you may see `Ethe 2/3`. A zero-length string indicates no Port-ID field (TLV) was reported in the most recent FDP or CDP message.
snFdpCachePlatform brcdIp.1.1.3.20.1.2.1.1.8 Syntax: DisplayString	Read only	Shows the device's hardware platform as reported in the most recent FDP or CDP message. For example, you may see `BigIron Router`. A zero-length string indicates that no Platform field (TLV) was reported in the most recent FDP or CDP message.
snFdpCacheCapabilities brcdIp.1.1.3.20.1.2.1.1.9 Syntax: DisplayString	Read only	Shows the device's functional capabilities as reported in the most recent FDP or CDP message. For example, you may see `Router`.
snFdpCacheVendorId brcdIp.1.1.3.20.1.2.1.1.10 Syntax: Integer	Read only	Indicates if FDP or CDP received the entry: • fdp(1) • cdp(2)
snFdpCacheIsAggregateVlan brcdIp.1.1.3.20.1.2.1.1.11 Syntax: Integer	Read only	Indicates if this entry is from a neighbor device that is in an aggregated VLAN: • false(0) – It is not in an aggregated VLAN • true(1) – It is in an aggregate VLAN
snFdpCacheDeviceTagType brcdIp.1.1.3.20.1.2.1.1.12 Syntax: Integer	Read only	Shows the tag type of the neighbor device that sent this entry. For example, you may see `0x8100`.

Name, OID, and Syntax	Access	Description
snFdpCacheDevicePortVlanMask brcdIp.1.1.3.20.1.2.1.1.13 Syntax: OctetString	Read only	Shows the port VLAN masks, in 512-byte octet string, of the neighbor that sent this entry.
snFdpCachePortTagMode brcdIp.1.1.3.20.1.2.1.1.14 Syntax: Integer	Read only	Shows the port tag mode on the neighbor device: • untagged(1) • tagged(2) • dual(3)
snFdpCacheDefaultTrafficeVlanIdForDualMode brcdIp.1.1.3.20.1.2.1.1.15 Syntax: Integer32	Read only	Shows the default traffic vlan ID for neighbor devices that have dual-mode ports.

FDP cached address entry table

The FDP Cached Address Entry Table shows all the cached addresses from which FDP or CDP messages are being received. This table is available if FDP or CDP is enabled globally.

Also, in FES devices, this table is supported in release 03.1.02 and later.

Name, OID, and Syntax	Access	Description
snFdpCachedAddressTable brcdIp.1.1.3.20.1.4.1	None	The FDP Cached Address Entry Table
snFdpCachedAddressEntry brcdIp.1.1.3.20.1.4.1.1	None	An entry in the FDP Cached Address Table.
snFdpCachedAddrIfIndex brcdIp.1.1.3.20.1.4.1.1.1 Syntax: Integer	None	Shows the ifIndex value of the local interface.
snFdpCachedAddrDeviceIndex brcdIp.1.1.3.20.1.4.1.1.2 Syntax: Integer32	Read only	Shows a unique value for each device from which FDP or CDP messages are being received.
snFdpCachedAddrDeviceAddrEntryIndex brcdIp.1.1.3.20.1.4.1.1.3 Syntax: Integer32	Read only	Shows a unique value for each address on the device from which FDP or CDP messages are being received. A device may have several addresses. There will be one entry for each address.

Name, OID, and Syntax	Access	Description
snFdpCachedAddrType brcdIp.1.1.3.20.1.4.1.1.4 Syntax: Integer	Read only	Indicates the type of address contained in the "snFdpCachedAddrValue" object for this entry: • ip(1) • ipx(2) • appletalk(3)
snFdpCachedAddrValue brcdIp.1.1.3.20.1.4.1.1.5 Syntax: OctetString	Read only	Indicates the network-layer address of the device's SNMP-agent as reported in the most recent FDP or CDP message. The format of this object depends on the value of the snFdpCachedAddrValue object: • ip(1) – 4 octets • ipx(2) – 10 octets: Octets 1 – 4: Network number Octets 5 – 10: Host number • appletalk(3) – 3 octets: Octets 1 – 2: Network number Octet 3: Host number

Show media table

The Show Media Table retrieves information from the **show media** CLI output using SNMP. This table applies only to the NetIron XMR and NetIron MLX devices running software release 04.0.01 and later and to Brocade MLXe devices.

Name, OID, and Syntax	Access	Description
snIfMediaInfoTable brcdIp.1.1.3.3.9.1	None	This table lists the information for the media device (SFP, XFP, or copper) installed in the physical Ethernet port.Only the ifIndices of Ethernet ports that are associated with the operational cards are included in this table.
snIfMediaInfoEntry brcdIp.1.1.3.3.9.1.1	None	An entry in the Interface Media Information table. The ifIndex of the Ethernet interface is used to index this table."
snIfMediaType brcdIp.1.1.3.3.9.1.1.1 Syntax: DisplayString	Read only	The type of the media installed in the physical port. This object displays up to 128 characters.
snIfMediaVendorName brcdIp.1.1.3.3.9.1.1.2 Syntax: DisplayString	Read only	The media vendor name. The full name of the corporation is displayed. This object displays up to 128 characters.
snIfMediaVersion brcdIp.1.1.3.3.9.1.1.3 Syntax: DisplayString	Read only	The media vendor product version number. This object displays up to 128 characters.
snIfMediaPartNumber brcdIp.1.1.3.3.9.1.1.4 Syntax: DisplayString	Read only	The media vendor part number. This object displays up to 128 characters.
snIfMediaSerialNumber brcdIp.1.1.3.3.9.1.1.5 Syntax: DisplayString	Read only	The vendor serial number of the media device. This object displays up to 128 characters.

Software licensing

The fdryLicenseTable contains information about the software licenses configured on the device.

Note: This table is supported on the following devices:

- NetIron CES and CER devices running software release 05.0.00 and later.
- FastIron devices running software release 07.1.00 and later.
- Brocade MLXe, NetIron XMR, and NetIron MLX running software release 05.1.00 and later.
- ServeIron ADX devices running software release 12.2.1 and later.

Name, OID, and Syntax	Access	Description
fdryLicenseEntry brcdIp.1.1.2.15.1.1	N/A	An entry in a license table. This is indexed by: fdryLicensePackageName, fdryLicenseLid, and IMPLIED fdryLicenseHash
fdryLicensePackageName brcdIp.1.1.2.15.1.1.1 Syntax: DisplayString (SIZE(1..24))	N/A	Name of the package, whose license information this entry displays.
fdryLicenseLid brcdIp.1.1.2.15.1.1.2 Syntax: DisplayString (SIZE(1..11))	N/A	License Id (LID) of the device or the line module for which the license information is being displayed.
fdryLicenseHash brcdIp.1.1.2.15.1.1.3 Syntax: DisplayString (SIZE(1..17))	N/A	A unique hash for identifying a license entry in the system. This helps traverse through the entries with the same package name and LID.
fdryLicenseType brcdIp.1.1.2.15.1.1.4 Syntax: INTEGER	Read-only	The type of the license: • normal(1) • trial(2)
fdryLicensePrecedence brcdIp.1.1.2.15.1.1.5 Syntax: Unsigned32 (0..65535)	Read-only	Defines the priority of a particular trial license among other trial licenses that have the same package and LID. This is primarily used to determine which license to use when there are many trial and normal licenses with same package name and LID.
fdryLicenseTrialDays brcdIp.1.1.2.15.1.1.6 Syntax: Unsigned32 (0..65535)	Read-only	The number of trial days for the license, if it's a trial license; otherwise, the value has no meaning for normal licenses and is read as 0 on a Get operation.
fdryLicenseTrialTimeElapsed brcdIp.1.1.2.15.1.1.7 Syntax: Unsigned32 (0..65535)	Read-only	The cumulative number of hours used for this trial license. This counts all the usages of the trial license. For a normal license, this is 0 and is read as 0 on a Get operation.
fdryLicenseTrialTimeLeft brcdIp.1.1.2.15.1.1.8 Syntax: Unsigned32 (0..65535)	Read-only	The number of hours left for the trial license. This is derived from the total number of hours and the cumulative number of hours used. For a normal license, this is 0 and is read as 0 on a Get operation.

Name, OID, and Syntax	Access	Description
fdryLicenseTrialState brcdIp.1.1.2.15.1.1.9 Syntax: INTEGER	Read-only	The state of the trial license: • invalid(1) = The license is not valid for the device. • unused(2) = The license has never been used • active(3) = The license has been used at least once • expired(4) = The license has expired and can no longer be used.
fdryLicenseVendorInfo brcdIp.1.1.2.15.1.1.10 Syntax: DisplayString	Read-only	This contains encoded information of license specific information such as package bit mask, number of ports, etc. The information is in an octet display string format.
fdryLicenseSlot brcdIp.1.1.2.15.1.1.11 Syntax: Integer32	Read-only	This indicates the slot number of the module to which the license belongs. There is a one-to-one mapping between the license ID and slot number since each module has a unique licensde ID and the module can be present only in one slot. **NOTE:** This object is supported only on the following devices: • Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER running software release 05.1.00 and later. • FastIron devices running software release 07.2.00 and later.

License information

The following object indicates what feature (license) is installed on the device.

Name, OID, and Syntax	Access	Description
fdryLicensedFeatureInfo brcdIp.1.1.2.15.2 Syntax: Bits	Read-only	The feature or package for which the license has been enabled on the device: • ospf(0) • isis(1) • bgp(2) • mpls(3) **NOTE:** This object is supported only on the following devices: • Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER running software release 05.1.00 and later. • FastIron devices running software release 07.2.00 and later.

Chapter

Power Over Ethernet MIB

6

This chapter presents the Power Over Ethernet (POE) MIBs that are supported only on FastIron devices that support POE. The FastIron devices must be running software release 07.2.02 and later.

Power Over Ethernet global objects

The following objects apply globally to FastIron X Series POE devices. The information in these objects are available in the output of the **show inline power** CLI command.

Name, OID, and Syntax	Access	Description
snAgentPoeGblPowerCapacityTotal brcdIp.1.1.2.14.1. Syntax: Unsigned32	Read-only	This object shows the total inline power capacity available in the device. Inline power capacity is measured in milliwatts.
snAgentPoeGblPowerCapacityFree brcdIp.1.1.2.14.1.2 Syntax: Unsigned32	Read-only	This object shows the inline power capacity currently available in the device that is unallocated. Inline power capacity is measured in milliwatts.
snAgentPoeGblPowerAllocationsRequestsHonored brcdIp.1.1.2.14.1.3 Syntax: Unsigned32	Read-only	This object shows number of times the inline power allocations requests were honored.

Power Over Ethernet port table

The snAgentPoePortTable presents information about the FastIron X-Series POE ports.

Name, OID, and Syntax	Access	Description
snAgentPoePortNumber brcdIp.1.1.2.14.2.2.1.1 Syntax:InterfaceIndex	Read-only	The port number in ifIndex value.
snAgentPoePortControl brcdIp.1.1.2.14.2.2.1.2 Syntax: INTEGER	Read-create	Powers on or off the inline power on a port. If a port does not have inline power capability, reading this object returns other(1). Valid values are: • other(1) • disable(2) • enable(3) • enableLegacyDevice(4)

Name, OID, and Syntax	Access	Description
snAgentPoePortWattage brcdIp.1.1.2.14.2.2.1.3 Syntax: Integer32	Read-create	Adjusts the inline power wattage. Valid values are between 1000 to 15400(IEEE802_3AF)/30000(IEEE802_3AT). Each unit is in milliwatts. This object can only be set after snSwIfInLinePowerControl has been set to “enable(3)” or “enableLegacyDevice(4)”. If a port does not have inline power capability, reading this object returns an undefined value.
snAgentPoePortClass brcdIp.1.1.2.14.2.2.1.4 Syntax: Integer32	Read-create	Adjusts the inline power class. Valid values are between 0 to 3(IEEE802_3AF)/4(IEEE802_3AT). This object can only be set after snSwIfInLinePowerControl has been set to “enable(3)” or “enableLegacyDevice(4)”. If a port does not have inline power capability, reading this object returns an undefined value.
snAgentPoePortPriority brcdIp.1.1.2.14.2.2.1.5 Syntax: INTEGER	Read-create	Shows the inline power allocation priority for the power device • invalid(0) = Not a POE port • critical(1) • high(2) • low(3) • medium(4) • other(5)
snAgentPoePortConsumed brcdIp.1.1.2.14.2.2.1.6 Syntax: Integer32	Read-only	Amount of inline power consumed by the port. Each unit is milliwatts.
snAgentPoePortType brcdIp.1.1.2.14.2.2.1.7 Syntax: DisplayString	Read-only	Inline Power device type: 802.3af, 802.3at or Legacy device.

Power over module table

The snAgentPoeModuleTable shows the configuration of modules on the FastIron X-Series devices. The information in this table is available in the output of the **show module** CLI command.

Name, OID, and Syntax	Access	Description
snAgentPoeModuleNumber brcdIp.1.1.2.14.3.1.1.1 Syntax: Unsigned32	Read-only	This objects is the POE module number.

Name, OID, and Syntax	Access	Description
snAgentPoeModuleBudget brcdIp.1.1.2.14.3.1.1.2 Syntax: Unsigned32	Read-create	This objects shows the module power budget in watts.
snAgentPoeModuleMaxPDTypeSupport brcdIp.1.1.2.14.3.1.1.3 Syntax: INTEGER **NOTE:** This object is supported only on FastIron SuperX devices	Read-only	This object shows the POE module type that is capable to support Power Device (PD) type: • ieee802dot3af(0) = Supports only ieee802dot3af modules • ieee802dot3at(1) = Also called POE plus type. This module can support ieee802.3at and ieee802.3af

Power over unit table

The snAgentPoeUnitTable provides POE information for each unit on a stack. Only the unit that has POE capability appears in a table row. The information in these objects are available in the output of the **show inline power** CLI command for a POE device in a stack.

Name, OID, and Syntax	Access	Description
snAgentPoeUnitIndex brcdIp.1.1.2.14.4.1.1.1 Syntax: Unsigned32	Read-only	The index for the POE unit table.
snAgentPoeUnitPowerCapacityTotal brcdIp.1.1.2.14.4.1.1.2 Syntax: Unsigned32	Read-only	This object shows the total inline power capacity available on a unit (device). Inline power capacity is measured in milliwatts.
snAgentPoeUnitPowerCapacityFree brcdIp.1.1.2.14.4.1.1.3 Syntax: Unsigned32	Read-only	This object shows the unallocated inline power capacity currently available on a unit (device). Inline power capacity is measured in milliwatts.
snAgentPoeUnitPowerAllocationsRequestsHonored brcdIp.1.1.2.14.4.1.1.4 Syntax: Unsigned32	Read-only	This object shows number of times the inline power allocations requests were honored on the unit (device).

Power over unit table

Chapter

7

User Access

Agent user access group

This chapter presents the objects used to control user access to devices. Refer to the *Security Guide* for detailed explanation on the features discussed in this chapter.

The objects in this section apply to user accounts in all devices.

Name, OID, and Syntax	Access	Description
snAgentUserMaxAccnt brcdIp.1.1.2.9.1.1 Syntax: Integer32	Read only	Shows the maximum number of user accounts that can be configured on the device.
snAgWebMgmtServerTcpPort brcdIp.1.1.2.1.63 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.	Read-write	This object allows you to specify which TCP port will be used for the Web management interface. Also, Element Manager of IronView Network Manager will query the device for this port number before it sends HTTP packets to the device. Enter a number from 1 – 65535.

Agent user account table

The objects in this table provide information about user accounts. They apply to all devices.

Name, OID, and Syntax	Access	Description
snAgentUserAccntTable brcdIp.1.1.2.9.2	None	A table of user account information.
snAgentUserAccntEntry brcdIp.1.1.2.9.2.1	None	Represents a row in the Agent User table.
snAgentUserAccntName brcdIp.1.1.2.9.2.1.1 Syntax: DisplayString	Read only	Displays the user name. This object can have up to 48 characters
snAgentUserAccntPassword brcdIp.1.1.2.9.2.1.2 Syntax: DisplayString	Read-write	Contains the user password. Valid values: Up to 48 characters

Name, OID, and Syntax	Access	Description
snAgentUserAccntEncryptCode brcdIp.1.1.2.9.2.1.3 Syntax: Integer32	Read-write	States the password encryption method code. • 0 – no encryption • 1 – simple encryption • 7– MD5 encryption
snAgentUserAccntPrivilege brcdIp.1.1.2.9.2.1.4 Syntax: Integer32	Read-write	Shows the user's privilege. • 0 – administration • 4 – Port configuration • 5 – Read only
snAgentUserAccntRowStatus brcdIp.1.1.2.9.2.1.5 Syntax: Integer	Read-write	Creates, modifies, or deletes a user account table entry: • other(1) • valid(2) • delete(3) • create(4) • modify(5)

General security objects

The following objects are used to manage general security functions in all devices.

Name, OID, and Syntax	Access	Description
snAgGblPassword brcdIp.1.1.2.1.15 Syntax: DisplayString	Read-write	Shows the system security access password, which is used only for an SNMP-Set. An SNMP-Get will return a zero string. If the **password-change any** command (the default) is configured on the device, then this object needs to be part of the SNMP Set operation on some critical SNMP objects. The value of this object depends on the authentication method for SNMP operation: • If there is no AAA authentication configuration for SNMP, then this object will have the enable superuser password. • If AAA authentication for SNMP is configured and has the leading method as "enable" or "line", this object will have the corresponding "enable" or "line" password. • If the switch has AAA authentication for SNMP operation, and the method specified is one of local, TACACS+, or RADIUS, this object will have <username> <password> format with one space character between <username> and <password>. The maximum size allows concatenation of max 48 octets of username and 48 octets of password, with one blank character Refer to "Configuration notes" on page 161 for more details. Valid values: Up 48 octets.
snAgGblSecurityLevelSet brcdIp.1.1.2.1.28 Syntax: Integer	Read-write	Shows the security level required to set an "enable" password. This security level can be from 0 to 5.

Name, OID, and Syntax	Access	Description
snAgGblPasswordChangeMode brcdIp.1.1.2.1.24 Syntax: Integer	Read only	Specifies which management entity is allowed to change the “enable” password for the device. For security reasons, this object can only be modified using the device’s CLI. Valid values: • anyMgmtEntity(1) – Any SNMP management station, console command line interface or Telnet command line interface can be used to change the password. • consoleAndTelnet(2) – The password can be changed using the console command line interface or the Telnet command line interface • consoleOnly(3) – Only the console command line interface can be used • telnetOnly(4) – Only telnet command line interface can be used. Default: consoleAndTelnet(2)
snAgGblLevelPasswordsMask brcdIp.1.1.2.1.29 Syntax: Integer32	Read only	Shows the bitmap of level passwords which were successfully assigned to the system. • Bit 0 – Level 0 = admin • Bit 4 – Level 4 = port configuration • Bit 5 – Level 5 = read only
snAgGblReadOnlyCommunity brcdIp.1.1.2.1.25 Syntax: DisplayString	Read-write	Allows you to configure SNMP read-only community strings for the device. This object can be used in an SNMP-Set, but not SNMP-Get. Get will return a blank. Valid values: Up to 32 characters. **NOTE:** To use this object, make sure that "**password-change any**" has been configured in the device, to allow passwords to be updated from SNMP or any method
snAgGblReadWriteCommunity brcdIp.1.1.2.1.26 Syntax: DisplayString	Read-write	Allows you to configure SNMP read-write community strings for the device. This object can be used in an SNMP-Set, but not SNMP-Get. Get will return a blank. Valid values: Up to 32 characters. **NOTE:** To use this object, make sure that "**password-change any**" has been configured in the device, to allow passwords to be updated from SNMP or any method.
snAgGblCurrentSecurityLevel brcdIp.1.1.2.1.27 Syntax: Integer	Read only	Represents the current login security level (0 to 5). Each level of security requires a password to permit users for different system configurations. Levels are defined in the “snAgGblLevelPasswordsMask” object.

Name, OID, and Syntax	Access	Description
snAgSystemLog brcdIp.1.1.2.1.20 Syntax: OctetString	Read-write	Indicates whether any network management system has login privileges. The agent allows only one network management to be logged in. The value of this object consists of an octet string, with the first byte representing the value described below. The following four bytes contain a secret code. The value of the first byte can be one of the following: • login(1) – Login for a network management system. • heartbeat(2) – a value for the login NMS periodically to check in; Otherwise, the Agent will automatically set this object to logout(3) after a timeout period. • logout(3) – a value for a NMS to logout. • changePassword(4) – a value for the login NMS to change password, only if snAgGblPasswordChangeMode was configured to "anyMgmtEntity". • changeReadOnlyCommunity(5) – a value for the login NMS to change the read-only community string, only if snAgGblPasswordChangeMode was configured to "anyMgmtEntity". • changeReadWriteCommunity(6) – a value for the login NMS to change the read-write community string, only if snAgGblPasswordChangeMode was configured to "anyMgmtEntity". This object requires a password to be set for the snAgGblPassword object.
snAgGblTelnetTimeout brcdIp.1.1.2.1.37 Syntax: Integer	Read-write	Shows how many minutes a Telnet session can remain idle before it times out. The value of this object can be up to 240 minutes. A value of 0 means that the Telnet session never times out.
snAgGblEnableWebMgmt brcdIp.1.1.2.1.38 Syntax: Integer	Read-write	Enables or disables access to the device from the Web management interface: • disable(0) • enable(1)
snAgGblSecurityLevelBinding brcdIp.1.1.2.1.39 Syntax: Integer32	Read only	After a network management system logs in to a device with a user ID and password, the privilege level assigned to that system is saved in this object. Privilege level can be one of the following: • 0 – Administration • 4 – Port configuration • 5 – Read only • 255 – Invalid binding
snAgGblEnableSLB brcdIp.1.1.2.1.40 Syntax: Integer	Read only	Enables or disables Server Load Balancing: • disable(0) • enable(1)
snAgGblEnableTelnetServer brcdIp.1.1.2.1.45 Syntax: Integer	Read-write	Enables or disables the Telnet server in a device: • Disable(0) • Enable(1) Default: enable(1)

Name, OID, and Syntax	Access	Description
snAgGblTelnetPassword brcdIp.1.1.2.1.46 Syntax: DisplayString	Read-write	Contains the Telnet access password, which is only used with SNMP Set. An SNMP-Get produces a zero string. This object can have 48 characters. This object requires a password to be set for the snAgGblPassword object.
snAgGblTelnetLoginTimeout brcdIp.1.1.2.1.60 Syntax: Integer	Read-write	Indicates how many minutes you have to log in before Telnet is disconnected. Valid values: 1 – 10 minutes. Default: 1 minute

Configuration notes

When using the snAgGblPassword object in a Set operation, keep the following in mind:

The device will always insist on a password to be part of the object snAgGblPassword. You can override this requirement by entering a **no snmp-server pw-check** command on the device's CLI.

By default, the object uses the value of the **enable super-user** password configured on the device as the default password. To allow a device to use other authentication schemes, use one of the following commands:

- aaa authen snmp default enable | local | none

  Using **enable** tells the device to use the configured enable super-user password. If the enable super-user password is missing, then the device checks for the if implicit TACACS+ enable password. The device will store a previous (unrelated to SNMP) implicit enable operation result, and remember the enable password that was approved by TACACS+. You can enter the following command to use this method:

  ```
  SnmpSet(snAgGblPassword.0="<enable-password>", snAgEraseNVRAM.0=3)
  ```

  Using **local** instructs the device to use a configured local username and password value. You can enter the following SNMP command to use this method:

  ```
  SnmpSet(snAgGblPassword.0="<username> <password>", snAgEraseNVRAM.0=3)
  ```

  Using **none** tells the device to ignore the value of snAgGblPassword and authentication check will always pass. You can enter the following SNMP command to use this method:

  ```
  SnmpSet(snAgGblPassword.0="<anything here>", snAgEraseNVRAM.0=3)
  ```

- aaa authentication login default TACACS+
- aaa authentication enable default TACACS+
- aaa authentication enable implicit-user

The snAgGblPassword object must be set for the following objects:

- snAgCfgLoad
- snAgImgLoad
- snAgConfigFromNVRAM
- snAgEraseNVRAM
- snAgWriteNVRAM
- snAgGblTelnetPassword

- snAgReload
- snAgSystemLog

IP community list table

This table has been deprecated in IronWare software release 07.5.00 and is no longer supported. It has been replaced by the “IP community list string table” on page 163.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.

Name, OID, and Syntax	Access	Description
snIpCommunityListTable brcdIp.1.2.2.13	None	IP Community List Table.
snIpCommunityListEntry brcdIp.1.2.2.13.1	None	An entry in the IP Community List Table.
snIpCommunityListIndex brcdIp.1.2.2.13.1.1 Syntax: Integer	Read only	An index for an entry in the table.
snIpCommunityListSequence brcdIp.1.2.2.13.1.2 Syntax: Integer	Read only	Identifies the sequence of this entry in this table.
snIpCommunityListAction brcdIp.1.2.2.13.1.3 Syntax: Integer	Read-write	Determines what action to take if the address in the packet matches this filter: • deny(0) • permit(1)
snIpCommunityListCommNum brcdIp.1.2.2.13.1.4 Syntax: OctetString	Read-write	Specifies the community number. This is a number from 1 to 0xFFFFFFFF. There are 20 numbers. Each number is represented by four octets.
snIpCommunityListInternet brcdIp.1.2.2.13.1.5 Syntax: Integer	Read-write	Indicates if the community is enabled: • disabled(0) • enabled(1)
snIpCommunityListNoAdvertise brcdIp.1.2.2.13.1.6 Syntax: Integer	Read-write	Indicates if routes will not be advertised to any internal or external peer: • false(0) • true(1)
snIpCommunityListNoExport brcdIp.1.2.2.13.1.7 Syntax: Integer	Read-write	Determines if the route will not be advertised to an EBGP peer: • false(0) • true(1)

Name, OID, and Syntax	Access	Description
snIpCommunityListRowStatus brcdIp.1.2.2.13.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snIpCommunityListLocalAs brcdIp.1.2.2.13.1.9 Syntax: Integer	Read-write	Indicates if this route will be sent to peers (advertised) in other sub-autonomous systems within the local confederation: • false(0) – Do not advertise this route to an external system. • true(1) – Advertise this route.

IP community list string table

This table contains the list of community strings used.

Beginning with IronWare software release 07.5.00, this table replaces the “IP community list string table” on page 163.

Name, OID, and Syntax	Access	Description
snIpCommunityListStringTable brcdIp.1.2.2.17	None	IP Community ListString Table.
snIpCommunityListStringEntry brcdIp.1.2.2.17.1	None	An entry in the IP Community ListString Table.
snIpCommunityListStringName brcdIp.1.2.2.17.1.1 Syntax: OctetString	Read only	An index for an entry in the table. This object can have up to 32 octets.
snIpCommunityListStringSequence brcdIp.1.2.2.17.1. Syntax: Integer32	Read only	Indicates the sequence of this entry in the table.
snIpCommunityListStringAction brcdIp.1.2.2.17.1.3 Syntax: Integer	Read-write	Indicates the action to take if the community string on the packet matches this filter: • deny(0) • permit(1)
snIpCommunityListStringCommNum brcdIp.1.2.2.17.1.4 Syntax: Integer	Read-write	Shows the community string’s number, represented by four octets. This number can be from 1 to 0xFFFFFFFF. There can be up to 20 community string numbers.
snIpCommunityListStringInternet brcdIp.1.2.2.17.1.5 Syntax: Integer	Read-write	Indicates if the community is enabled: • disabled(0) • enabled(1)

Name, OID, and Syntax	Access	Description
snIpCommunityListStringNoAdvertise brcdIp.1.2.2.17.1.6 Syntax: Integer	Read-write	Indicates the community string will not be advertised to any internal or external peers: • false(0) • true(1)
snIpCommunityListStringNoExport brcdIp.1.2.2.17.1.7 Syntax: Integer	Read-write	Indicates if this route is not advertised as an EBGP peer: • false(0) • true(1)
snIpCommunityListStringRowStatus brcdIp.1.2.2.17.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snIpCommunityListStringLocalAs brcdIp.1.2.2.17.1.9	Read-write	Determines if this route will be sent to peers in other sub autonomous systems within the local confederation. Do not advertise this route to an external system.
snIpCommunityListStringType brcdIp.1.2.2.17.1.10	Read-write	Displays the type of the community list, whether standard or extended.
snIpCommunityListStringRegExpr brcdIp.1.2.2.17.1.11	Read-write	This will display the regular expression string for extended community list. This object will return NULL for standard community list.

Authorization and accounting

The following objects are for authorization, and accounting functions.

Name, OID, and Syntax	Access	Description
snAuthorizationCommand Methods brcdIp.1.1.3.15.2.1 Syntax: OctetString	Read-write	Specifies the sequence of authorization methods. This object can have zero to three octets. Each octet represents a method to authorize the user command. Each octet has the following value: • radius(2) – Authorize by the requesting RADIUS server • tacplus(5) – Authorize by requesting TACACS server • none(6) – Skip authorization Setting a zero length octet string invalidates all previous authorization methods.
snAuthorizationCommandLevel brcdIp.1.1.3.15.2.2 Syntax: IpAddress	Read-write	Specifies the commands that need to be authorized. Any command that is equal to or less than the selected level will be authorized: • level(0) – Privilege level 0 • level(4) – Privilege level 4 • level(5) – Privilege level 5
snAuthorizationExec brcdIp.1.1.3.15.2.3 Syntax: OctetString	Read-write	Shows the sequence of authorization methods for exec programs. This object can have zero to three octets. Each octet represents a method for Telnet or SSH login authorization. Each octet can have one of the following values: • radius(2) – Send EXEC authorization request to RADIUS server • tacplus(5) – Send EXEC authorization request to TACACS+ server • none(6) – No EXEC authorization method Setting a zero length octet string invalidates all authorization methods.
snAccounting brcdIp.1.1.3.15.3	*(??)*	*(??)*
snAccountingCommandMethods brcdIp.1.1.3.15.3.1 Syntax: OctetString	Read-write	Shows a sequence of accounting methods. This object can have zero to three octets. Each octet represents an accounting method. Each octet can have one of the following values: • radius(2) – Send accounting information to RADIUS server • tacplus(5) – Send accounting information to TACACS+ server • none(6) – No accounting method Setting a zero length octet string invalidates all authorization methods.
snAccountingCommandLevel brcdIp.1.1.3.15.3.2 Syntax: Integer	Read-write	Specifies the commands that need to be accounted for. Any command that is equal to or less than the selected level will be accounted for: • level(0) – Privilege level 0 • level(4) – Privilege level 4 • level(5) – Privilege level 5.

Name, OID, and Syntax	Access	Description
snAccountingExec brcdIp.1.1.3.15.3.3 Syntax: OctetString	Read-write	Shows the sequence of accounting methods for exec programs. This object can have zero to three octets. Each octet represents a method for Telnet or SSH login authorization. Each octet can have one of the following values: • radius(2) – Send accounting information to the RADIUS server • tacplus(5) – Send accounting information to the TACACS+ server • none(6) – No accounting method Setting a zero length octet string invalidates all authorization methods.
snAccountingSystem brcdIp.1.1.3.15.3.4 Syntax: OctetString	Read-write	A sequence of accounting methods. This object can have zero to three octets. Each octet represents a method to account for the system related events. Each octet has the following enumeration values: • radius(2) – send accounting information to the RADIUS server • tacplus(5) – send accounting information to the TACACS+ server • none(6) – skip accounting Setting a zero length octet string invalidates all previous accounting methods.

RADIUS general group

You can use a Remote Authentication Dial In User Service (RADIUS) server to secure the following types of access to the switch or router:

- Telnet access
- SSH access
- Web management access
- Access to the Privileged EXEC level and CONFIG levels of the CLI

The following objects provide information on RADIUS authentication. They apply to all devices.

Name, OID, and Syntax	Access	Description
snRadiusGeneral brcdIp.1.1.3.12.1		
snRadiusSNMPAccess brcdIp.1.1.3.12.1.1 Syntax: Integer	Read only	Indicates if the RADIUS group MIB objects can be accessed by an SNMP manager: • disabled(0) – All RADIUS group MIB objects return a “general error” • enabled(1) Default: disabled
snRadiusEnableTelnetAuth brcdIp.1.1.3.12.1.2 Syntax: Integer	Read-write	Indicates if Telnet authentication as specified by the object “snRadiusLoginMethod” is enabled. • disabled(0) • enabled(1) Default: disabled

Name, OID, and Syntax	Access	Description
snRadiusRetransmit brcdIp.1.1.3.12.1.3 Syntax: Integer	Read-write	Indicates the number of authentication query retransmissions that can be sent to the RADIUS server. Valid values: 0 – 5 Default: 3
snRadiusTimeOut brcdIp.1.1.3.12.1.4 Syntax: Integer	Read-write	Specifies the number of seconds to wait for authentication reply from the RADIUS server. Valid values: 0 – 60 Default: 3
snRadiusDeadTime brcdIp.1.1.3.12.1.5 Syntax: Integer	Read-write	Specifies the RADIUS server dead time, each unit is one minute. Valid values: 0 – 5 Default: 3
snRadiusKey brcdIp.1.1.3.12.1.6 Syntax: DisplayString	Read-write	Shows the authentication key as encrypted text. This object can have up to 32 characters.
snRadiusLoginMethod brcdIp.1.1.3.12.1.7 Syntax: OctetString	Read-write	Shows the sequence of authentication methods for the RADIUS server. Each octet represents a method for authenticating the user at login. Each octet can have one of the following values: • enable(1) – Authenticate by the “Enable” password for the command line interface • radius(2) – Authenticate by requesting the RADIUS server • local(3) – Authenticate by local user account table • line(4) – Authenticate by the Telnet password • tacplus(5) – Authenticate by requesting TACACS Plus server • none(6) – Do not authenticate • tacacs(7) – Authenticate by requesting TACACS server Setting a zero length octet string invalidates all previous authentication methods.
snRadiusEnableMethod brcdIp.1.1.3.12.1.8 Syntax: OctetString	Read-write	Shows the sequence of authentication methods for the RADIUS server. Each octet represents a method for authenticating the user after login, as the user enters the privilege mode of the command line interface. Each octet can have one of the following values: • enable(1) – Authenticate by the “Enable” password for the command line interface • radius(2) – Authenticate by requesting the RADIUS server • local(3) – Authenticate by local user account table • line(4) – Authenticate by the Telnet password • tacplus(5) – Authenticate by requesting TACACS Plus server • none(6) – Do not authenticate • tacacs(7) – Authenticate by requesting TACACS server Setting a zero length octet string invalidates all previous authentication methods.

Name, OID, and Syntax	Access	Description
snRadiusWebServerMethod brcdIp.1.1.3.12.1.9 Syntax: OctetString	Read-write	Shows the sequence of authentication methods. Each octet represents a method for authenticating the user who is accessing the Web-server. Each octet can have one of the following values: • enable(1) – Authenticate by the "Enable" password for the command line interface • radius(2) – Authenticate by requesting the RADIUS server • local(3) – Authenticate by local user account table • line(4) – Authenticate by the Telnet password • tacplus(5) – Authenticate by requesting TACACS Plus server • none(6) – Do not authenticate • tacacs(7) – Authenticate by requesting TACACS server Setting a zero length octet string invalidates all previous authentication methods.
snRadiusSNMPServerMethod brcdIp.1.1.3.12.1.10 Syntax: OctetString	Read-write	Shows the sequence of authentication methods. Each octet represents a method to authenticate the user who is accessing the SNMP server. Each octet can have one of the following values: • enable(1) – Authenticate by the "Enable" password for the command line interface • radius(2) – Authenticate by requesting the RADIUS server • local(3) – Authenticate by local user account table • line(4) – Authenticate by the Telnet password • tacplus(5) – Authenticate by requesting TACACS Plus server • none(6) – Do not authenticate • tacacs(7) – Authenticate by requesting TACACS server Setting a zero length octet string invalidates all previous authentication methods.

RADIUS server table (IPv4)

The following objects provide information on the RADIUS server. They apply to all IPv4 devices.

NOTE
FastIron X Series IPv6 devices running software release 04.1.00 or later use the ""RADIUS server table (FastIron X series IPv6 devices)" on page 169.

Name, OID, and Syntax	Access	Description
snRadiusServerTable brcdIp.1.1.3.12.2	None	RADIUS server table.
snRadiusServerEntry brcdIp.1.1.3.12.2.1	None	An entry in the RADIUS server table.
snRadiusServerIp brcdIp.1.1.3.12.2.1.1 Syntax: IpAddress	Read only	Shows the RADIUS server IP address.
snRadiusServerAuthPort brcdIp.1.1.3.12.2.1.2 Syntax: Integer32	Read-write	Shows the UDP port number for authentication. Default: 1812

Name, OID, and Syntax	Access	Description
snRadiusServerAcctPort brcdIp.1.1.3.12.2.1.3 Syntax: Integer32	Read-write	Shows the UDP port number used for accounting. Default: 1813
snRadiusServerRowStatus brcdIp.1.1.3.12.2.1.4 Syntax: Integer	Read-write	Creates or deletes a RADIUS server table entry: • other(1) • valid(2) • delete(3) • create(4)
snRadiusServerRowKey brcdIp.1.1.3.12.2.1.5 Syntax: DisplayString	Read-write	Shows the authentication key, displayed as encrypted text. Valid values: Up to 32 characters.
snRadiusServerUsage brcdIp.1.1.3.12.2.1.6 Syntax: Integer	Read-write	Allows this server to be dedicated for a particular AAA activity: • default(1), • authenticationOnly(2), • authorizationOnly(3), • accountingOnly(4)

RADIUS server table (FastIron X series IPv6 devices)

The following objects provide information on the RADIUS server. They apply to FastIron X Series IPv6 devices running software releases FSX 04.1.00 or later.

NOTE
Releases prior to FSX 04.1.00 use the “RADIUS server table (IPv4)” on page 168.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.

Name, OID, and Syntax	Access	Description
fdryRadiusServerTable brcdIp.1.1.8.1.1.1	None	RADIUS server table listing the RADIUS authentication servers.
fdryRadiusServerEntry brcdIp.1.1.8.1.1.1.1 Syntax: FdryRadiusServerEntry	None	An entry in the RADIUS server table.
fdryRadiusServerIndex brcdIp.1.1.8.1.1.1.1.1 Syntax: Unsigned32	None	The index to the RADIUS server table. A maximum of eight RADIUS servers are supported.
fdryRadiusServerAddrType brcdIp.1.1.8.1.1.1.1.2 Syntax: InetAddressType	Read-create	The RADIUS server IP address type. Supported types are: • ipv4(1) • ipv6(2) Default: ipv4
fdryRadiusServerAddr brcdIp.1.1.8.1.1.1.1.3 Syntax: InetAddress	Read-create	The RADIUS server IP address.

Name, OID, and Syntax	Access	Description
fdryRadiusServerAuthPort brcdIp.1.1.8.1.1.1.1.4 Syntax: Unsigned32	Read-create	The authentication UDP port number. Default: 1645
fdryRadiusServerAcctPort brcdIp.1.1.8.1.1.1.1.5 Syntax: Unsigned32	Read-create	The account UDP port number. Default: 1646
fdryRadiusServerRowKey brcdIp.1.1.8.1.1.1.1.6 Syntax: DisplayString (size(0..32))	Read-create	The authentication key displayed as encrypted text.
fdryRadiusServerUsage brcdIp.1.1.8.1.1.1.1.7 Syntax: ServerUsage	Read-create	Allows this server to be dedicated for a particular AAA activity.
fdryRadiusServerRowStatus brcdIp.1.1.8.1.1.1.1.8 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except this object.

TACACS general objects

The Terminal Access Controller Access Control System (TACACS) or security protocols can be used to authenticate the following types of access to devices:

- Telnet access
- SSH access
- Securing Access to Management Functions
- Web management access
- Access to the Privileged EXEC level and CONFIG levels of the CLI

The TACACS and protocols define how authentication, authorization, and accounting information is sent between a device and an authentication database on a TACACS server.

The following objects provide information on TACACS authentication. They apply to all devices. Refer to the *Security Guide* for more information on TACACS.

Name, OID, and Syntax	Access	Description
snTacacsGeneral brcdIp.1.1.3.13.1		
snTacacsRetransmit brcdIp.1.1.3.13.1.1 Syntax: Integer	Read-write	Shows the number of authentication query retransmissions to the TACACS server. Valid values: 0 – 5. Default: 3
snTacacsTimeOut brcdIp.1.1.3.13.1.2 Syntax: Integer	Read-write	Specifies how many seconds to wait for authentication reply from the TACACS server. Valid values: 0 – 15 Default: 3 seconds

Name, OID, and Syntax	Access	Description
snTacacsDeadTime brcdIp.1.1.3.13.1.3 Syntax: Integer	Read-write	Specifies the TACACS server dead time in minutes. Valid values: 0 – 5 Default: 3 minutes
snTacacsKey brcdIp.1.1.3.13.1.4 Syntax: DisplayString	Read-write	Authentication key displayed as encrypted text. Valid values: Up to 32 characters.
snTacacsSNMPAccess brcdIp.1.1.3.13.1.5 Syntax: Integer	Read only	Indicates whether the TACACS group MIB objects can be accessed by an SNMP manager. • disabled(0) – All TACACS group MIB objects return "general error" • enabled(1) Default: disabled(0)

TACACS server table (IPv4)

The following objects provide information on the TACACS server. They apply to all IPv4 devices.

NOTE
For FastIron IPv6 devices running software release FSX 04.1.00 or later, see “TACACS server table (FastIron X series IPv6 devices)” on page 172.

Name, OID, and Syntax	Access	Description
snTacacsServerTable brcdIp.1.1.3.13.2	None	TACACS server table.
snTacacsServerEntry brcdIp.1.1.3.13.2.1	None	An entry in the TACACS server table.
snTacacsServerIp brcdIp.1.1.3.13.2.1.1 Syntax: IpAddress	Read only	Shows the TACACS server IP address.
snTacacsServerAuthPort brcdIp.1.1.3.13.2.1.2 Syntax: Integer32	Read-write	Specifies the UDP port used for authentication. Default: 49
snTacacsServerRowStatus brcdIp.1.1.3.13.2.1.3 Syntax: Integer	Read-write	Creates or deletes a TACACS server table entry: • other(1) • valid(2) • delete(3) • create(4)
snTacacsServerRowKey brcdIp.1.1.3.13.2.1.4 Syntax: DisplayString	Read-write	Authentication key displayed as encrypted text. Valid values: Up to 32 characters.
snTacacsServerUsage brcdIp.1.1.3.13.2.1.5 Syntax: Integer	Read-write	Allows this server to be dedicated to a particular AAA activity: • default(1), • authenticationOnly(2), • authorizationOnly(3), • accountingOnly(4)

TACACS server table (FastIron X series IPv6 devices)

The following objects provide information on the TACACS server. These objects apply to FastIron X Series IPv6 devices running software release FSX 04.1.00 or later.

NOTE
Releases prior to FSX 04.1.00 use the "TACACS server table (IPv4)" on page 171.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices.

Name, OID, and Syntax	Access	Description
fdryTacacsServerTable brcdIp.1.1.9.1.1.1	None	The TACACS server table listing the TACACS authentication servers.
fdryTacacsServerEntry brcdIp.1.1.9.1.1.1.1	None	An entry in the TACACS server table. This table uses a running index as the index to the table.
fdryTacacsServerIndex brcdIp.1.1.9.1.1.1.1.1 Syntax: Unsigned32	None	The index to the TACACS server table. Up to eight TACACS servers are supported.
fdryTacacsServerAddrType brcdIp.1.1.9.1.1.1.1.2 Syntax: InetAddresstype	Read-create	The TACACS server IP address type. Supported address types are: • ipv4(1) • ipv6(2) Default: ipv4
fdryTacacsServerAddr brcdIp.1.1.9.1.1.1.1.3 Syntax: Inetaddress	Read-create	The TACACS server IP address.
fdryTacacsServerAuthPort brcdIp.1.1.9.1.1.1.1.4 Syntax: Unsigned32	Read-create	The UDP port used for authentication. Default: 49
fdryTacacsServerRowKey brcdIp.1.1.9.1.1.1.1.5 Syntax: DisplayString (size(0..32))	Read-create	The authentication key displayed as encrypted text. Valid values: Up to 32 characters.
fdryTacacsServerUsage brcdIp.1.1.9.1.1.1.1.6 Syntax: ServerUsage	Read-create	Allows this server to be dedicated to a particular AAA activity: Default: default
fdryTacacsServerRowStatus brcdIp.1.1.9.1.1.1.1.7 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except this object.

Show statistics DOS-attack

The following objects have been created to provide DOS attack statistics through SNMP as shown in the following table.

NOTES: The DOS-Attack Global MIBs are supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- Brocade MLXe

Name, OID, and Syntax	Access	Description
snDosAttackICMPDropCount brcdIp.1.1.3.14.3.1.1 Syntax: Counter32	Read only	Provides the contents of the ICMP drop counter.
snDosAttackICMPBlockCount brcdIp.1.1.3.14.3.1.2 Syntax: Counter32	Read only	Provides the contents of the ICMP block counter.
snDosAttackSYNDropCount brcdIp.1.1.3.14.3.1.3 Syntax: Counter32	Read only	Provides the contents of the SYN drop counter.
snDosAttackSYNBlockCount brcdIp.1.1.3.14.3.1.4 Syntax: Counter32	Read only	Provides the contents of the SYN block counter.

Denial of service attacks

NOTES: The following objects are supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- Brocade MLXe

Name, OID, and Syntax	Access	Description
snDosAttackGlobal brcdIp.1.1.3.14.3.1	N/A	Global scalars for denial of service attacks.
snDosAttackICMPDropCount brcdIp.1.1.3.14.3.1.1 Syntax: Counter32	Read only	ICMP drop counter.
snDosAttackICMPBlockCount brcdIp.1.1.3.14.3.1.2 Syntax: Counter32	Read only	ICMP block counter.
snDosAttackSYNDropCount brcdIp.1.1.3.14.3.1.3 Syntax: Counter32	Read only	SYN drop counter.
snDosAttackSYNBlockCount brcdIp.1.1.3.14.3.1.4 Syntax: Counter32	Read only	SYN block counter.

DOS attack port table

The following objects have been created to filter traffic for DOS attacks through SNMP as shown in the following table.

NOTES: The DOS-Attack Port MIBs are supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- Brocade MLXe

Name, OID, and Syntax	Access	Description
snDosAttackPortTable brcdIp.1.1.3.14.3.2 Syntax: Sequence of snDosAttackPortEntry	None	Denial of service attack port table.
snDosAttackPortEntry brcdIp.1.1.3.14.3.2.1 Syntax: snDosAttackPortEntry	None	An entry of the denial of service attack port table.
snDosAttackPort brcdIp.1.1.3.14.3.2.1.1 Syntax: Integer32	read only	Index value of a port.
snDosAttackPortICMPDropCount brcdIp.1.1.3.14.3.2.1.2 Syntax: Counter32	read only	Value of the ICMP drop counter.
snDosAttackPortICMPBlockCount brcdIp.1.1.3.14.3.2.1.3 Syntax: Counter32	read only	Value of the ICMP block counter.
snDosAttackPortSYNDropCount brcdIp.1.1.3.14.3.2.1.4 Syntax: Counter32	read only	Value of the SYN drop counter.
snDosAttackPortSYNBlockCount brcdIp.1.1.3.14.3.2.1.5 Syntax: Counter32	read only	Value of the SYN block counter.

Chapter

802.1X Authentication MIB

8

This chapter presents the SNMP MIB objects for 802.1X authentication. These MIB objects are supported on the FLS, FGS, FCX, FSX, and FWS devices running software release 07.2.02 and later.

802.1X authentication scalar group types

The 802.1X authentication scalar group provides information that is displayed in the outputs of the following CLI commands:

- **show dot1x**
- **show dot1x configuration all**
- **show dot1x configuration ethernet** <*port*>

Name, OID, and Syntax	Access	Description
brcdDot1xAuthGlobalConfigQuietperiod brcdIp.1.1.3.38.1.1 Syntax: Unsigned32 (1..4294967294)	Read-write	If the Brocade device is unable to authenticate a client, this object shows the amount of time, in seconds, the Brocade device waits before it retries to authenticate that client Default: 60 seconds
brcdDot1xAuthGlobalConfigTxPeriod brcdIp.1.1.3.38.1.2 Syntax: Unsigned32 (1..4294967294)	Read-write	When a client does not return an EAP (Extensible Authentication Protocol)-response/identity frame, this object shows the amount of time, in seconds, the Brocade device waits before retransmitting the EAP-request/identity frame to the client Default: 30 seconds
brcdDot1xAuthGlobalConfigSuppTimeOut brcdIp.1.1.3.38.1.3 Syntax: Unsigned32 (1..4294967294)	Read-write	When a supplicant (client) does not respond to an EAP-request frame, this object shows the amount of time, in seconds, before the Brocade device retransmits the frame Default: 30 seconds
brcdDot1xAuthGlobalConfigAuthServerTimeOut brcdIp.1.1.3.38.1.4 Syntax: Unsigned32	Read-write	When the authentication server (RADIUS) does not respond to a message sent from the Client, this object shows the amount of time, in seconds, before the Brocade device retransmits the message. Default: 30 seconds
brcdDot1xAuthGlobalConfigMaxReq brcdIp.1.1.3.38.1.5 Syntax: Unsigned32 (1..4294967294)	Read-write	The number of times the Brocade device retransmits an EAP-request or identity request frame if it does not receive an EAP-response or identity response frame from a client Default: 2 times

Name, OID, and Syntax	Access	Description
brcdDot1xAuthGlobalConfigReAuthMax brcdIp.1.1.3.38.1.6 Syntax: Unsigned32 (1..4294967294)	Read-write	The number of reauthentication attempts that are permitted before the port becomes unauthorized. Default: 2 times
brcdDot1xAuthGlobalConfigReAuthPeriod brcdIp.1.1.3.38.1.7 Syntax: Unsigned32 (1..4294967294)	Read-write	How often (number of seconds) the device automatically reauthenticates clients when periodic reauthentication is enabled. Default: 3600 seconds
brcdDot1xAuthGlobalConfigProtocolVersion brcdIp.1.1.3.38.1.8 Syntax: Unsigned32	Read-only	The EAP protocol version.
brcdDot1xAuthGlobalConfigTotalPortsEnabled brcdIp.1.1.3.38.1.9 Syntax: Unsigned32	Read-only	The total number of ports that have 802.1x enabled.
brcdDot1xAuthGlobalConfigReauthStatus brcdIp.1.1.3.38.1.10 Syntax: EnabledStatus	Read-write	Enables or disables reauthentication globally. Default: disabled
brcdDot1xAuthGlobalConfigMacSessionMaxAge brcdIp.1.1.3.38.1.11 Syntax: Unsigned32	Read-write	The maximum age of the 802.1x MAC session. A value between 0 and 65535
brcdDot1xAuthGlobalConfigNoAgingDeniedSessions brcdIp.1.1.3.38.1.12 Syntax: EnabledStatus	Read-write	Enables or disables **mac-session-no aging** for denied sessions. Default: disabled
brcdDot1xAuthGlobalConfigNoAgingPermittedSessions brcdIp.1.1.3.38.1.13 Syntax: EnabledStatus	Read-write	Enables or disables **mac-session-no aging** for permitted sessions. Default: disabled
brcdDot1xAuthGlobalConfigAuthFailAction brcdIp.1.1.3.38.1.14 Syntax: INTEGER	Read-write	Configures the action to take when the authentication fails: • blockTraffic(1) • restrictedVlan(2)}

802.1X port statistics table

The brcdDot1xAuthPortStatTable contains Extensible Authentication Protocol (EAP) information specific to interfaces. EAP is an authentication framework that provides common functions and negotiation of authentication methods called EAP methods (for example, EAP-MD5, EAP-TLS, and EAP-GTC). The statistics provided by this table are equivalent to those provided in the output of the following commands:

- **show dot1x statistics ethernet** <*port*>
- **show dot1x statistics all**

Name, OID, and Syntax	Access	Description
brcdDot1xAuthPortStatRxEAPFrames brcdIp.1.1.3.38.2.1.1.1 Syntax: Counter32	Read-only	Total number of EAPOL frames received on the port. The frames received include EAP frames.
brcdDot1xAuthPortStatTxEAPFrames brcdIp.1.1.3.38.2.1.1.2 Syntax: Counter32	Read-only	Number of EAPOL frames transmitted on the port.
brcdDot1xAuthPortStatRxEAPStartFrames brcdIp.1.1.3.38.2.1.1.3 Syntax: Counter32	Read-only	Number of EAPOL-Start frames received on the port.
brcdDot1xAuthPortStatRxEAPLogOffFrames brcdIp.1.1.3.38.2.1.1.4 Syntax: Counter32	Read-only	Number of EAPOL-Logoff frames received on the port.
brcdDot1xAuthPortStatRxEAPRespIdFrames brcdIp.1.1.3.38.2.1.1.5 Syntax: Counter32	Read-only	Number of EAP frames other than Response/Identity frames received on the port.
brcdDot1xAuthPortStatTxEAPReqIdFrames brcdIp.1.1.3.38.2.1.1.6 Syntax: Counter32	Read-only	Number of EAP-Request/Identity frames transmitted on the port.
brcdDot1xAuthPortStatRxEAPInvalidFrames brcdIp.1.1.3.38.2.1.1.7 Syntax: Counter32	Read-only	Number of invalid EAPOL frames received on the port.
brcdDot1xAuthPortStatEAPLastFrameVersionRx brcdIp.1.1.3.38.2.1.1.8 Syntax: Unsigned32	Read-only	Version of last EAP frame received.
brcdDot1xAuthPortStatRxEAPRespOrIdFrames brcdIp.1.1.3.38.2.1.1.9 Syntax: Counter32	Read-only	Number of received EAP response or Id frames on the port.
brcdDot1xAuthPortStatRxLengthErrorFrame brcdIp.1.1.3.38.2.1.1.10 Syntax: Integer32	Read-only	Length EAP Error frame received.

Name, OID, and Syntax	Access	Description
brcdDot1xAuthPortStatTxRequestFrames brcdIp.1.1.3.38.2.1.1.11 Syntax: Counter32	Read-only	Number of transmitted EAP request frames on the port.
brcdDot1xAuthPortStatLastEAPFrameSource brcdIp.1.1.3.38.2.1.1.12 Syntax: MacAddress	Read-only	MAC address of the source from which the last EAP frame came.

802.1X port configuration table

The brcdDot1xAuthPortConfigTable contains configuration parameters specific to interfaces. The information in this table is equivalent to the output of the following CLI commands:

- **show dot1x port-control auto**
- **show dot1x port-control force-authorized**
- **show dot1x port-control force-unauthorized**
- **show dot1x configuration ethernet** <*port*>

Name, OID, and Syntax	Access	Description
brcdDot1xAuthPortConfigPortControl brcdIp.1.1.3.38.3.1.1.1 Syntax: INTEGER	Read-write	The control type configured for the interface: • forceUnauthorized(1) = the controlled port is placed unconditionally in the unauthorized state • controlauto(2) = the controlled port is unauthorized until authentication takes place between the client and the RADIUS server • forceAuthorized(3) = the controlled port is placed unconditionally in the authorized state
brcdDot1xAuthPortConfigFilterStrictSec brcdIp.1.1.3.38.3.1.1.2 Syntax: EnabledStatus	Read-write	Enables or disables filter strict security on the interface: enabled(1) or disabled(2)
brcdDot1xAuthPortConfigDot1xOnPort brcdIp.1.1.3.38.3.1.1.3 Syntax: EnabledStatus	Read-write	Enables or disables 802.1x on an interface

802.1x port state table

The brcdDot1xAuthPortStateTable contains the port specific parameters indicating the dynamic state that the interface is in. The information in this table is equivalent to the information in the **show dot1x configuration** <*port*> output.

Name, OID, and Syntax	Access	Description
brcdDot1xAuthPortStateMacSessions brcdIp.1.1.3.38.4.1.1.1 Syntax: Unsigned32	Read-only	Number of 802.1x MAC sessions per port.
brcdDot1xAuthPortStateAuthMacSessions brcdIp.1.1.3.38.4.1.1.2 Syntax: Unsigned32	Read-only	Number of authorized MAC sessions per port.
brcdDot1xAuthPortStateOriginalPVID brcdIp.1.1.3.38.4.1.1.3 Syntax: Unsigned32	Read-only	PVID (port's default VLAN ID) that was originally configured on the port (not dynamically assigned).
brcdDot1xAuthPortStatePVIDMacTotal brcdIp.1.1.3.38.4.1.1.4 Syntax: Unsigned32	Read-only	The number of devices transmitting untagged traffic on the port's PVID.
brcdDot1xAuthPortStatePVIDMacAuthorized brcdIp.1.1.3.38.4.1.1.5 Syntax: Unsigned32	Read-only	The number of devices transmitting untagged traffic on the port's PVID as a result of dynamic VLAN assignment.
brcdDot1xAuthPortStatePortVlanState brcdIp.1.1.3.38.4.1.1.6 Syntax: INTEGER	Read-only	The current VLAN state the port is in: • radius(1) = The port's PVID was dynamically assigned by a RADIUS server • restricted(2) = The port's PVID is the restricted VLAN • normal(3) = The port's PVID is not set by a RADIUS server, nor is it the restricted VLAN
brcdDot1xAuthPortStatePVID Syntax: Unsigned32	Read-only	The 802.1X authentication default port VLAN ID.
brcdDot1xAuthPortStateRestrictPVID brcdIp.1.1.3.38.4.1.1.7 Syntax: Unsigned32	Read-only	Restricted PVID.
brcdDot1xAuthPortStateRadiusAssignPVID brcdIp.1.1.3.38.4.1.1.8 Syntax: Unsigned32	Read-only	RADIUS assigned PVID.

802.1X MAC sessions table

The brcdDot1xAuthMacSessionTable contains information about the 802.1X MAC sessions. The information in this table is equivalent to the information in the output of the following CLI commands:

- **show dot1x mac-sessions**
- **show dot1x mac-sessions ip-address**

Name, OID, and Syntax	Access	Description
brcdDot1xAuthMacSessionAuthMac brcdIp.1.1.3.38.5.1.1.1 Syntax: MacAddress	Not-accessible	MAC address of the client, which represents the user name used for RADIUS authentication.
brcdDot1xAuthMacSessionUserName brcdIp.1.1.3.38.5.1.1.2 Syntax: SnmpAdminString	Read-only	User name of the 802.1x MAC session.
brcdDot1xAuthMacSessionIncomingVlanId brcdIp.1.1.3.38.5.1.1.3 Syntax: VlanId	Read-only	Incoming VLAN ID.
brcdDot1xAuthMacSessionCurrentVlanId brcdIp.1.1.3.38.5.1.1.4 Syntax: VlanId	Read-only	The VLAN to which the port is currently assigned.
brcdDot1xAuthMacSessionAccessStatus brcdIp.1.1.3.38.5.1.1.5 Syntax: INTEGER	Read-only	Authentication state of the 802.1X MAC session: • permit(1) • blocked(2) • restrict(3) • init(4)
brcdDot1xAuthMacSessionMaxAge brcdIp.1.1.3.38.5.1.1.6 Syntax: Unsigned32	Read-only	Maximum age of the MAC session in which the MAC address is authenticated.
brcdDot1xAuthMacSessionAddrType brcdIp.1.1.3.38.5.1.1.7 Syntax: InetAddressType	Read-only	IP address type of the client (supplicant). Supported address types are: • ipv4(1) • ipv6(2) Default: ipv4(1)
brcdDot1xAuthMacSessionIpAddr brcdIp.1.1.3.38.5.1.1.8 Syntax: InetAddress	Read-only	The IP address of the client
brcdDot1xAuthMacSessionAging brcdIp.1.1.3.38.5.1.1.9 Syntax: INTEGER	Read-only	The type of aging being performed: • software(1) • hardware(2) • ena(3) = aging has not started • notapplicable(4) = fake 802.1x MAC session

802.1x authentication global administration

The following scalar enables or disables 802.1X authentication globally.

Name, OID, and Syntax	Access	Description
brcdDot1xAuthGlobalConfigAdminStatus brcdIp.1.1.3.38.6.1 Syntax: EnabledStatus		Enables or disables 802.1x authentication globally Default: disabled

802.1x authentication global administration

Chapter

Multi-Device Port Authentication 9

NOTE
This objects in this chapter not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, andNetIron CER devices. They are also not supported on FastIron devices running software release 07.1.00 and later.

Multi-device port authentication

Multi-Device Port Authentication is also known as MAC Authentication. The following tables describe the Multi-Device Port Authentication MIB objects.

Global multi-device port authentication objects

The following global objects are available for Multi-Device Port Authentication.

TABLE 6 MAC Authentication Global Objects

Name, OID, and Syntax	Access	Description
snMacAuthClearGlobalCmd brcdIp.1.1.3.28.1.1 Syntax: integer	Read-write	Valid(0) - a SNMP-GET of this MIB shows that it is a valid command. Clear(1) - represents clear MAC Authentication table for all ports.
snMacAuthGlobalConfigState brcdIp.1.1.3.28.1.2 Syntax: Integer	Read-write	Enables or disables MAC authentication on a global level.

Clear interface multi-device port authentication objects

The following clear interface objects are available for Multi-Device Port Authentication.

TABLE 7 MAC Authentication Clear Interface Objects

Name, OID, and Syntax	Access	Description
snMacAuthClearIFCmdTable brcdIp.1.1.3.28.2 Syntax: Sequence of SnMacAuthClearIfCmdEntry	None	The status of clearing a MAC authentication entry for an interface.
snMacAuthClearIfCmdEntry brcdIp.1.1.3.28.2.1 Syntax: SnMacAuthClearIfCmdEntry	None	An entry clearing a MAC authentication entry for an interface.

TABLE 7 MAC Authentication Clear Interface Objects (Continued)

Name, OID, and Syntax	Access	Description
snMacAuthClearIfCmdIndex brcdIp.1.1.3.28.2.1.1 Syntax: InterfaceIndex	None	The ifIndex value of the local interface on which a clear command is issued and monitored.
snMacAuthClearIfCmdAction brcdIp.1.1.3.28.2.1.2 Syntax: InterfaceIndex	Read-write	valid(0) - An SNMP-GET of this command shows that it is valid. clear(1) - Represents clearing a MAC authentication entry for an interface.

Multi-device port authentication objects

The following objects are available for Multi-Device Port Authentication.

TABLE 8 Multi-Device Port Authentication Objects

Name, OID, and Syntax	Access	Description
snMacAuthTable brcdIp.1.1.3.28.3 Syntax: SEQUENCE OF SnMacAuthEntry	None	Displays the MAC Authentication table.
snMacAuthEntry brcdIp.1.1.3.28.3.1 Syntax: SnMacAuthEntry	None	An entry in the MAC Authentication table.
snMacAuthIfIndex brcdIp.1.1.3.28.3.1.1 Syntax: InterfaceIndex	None	In order to identify a particular interface, this object identifies the instance of the ifIndex object, defined in RFC 2863.
snMacAuthVlanId brcdIp.1.1.3.28.3.1.2 Syntax: INTEGER	None	The ID of a VLAN of which the port is a member. The port must be untagged. For a tagged port which belongs to multiple VLANs, this object returns 0, which is an invalid VLAN ID value.
snMacAuthMac brcdIp.1.1.3.28.3.1.3 Syntax: MacAddress	None	MAC Address to be authenticated
snMacAuthState brcdIp.1.1.3.28.3.1.4 Syntax: INTEGER	Read-only	The state of MAC Authentication
snMacAuthTimeStamp brcdIp.1.1.3.28.3.1.5 Syntax:OBJECT-TYPE	Read-only	Timestamp at which the MAC was authenticated or failed to be authenticated.
snMacAuthAge brcdIp.1.1.3.28.3.1.6 Syntax: INTEGER	Read-only	Age of the mac session in which the MAC address is authenticated.
snMacAuthDot1x brcdIp.1.1.3.28.3.1.7 Syntax: INTEGER	Read-only	Indicates whether the Dot1x is enabled or not.

Multi-device port authentication clear sessions

The following clear sessions objects are available for Multi-Device Port Authentication.

TABLE 9 MAC Authentication Clear Mac Session MIBs

Name, OID, and Syntax	Access	Description
snMacAuthClearMacSessionTable brcdIp.1.1.3.28.4 Syntax: SEQUENCE OF SnMacAuthClearMacSessionEntry	None	The status of clearing a MAC Session entry indexed by a MAC address.
snMacAuthClearMacSessionEntry brcdIp.1.1.3.28.4.1 Syntax: SnMacAuthClearMacSessionEntry	None	An entry of clearing a MAC Session entry indexed by a MAC address.
snMacAuthClearMacSessionIfIndex brcdIp.1.1.3.28.4.1.1 Syntax: InterfaceIndex	None	The ifIndex value of the local interface on which a clear command is issued and monitored.
snMacAuthClearMacSessionMac brcdIp.1.1.3.28.4.1.2 Syntax: MacAddress	None	A MAC Session entry indexed by a MAC address.
snMacAuthClearMacSessionAction brcdIp.1.1.3.28.4.1.3 Syntax: INTEGER	Read-write	Valid(0) - An SNMP-GET of this MIB shows that it is a valid command. Clear(1) - Represents clearing a MAC Session entry indexed by a MAC address.

Chapter

10

MAC Port Security

About MAC port security

This chapter presents the objects used to secure MAC addresses on an interface.

Refer to the configuration guide for a product for details on the features discussed in this chapter.

NOTES: MAC Port Security MIBs are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe

MAC port security table

The MAC Port Security table shows the same information as the **show port security mac** CLI command.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityTable brcdIp.1.1.3.24.1.1.1	N/A	The MAC Port Security table.
snPortMacSecurityEntry brcdIp.1.1.3.24.1.1.1.1	N/A	An entry in the MAC Port Security table.
snPortMacSecurityIfIndex brcdIp.1.1.3.24.1.1.1.1.1 Syntax: Unsigned32	Read only	The ifIndex value (ID) of the Ethernet interface on which MAC port security is enabled.
snPortMacSecurityResource brcdIp.1.1.3.24.1.1.1.1.2 Syntax: Integer	Read only	Indicates how the MAC addresses on an interface are secured: local(1) – Local resource was used. The interface secures at least one secure MAC address entry. Each interface can store up to 64 local resources. shared(2) – Shared resource was used. When an interface has secured enough MAC addresses to reach its limit for local resources, it can secure additional MAC addresses by using global or shared resources.
snPortMacSecurityQueryIndex brcdIp.1.1.3.24.1.1.1.1.3 Syntax: Unsigned32	Read only	An index for a MAC address entry that was secured for this interface.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityMAC brcdIp.1.1.3.24.1.1.1.1.4 Syntax: Integer	Read only	The secured MAC address.
snPortMacSecurityAgeLeft brcdIp.1.1.3.24.1.1.1.1.5 Syntax: Unsigned32	Read only	The number of minutes the MAC address will remain secure.
snPortMacSecurityShutdownStatus brcdIp.1.1.3.24.1.1.1.1.6 Syntax: Integer	Read only	Indicates if the interface has been shut down due to a security violation. • up(1) – The port is up. • down(2) – The port has been shut down.
snPortMacSecurityShutdownTimeLeft brcdIp.1.1.3.24.1.1.1.1.7 Syntax: Unsigned32	Read only	If the value of the snPortMacSecurityShutdownStatus is down(2), this object shows the number of seconds before it is enabled again. If the value is up(1), this object shows 0.
snPortMacSecurityVlanId brcdIp.1.1.3.24.1.1.1.1.8 Syntax: Unsigned32	Read only	Shows the VLAN membership of this interface. This object shows a value from1 – 65535.

MAC port security module statistics table

This table shows the same information as the **show port security statistics <module>** CLI command.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityModuleStatTable brcdIp.1.1.3.24.1.1.2	N/A	The MAC Port Security Module Statistics table that shows the MAC port security statistics for each module.
snPortMacSecurityModuleStatEntry brcdIp.1.1.3.24.1.1.2.1	N/A	An entry in the MAC Port Security Module Statistics table.
snPortMacSecurityModuleStatSlotNum brcdIp.1.1.3.24.1.1.2.1.1 Syntax: Integer	Read only	The slot number of the MAC port security module.
snPortMacSecurityModuleStatTotalSecurityPorts brcdIp.1.1.3.24.1.1.2.1.2 Syntax: Unsigned32	Read only	The total number of Ethernet interfaces on which MAC security is configured in this module.
snPortMacSecurityModuleStatTotalMACs brcdIp.1.1.3.24.1.1.2.1.3 Syntax: Unsigned32	Read only	The total number of secure MAC addresses learned or configured in this module.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityModuleStatViolationCounts brcdIp.1.1.3.24.1.1.2.1.4 Syntax: Unsigned32	Read only	The number of security violations that occurred in this module.
snPortMacSecurityModuleStatTotalShutdownPorts brcdIp.1.1.3.24.1.1.2.1.5 Syntax: Unsigned32	Read only	The number of Ethernet interfaces in this module that were shut down due to security violations.

MAC port security interface content table

This table shows the same information as the **show port security ethernet <slot/port>** CLI command.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityIntfContentTable brcdIp.1.1.3.24.1.1.3	N/A	The MAC Port Security Interface Content table that shows the MAC port security statistics for an Ethernet interface.
snPortMacSecurityIntfContentEntry brcdIp.1.1.3.24.1.1.3.1	N/A	An entry in the MAC Port Security Interface Content table.
snPortMacSecurityIntfContentIfIndex brcdIp.1.1.3.24.1.1.3.1.1 Syntax: InterfaceIndex	N/A	An entry in the MAC Port Security Interface Content table, showing the ifIndex value of the local interface.
snPortMacSecurityIntfContentSecurity brcdIp.1.1.3.24.1.1.3.1.2 Syntax: Integer	Read- write	Indicates whether MAC port security is enabled or disabled on this interface. • 0 = disabled • 1 = enabled
snPortMacSecurityIntfContentViolationType brcdIp.1.1.3.24.1.1.3.1.3 Syntax: Integer	Read-write	The port security violation type for this interface: • 0 = shutdown • 1 = restricted
snPortMacSecurityIntfContentShutdownTime brcdIp.1.1.3.24.1.1.3.1.4 Syntax: Unsigned32	Read-write	If the snPortMacSecurityIntfContentViolationType is 0 (shutdown), this value indicates the number of seconds the interface shuts down when the violation occurs. If the snPortMacSecurityIntfContentViolationType is 1 (restrict), this value will always be 0.
snPortMacSecurityIntfContentShutdownTimeLeft brcdIp.1.1.3.24.1.1.3.1.5 Syntax: Unsigned32	Read only	If the snPortMacSecurityIntfContentViolationType is 0 (shutdown), this value indicates the number of seconds before this interface will be re-enabled. If the snPortMacSecurityIntfContentViolationType is 1 (restrict), this value will always be 0.
snPortMacSecurityIntfContentAgeOutTime brcdIp.1.1.3.24.1.1.3.1.6 Syntax: Unsigned32	Read-write	The amount of time, in minutes, the MAC addresses learned on this interface will remain secure. A value of 0 indicates no aging is in effect.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityIntfContentMaxLockedMacAllowed brcdIp.1.1.3.24.1.1.3.1.7 Syntax: Unsigned32	Read-write	The maximum number of secure MAC addresses that can be locked to this interface.
snPortMacSecurityIntfContentTotalMACs brcdIp.1.1.3.24.1.1.3.1.8 Syntax: Unsigned32	Read only	The total number of secure MAC addresses that are locked to this interface.
snPortMacSecurityIntfContentViolationCounts brcdIp.1.1.3.24.1.1.3.1.9 Syntax: Unsigned32	Read only	The total number of security violations that occurred on this interface.

MAC port security interface MAC table

This table shows the same information as the **show port security mac ethernet <slot/port>** CLI command.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityIntfMacTable brcdIp.1.1.3.24.1.1.4	N/A	The MAC Port Security Interface MAC table that shows the MAC port security status for each Ethernet interface.
snPortMacSecurityIntfMacEntry brcdIp.1.1.3.24.1.1.4.1	N/A	An entry in the MAC Port Security Interface MAC table.
snPortMacSecurityIntfMacIfIndex brcdIp.1.1.3.24.1.1.4.1.1 Syntax: Integer	Read only	An entry in the MAC Port Security Interface MAC table, showing the ifIndex value of the local interface.
snPortMacSecurityIntfMacAddress brcdIp.1.1.3.24.1.1.4.1.2 Syntax: MAC Address	Read only	The secure MAC addresses for this local Ethernet interface on which the secure MAC address is configured and learned. The maximum number of the secure MAC addresses is restricted by the object snPortMacSecurityIntfContentMaxLockedMacAllowed.
snPortMacSecurityIntfMacVlanId brcdIp.1.1.3.24.1.1.4.1.3 Syntax: Unsigned32	Read-write	The VLAN membership of this interface. A value of zero indicates it is not applicable.
snPortMacSecurityIntfMacRowStatus brcdIp.1.1.3.24.1.1.4.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

MAC port security autosave MAC table

This table shows the same information as the **show port security autosave** CLI command.

Name, Identifier, and Syntax	Access	Description
snPortMacSecurityAutosaveMacTable brcdIp.1.1.3.24.1.1.5	N/A	The MAC Port Security Autosave MAC table that shows the secure MAC addresses that were saved automatically.
snPortMacSecurityAutosaveMacEntry brcdIp.1.1.3.24.1.1.5.1	N/A	An entry in the MAC Port Security Autosave MAC table.
snPortMacSecurityAutosaveMacIfIndex brcdIp.1.1.3.24.1.1.5.1.1 Syntax: Integer32	Read only	An entry in the MAC Port Security Autosave MAC table, showing the ifIndex value of the local interface.
snPortMacSecurityAutosaveMacResource brcdIp.1.1.3.24.1.1.5.1.2 Syntax: Integer32	Read only	Indicates the resource used to autosave secure MAC addresses: • 1 = local • 2 = shared
snPortMacSecurityAutosaveMacQueryIndex brcdIp.1.1.3.24.1.1.5.1.3 Syntax: Unsigned32	Read only	The index entry within the given resource of the local interface on which MAC port security is autosaved.
snPortMacSecurityAutosaveMacAddress brcdIp.1.1.3.24.1.1.5.1.4 Syntax: MAC Address	Read only	The secure MAC addresses for this local Ethernet interface on which the secure MAC address is autosaved.

MAC port security global MIB group

This table shows the global MIBs for MAC port security.

Name, Identifier, and Syntax	Access	Description
snPortMacGlobalSecurityFeature brcdIp.1.1.3.24.1.2.1 Syntax: Integer	Read-write	Indicates whether port security for this device is disabled or enabled. • 0 = disabled • 1 = enabled
snPortMacGlobalSecurityAgeOutTime brcdIp.1.1.3.24.1.2.2 Syntax: Unsigned32	Read-write	The amount of time, in minutes, the MAC addresses learned on this device will remain secure. A value of 0 indicates no aging is in effect.
snPortMacGlobalSecurityAutosave brcdIp.1.1.3.24.1.2.3 Syntax: Unsigned32	Read-write	The port security autosave value for this device.

Traffic Security 11

This chapter presents the SNMP MIB objects for various traffic security features such as Dynamic ARP Inspections, DHCP Snooping, and IP Source Guard.

The MIB objects in this chapter are supported on FastIron devices running software release 07.2.00.

Dynamic ARP Inspection VLAN configuration table

Dynamic ARP Inspection (DAI) is a security mechanism which validates all ARP packets in a subnet and discard those packets with invalid IP to MAC address bindings. To configure the feature using SNMP MIB objects, do the following:

1. Enable DAI on a VLAN

   DAI on a VLAN is disabled by default. To enable DAI on an existing VLAN, set the object fdryDaiVlanDynArpInspEnable in the fdryDaiVlanConfigTable to true. Set it to false to disable it.

2. Enable trust on a port

   The default trust setting for a port is untrusted. To enable trust on a port, set the object fdryDaiIfTrustValue in the fdryDaiIfConfigTable to true. Set it to false to disable trust on a port.

3. Configure a DAI ARP entry

   To configure a DAI ARP entry, set the fdryDaiArpInspectIpAddr, fdryDaiArpInspectMacAddr and fdryDaiArpInspectRowStatus (value as createAndGo) in the fdryDaiArpInspectTable. This table displays all DAI entries. A row instance contains the configuration to map a device IP address with its MAC address and its type, state, age and port.

DAI VLAN configuration table

Name, Identifier, and Syntax	Access	Description
fdryDaiVlanConfigTable brcdIp.1.1.3.35.1.1	N/A	This table provides the mechanism to control Dynamic ARP Inspection per VLAN.
fdryDaiVlanConfigEntry brcdIp.1.1.3.35.1.1.1	N/A	When a VLAN is created on a device supporting this table, a corresponding entry of this table is added. This entry represents a row that contains the configuration to enable or disable Dynamic ARP Inspection on the existing VLAN. It is indexed by fdryDaiVlanVLanId.

Name, Identifier, and Syntax	Access	Description
fdryDaiVlanVLanId brcdIp.1.1.3.35.1.1.1.1 Syntax: VlanIndex	N/A	This object indicates the VLAN number on which Dynamic ARP Inspection feature is configured.
fdryDaiVlanDynArpInspEnable brcdIp.1.1.3.35.1.1.1.2 Syntax: TruthValue	Read-write	This object indicates whether Dynamic ARP Inspection is enabled in this VLAN. If this object is set to “true”, Dynamic ARP Inspection is enabled. If this object is set to “false”, Dynamic ARP Inspection is disabled.

Dynamic ARP Inspection Interface configuration table

Name, Identifier, and Syntax	Access	Description
fdryDaiIfConfigTable brcdIp.1.1.3.35.2.1	N/A	This table allows you to configure the trust state for Dynamic ARP Inspection purpose on each physical interface.
fdryDaiIfConfigEntry brcdIp.1.1.3.35.2.1.1	N/A	A row in the fdryDaiConfigTable. Each row contains the configuration to enable or disable the trust state for Dynamic ARP Inspection at each physical interface capable of this feature.
fdryDaiIfTrustValue brcdIp.1.1.3.35.2.1.1.1 Syntax: TruthValue	Read-write	This object indicates whether the interface is trusted for Dynamic ARP Inspection. If this object is set to 'true', the interface is trusted. ARP packets coming to this interface will be forwarded without being checked. If this object is set to “false”, the interface is not trusted. ARP packets received on this interface will be subjected to ARP inspection.

Dynamic ARP Inspection entry table

Use this table to configure and display the Dynamic ARP Inspection entries.

Name, Identifier, and Syntax	Access	Description
fdryDaiArpInspectTable brcd.Ip.1.1.3.35.3.1	N/A	This table provides controls Dynamic ARP Inspection entries. When an IP address to MAC address mapping entry is created on a device supporting this table, a corresponding entry of this table will be added.
fdryDaiArpInspectEntry brcd.Ip.1.1.3.35.3.1.1	N/A	A row instance contains the configuration to map a device IP address with its MAC address. This table is indexed by fdryDaiArpInspectIpAddr.
fdryDaiArpInspectIpAddr brcd.Ip.1.1.3.35.3.1.1.1 Syntax: IpAddress	N/A	The IP address of the device.
fdryDaiArpInspectMacAddr brcd.Ip.1.1.3.35.3.1.1.2 Syntax: MacAddress	Read-create	The MAC address of the device.
fdryDaiArpInspectRowStatus brcd.Ip.1.1.3.35.3.1.1.3 Syntax: RowStatus	Read-create	This variable is used to create or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except this object.

Name, Identifier, and Syntax	Access	Description
fdryDaiArpInspectType brcd.lp.1.1.3.35.3.1.1.4 Syntax: ArpType	Read-only	The type of the ARP entry: • other(1) • static(2) • dynamic(3) • inspect(4) • dhcp(5) • dynamicDhcp(6) • staticDhcp(7) • host(8)
fdryDaiArpInspectState brcd.lp.1.1.3.35.3.1.1.5 Syntax: ArpState	Read-only	The state of the ARP entry: • other(1) • valid(2) • pending(3)
fdryDaiArpInspectAge brcd.lp.1.1.3.35.3.1.1.6 Syntax: Unsigned32	Read-only	The timer of the ARP entry.
fdryDaiArpInspectPort brcd.lp.1.1.3.35.3.1.1.7 Syntax: DisplayString	Read-only	The port of the ARP entry.

Dynamic Host Configuration Protocol

Dynamic Host Configuration Protocol (DHCP) snooping enables the device to filter untrusted DHCP packets in a subnet. DHCP snooping can prevent man-in-the-middle (MiM) attacks, such as a malicious user who is posing as a DHCP server and is sending false DHCP server reply packets with the intention of misdirecting other users. It can also stop unauthorized DHCP servers and prevent errors due to misconfiguration of DHCP servers.

SNMP DHCP snooping MIB objects describes how to configure the DHCP snooping feature using SNMP. It consists of the following:

- fdryDhcpSnoopGlobalClearOper: A scalar used to clear all entries in the DHCP binding database
- fdryDhcpSnoopVlanConfigTable: A table that provides the mechanism to control DHCP snooping per VLAN. When a VLAN is created on a device that supports this table, a corresponding entry of this table will be added.
- fdryDhcpSnoopIfConfigTable: A table that provides the mechanism to configure the trust state for DHCP snooping at each physical interface.
- fdryDhcpSnoopBindTable: A table that provides the information for DHCP snooping binding database learned by the device. The DHCP binding database is integrated with the enhanced ARP table. It contains the information of a DHCP entry, such as IP address, MAC address, type, state, port, VLAN ID, and lease time.

DHCP Snooping global scalar object

One scalar object can clear all entries in the DHCP binding database.

Name, Identifier, and Syntax	Access	Description
fdryDhcpSnoopGlobalClearOper brcdIp.1.1.3.36.1.1. Syntax: ClearAction	Read-write	Determines if all entries in the DHCP database is cleared: • valid(0) - this values is always returned when the variable is read. • clear(1) - clears all entries in the DHCP binding database.

DHCP Snooping VLAN configuration table

Name, Identifier, and Syntax	Access	Description
fdryDhcpSnoopVlanConfigTable brcdIp.1.1.3.36.2.1	N/A	A table controls DHCP Snooping per VLAN. When a VLAN is created in a device supporting this table, a corresponding entry of this table will be added.
fdryDhcpSnoopVlanConfigEntry brcdIp.1.1.3.36.2.1.1	N/A	A row in the table. It contains the configuration to either enable or disable DHCP Snooping on the existing VLAN. It is indexed by fdryDhcpSnoopVlanVLanId
fdryDhcpSnoopVlanVLanId brcdIp.1.1.3.36.2.1.1.1 Syntax: VlanIndex	N/A	This object indicates the VLAN number on which DHCP Snooping feature is configured.
fdryDhcpSnoopVlanDhcpSnoopEnable brcdIp.1.1.3.36.2.1.1.2 Syntax: TruthValue	Read-write	This object indicates whether DHCP Snooping is enabled in this VLAN. If set to "true", DHCP snooping is enabled. If set to "false" it is disabled.

DHCP Snooping Interface configuration table

Name, Identifier, and Syntax	Access	Description
fdryDhcpSnoopIfConfigTable brcdIp.1.1.3.36.3.1	N/A	This table provides allows you to configure the trust state for DHCP Snooping at each physical interface.
fdryDhcpSnoopIfConfigEntry brcdIp.1.1.3.36.3.1.1	N/A	A row instance contains the configuration to enable or disable the trust state for DHCP Snooping at each physical interface capable of this feature. It is index by the ifIndex.
fdryDhcpSnoopIfTrustValue brcdIp.1.1.3.36.3.1.1.1 Syntax: TruthValue	Read-write	DHCP packets received on this interface will be subjected to DHCP checks. This object indicates whether the interface is trusted for DHCP Snooping. If this object is set to “true”, the interface is trusted. DHCP packets coming to this interface will be forwarded without checking. If this object is set to “false”, the interface is not trusted.

DHCP Snooping binding database table

Use this table to display DHCP Snooping entries.

Name, Identifier, and Syntax	Access	Description
fdryDhcpSnoopBindTable brcdIp.1.1.3.36.4.1	N/A	This table provides the information about the DHCP snooping binding database learned by the device.
fdryDhcpSnoopBindEntry brcdIp.1.1.3.36.4.1.1	N/A	A row that contains the information for a DHCP snooping entry.
fdryDhcpSnoopBindIpAddr brcdIp.1.1.3.36.4.1.1.1 Syntax: IpAddress	N/A	The device IP address.
fdryDhcpSnoopBindMacAddr brcdIp.1.1.3.36.4.1.1.2 Syntax: MacAddress	Read-only	The device MAC address.
fdryDhcpSnoopBindType brcdIp.1.1.3.36.4.1.1.3 Syntax: ArpType	Read-only	The type of the ARP entry: • other(1) • static(2) • dynamic(3) • inspect(4) • dhcp(5) • dynamicDhcp(6) • staticDhcp(7) • host(8)
fdryDhcpSnoopBindState brcdIp.1.1.3.36.4.1.1.4 Syntax: ArpState	Read-only	The state of the ARP entry: • other(1) • valid(2) • pending(3)
fdryDhcpSnoopBindPort brcdIp.1.1.3.36.4.1.1.5 Syntax: DisplayString	Read-only	The port of the ARP entry.
fdryDhcpSnoopBindVlanId brcdIp.1.1.3.36.4.1.1.6 Syntax: VlanIndex	Read-only	This object indicates the VLAN number on which DHCP snooping feature is configured.
fdryDhcpSnoopBindClearOper brcdIp.1.1.3.36.4.1.1.7 Syntax: ClearAction	Read-write	This object allows you to clear the entry from the DHCP binding database: • valid(0) - always returned when the variable is read. • clear(1) - clears this entry in the DHCP binding database.

IP Source Guard

IP Source Guard is a security feature that restricts IP traffic on untrusted ports. IP Source Guard filters traffic based on the DHCP snooping binding database or the manually configured IP source bindings.

When IP Source Guard is first enabled, only DHCP packets are allowed and all IP traffic is blocked. When the system learns a valid IP address, IP Source Guard then allows IP traffic. Only the traffic with valid source IP addresses is permitted.

SNMP IP Source Guard MIB objects manage information for the configuration of the IP Source Guard feature. There are three tables for IP Source Guard:

- fdryIpSrcGuardIfConfigTable - enables or disables IP Source Guard on each physical interface.
- fdryIpSrcGuardPortVlanConfigTable - enables or disables IP Source Guard on a port on a VLAN
- fdryIpSrcGuardBindTable - provides the IP addresses used for IP Source Guard purposes at each physical interface, with or without specific VLAN memberships.

IP Source Guard Interface configuration table

Name, Identifier, and Syntax	Access	Description
fdryIpSrcGuardIfConfigTable brcdIp.1.1.3.37.1.1	N/A	This table enables or disables IP Source Guard on each physical interface.
fdryIpSrcGuardIfConfigEntry brcdIp.1.1.3.37.1.1.1	N/A	A row indicates if IP Source Guard is enabled or disabled on each physical interface. It is indexed by ifIndex.
fdryIpSrcGuardIfEnable brcdIp.1.1.3.37.1.1.1.1 Syntax: TruthValue	Read-write	This object indicates whether IP Source Guard is enabled on this interface. If this object is set to "true", IP Source Guard is enabled. Traffic coming to this interface will be forwarded the traffic is from the list of IP addresses obtained from DHCP snooping. Otherwise it is denied. If this object is set to “false”, IP Source Guard is disabled.

IP Source Guard per-port-per-VLAN configuration table

Name, Identifier, and Syntax	Access	Description
fdryIpSrcGuardPortVlanConfigTable brcdIp.1.1.3.37.2.1	N/A	This table enables or disables IP Source Guard per port per VLAN.
fdryIpSrcGuardPortVlanConfigEntry brcdIp.1.1.3.37.2.1.1	N/A	A row contains the configuration to enable or disable IP Source Guard per port per VLAN
fdryIpSrcGuardPortVlanPortId brcdIp.1.1.3.37.2.1.1.1 Syntax: InterfaceIndex	N/A	The ifIndex of the port for IP Source Guard per port per VLAN.
fdryIpSrcGuardPortVlanVlanId brcdIp.1.1.3.37.2.1.1.2 Syntax: VlanIndex	N/A	The number of VLANs for IP Source Guard per port per VLAN.
fdryIpSrcGuardPortVlanEnable brcdIp.1.1.3.37.2.1.1.3 Syntax: TruthValue	Read-write	This object indicates whether IP Source Guard is enabled at this interface and this VLAN number. If this object is set to “true”, IP Source Guard per-port-per-VLAN is enabled. If this object is set to “false”, IP Source Guard per-port-per-VLAN is disabled.

IP Source Guard binding table

Use this table to configure IP source entries

Name, Identifier, and Syntax	Access	Description
fdryIpSrcGuardBindTable brcdIp.1.1.3.37.3.1	N/A	This table provides the IP addresses used for IP Source Guard on each physical interface with or without specific VLAN memberships.
fdryIpSrcGuardBindEntry brcdIp.1.1.3.37.3.1.1	N/A	A row in the table. It contains the IP address used for IP Source Guard on each physical interface with or without specific VLAN memberships. It is indexed by ifIndex and fdryIpSrcGuardBindIpAddr
fdryIpSrcGuardBindIpAddr brcdIp.1.1.3.37.3.1.1.1} Syntax: IpAddress	N/A	The IP address of the device.
fdryIpSrcGuardBindVlanId brcdIp.1.1.3.37.3.1.1.2 Syntax: VlanIndex	Read-create	This object indicates the specific VLAN memberships on this interface. The VLAN number is optional. If you configure a VLAN number, the bindings applies to that VLAN only. If you do not configure a VLAN number, the static applies to all VLANs associated with the port. In this case, the VLAN number will be displayed as 0.
fdryIpSrcGuardBindRowStatus brcdIp.1.1.3.37.3.1.1.3 Syntax: RowStatus	Read-create	This variable is used to create or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except this object.
fdryIpSrcGuardBindMode brcdIp.1.1.3.37.3.1.1.4 Syntax: BindMode	Read-only	The mode of the IP Source Guard entry: • other(1) • active(2) • inactive(3)
fdryIpSrcGuardBindType brcdIp.1.1.3.37.3.1.1.5 Syntax: BindType	Read-only	The type of the IP Source Guard entry: • other(1) • ip(2)

Chapter

12

MAC-Based VLAN

MAC-based VLAN global objects

NOTE
The MIB objects explained in this chapter are supported for FastIron GS and FastIron LS devices effective with FGS Release 04.0.00. They are not supported on other devices.

The following MAC-Based VLAN global objects have been created to provide support through SNMP.

TABLE 10 MAC-Based VLAN MIB Global Objects

Name, OID, and Syntax	Access	Description
snMacVlanGlobalObjects brcdIp.1.1.3.30.1	None	Displays the Global MAC VLAN Objects table.
snMacVlanGlobalClearOper brcdIp.1.1.3.30.1.1 Syntax: INTEGER	Read-write	valid(0) - a SNMP-GET of this MIB shows that it is valid command to use. clear(1) - represents clear operational MAC-based Vlan entry for all ports."
snMacVlanGlobalDynConfigState brcdIp.1.1.3.30.1.2 Syntax: INTEGER	Read-write	Enables or disables MAC-Based VLAN dynamic activation on the global level.

MAC-based VLAN port member objects

The following MAC-Based VLAN port member objects have been created to provide support through SNMP.

TABLE 11 MAC-Based VLAN Port Member Objects

Name, OID, and Syntax	Access	Description
snMacVlanTableObjects brcdIp.1.1.3.30.2	None	Use this table to create or delete a port to a MAC-Based VLAN.
snMacVlanPortMemberTable brcdIp.1.1.3.30.2.1 Syntax: SEQUENCE OF SnMacVlanPortMemberEntry	None	Displays the MAC-Based VLAN Port Member table.
snMacVlanPortMemberEntry brcdIp.1.1.3.30.2.1.1 Syntax: SnMacVlanPortMemberEntry	None	An entry in the MAC-Based VLAN Port Member table.

TABLE 11 MAC-Based VLAN Port Member Objects (Continued)

Name, OID, and Syntax	Access	Description
snMacBasedVlanPortMemberVlanId brcdIp.1.1.3.30.2.1.1.1 Syntax: INTEGER	None	The VLAN identifier.
snMacBasedVlanPortMemberPortId brcdIp.1.1.3.30.2.1.1.2 Syntax: INTERFACE INDEX	None	The IfIndex which is a member of the MAC-Based VLAN.
snMacBasedVlanPortMemberRowStatus brcdIp.1.1.3.30.2.1.1.3 Syntax: INTEGER	Read-write	This object is used to create and delete rows in the table, and control if they are used. Values are: delete(3) - deletes a row create(4) - creates a new row If the row exists, then a SET with a value of create(4) returns a "wrong value" error. Deleted rows disappear immediately. The following values can be returned on reads: noSuchName - no such row other(1) - some other cases valid(2) - the row exists and is valid

MAC-based VLAN If objects

The following MAC-Based VLAN If objects have been created to provide support through SNMP.

TABLE 12 MAC-Based VLAN If Objects

Name, OID, and Syntax	Access	Description
snMacVlanIfTable brcdIp.1.1.3.30.2.2 Syntax: SEQUENCE OF SnMacVlanIfEntry	None	Displays the MAC VLAN Interface table.
snMacVlanIfEntry brcdIp.1.1.3.30.2.2.1 Syntax: SnMacVlanIfEntry	None	An entry in the MAC-Based VLAN interface table.
snMacVlanIfIndex brcdIp.1.1.3.30.2.2.1.1 Syntax: InterfaceIndex	None	The IfIndex which is a member of the MAC-Based VLAN.
snMacVlanIfEnable brcdIp.1.1.3.30.2.2.1.2 Syntax: Integer	Read write	The administrative status requested by management for MAC-Based VLAN on this interface. The value enabled(1) indicates that MAC-Based VLAN should be enabled on this interface. Disabled(2), indicates that MAC-Based VLAN is disabled on this interface.
snMacVlanIfMaxEntry brcdIp.1.1.3.30.2.2.1.3 Syntax: INTEGER32	Read write	The maximum number of allowed and denied MAC addresses (static and dynamic) that can be learned on the interface.

TABLE 12 MAC-Based VLAN If Objects (Continued)

Name, OID, and Syntax	Access	Description
snMacVlanIfClearOper brcdIp.1.1.3.30.2.2.1.4 Syntax: Integer	Read write	Valid(0) - an SNMP-GET of this MIB shows that it is a valid command. Clear(1) - Represents clearing operational MAC-Based VLAN entry for a port.
snMacVlanIfClearConfig brcdIp.1.1.3.30.2.2.1.5 Syntax: Integer	Read write	Valid(0) - an SNMP-GET of this MIB shows that it is a valid command. Clear(1) - Represents clearing configured MAC-Based VLAN entry for a port.

MAC-based VLAN objects

The following objects have been created to provide MAC-Based VLAN support through SNMP.

TABLE 13 MAC-Based VLAN Objects

Name, OID, and Syntax	Access	Description
snMacBasedVlanTable brcdIp.1.1.3.30.2.3 Syntax: SEQUENCE OF SnMacBasedVlanEntry	None	The MAC-Based VLAN table.
snMacBasedVlanEntry brcdIp.1.1.3.30.2.3.1 Syntax: SnMacBasedVlanEntry	None	An entry in the MAC-Based VLAN table.
snMacBasedVlanId brcdIp.1.1.3.30.2.3.1.1 Syntax: Integer	None	The ID of a VLAN of which this port is a mac-vlan-permit member. Port must be untagged. This object returns 0, which is an invalid VLAN ID value.
snMacBasedVlanMac brcdIp.1.1.3.30.2.3.1.2 Syntax: MacAddress	None	A host source MAC address to be authenticated.
snMacBasedVlanPriority brcdIp.1.1.3.30.2.3.1.3 Syntax: Integer32	Read write	The priority of the source MAC address.
snMacBasedVlanRowStatus brcdIp.1.1.3.30.2.3.1.4 Syntax: Integer	Read write	Creates and deletes rows in the table, and controls if the rows are used. The values are: delete(3) - deletes the row create(4) - creates a new row If the row exists, then a SET with a value of create(4) returns a “wrong value” error. Deleted rows disappear immediately. The following values can be returned on reads: noSuchName - no such row other(1) - some other cases valid(2) - the row exists and is valid

Chapter

13

Interfaces

Switch port information

This chapter presents the objects used to define interfaces on a device. Refer to the configuration guide for a product for details on the features discussed in this chapter.

The following table contains information about the switch port groups.

Switch port information group

The snSwIfInfoTable contains information about the switch port groups.

Name, OID, and Syntax	Access	Description
snSwIfInfoTable brcdIp.1.1.3.3.5	None	The Switch Port Information Table.
snSwIfInfoEntry brcdIp.1.1.3.3.5.1	None	An entry in the snSwIfInfo table indicates the configuration for a specified port. An SNMP SET PDU for a row of the snSwPortInfoTable requires the entire sequence of the MIB Objects in each snSwPortInfoEntry stored in one PDU. Otherwise, GENERR return-value will be returned.
snSwIfInfoPortNum brcdIp.1.1.3.3.5.1.1 Syntax: InterfaceIndex	Read only	Shows the port or interface index.
snSwIfInfoMonitorMode brcdIp.1.1.3.3.5.1.2 Syntax: Integer	Read-write	Indicates the method used to monitor traffic on a port: • disabled(0) – No traffic monitoring. • input(1) – Traffic monitoring is activated on packets received • output(2) – Traffic monitoring is activated on packets transmitted • both(3) – Traffic monitoring is activated on packets received and transmitted. Default: disabled(0)
snSwIfInfoMirrorPorts brcdIp.1.1.3.3.5.1.3 Syntax: Integer	Read-write	Contains a list of port or interface indexes (ifindex) that mirror this interface when monitoring is enabled.
snSwIfInfoTagMode brcdIp.1.1.3.3.5.1.4 Syntax: Integer	Read-write	Indicates if the port has an 802.1q tag: • tagged(1) – Ports can have multiple VLAN IDs since these ports can be members of more than one VLAN. • untagged(2) – There is only one VLAN ID per port.
snSwIfInfoTagType brcdIp.1.1.3.3.5.1.5 Syntax: Integer32	Read-write	Indicated the interface's IEEE802.1q tag type. The tag type is embedded in the two octets in the length/type filed of an Ethernet packet.

Name, OID, and Syntax	Access	Description
snSwIfInfoChnMode brcdIp.1.1.3.3.5.1.6 Syntax: Integer	Read-write	Indicates if the port operates in half- or full-duplex mode: • halfDuplex(1) – Half duplex mode. Available only for 10/100 Mbps ports. • fullDuplex(2) – Full duplex mode. 100BaseFx, 1000BaseSx, and 1000BaseLx ports operate only at fullDuplex(2). The read-back channel status from hardware can be: • none(0) – Link down or port disabled. • halfDuplex(1) – Half duplex mode. • fullDuplex(2) – Full duplex mode. The port media type (expansion or regular) and port link type (trunk or feeder) determine the value of this object. The port cannot be set to half duplex mode if the port connect mode is m200e(4). However, the value of this parameter may be automatically set whenever the expansion port is connected, for example, in the case of cascade connecting device.

Name, OID, and Syntax	Access	Description
snSwIfInfoSpeed brcdIp.1.1.3.3.5.1.7 Syntax: Integer	Read-write	Indicates the speed configuration for a port: • none(0) – Link down or no traffic. • sAutoSense(1) – Auto-sensing 10 or 100Mbits. • s10M(2) – 10Mbits per second. • s100M(3) – 100Mbits per second. • s1G(4) – 1Gbits per second. • s45M(5) – 45Mbits per second (T3) (for expansion board only). • s155M(6) – 155Mbits per second (ATM) (for expansion board only). • s10G(7) – 10Gbits per second. • s622M(8) – OC12 - 622Mbits per second. (NetIron XMR and NetIron MLX software release 03.4.00 and later and Brocade MLXe.) • s2488M(9) – OC48 - 2.488Gbits per second. (NetIron XMR and NetIron MLX software release 03.4.00and later and Brocade MLXe.) • s9953M(10) – OC192 - 9.953Gbits per second. (NetIron XMR and NetIron MLX software release 03.4.00and later and Brocade MLXe.) The read-back hardware status are the following: • none(0) – Link down or no traffic. • s10M(2) – 10Mbits per second. • s100M(3) – 100Mbits per second. • s1G(4) – 1Gbits per second. • s45M(5) – 45Mbits per second (T3) (for expansion board only). • s155M(6) – 155Mbits per second (ATM) (for expansion board only). • s10G(7) – 10Gbits per second. • s622M(8) – OC12 - 622Mbits per second. (NetIron XMR and NetIron MLX software release 03.4.00 and later and Brocade MLXe) • s2488M(9) – OC48 - 2.488Gbits per second. (NetIron XMR and NetIron MLX software release 03.4.00 and later and Brocade MLXe) • s9953M(10) – OC192 - 9.953Gbits per second. (NetIron XMR and NetIron MLX software release 03.4.00 and later and Brocade MLXe) The port media type (expansion or regular) and port link type (trunk or feeder) determine whether this object can be written and the valid values for this object. It is not allowed to change speed for trunks ports. For expansion ports, all of the above speeds can be set; however, the value of this parameter may be automatically set whenever the expansion port is connected, for example, in the case of cascade connecting device.

Name, OID, and Syntax	Access	Description
snSwIfInfoMediaType brcdIp.1.1.3.3.5.1.8 Syntax: Integer	Read only	Shows the media type for the port: • other(1) – other or unknown media. • m100BaseTX(2) – 100Mbits per second copper. • m100BaseFX(3) – 100Mbits per second fiber. • m1000BaseFX(4) – 1Gbits per second fiber. • mT3(5) – 45Mbits per second (T3). • m155ATM(6) – 155Mbits per second (ATM). • m1000BaseTX(7) – 1Gbits per second copper. • m622ATM(8) – 622Mbits per second (ATM). • m155POS(9) – 155Mbits per second (POS). • m622POS(10) – 622Mbits per second (POS). • m2488POS(11) – 2488Mbits per second (POS). • m10000BaseFX(12) – 10Gbits per second fiber. • m9953POS(13) – 9953Mbits per second (POS). (NetIron XMR and NetIron MLX software release 03.4.00 and later and Brocade MLXe.)
snSwIfInfoConnectorType brcdIp.1.1.3.3.5.1.9 Syntax: Integer	Read only	Shows the type of connector that the port offers: • other(1) – Other or unknown connector • copper(2) – Copper connector • fiber(3) – Fiber connector This describes the physical connector type
snSwIfInfoAdminStatus brcdIp.1.1.3.3.5.1.10 Syntax: Integer	Read-write	Shows the desired state of all ports. • up(1) – Ready to pass packets • down(2) • testing(3) – No operational packets can be passed (same as ifAdminStatus in MIB-II)
snSwIfInfoLinkStatus brcdIp.1.1.3.3.5.1.11 Syntax: Integer	Read only	Shows the current operational state of the interface. • up(1) – Ready to pass packets • down(2) • testing(3) – No operational packets can be passed (same as ifAdminStatus in MIB-II)
snSwIfInfoPortQos brcdIp.1.1.3.3.5.1.12 Syntax: Integer	Read-write	Indicates the quality of service level selected for the port. For stackable devices other than the FES, the QoS can be one of the following: • low(0) – low priority • high(1) – high priority. For FES devices running software release 03.5.00 or later, the QoS can be one of the following: • level0(0) best-effort queue • level1(1) normal priority queue • level2(2) high priority queue • level3(3) premium (highest-priority) queue For chassis devices, the values can be: • level0(0) • level1(1) • level2(2) • level3(3) • level4(4) • level5(5) • level6(6) • level7(7)

Name, OID, and Syntax	Access	Description
snSwIfInfoPhysAddress brcdIp.1.1.3.3.5.1.13 Syntax: Physical address	Read only	Shows the port's physical address.
snSwIfLockAddressCount brcdIp.1.1.3.3.5.1.14 Syntax: Integer	Read-write	Indicates the number of source MAC addresses that are allowed on the interface. Valid values: 0 – 2048. If you enter 0 allow an unlimited number of addresses. Default: 8
snSwIfStpPortEnable brcdIp.1.1.3.3.5.1.15 Syntax: Integer	Read-write	Indicates if STP is enabled for the port: • disabled(0) • enabled(1) Refer to the document IEEE 802.1D-1990: Section 4.5.5.2, dot1dStpPortEnable.
snSwIfDhcpGateListId brcdIp.1.1.3.3.5.1.16 Syntax: Integer	Read-write	Specifies the ID for a DHCP gateway list entry relative to this switch port. Valid values: 0 – 32. A value of 0 means that the ID is unassigned.
snSwIfName brcdIp.1.1.3.3.5.1.17 Syntax: Display string	Read-write	Indicates the port name or description. This description may have been entered using the CLI. Valid values: Up to 32 characters for most devices. Up to 255 characters for Brocade MLXe, NetIron and FES devices.
snSwIfDescr dry.1.1.3.3.5.1.18 Syntax: Display string	Read-write	The name of the interface.
snSwIfInfoAutoNegotiate brcdIp.1.1.3.3.5.1.19 Syntax: Integer	Read-write	Applies only to Gigabit Ethernet ports. Indicates if auto-negotiation mode is enabled on the port. • disable(0) – The port will be placed in non-negotiation mode. • enable(1) – The port will start auto-negotiation indefinitely until it succeeds. • negFullAuto(2) – The port will start with auto-negotiation. If the negotiation fails, then it will automatically switch to non-negotiation mode. This option is not supported in stackable products with Gigabit Ethernet ports, except for TurboIron/8. • global(3) – The port negotiation mode follows the value of snSwGlobalAutoNegotiate. • other(4) – Non-Gigabit Ethernet. Default: global(3)
snSwIfInfoFlowControl brcdIp.1.1.3.3.5.1.20 Syntax: Integer	Read-write	Indicates if port flow control is enabled: • disable(0) • enable(1) Default: enabled(1)

Name, OID, and Syntax	Access	Description
snSwIfInfoGigType brcdIp.1.1.3.3.5.1.21 Syntax: Integer	Read only	Applies only to Gigabit Ethernet ports. Shows the media type for the port: • m1000BaseSX(0) – 1-Gbps fiber, with a short wavelength transceiver • m1000BaseLX(1) – 1-Gbps fiber, with a long wavelength transceiver (3km) • m1000BaseLH(2) – 1-Gbps fiber, with a special wavelength transceiver (50km) • m1000BaseLHB(4) – 1-Gbps fiber, with a special wavelength transceiver (150km). • m1000BaseTX(5) – 1-Gbps copper (100meter). • m10000BaseSR(6) – 10-Gbps fiber, with a short range wavelength transceiver (100m). • m10000BaseLR(7) – 10-Gbps fiber, with a long range wavelength transceiver (10km). • m10000BaseER(8) – 10-Gbps fiber, with a extended range wavelength transceiver (40km). • notApplicable(255) – a non-gigabit port.
snSwIfFastSpanPortEnable brcdIp.1.1.3.3.5.1.22 Syntax: Integer	Read-write	Indicates if fast span is enabled on the port. • disable(0) • enable(1)
snSwIfFastSpanUplinkEnable brcdIp.1.1.3.3.5.1.23 Syntax: Integer	Read-write	Indicates if fast span uplink is enabled on the port. • disable(0) • enable(1)
snSwIfVlanId brcdIp.1.1.3.3.5.1.24 Syntax: Integer	Read only	Shows the ID of a VLAN of which this port is a member. Port must be untagged. Valid values: 0 – 4095; where 0 means an invalid VLAN ID value, which is returned for tagged ports.
snSwIfRouteOnly brcdIp.1.1.3.3.5.1.25 Syntax: Integer	Read-write	Indicates if Layer 2 switching is enabled on a routing switch port. • disable(0) – Instructs the routing switch to perform routing first. If that fails, it performs switching. • enable(1) – Instructs the routing switch to perform routing only. For a Layer 2 switching only product, reading this object always returns "disabled". Writing "enabled" to this object takes no effect. Default: disabled(0)
snSwIfPresent brcdIp.1.1.3.3.5.1.26 Syntax: Integer	Read only	Applies only to M4 modules and FES. Indicates if the mini-GBIC optic is absent or present. • false(0) • true(1)
snSwIfGBICStatus brcdIp.1.1.3.3.5.1.27 Syntax: Integer	Read only	Indicates if the Gigabit port has a GBIC or miniGBIC port: • GBIC(1) – GBIC • miniGBIC(2) – MiniGBIC • empty(3) – GBIC is missing • other(4) – Not a removable Gigabit port

Name, OID, and Syntax	Access	Description
snSwIfLoadInterval brcdIp.1.1.3.3.5.1.28 Syntax: Integer	Read-write	Shows the number of seconds for which average port utilization should be calculated. Valid values: 30 – 300, in 30 second increments. Default: 300 seconds **NOTE:** This object is implemented in IronWare release 07.5.04, TrafficWorks release 8.x, and FES release 03.5.00.
snSwIfStatsInFrames brcdIp.1.1.3.3.5.1.29 Syntax: Counter	Read only	Shows the total number of packets received on the interface.
snSwIfStatsOutFrames brcdIp.1.1.3.3.5.1.30 Syntax: Counter	Read only	Shows the total number of packets transmitted out of the interface.
snSwIfStatsAlignErrors brcdIp.1.1.3.3.5.1.31 Syntax: Counter	Read only	Shows the number of dot3StatsAlignmentErrors, which consists of frames received on a particular interface that are not an integral number of octets in length and do not pass the FCS check. The count represented by an instance of this object is incremented when the alignmentError status is returned by the MAC service to the LLC (or other MAC user). According to the conventions of IEEE 802.3 Layer Management, received frames for which multiple error conditions are obtain are counted exclusively according to the error status presented to the LLC.
snSwIfStatsFCSErrors brcdIp.1.1.3.3.5.1.32 Syntax: Counter	Read only	Shows the number of dot3StatsFCSErrors, which consists of frames received on a particular interface that are an integral number of octets in length but do not pass the FCS check. The count represented by an instance of this object is incremented when the frameCheckError status is returned by the MAC service to the LLC (or other MAC user). According to the conventions of IEEE 802.3 Layer Management, received frames for which multiple error conditions are obtain are counted exclusively according to the error status presented to the LLC.
snSwIfStatsMultiColliFrames brcdIp.1.1.3.3.5.1.33 Syntax: Counter	Read only	Shows the number of dot3StatsMultipleCollisionFrames, which consists of successfully transmitted frames on a particular interface for which transmission is inhibited by more than one collision. A frame that is counted by an instance of this object is also counted by the corresponding instance of either the ifOutUcastPkts, ifOutMulticastPkts, or ifOutBroadcastPkts and is not counted by the corresponding instance of the dot3StatsSingleCollisionFrames object.
snSwIfStatsTxColliFrames brcdIp.1.1.3.3.5.1.34 Syntax: Counter	Read only	Shows the number of successfully transmitted frames on a particular interface for which transmission is inhibited by more than one collision. This count is a combination of the dot3StatsSingleCollisionFrames and dot3StatsMultipleCollisionFrames objects.
snSwIfStatsRxColliFrames brcdIp.1.1.3.3.5.1.35 Syntax: Counter	Read only	Shows the number of successfully received frames on a particular interface for which transmission is inhibited by more than one collision.

Name, OID, and Syntax	Access	Description
snSwIfStatsFrameTooLongs brcdIp.1.1.3.3.5.1.36 Syntax: Counter	Read only	Shows the number of dot3StatsFrameTooLongs, which consists of frames received on a particular interface that exceed the maximum permitted frame size. The count represented by an instance of this object is incremented when the frameTooLong status is returned by the MAC service to the LLC (or other MAC user). According to the conventions of IEEE 802.3 Layer Management, received frames for which multiple error conditions are obtain are, counted exclusively according to the error status presented to the LLC.
snSwIfStatsFrameTooShorts brcdIp.1.1.3.3.5.1.37 Syntax: Counter	Read only	Shows the number frames received on a particular interface that are below the minimum permitted frame size.
snSwIfStatsInBcastFrames brcdIp.1.1.3.3.5.1.38 Syntax: Counter	Read-write	Shows the total number of broadcast packets received on the interface.
snSwIfStatsOutBcastFrames brcdIp.1.1.3.3.5.1.39 Syntax: Counter	Read only	Shows the total number of broadcast packets transmitted out of the interface.
snSwIfStatsInMcastFrames brcdIp.1.1.3.3.5.1.40 Syntax: Counter	Read only	Shows the total number of multicast packets received on the interface.
snSwIfStatsOutMcastFrames brcdIp.1.1.3.3.5.1.41 Syntax: Counter	Read only	Shows the total number of multicast packets transmitted out of the interface.
snSwIfStatsInDiscard brcdIp.1.1.3.3.5.1.42 Syntax: Counter	Read only	Shows the number of inbound packets that will be discarded even though they have no errors. These packets will be discarded to prevent them from being deliverable to a higher-layer protocol. For example, packets may be discarded to free up buffer space.
snSwIfStatsOutDiscard brcdIp.1.1.3.3.5.1.43 Syntax: Counter	Read only	Shows the number of outbound packets that will be discarded even though they contain no errors. For example, packets may be discarded to free up buffer space.
snSwIfStatsMacStations brcdIp.1.1.3.3.5.1.44 Syntax: Integer32	Read only	Shows the total number of MAC Stations connected to the interface.
snSwIfStatsLinkChange brcdIp.1.1.3.3.5.1.45 Syntax: Counter	Read only	Shows the total number of link state changes on the interface.
snSwIfInOctets brcdIp.1.1.3.3.5.1.46 Syntax: Octet string	Read only	Shows the total number of octets received on the interface, including framing characters. This object is a 64-bit counter of the ifInOctets object defined in RFC 1213. The octet string is in big-endian byte order. This object has eight octets.

Name, OID, and Syntax	Access	Description
snSwIfOutOctets brcdIp.1.1.3.3.5.1.47 Syntax: Octet string	Read only	Shows the total number of octets transmitted out of the interface, including framing characters. This object is a 64-bit counter of the ifOutOctets object, defined in RFC 1213. The octet string is in big-endian byte order. This object has eight octets.
snSwIfStatsInBitsPerSec brcdIp.1.1.3.3.5.1.48 Syntax: Gauge	Read only	Shows the number of bits per second received on the interface over a five-minute interval.
snSwIfStatsOutBitsPerSec brcdIp.1.1.3.3.5.1.49 Syntax: Gauge	Read only	Shows the number of bits per second transmitted out of the interface over a five-minute interval.
snSwIfStatsInPktsPerSec brcdIp.1.1.3.3.5.1.50 Syntax: Gauge	Read only	Shows the number of packets per second received on the interface over a five-minute interval.
snSwIfStatsOutPktsPerSec brcdIp.1.1.3.3.5.1.51 Syntax: Gauge	Read only	Shows the number of packets per second transmitted out of the interface over a five-minute interval.
snSwIfStatsInUtilization brcdIp.1.1.3.3.5.1.52 Syntax: Integer	Read only	Indentifies the input network utilization in hundredths of a percent over a five-minute interval. Valid values: 0 – 10000.
snSwIfStatsOutUtilization brcdIp.1.1.3.3.5.1.53 Syntax: Integer	Read only	Shows the output network utilization in hundredths of a percent over a five-minute interval. Valid values: 0 – 10000.
NOTE: Ethernet devices must allow a minimum idle period between transmission of frames known as interframe gap (IFG) or interpacket gap (IPG). The gap provides a brief recovery time between frames to allow devices to prepare to receive the next frame. The minimum IFG is 96 bit times, which is 9.6 microseconds for 10 Mbps Ethernet, 960 nanoseconds for 100 Mbps Ethernet, and 96 nanoseconds for 1 Gbps Ethernet. In addition, to account for the bit rate on the port, port utilization should also account for the IFG, which normally is filtered by the packet synchronization circuitry. Refer to the etherHistoryUtilization objects in the *RFC 1757: Remote Network Monitoring Management Information Base* for details.		
snSwIfStatsInKiloBitsPerSec brcdIp.1.1.3.3.5.1.54 Syntax: Unsigned32	Read-only	Shows the bit rate, in kilobits per second, received on a 10 Gigabit or faster interface within a five minute interval.
snSwIfStatsOutKiloBitsPerSec brcdIp.1.1.3.3.5.1.55 Syntax: Unsigned32	Read-only	Shows the bit rate, in kilobits per second, transmitted from a 10 Gigabit or faster interface within a five minute interval.
snSwIfStatsInJumboFrames brcdIp.1.1.3.3.5.1.56 Syntax: Counter64	Read only	The total number of jumbo packets received on the interface. This always returns 0 when applied to BigIron RX, Brocade MLXe, NetIron IMR, NetIron XMR, and NetIron MLX devices.

Name, OID, and Syntax	Access	Description
snSwIfStatsOutJumboFrames brcdIp.1.1.3.3.5.1.57 Syntax: Counter64	Read only	The total number of jumbo packets transmitted out of the interface. This always returns 0 when applied to BigIron RX, Brocade MLXe, NetIron IMR, NetIron XMR, and NetIron MLX devices.
snSwIfSInfoMirrorMode brcdIp.1.1.3.3.5.1.58 Syntax: INTEGER	Read only	Provides the mirror mode status as described: • disable (0) • enable (1)
snSwIfMacLearningDisable brcdIp.1.1.3.3.5.1.59 Syntax: Syntax: TruthVal	Read-write	DIsplays the status of MAC Learning on an ethernet port. For POS ports, Get operation will return the default value and Set operation will return an error.

Interface ID lookup table

The Interface ID Lookup Table maps interface ID to the InterfaceIndex (ifIndex) Lookup Table. Given an interface ID, this table returns the ifIndex value. The table is useful for mapping a known interface to the corresponding ifIndex value.

NOTE
The contents of the table can only be accessed using Get operations. Unlike other SNMP tables, this table does not support GetNext operations. If you try to walk the table using GetNext, no rows will be returned.

Name, OID, and Syntax	Access	Description
snInterfaceLookupTable brcdIp.1.1.3.3.3	None	The Interface Lookup Table
snInterfaceLookupEntry brcdIp.1.1.3.3.3.1	None	An entry in the Interface Lookup Table. **NOTE:** This table is used only by IronView Network Manager for the BigIron RX, Brocade MLXe, NetIron CES, NetIron CER, NetIron XMR, and NetIron MLX devices. You will receive an error if you try to implement a get-next.

Name, OID, and Syntax	Access	Description
snInterfaceLookupInterfaceId brcdIp.1.1.3.3.3.1.1 Syntax: InterfaceId	Read only	Shows the interface ID which consists of the following: **Octet 0** – Port type, which can be one of the following: • 1 – Ethernet • 2 – POS • 3 – ATM • 4 – Virtual • 5 – Loopback • 6 – GRE Tunnel Applies to NetIron XMR and NetIron MLX release 04.0.01 and later and to Brocade MLXe. • 7 – ATM Subif • 8 – MPLS Tunnel • 9 – ATM PVC • 10 – Management • 11 – Trunk • 12 – IP Tunnel (for IP tunnels, except MPLS) In NetIron XMR and NetIron MLX release 04.0.00 and later and to Brocade MLXe devices, this value also applies to 6to4 tunnels. **Octet 1** • If the value of Octet 0 is 1,2,3,7 or 9, then this octet shows the device's slot number. • If the value of Octet 0 is 6 or 8, then this octet shows the tunnel ID. • If the value of Octet 0 is 5, then this octet shows the loopback ID. • If the value of Octet 0 is 4, then this octet shows a virtual ID. **Octet 2** – If the value of Octet 0 is 1,2,3,7 or 9, then this octet shows the port number. **Octet 3** – If the value of Octet 0 is 7 0r 9, then this octet shows the ATM Subif number). **Octet 4** – If the value of Octet 0 is 9, then this octet shows the ATM VPI number. **Octet 5** – If the value of Octet 0 is 9, then this octet shows the ATM VCI number.
snInterfaceLookupIfIndex brcdIp.1.1.3.3.3.1.2 Syntax: Integer32	Read only	Shows the interface in the ifIndex format.

Interface index lookup table

The Interface Index Lookup Table maps ifindex values to Interface ID Lookup Table. Given an ifIndex, this table returns the interface ID value.

Name, OID, and Syntax	Access	Description
snIfIndexLookupTable brcdIp.1.1.3.3.4	None	The Interface Index Lookup Table
snIfIndexLookupEntry brcdIp.1.1.3.3.4.1	None	An entry in the IF Index Lookup Table

Name, OID, and Syntax	Access	Description
snIfIndexLookupIfIndex brcdIp.1.1.3.3.4.1.1 Syntax: Integer32	Read only	Shows the interface in the ifIndex format.
snIfIndexLookupInterfaceId brcdIp.1.1.3.3.4.1.2 Syntax: InterfaceId	Read only	**Octet 0** – Port type, which can be one of the following: • 1 – Ethernet • 2 – POS • 3 – ATM • 4 – Virtual • 5 – Loopback • 6 – GRE Tunnel Applies to NetIron release 04.0.01 and later. • 7 – ATM Subif • 8 – MPLS Tunnel • 9 – ATM PVC • 10 – Management • 11 – Trunk • 12 – IP Tunnel (for IP tunnels, except MPLS) In NetIron release 04.0.00 and later, this value also applies to 6to4 tunnels. **Octet 1** • If the value of Octet 0 is 1,2,3,7 or 9, then this octet shows the device's slot number. • If the value of Octet 0 is 6 or 8, then this octet shows the tunnel ID. • If the value of Octet 0 is 5, then this octet shows the loopback ID. • If the value of Octet 0 is 4, then this octet shows a virtual ID. **Octet 2** – If the value of Octet 0 is 1,2,3,7 or 9, then this octet shows the port number. **Octet 3** – If the value of Octet 0 is 7 0r 9, then this octet shows the ATM Subif number). **Octet 4** – If the value of Octet 0 is 9, then this octet shows the ATM VPI number. **Octet 5** – If the value of Octet 0 is 9, then this octet shows the ATM VCI number.

Trunk port configuration group

The Trunk Group feature allows you to manually configure multiple high-speed, load-sharing links between two switches or routers or between a switch and router and a server. Details on trunk group configuration are discussed in the configuration guide for a product.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The following objects contain configuration of trunk port memberships.

Name, OID, and Syntax	Access	Description
snTrunkTable brcdIp.1.1.3.6.1	None	The Trunk Port Table. A specific snTrunkTable consists of a number of Trunk port-mask.
snTrunkEntry brcdIp.1.1.3.6.1.1	None	An entry in the trunk Port Table.
snTrunkIndex brcdIp.1.1.3.6.1.1.1 Syntax: Integer	Read only	Shows the number of the trunk port entries that can be configured. Valid values: 1 – 64.
snTrunkPortMask brcdIp.1.1.3.6.1.1.2 Syntax: PortMask	Read-write	Shows the trunk port membership of the switch.
snTrunkType brcdIp.1.1.3.6.1.1.3 Syntax: Integer	Read-write	Indicates if the trunk port is connected to a switch or a server: • switch(1) • server(2).

Multi-slot trunk port table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The following table applies to multi-slot trunk ports. They show the ports that are members of a trunk group. They apply to all devices unless otherwise specified in their descriptions.

Name, OID, and Syntax	Access	Description
snMSTrunkTable brcdIp.1.1.3.6.2	None	The Multi-slot Trunk Port Configuration Table.
snMSTrunkEntry brcdIp.1.1.3.6.2.1	None	An entry of the Multi-slot Trunk Port Configuration Table.
snMSTrunkPortIndex brcdIp.1.1.3.6.2.1.1 Syntax: Integer32	Read only	Identifies the port that is the primary port of a trunk group. For module with Gigabit ports, the primary port is port 1, 3, 5, or 7. For module with 10/100 ports, the primary port is port 1, 5, 9, 13, 17, or 21.
snMSTrunkPortList brcdIp.1.1.3.6.2.1.2 Syntax: OctetString	Read-write	Contains a list of port indices that are members of a trunk group. Each port index is a 16-bit integer in big endian order. The first port index must be the index of the primary port.

Name, OID, and Syntax	Access	Description
snMSTrunkType brcdIp.1.1.3.6.2.1.3 Syntax: Integer	Read-write	Specifies if the ports are connected to a switch or a server: • switch(1) • server(2)
snMSTrunkRowStatus brcdIp.1.1.3.6.2.1.4 Syntax: Integer	Read-write	Applies to all devices, except for ServerIron products. Creates, deletes, or modifies an entry in this table: • invalid(1) • valid(2) • delete(3) • create(4) • modify(5)

Multi-slot trunk port table

The **snMSTrunkTable** has been made obsolete and replaced with the **snMSTrunkIfTable** as described in the following.

Name, OID, and Syntax	Access	Description
snMSTrunkIfTable brcdIp.1.1.3.6.3	None	The Multi-slot Trunk Interface Configuration Table.
snMSTrunkIfEntry brcdIp.1.1.3.6.3.1	None	An entry of the Multi-slot Trunk Interface Configuration Table.
snMSTrunkIfIndex brcdIp.1.1.3.6.3.1.1 Syntax: Integer	Read only	Identifies the port that is the primary port of a trunk group. For module with Gigabit ports, the primary port is port 1, 3, 5, or 7. For module with 10/100 ports, the primary port is port 1, 5, 9, 13, 17, or 21.
snMSTrunkIfList brcdIp.1.1.3.6.3.1.2 Syntax: OctetString	Read-write	Contains a list of port indices that are members of a trunk group. Each port index is a 32-bit integer in big endian order. The first interface/port index must be the index of the primary port.
snMSTrunkIfType brcdIp.1.1.3.6.3.1.3 Syntax: Integer	Read-write	Specifies if the ports are connected to a switch or a server: • switch(1) • server(2)
snMSTrunkIfRowStatus brcdIp.1.1.3.6.3.1.4 Syntax: Integer	Read-write	Creates, deletes, or modifies an entry in this table: • invalid(1) • valid(2) • delete(3) • create(4) • modify(5)

Link Aggregation Group (LAG) table

snLinkAggregationGroupTable

Beginning with release 03.7.00 of the IronWare software for XMR/MLX routers, the **snMSTrunkIfTable** has replaced with the **snLinkAggregationGroupTable** as described in the following table.

However, the **snLinkAggregationGroupTable** has been made obsolete beginning with the NetIron release 04.1.00. It has been replaced by the **fdryLinkAggregationGroupTable**.

Name, OID, and Syntax	Access	Description
snLinkAggregationGroupTable brcdIp.1.1.3.30.1.1	None	The snLinkAggregation table.
snLinkAggregationGroupEntry brcdIp.1.1.3.30.1.1.1	None	An entry of the Link Aggregation table,
snLinkAggregationGroupName brcdIp.1.1.3.30.1.1.1.1 Syntax: DisplayString (Size(1..255))	None	Displays the name of a LinkAggregationGroup.
snLinkAggregationGroupType brcdIp.1.1.3.30.1.1.1.2 Syntax: Integer	Read-create	Displays the LinkAggregationGroup type.
snLinkAggregationGroupAdminStatus brcdIp.1.1.3.30.1.1.1.3 Syntax: Integer	Read-create	Displays the desired deployed state of this LinkAggregationGroup entry. **NOTE:** This is not the operational status. Refer to ifTable for the operational status. • deploy(1)- deploy the LAG and set to LACP active if dynamic LAG. • deployPassive(2)-deploy the LAG and set to LACP passive if dynamic LAG. • undeploy(3)-undeploy the LAG if no more than 2 ports are enabled. • undeployForced(4)-undeploy the LAG regardless number of ports enabled. **NOTE:** undeployForced(4)is a write-only value. In particular, a row cannot be deployed until the corresponding instances of snLinkAggregationGroupIfList has been set.
snLinkAggregationGroupIfList brcdIp.1.1.3.30.1.1.1.4 Syntax: OctetString	Read-create	Displays a list of interface indices which are the port membership of a trunk group. Each interface index is a 16-bit integer in big endian order.
snLinkAggregationGroupPrimaryPort brcdIp.1.1.3.30.1.1.1.5 Syntax: InterfaceIndex	Read-create	DIsplays the primary port for the Link Aggregation Group. This must be set before deploying the LinkAggregateGroup unless this is a keepalive LinkAggregateGroup.

Name, OID, and Syntax	Access	Description
snLinkAggregationGroupTrunkType brcdIp.1.1.3.30.1.1.1.6 Syntax: Integer	Read-create	Displays the trunk connection type which specifies what the scheme of load-sharing among the trunk ports is.
snLinkAggregationGroupTrunkThreshold brcdIp.1.1.3.30.1.1.1.7 Syntax: Unsigned32	Read-create	DIsplays the number of UP ports needed to keep the trunk up. **NOTE:** This object is not applicable to Keepalive LAGs.
snLinkAggregationGroupLacpTimeout brcdIp.1.1.3.30.1.1.1.8 Syntax: Integer	Read-create	Displays the LACP timeout value this LACP LAG will use. Applicable for dynamic and keepalive LAG only.
snLinkAggregationGroupIfIndex brcdIp.1.1.3.29.2.1.1.9 Syntax: InterfaceIndex	Read only	DIsplays the InterfaceIndex which represents the LinkAggregateGroup entry in the ifTable and ifXTable.
snLinkAggregationGroupPortCount brcdIp.1.1.3.30.1.1.1.10 Syntax: Unsigned32	Read only	Displays the number of member ports belong to this LAG.
snLinkAggregationGroupRowStatus brcdIp.1.1.3.30.1.1.1.11 Syntax: RowSts	Read-create	Displays the status of this conceptual row. **NOTE:** createAndWait(5) is not supported. To create a row in this table, a manager must set this object to createAndGo(4) together with the setting of snLinkAggregationGroupType. After that the row status becomes active(1) regardless the LAG entry is deployed or not. To deploy the LAG entry, set the corresponding instance of snLinkAggregationGroupAdminStatus to deployActive or deployPassive.
snLinkAggregationGroupId brcdIp.1.1.3.30.1.1.1.12 Syntax: Unsigned 32	Read only	The numeric identifier assigned to this LAG. This is supported on the NetIron XMR and NetIron MLX running software release 04.0.01 and later and on Brocade MLXe devices.

fdryLinkAggregationGroupTable

The fdryLinkAggregationGroupTable replaces the **snLinkAggregationGroupTable** in the NetIron software release 04.1.00 and later.

Name, OID, and Syntax	Access	Description
fdryLinkAggregationGroupTable brcdIp.1.1.3.33.1.1	None	The fdryLinkAggregation table.
fdryLinkAggregationGroupEntry brcdIp.1.1.3.33.1.1.1	None	An entry of the Link Aggregation table,

Name, OID, and Syntax	Access	Description
fdryLinkAggregationGroupName brcdIp.1.1.3.33.1.1.1.1 Syntax: DisplayString (Size(1..255))	None	Displays the name of a LinkAggregationGroup.
fdryLinkAggregationGroupType brcdIp.1.1.3.33.1.1.1.2 Syntax: Integer	Read-create	Displays the LinkAggregationGroup type.
fdryLinkAggregationGroupAdminStatus brcdIp.1.1.3.33.1.1.1.3 Syntax: Integer	Read-create	Displays the desired deployed state of this LinkAggregationGroup entry. **NOTE:** This is not the operational status. Refer to ifTable for the operational status. • deploy(1)- deploy the LAG and set to LACP active if dynamic LAG. • deployPassive(2)-deploy the LAG and set to LACP passive if dynamic LAG. • undeploy(3)-undeploy the LAG if no more than 2 ports are enabled. • undeployForced(4)-undeploy the LAG regardless number of ports enabled. **NOTE:** undeployForced(4)is a write-only value. In particular, a row cannot be deployed until the corresponding instances of fdryLinkAggregationGroupIfList has been set.
fdryLinkAggregationGroupIfList brcdIp.1.1.3.33.1.1.1.4 Syntax: OctetString	Read-create	Displays a list of interface indices which are the port membership of a trunk group. Each interface index is a 32-bit integer in big endian order. **NOTE:** This object accepts 32-bit integer only.
fdryLinkAggregationGroupPrimaryPort brcdIp.1.1.3.33.1.1.1.5 Syntax: InterfaceIndex	Read-create	DIsplays the primary port for the Link Aggregation Group. This must be set before deploying the LinkAggregateGroup unless this is a keepalive LinkAggregateGroup.
fdryLinkAggregationGroupTrunkType brcdIp.1.1.3.33.1.1.1.6 Syntax: Integer	Read-create	Displays the trunk connection type which specifies what the scheme of load-sharing among the trunk ports is.
fdryLinkAggregationGroupTrunkThreshold brcdIp.1.1.3.33.1.1.1.7 Syntax: Unsigned32	Read-create	DIsplays the number of UP ports needed to keep the trunk up. **NOTE:** This object is not applicable to Keepalive LAGs.
fdryLinkAggregationGroupLacpTimeout brcdIp.1.1.3.33.1.1.1.8 Syntax: Integer	Read-create	Displays the LACP timeout value this LACP LAG will use. Applicable for dynamic and keepalive LAG only.
fdryLinkAggregationGroupIfIndex brcdIp.1.1.3.29.2.1.1.9 Syntax: InterfaceIndex	Read only	After a LAG is deployed, this object dIsplays information for the LAG entry in the ifTable. Use this variabe to access the entry in the ifTable and ifXTable. Zero is returned for LAGs that have not been deployed.
fdryLinkAggregationGroupPortCount brcdIp.1.1.3.33.1.1.1.10 Syntax: Unsigned32	Read only	Displays the number of member ports belong to this LAG.

Name, OID, and Syntax	Access	Description
fdryLinkAggregationGroupRowStatus brcdIp.1.1.3.33.1.1.1.11 Syntax: RowSts	Read-create	Displays the status of this conceptual row. **NOTE:** createAndWait(5) is not supported. To create a row in this table, a manager must set this object to createAndGo(4) together with the setting of fdryLinkAggregationGroupType. After that the row status becomes active(1) regardless the LAG entry is deployed or not. To deploy the LAG entry, set the corresponding instance of fdryLinkAggregationGroupAdminStatus to deployActive or deployPassive.
fdryLinkAggregationGroupId brcdIp.1.1.3.33.1.1.1.12 Syntax: Unsigned 32	Read only	The numeric identifier assigned to this LAG.

fdryLinkAggregationGroupPortTable

The fdryLinkAggregationGroupPortTable is introduced in the NetIron software release 04.1.00.

Name, OID, and Syntax	Access	Description
fdryLinkAggregationGroupTable brcdIp.1.1.3.33.2.1	N/A	This table contains the Link Aggregation Control Configuration information about every aggregation port associated with this device. A row appears in this table for each physical port.
fdryLinkAggregationGroupPortEntry brcdIp.1.1.3.33.2.1.1	N/A	An entry in the fdryLinkAggregationGroupTable.
fdryLinkAggregationGroupPortLacpPriority brcdIp.1.1.3.33.2.1.1.1 Syntax: Integer	Read-write	The LACP priority value assigned to this link aggregation port. Values can be 0 - 65535. The default is 1.

Packet port information table

Packet over SONET (POS) is the serial transmission of data over SONET frames through the use of Point-to-Point Protocol (PPP). The POS modules allow direct connection to interfaces within SONET. POS is a transport technology that encapsulates packet data such as an IP datagram directly into SONET.

The POS modules are available on NetIron Internet Backbone routers and BigIron Layer 3 Switches with redundant management modules.

The following table presents information about POS ports.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snPOSInfoTable brcdIp.1.2.14.1.1	None	POS Port Information table.
snPOSInfoEntry brcdIp.1.2.14.1.1.1	None	An entry in the POS Port Information table.
snPOSInfoPortNum brcdIp.1.2.14.1.1.1.1 Syntax: Integer	Read only	The chassis slot and port number. • Bit 0 to bit 7 – port number. • Bit 8 to bit 11 – slot number (for chassis devices only).
snPOSIfIndex brcdIp.1.2.14.1.1.1.2 Syntax: Integer	Read only	Identifies the instance of the ifIndex object as defined in RFC 1213 and RFC 1573.
snPOSDescr brcdIp.1.2.14.1.1.1.3 Syntax: DisplayString	Read only	Description of the chassis slot and port.
snPOSName brcdIp.1.2.14.1.1.1.4 Syntax: DisplayString	Read-write	Name of the port. Valid values: Up to 255 characters.
snPOSInfoSpeed brcdIp.1.2.14.1.1.1.5 Syntax: Integer	Read-write	The bandwidth of the interface, which can be one of the following: • s155000(1) bps • s622000(2) bps • other(3) • s2488000(4) bps
snPOSInfoAdminStatus brcdIp.1.2.14.1.1.1.6 Syntax: Integer	Read-write	The desired state of the interface, which can be one of the following: • up(1) – The port is ready to pass packets. • down(2) – The port is not ready to pass packets. • testing(3) – The port is in test mode. No packets can be passed.
snPOSInfoLinkStatus brcdIp.1.2.14.1.1.1.7 Syntax: Integer	Read only	The current operational state of the link, which can be one of the following: • up(1) – The port is ready to pass packets. • down(2) – The port is not ready to pass packets. • testing(3) – The port is in test mode. No packets can be passed.
snPOSInfoClock brcdIp.1.2.14.1.1.1.8 Syntax: Integer	Read-write	The clock source, which can be one of the following: • internal(1) – The interface is using the clock on the POS module. • line(2) – The interface is using the clock source supplied on the network. Default: internal(1)

Name, OID, and Syntax	Access	Description
snPOSInfoLoopBack brcdIp.1.2.14.1.1.1.9 Syntax: Integer	Read-write	The loopback state of the interface. The loopback state can be one of the following: • line(1) – The loopback path consists of both this POS interface and the POS interface at the remote end of the link. Use this mode to check the POS interface along the link. • internal(2) – The loopback path consists only of the POS circuitry on this interface. Use this mode to check the POS circuitry. • none(3) – The interface is not operating in loopback mode.
snPOSInfoScrambleATM brcdIp.1.2.14.1.1.1.10 Syntax: Integer	Read-write	The state of the ATM scramble mode, which can be one of the following: • disabled(0) – Scrambling is disabled. • enabled(1) – Scrambling of the Synchronous Payload Envelope (SPE) is enabled. Data in the SONET packet is scrambled for security. Default: disabled(0)
snPOSInfoFraming brcdIp.1.2.14.1.1.1.11 Syntax: Integer	Read-write	The frame type used on the interface. The frame type can be one of the following: • sonet(1) – Synchronous Optical Network. • sdh(2) – Synchronous Digital Hierarchy. Default: sonet(1)
snPOSInfoCRC brcdIp.1.2.14.1.1.1.12 Syntax: Integer	Read-write	The length of the CRC field in packets transmitted on the interface. The length can be one of the following: • crc32bits(1) – The field is 8 bits long. • crc16bits(2) – The field is 16 bits long. Default: crc32bits(1)
snPOSInfoKeepAlive brcdIp.1.2.14.1.1.1.13 Syntax: Integer	Read-write	The time interval when keepalive messages are sent. Default: 10 seconds
snPOSInfoFlagC2 brcdIp.1.2.14.1.1.1.14 Syntax: Integer	Read-write	The value of the c2 flag in the SONET headers of packets transmitted by the interface. The c2 flag identifies the payload type of the packets transmitted on this interface. Default: 0xcf, which means that the payload is SONET or SDH.
snPOSInfoFlagJ0 brcdIp.1.2.14.1.1.1.15 Syntax: Integer	Read-write	The value of the j0 flag in the SONET headers of packets transmitted by the interface. This flag sets the trace byte, which is used to trace the origin of an STS-1 frame on a SONET network. Default: 0xcc
snPOSInfoFlagH1 brcdIp.1.2.14.1.1.1.16 Syntax: Integer	Read-write	The value of the h1 flag in the SONET headers of packets transmitted by the interface. This flag sets the H1 pointer, which is used to indicate where the SPE (Synchronous Payload Envelope) starts within the packet. The SPE contains the packet's payload: • 0x00 – The pointer for SONET frames. • 0x02 – The pointer for SDH frames. Default: 0x00
snPOSStatsInFrames brcdIp.1.2.14.1.1.1.17 Syntax: Counter	Read only	The total number of packets received on the interface.
snPOSStatsOutFrames brcdIp.1.2.14.1.1.1.18 Syntax: Counter	Read only	The total number of packets transmitted out of the interface.

Name, OID, and Syntax	Access	Description
snPOSStatsAlignErrors brcdIp.1.2.14.1.1.1.19 Syntax: Counter	Read only	The number of packets that contained frame alignment errors.
snPOSStatsFCSErrors brcdIp.1.2.14.1.1.1.20 Syntax: Counter	Read only	The number of packets that contained Frame Check Sequence errors.
snPOSStatsFrameTooLongs brcdIp.1.2.14.1.1.1.21 Syntax: Counter	Read only	The number of packets that were longer than the configured MTU.
snPOSStatsFrameTooShorts brcdIp.1.2.14.1.1.1.22 Syntax: Counter	Read only	The number of packets that were shorter than the minimum valid length.
snPOSStatsInDiscard brcdIp.1.2.14.1.1.1.23 Syntax: Counter	Read only	The number of inbound packets that were discarded to prevent them from being delivered to a higher-layer protocol, even though no errors had been detected. For example, a packet may be discarded to free up buffer space.
snPOSStatsOutDiscard brcdIp.1.2.14.1.1.1.24 Syntax: Counter	Read only	The number of outbound packets that were discarded to prevent them from being transmitted, even though they contain no errors. For example, a packet may be discarded to free up buffer space.
snPOSInOctets brcdIp.1.2.14.1.1.1.25 Syntax: OctetString	Read only	The total number of packets in octets that were received on the interface, including framing characters. This object is a 64-bit counter of the ifInOctets object, defined in RFC 1213. The octet string is in big-endian byte order.
snPOSOutOctets brcdIp.1.2.14.1.1.1.26 Syntax: OctetString	Read only	The total number of packets in octets that were transmitted out of the interface, including framing characters. This object is a 64-bit counter of the ifOutOctets object, defined in RFC 1213. The octet string is in big-endian byte order.
snPOSStatsInBitsPerSec brcdIp.1.2.14.1.1.1.27 Syntax: Gauge	Read only	The number of bits per second received on the interface over a five-minute interval.
snPOSStatsOutBitsPerSec brcdIp.1.2.14.1.1.1.28 Syntax: Gauge	Read only	The number of bits per second transmitted out of the interface over a five-minute interval.
snPOSStatsInPktsPerSec brcdIp.1.2.14.1.1.1.29 Syntax: Gauge	Read only	The number of packets per second received on the interface over a five-minute interval.
snPOSStatsOutPktsPerSec brcdIp.1.2.14.1.1.1.30 Syntax: Gauge	Read only	The number of packets per second transmitted out of the interface over a five minute interval.
snPOSStatsInUtilization brcdIp.1.2.14.1.1.1.31 Syntax: Integer	Read only	The network utilization by incoming traffic in hundredths of a percent over a five-minute interval. **NOTE:** This object is not supported.

Name, OID, and Syntax	Access	Description
snPOSStatsOutUtilization brcdIp.1.2.14.1.1.1.32 Syntax: Integer	Read only	The network utilization by outgoing traffic in hundredths of a percent over a five-minute interval. **NOTE:** This object is not supported.
snPOSTagType brcdIp.1.2.14.1.1.1.33 Syntax: Integer	Read only	Shows whether or not the port has a VLAN tag: • tagged(1) – The port has a VLAN tag. This port can have multiple VLANs. • untagged(2) – The port is not tagged.

POS alarms and error conditions

The following MIB objects belong to the snPOSInfoTable. They allow you to collect errors for POS SONET links. SONET equipment detects alarms and error conditions from the three layers of the SONET protocol: section, line, and path. Other devices on the network are notified of these events. Use the MIB objects below to determine if alarms or error conditions have been reported for POS. The information is also available when you enter the **show controllers pos** CLI command.

Name, OID, and Syntax	Access	Description
snPOSStatsB1 brcdIp.1.2.14.1.1.1.34 Syntax: Counter	Read only	Shows the number of received frames that have parity errors at the section layer of the SONET link.
snPOSStatsB2 brcdIp.1.2.14.1.1.1.35 Syntax: Counter	Read only	Shows the number of received frames that have parity errors at the line layer of the SONET link.
snPOSStatsB3 brcdIp.1.2.14.1.1.1.36 Syntax: Counter	Read only	Shows the number of received frames that have parity errors at the path layer of the SONET link.
snPOSStatsAIS brcdIp.1.2.14.1.1.1.37 Syntax: Counter	Read only	Shows the number of Alarm Indicator Signals (AIS) that were received by the interface.
snPOSStatsRDI brcdIp.1.2.14.1.1.1.38 Syntax: Counter	Read only	Shows the number of Remote Defect Indicator (RDI) signals that were received by the interface.
snPOSStatsLOP brcdIp.1.2.14.1.1.1.39 Syntax: Counter	Read only	Indicates a loss of pointer (LOP) that results from an invalid path pointer or if an excessive number of new data flag have been enabled.
snPOSStatsLOF brcdIp.1.2.14.1.1.1.40 Syntax: Counter	Read only	Shows how many times the interface experienced out of frame alignment problems, which is also called a loss of frame (LOF) condition.
snPOSStatsLOS brcdIp.1.2.14.1.1.1.41 Syntax: Counter	Read only	Indicates the number of times the interface experienced a loss of signal (LOS). With LOS, incoming signals are all zeros during a 100 microsecond period.

Loopback interface configuration table

NOTE
This table is supported on the Brocade MLXe, NetIron XMR, and NetIron MLXdevices.

The following objects apply to all devices, except ServerIron products.

Name, OID, and Syntax	Access	Description
snLoopbackIntfConfigTable brcdIp.1.2.13.1	None	The Loopback Interface Configuration table.
snLoopbackIntfConfigEntry brcdIp.1.2.13.1.1	None	An entry in the Loopback Interface Configuration table.
snLoopbackIntfConfigPortIndex brcdIp.1.2.13.1.1.1 Syntax: Integer	Read only	Shows the port index for loopback interface configuration entry. There can be up to eight entries in this table.
snLoopbackIntfMode brcdIp.1.2.13.1.1.2 Syntax: Integer	Read-write	Indicates if loopback interface is enabled: • disabled(0) • enabled(1)
snLoopbackIntfRowStatus brcdIp.1.2.13.1.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Port STP configuration groups

The Spanning Tree Protocol (STP) eliminates Layer 2 loops in networks, by selectively blocking some ports and allowing other ports to forward traffic, based on global (bridge) and local (port) parameters you can configure.

The tables in this section contain information about the ports on which STP is enabled.

Port STP configuration groups (snPortStpTable)

This table applies to all devices, except the FastIron X-Series devices, BigIron MG8, and NetIron 40G. These devices use the snIfStpTable. Refer to the “Port STP configuration group (snIfStpTable)” on page 230.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snPortStpTable brcdIp.1.1.3.5.1	None	A specific snPortStpTable consists of a number of switch ports. This table only exists if “snVLanByPortTable” on page 289 exists and “snVLanByPortStpMode” on page 290 is enabled for each VLAN.
snPortStpEntry brcdIp.1.1.3.5.1.1	None	An entry in this table shows information about the configuration of a specified port. An SNMP SET PDU for a row in this table requires the entire sequence of the MIB objects in each snPortStpEntry to be stored in one PDU. Otherwise, GENERR return-value will be returned.
snPortStpVLanId brcdIp.1.1.3.5.1.1.1 Syntax: Integer	Read only	Shows the VLAN ID of the VLAN switch community. Valid values: 1 – 65535.
snPortStpPortNum brcdIp.1.1.3.5.1.1.2 Syntax: Integer32	Read only	Shows the port number of the Switch: • Bit 0 to bit 7 – Port number. • Bit 8 to bit 11 – Slot number (slot for chassis only).
snPortStpPortPriority brcdIp.1.1.3.5.1.1.3 Syntax: Integer	Read-write	Shows the value of the priority field, which is contained in the first (in network byte order) octet of the Port ID. The second octet of the Port ID is given by the value of dot1dStpPort. The two octets combine to form the identity of the root bridge in a spanning tree (instance of STP). The bridge with the lowest value has the highest priority and is the root. Valid values: 8 – 255
snPortStpPathCost brcdIp.1.1.3.5.1.1.4 Syntax: Integer	Read-write	Shows the value of the dot1dStpPortPathCost, which is the port’s path cost to reach the root bridge. When selecting among multiple links to the root bridge, STP chooses the link with the lowest path cost and blocks the other paths. IEEE 802.1D-1990 recommends that the default value of this parameter be in inverse proportion to the speed of the attached LAN. Writing a value of zero to this object sets the path cost to a default value which automatically changes according to port speed. Reading a value of zero indicates an unknown path cost because the port speed cannot be determined due to the speed auto sense that is currently in progress. Each port type has its own default STP path cost. • 10 Mbps – 100 • 100 Mbps – 19 • Gigabit – 4 Valid values: 0 – 65535 **NOTE:** Over the value of 65535, this MIB stays at the upper value and the user should access which has a bigger upper range value.
snPortStpOperState brcdIp.1.1.3.5.1.1.5 Syntax: Integer	Read only	Indicates if the port STP entry is activated and is in running mode. • notActivated(0) • activated(1) Default: notActivated(0)

Name, OID, and Syntax	Access	Description
snPortStpPortEnable brcdIp.1.1.3.5.1.1.6 Syntax: Integer	None	Indicates whether or not the port is enabled: • disabled(0) • enabled(1)
snPortStpPortForwardTransitions brcdIp.1.1.3.5.1.1.7 Syntax: Integer32	None	Shows the number of times this port has transitional from the Learning state to the Forwarding state.
snPortStpPortState brcdIp.1.1.3.5.1.1.8 Syntax: Integer	Read only	Shows the port's current state as defined by application of the Spanning Tree Protocol. This state controls what action a port takes when it receives a frame. • disabled(1) – The port is not participating in STP. This can occur when the port is disconnected or STP is disabled on the port. • blocking(2) – STP has blocked Layer 2 traffic on this port to prevent a loop. The device or VLAN can reach the root bridge using another port, whose state is forwarding(5). When a port is in this state, the port does not transmit or receive user frames, but the port does continue to receive STP BPDUs. • listening(3) – STP is responding to a topology change and this port is listening for a BPDU from neighboring bridge(s) in order to determine the new topology. No user frames are transmitted or received during this state. • learning(4) – The port has passed the listening state and will change to the blocking or forwarding state, depending on the results of STP's reconvergence. The port does not transmit or receive user frames during this state. However, the device can learn the MAC addresses of frames that the port receives during this state and make corresponding entries in the MAC table. • forwarding(5) – STP is allowing the port to send and receive frames. • broken(6) – Ports that are malfunctioning are placed into this state by the bridge.
snPortStpPortDesignatedCost brcdIp.1.1.3.5.1.1.9 Syntax: Integer32	Read only	The cost to the root bridge as advertised by the designated bridge that is connected to this port. If the designated bridge is the root bridge itself, then the cost is 0. The identity of the designated bridge is shown in the Design Bridge field. This value is compared to the Root Path Cost field in the receivedbridge PDUs.
snPortStpPortDesignatedRoot brcdIp.1.1.3.5.1.1.10 Syntax: BridgeId	Read only	The root bridge as recognized on this port. The value is the same as the root bridge ID listed in the Root ID field. Shows the unique ID of the root bridge. The root bridge is recorded as the root in the configuration BPDUs, which are transmitted by the designated bridge for the segment to which the port is attached.

Name, OID, and Syntax	Access	Description
snPortStpPortDesignatedBridge brcdIp.1.1.3.5.1.1.11 Syntax: BridgeId	Read only	Shows the ID of the designated bridge. The designated bridge is the device that connects the network segment to the root bridge.
snPortStpPortDesignatedPort brcdIp.1.1.3.5.1.1.12 Syntax: OctetString	Read only	Shows the ID of the port on the designated bridge that connects to the root bridge on the network. This object has two octets.

Port STP configuration group (snIfStpTable)

The snIfStpTable contains information about ports where STP is enabled on FastIron X-Series devices, BigIron MG8, and NetIron 40G. Other devices use the snPortStpTable (refer to “Port STP configuration groups (snPortStpTable)” on page 227).

Name, OID, and Syntax	Access	Description
snIfStpTable brcdIp.1.1.3.5.2	None	A specific snIfStpTable consists of a number of switch ports. This table only exists if “snVLanByPortTable” on page 289 exists and “snVLanByPortStpMode” on page 290 is enabled for each VLAN.
snIfStpEntry brcdIp.1.1.3.5.2.1	None	An entry in this table shows information about the configuration of a specified port. An SNMP SET PDU for a row in this table requires the entire sequence of the MIB objects in each snIfStpEntry to be stored in one PDU. Otherwise, GENERR return-value will be returned.
snIfStpVLanId brcdIp.1.1.3.5.2.1.1 Syntax: Integer	Read only	Shows the VLAN ID of the VLAN switch community. Valid values: 1 – 65535.
snIfStpPortNum brcdIp.1.1.3.5.2.1.2 Syntax: Integer	Read only	Shows the port number of the Switch: • Bit 0 to bit 7 – Port number. • Bit 8 to bit 11 – Slot number (slot for chassis only).
snIfStpPortPriority brcdIp.1.1.3.5.2.1.3 Syntax: INTEGER	Read-write	Shows the value of the priority field, which is contained in the first (in network byte order) octet of the Port ID. The second octet of the Port ID is given by the value of dot1dStpPort. The two octets combine to form the identity of the root bridge in a spanning tree (instance of STP or RSTP). The bridge with the lowest value has the highest priority and is the root. Valid values: 8 – 255

Name, OID, and Syntax	Access	Description
snIfStpPathCost brcdIp.1.1.3.5.2.1.4 Syntax: Integer **NOTE:** On FastIron SuperX software release 02.2.01 and later, this object was replaced by "snIfStpCfgPathCost"	Read-write	Shows the value of the dot1dStpPortPathCost, which is the port's path cost to reach the root bridge. When selecting among multiple links to the root bridge, STP or RSTP chooses the link with the lowest path cost and blocks the other paths. IEEE 802.1D-1990 recommends that the default value of this parameter be in inverse proportion to the speed of the attached LAN. Writing a value of zero to this object sets the path cost to a default value which automatically changes according to port speed. Reading a value of zero indicates an unknown path cost because the port speed cannot be determined due to the speed auto sense that is currently in progress. Each port type has its own default STP path cost. • 10 Mbps – 100 • 100 Mbps – 19 • Gigabit – 4 Valid values: 0 – 65535
snIfStpCfgPathCost brcdIp.1.1.3.5.2.1.4 Syntax: Integer **NOTE:** On FastIron SuperX software release 02.2.01 and later, this object replaces by "snIfStpPathCost"	Read-write	This MIB object replaces the MIB object snIfStpPathCost. Shows the value of the dot1dStpPortPathCost, which is the port's path cost to reach the root bridge. When selecting among multiple links to the root bridge, STP or RSTP chooses the link with the lowest path cost and blocks the other paths. IEEE 802.1D-1990 recommends that the default value of this parameter be in inverse proportion to the speed of the attached LAN. Writing a value of zero to this object sets the path cost to a default value which automatically changes according to port speed. Reading a value of zero indicates an unknown path cost because the port speed cannot be determined due to the speed auto sense that is currently in progress. Each port type has its own default STP or RSTP path cost. • 10 Mbps – 100 • 100 Mbps – 19 • Gigabit – 4 Valid values: 0 – 65535
snIfStpOperState brcdIp.1.1.3.5.2.1.5 Syntax: Integer	Read only	Indicates if the port STP entry is activated and is in running mode. • notActivated(0) • activated(1) Default: notActivated(0)

Name, OID, and Syntax	Access	Description
snIfStpPortState brcdIp.1.1.3.5.2.1.8 Syntax: Integer	Read only	Shows the port's current state as defined by application of the Spanning Tree Protocol. This state controls what action a port takes when it receives a frame. • disabled(1) – The port is not participating in STP. This can occur when the port is disconnected or STP is disabled on the port. • blocking(2) – STP has blocked Layer 2 traffic on this port to prevent a loop. The device or VLAN can reach the root bridge using another port, whose state is forwarding(5). When a port is in this state, the port does not transmit or receive user frames, but the port does continue to receive STP BPDUs. • listening(3) – STP is responding to a topology change and this port is listening for a BPDU from neighboring bridge(s) in order to determine the new topology. No user frames are transmitted or received during this state. • learning(4) – The port has passed the listening state and will change to the blocking or forwarding state, depending on the results of STP's reconvergence. The port does not transmit or receive user frames during this state. However, the device can learn the MAC addresses of frames that the port receives during this state and make corresponding entries in the MAC table. • forwarding(5) – STP is allowing the port to send and receive frames. • broken(6) – Ports that are malfunctioning are placed into this state by the bridge. • preforwarding(7) – The port is in an RSTP pre-forwarding mode.
snIfStpPortDesignatedCost brcdIp.1.1.3.5.2.1.9 Syntax: Integer	Read only	The cost to the root bridge as advertised by the designated bridge that is connected to this port. If the designated bridge is the root bridge itself, then the cost is 0. The identity of the designated bridge is shown in the Design Bridge field. This value is compared to the Root Path Cost field in the receivedbridge PDUs.
snIfStpPortDesignatedRoot brcdIp.1.1.3.5.2.1.10 Syntax: BridgeId	Read only	The root bridge as recognized on this port. The value is the same as the root bridge ID listed in the Root ID field. Shows the unique ID of the root bridge. The root bridge is recorded as the root in the configuration BPDUs, which are transmitted by the designated bridge for the segment to which the port is attached.
snIfStpPortDesignatedBridge brcdIp.1.1.3.5.2.1.11 Syntax: BridgeId	Read only	Shows the ID of the designated bridge. The designated bridge is the device that connects the network segment to the root bridge.
snIfStpPortDesignatedPort brcdIp.1.1.3.5.2.1.12 Syntax: Octet string	Read only	Shows the ID of the port on the designated bridge that connects to the root bridge on the network. This object has two octets.
snIfStpPortAdminRstp brcdIp.1.1.3.5.2.1.13 Syntax: Integer	Read-write	Enables or disables RSTP on a port that is a member of a VLAN: • true(1) – RSTP is enabled • false(2) – RSTP is not enabled; therefore, this object is not writable.
snIfStpPortProtocolMigration brcdIp.1.1.3.5.2.1.14 Syntax: Integer	Read-write	This value can be one of the following: • true(1) – The port is operating in RSTP version 2 mode. It will transmit RSTP BPDUs. • false(2) – The port is not operating in RSTP version 2 mode.

Name, OID, and Syntax	Access	Description
snIfStpPortAdminEdgePort brcdIp.1.1.3.5.2.1.15 Syntax: Integer	Read-write	Indicates if the port is an edge or non-edge port: • true(1) – Assumed this port is an edge-port • false(2) – Assume this port is a non-edge-port
snIfStpPortAdminPointToPoint brcdIp.1.1.3.5.2.1.16 Syntax: Integer	Read-write	Indicates the administrative point-to-point status of the LAN segment attached to this port. • true(1) – This port should always be treated as if it is connected to a point-to-point link. • false(2) – This port should be treated as having a shared media connection.
snIfStpPortRole brcdIp.1.1.3.5.2.1.18 Syntax: Integer	Read-only	Shows the STP/RSTP port role. • For STP, the port role will be root if the port is a root port; otherwise, it will be a designated port. • For RSTP, port role is equivalent to the port role display from "show 802-1w vlan <vlan-id>" command. **NOTE:** This object was implemented in IronWare release 03.5.00 for the NetIron XMR/MLX and Ironware release 02.5.00 for the BigIron RX.
snIfStpBPDUTransmitted brcdIp.1.1.3.5.2.1.19 Syntax: Counter	Read-only	Shows the STP/RSTP bridge protocol unit transmitted counter. **NOTE:** This object was implemented in IronWare release 03.5.00 for the NetIron XMR/MLX and Ironware release 02.5.00 for the BigIron RX. It is also supported on Brocade MLXe devices.
snIfStpBPDUReceived brcdIp.1.1.3.5.2.1.20 Syntax: Counter	Read-only	Shows the STP/RSTP bridge protocol unit received counter. **NOTE:** This object was implemented in IronWare release 03.5.00 for the NetIron XMR/MLX and Ironware release 02.5.00 for the BigIron RX. It is also supported on Brocade MLXe devices.
snIfRstpConfigBPDUReceived brcdIp.1.1.3.5.2.1.21 Syntax: Counter	Read-only	Shows the STP/RSTP bridge protocol unit received counter. **NOTE:** This object was implemented in IronWare release 03.5.00 for the NetIron XMR/MLX and Ironware release 02.5.00 for the BigIron RX. It is also supported on Brocade MLXe devices.
snIfRstpTCNBPDUReceived brcdIp.1.1.3.5.2.1.22 Syntax: Counter	Read-only	Shows the RSTP configuration bridge protocol unit received counter. **NOTE:** This object was implemented in IronWare release 03.5.00 for the NetIron XMR/MLX and Ironware release 02.5.00 for the BigIron RX. It is also supported on Brocade MLXe devices.
snIfRstpConfigBPDUTransmitted brcdIp.1.1.3.5.2.1.23 Syntax: Counter	Read-only	Shows the RSTP configuration bridge protocol unit transmitted counter. **NOTE:** This object was implemented in IronWare release 03.5.00 for the NetIron XMR/MLX and Ironware release 02.5.00 for the BigIron RX. It is also supported on Brocade MLXe devices.
snIfRstpTCNBPDUTransmitted brcdIp.1.1.3.5.2.1.24 Syntax: Counter	Read-only	Shows the RSTP topology change notification bridge protocol unit transmitted counter. **NOTE:** This object was implemented in IronWare release 03.5.00 for the NetIron XMR/MLX and Ironware release 02.5.00 for the BigIron RX. It is also supported on Brocade MLXe devices.

Port monitor table

The Port Monitor Table shows the status of port monitoring on an interface.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snPortMonitorTable brcdIp.1.1.3.25.1.	N/A	The Port Monitor Table
snPortMonitorEntry brcdIp.1.1.3.25.1.1.	N/A	An entry in the Port Monitor Table
snPortMonitorIfIndex brcdIp.1.1.3.25.1.1.1	N/A	ID of the port in the table
snPortMonitorMirrorList brcdIp.1.1.3.25.1.1.2 Syntax: DisplayString	Read-write	Lists the monitoring status of each port. The values in this object are space delimited. They consist of a sequence of a port's ifIndex followed by the port's monitoring mode. Port monitoring mode can be one of the following: • 0 – Monitoring is off • 1 – The port will monitor input traffic • 2 – The port will monitor output traffic • 3 – The port will monitor both input and output traffic For example, you may see the following values: `65 2 66 1` "65" may represent port 2/1 and "66" port 2/2. The entry means that port 2/1 is monitoring output traffic. Port 2/2 will monitor input traffic.

MRP

Metro ring table

The Metro Ring Table contains information about Metro Ring Protocol (MRP) MIB objects.The MIB objects are supported on the following software releases:

- Multi-Service IronWare release 03.7.00 and later for the NetIron XMR Series
- Multi-Service IronWare software release 03.7.00 and later for the NetIron MLX Series
- Multi-Service IronWare software release 02.6.00 and later for the BigIron RX Series
- FastIron devices running FSX, FGS, and FCX software releases.
- Brocade MLXe

- Multi-Service IronWare release 03.8.00 and later for the NetIron CES Series

Name, OID, and Syntax	Access	Description
snMetroRingTable brcdIp.1.1.3.29.2.1 Syntax: SEQUENCE of SnMetroRingEntry	None	The Metro Ring Table.
snMetroRingEntry brcdIp.1.1.3.29.2.1.1 Syntax: SnMetroRingEntry	None	An entry in the Metro Ring Table.
snMetroRingVlanId brcdIp.1.1.3.29.2.1.1.1 Syntax: Integer32	None	Identifies a VLAN that controls the Metro Ring.
snMetroRingId brcdIp.1.1.3.29.2.1.1.2 Syntax: Integer32	None	The Metro Ring identifier.
snMetroRingConfigState brcdIp.1.1.3.29.2.1.1.3 Syntax: Integer	Read write	The state of the Metro Ring.
snMetroRingRole brcdIp.1.1.3.29.2.1.1.4 Syntax: Integer [other(1), master(2), member(3)]	Read write	Shows the Metro Ring role: other(1) - non of the cases below master(2) - device which originates RHP packets member(3) - device which forwards RHP packets
snMetroRingHelloTime brcdIp.1.1.3.29.2.1.1.5 Syntax: Integer32	Read write	The time interval to periodically transmit ring health protocol (RHP) in milliseconds.
snMetroRingPreforwardingTime brcdIp.1.1.3.29.2.1.1.6 Syntax: Integer32	Read write	The time interval that a metro ring stays in preforwarding state before changing to forwarding state (in milliseconds).
snMetroRingPort1 brcdIp.1.1.3.29.2.1.1.7 Syntax: InterfaceIndex	Read write	The ifIndex value of port 1 to configure into the metro ring.
snMetroRingPort2 brcdIp.1.1.3.29.2.1.1.8 Syntax: InterfaceIndex	Read write	The ifIndex value of port 2 to configure into the metro ring.
snMetroRingName brcdIp.1.1.3.29.2.1.1.9 Syntax: DisplayString	Read write	The description of the metro ring.
snMetroRingRowStatus brcdIp.1.1.3.29.2.1.1.10 Syntax: Integer [other(1), valid(2), delete(3), create(4)]	Read write	Creates and deletes rows in the table, and controls whether they are used. Values are: • delete(3) - deletes a row • create(4) - creates a new row If the row exists, then a SET with a value of create(4) returns a badValue error. Deleted rows disappear immediately. The following values can be returned on reads: • noSuchName - no such row: • other(1) - some other cases • valid(2) - the row exists and is valid.

Name, OID, and Syntax	Access	Description
snMetroRingOperState brcdIp.1.1.3.29.2.1.1.11 Syntax: Integer [other(1), enabled(2), disabled(3)]	Read only	Shows the metro ring operational state.
snMetroRingTopoGroupId brcdIp.1.1.3.29.2.1.1.12 Syntax: Integer32	Read only	The ID of the topology group that controls the metro ring.
snMetroRingRHPTransmitted brcdIp.1.1.3.29.2.1.1.13 Syntax: Counter32	Read only	The Ring Health Protocol (RHP) transmitted counter.
snMetroRingRHPReceived brcdIp.1.1.3.29.2.1.1.14 Syntax: Counter32	Read only	The counter receive Ring Health Protocol (RHP)
snMetroRingStateChanged brcdIp.1.1.3.29.2.1.1.15 Syntax: Counter32	Read only	The counter for the number of times the ring state has changed.
snMetroRingTCRBPDUReceived brcdIp.1.1.3.29.2.1.1.16 Syntax: Counter32	Read only	The topology change protocol received counter.
snMetroRingPriPort brcdIp.1.1.3.29.2.1.1.17 Syntax: InterfaceIndex	Read only	The ifIndex value of the primary port.
snMetroRingSecPort brcdIp.1.1.3.29.2.1.1.18 Syntax: InterfaceIndex	Read only	The ifIndex value of the secondary port.
snMetroRingPriPortState brcdIp.1.1.3.29.2.1.1.19 Syntax: Integer	Read only	The state of the metro ring primary port: other(1) - none of the cases below preforwarding(2) - port transmits RHP packets, port does not transmit data packets. forwarding(3) - port transmits RHP and data packets blocking(4) - port receives RHP packets, does not receive data packets disabled(5) - port is disabled from the metro ring
snMetroRingSecPortState brcdIp.1.1.3.29.2.1.1.20 Syntax: Integer	Read only	The state of the metro ring secondary port: other(1) - none of the cases below preforwarding(2) - port transmits RHP packets, port does not transmit data packets. forwarding(3) - port transmits RHP and data packets blocking(4) - port receives RHP packets, does not receive data packets disabled(5) - port is disabled from the metro ring
snMetroRingPriPortType brcdIp.1.1.3.29.2.1.1.21 Syntax: Integer	Read only	The metro ring primary port type: other(1) - none of the cases below regular(2) - port is configured to operate on a single ring tunnel(3) - port is configured to operate on multiple rings
snMetroRingSecPortType brcdIp.1.1.3.29.2.1.1.22 Syntax: Integer	Read only	The metro ring secondary port type: other(1) - none of the cases below regular(2) - port is configured to operate on a single ring tunnel(3) - port is configured to operate on multiple rings

Name, OID, and Syntax	Access	Description
snMetroRingPriPortActivePort brcdIp.1.1.3.29.2.1.1.23 Syntax: InterfaceIndex	Read only	The ifIndex value of the active primary port.
snMetroRingSecPortActivePort brcdIp.1.1.3.29.2.1.1.24 Syntax: InterfaceIndex	Read only	The ifIndex value of the active secondary port.

Chapter

14

Filtering Traffic

MAC filters

The objects in this chapter present filters that can be used to control incoming or outgoing traffic. Refer to the configuration guide for a product for details on the features discussed in this chapter.

MAC layer filtering enables you to build access lists based on MAC layer headers in the Ethernet/IEEE 802.3 frame. You can filter on the source and destination MAC addresses as well as other information such as the EtherType, LLC1 DSAP or SSAP numbers, and a SNAP EtherType. The filters apply to incoming traffic only.

For more information on MAC Layer filtering, refer to the configuration guide for a product.

Note: MAC Filter MIB objects are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe

Objects available for MAC filtering are presented in the following sections:

- "MAC filter table" on page 239
- "MAC filter port access tables" on page 241
- "Forwarding database static table information" on page 241

MAC filter table

The objects in this table provide information on MAC filters.

Name, OID, and Syntax	Access	Description
snMacFilterTable brcdIp.1.1.3.10.1	None	The MAC filter table.
snMacFilterEntry brcdIp.1.1.3.10.1.1	None	An entry in the MAC filter table.
snMacFilterIndex brcdIp.1.1.3.10.1.1.1 Syntax: Integer32	Read only	The table index for a filter entry.

Name, OID, and Syntax	Access	Description
snMacFilterAction brcdIp.1.1.3.10.1.1.2 Syntax: Integer	Read-write	Indicates what action is to be taken if the MAC packet matches this filter: • deny(0) • permit(1)
snMacFilterSourceMac brcdIp.1.1.3.10.1.1.3 Syntax: MAC address	Read-write	Shows the source MAC address.
snMacFilterSourceMask brcdIp.1.1.3.10.1.1.4 Syntax: MAC address	Read-write	Shows the source MAC subnet mask.
snMacFilterDestMac brcdIp.1.1.3.10.1.1.5 Syntax: MAC address	Read-write	Shows the destination MAC address.
snMacFilterDestMask brcdIp.1.1.3.10.1.1.6 Syntax: MAC address	Read-write	Shows the destination MAC subnet mask.
snMacFilterOperator brcdIp.1.1.3.10.1.1.7 Syntax: Integer	Read-write	Indicates the type of comparison to perform: • equal(0) • notEqual(1) • less(2) • greater(3)
snMacFilterFrameType brcdIp.1.1.3.10.1.1.8 Syntax: Integer	Read-write	Indicates the frame type: • notUsed(0) • ethernet(1) • LLC(2) • snap(3)
snMacFilterFrameTypeNum brcdIp.1.1.3.10.1.1.9 Syntax: Integer	Read-write	Shows the frame type number. Valid values: 0 – 65535, where 0 means that this object is not applicable.
snMacFilterRowStatus brcdIp.1.1.3.10.1.1.10 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

MAC filter port access tables

The tables show information about the MAC Filter Port Access.

Name, OID, and Syntax	Access	Description
snMacFilterPortAccessTable brcdIp.1.1.3.10.2 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, NetIron CER devices.	None	MAC Filter Port Access table.
snMacFilterPortAccessEntry brcdIp.1.1.3.10.2.1	None	An entry in the MAC Filter Port Access Table.
snMacFilterPortAccessPortIndex brcdIp.1.1.3.10.2.1.1 Syntax: Integer	Read only	The port index. For FastIron and NetIron products, port index value is from 1 – 42. For BigIron products, port index is an encoded number: • Bit 0 to bit 7– Port number • Bit 8 to bit 11 – Slot number For virtual router interfaces: • 15 – Slot number • 1 to 60 – Virtual router port, which is the port number. Therefore, port index value for BigIron is from 257 to 3900.
snMacFilterPortAccessFilters brcdIp.1.1.3.10.2.1.2 Syntax: OctetString	Read-write	Shows the filter numbers of the ports. The first octet correspond to the first filter number, the second octet, to the second filter number, and so on.
snMacFilterPortAccessRowStatus brcdIp.1.1.3.10.2.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Forwarding database static table information

This table contains Forwarding Database information for each station known to the system. There is one entry per station.

Name, OID, and Syntax	Access	Description
snFdbTable brcdIp.1.1.3.4.1	None	The Forwarding Database Static Table.
snFdbEntry brcdIp.1.1.3.4.1.1	None	Each entry represents the information of a static MAC station.

Name, OID, and Syntax	Access	Description
snFdbStationIndex brcdIp.1.1.3.4.1.1.1 Syntax: Integer	Read only	Shows the FDB Station index to the Fdb Station Table.
snFdbStationAddr brcdIp.1.1.3.4.1.1.2 Syntax: Integer	Read-write	Shows the snFdbs physical address. The physical address represents a MAC Station.
snFdbStationPort brcdIp.1.1.3.4.1.1.3 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, NetIron CER devices.	Read-write	Indicates the station slot or port number: • Bit 0 to bit 7 – Port number • Bit 8 to bit 11 – Slot number (slot for chassis only).
snFdbVLanId brcdIp.1.1.3.4.1.1.4 Syntax: Integer	Read-write	Indicates the Station VLAN ID.
snFdbStationQos brcdIp.1.1.3.4.1.1.5 Syntax: Integer	Read-write	Shows the quality of service values for the station: For stackable stations, the values can be: • low(0) – low priority • high(1) – high priority. For chassis stations, the values can be • level0(0) • level1(1) • level2(2) • level3(3) • level4(4) • level5(5) • level6(6) • level7(7)
snFdbStationType brcdIp.1.1.3.4.1.1.6 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, NetIron CER devices.	Read-write	Show the station type: • notSupported(0) – a read value only: this product does not support multilayer Switching. • host(1) – any MAC station. • router(2) – a router-typed station.

Name, OID, and Syntax	Access	Description
snFdbRowStatus brcdIp.1.1.3.4.1.1.7 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snFdbStationIfindex brcdIp.1.1.3.4.1.1.8 Syntax: InterfaceIndex	Read-write	Station interface index number.

Layer 2 ACLs

The Layer 2 Access Control Lists (ACLs) MIB objects presented in this section apply to the following devices:

- BigIron RX running software release 02.7.00 and later
- NetIron XMR running software release 04.0.00 and later
- NetIron MLX running software release 04.0.00 and later
- Brocade MLXe

Layer 2 ACLs filter traffic based on any of the following fields:

- Source MAC address and source MAC mask
- Destination MAC address and destination MAC mask
- VLAN ID
- Ethernet type
- 802.1P priority and its mapping

The following tables are used to define Layer 2 ACLs in SNMP:

- “Layer 2 ACL next clause table” on page 244
- “Layer 2 ACL configuration table” on page 246
- “Layer 2 ACL binding configuration table” on page 248

You must obtain a clause index from the Layer 2 ACL Next Clause Table before creating a Layer 2 ACL. Use the Layer 2 ACL Configuration Table to create Layer 2 ACLs. Bind the Layer 2 ACLs to physical port using the Layer 2 ACL Binding Configuration Table.

Textual conventions

The Layer 2 ACL tables use the following textual conventions.

Name and Syntax	Description
fdryVlanIdOrNoneTC Syntax: Integer32	The VLAN ID that uniquely identifies a specific VLAN, or no VLAN. The special value of zero is used to indicate that no VLAN ID is present or used. This can be used in any situation where an object or a table entry must refer either to a specific VLAN, or to no VLAN. Valid values: 0 or 1 - 4094
PortQosTC Syntax: Integer	The port QOS Priority hardware queue. 0 is lowest priority, 7 is the highest. Values can be one of the following: Valid Values: • level0(0) • level1(1) • level2(2) • level3(3) • level4(4) • level5(5) • level6(6) • level7(7) • invalid(127)
fdryEnetTypeOrZeroTC Syntax: Integer	Ethernet Type field within the Ethernet-II frame • invalid(0) • ipv4(1) • arp(2) • ipv6(3)
fdryClauseIndexTC Syntax: Unsigned 32	One-based clause index value within a given ACL number.

Layer 2 ACL next clause table

The fdryL2AclNextClauseTable is a read-only table

The Layer 2 ACL Next Clause Table (fdryL2AclNextClauseTable) contains the list of next lowest available clause index that can be used for creating a Layer 2 ACL in the fdryL2AclTable. (Refer to “Layer 2 ACL configuration table” on page 246.)

Every Layer 2 ACL in the fdryL2AclTable has a clause index which consists of a list of ACL clause entries. A Layer 2 ACL cannot be created without any clause entries. There must be at least one clause entry in a Layer 2 ACL. Likewise, when all the clause entries are deleted from a Layer 2 ACL, the ACL itself will also be deleted.

By default, there can be up to 64 clause entries for each Layer 2 ACL. This number can be changed by issuing the **system-max l2-acl-table-entries** command on the device CLI. You can specify up to 256 per Layer 2 ACL.

The initial value of the fdryL2AclNextClauseIndex in each table row is 1. When a clause entry is created for a Layer 2 ACL, this value is incremented by one. When the number of clause entries created for an ACL reaches the maximum limit, a Get operation on fdryL2AclClauseIndex will return a “noSuchInstance” error. The error indicates that no more clauses can be added to the fdryL2AclTable for this ACL.

When a clause entry for an ACL is removed (either in the beginning or middle or end) the clause index (where it was removed from) is available for adding a new clause entry for this ACL. The fdryL2AclClauseIndex always returns the lowest available clause index where a new clause should be added.

The CLI displays the ACL clause in chronological order. However, SNMP is bounded by clause index, and therefore, it may not displays the rows in chronological order. The clause index does not map to the sequence in which the ACL clause is checked at run time. It is an internal value used to identify unique ACL clauses within a given ACL ID.

For example, if only 3 clause entries can be created for a Layer 2 ACL, the following describes how ACL clause is assigned.

1. Before adding any clause to a Layer 2 ACL, a Get operation on the fdryL2AclNextClauseIndex returns 1.
2. When you add the first clause entry, a Get operation on the fdryL2AclNextClauseIndex returns 2.
3. When you add the second clause entry, a Get operation on the fdryL2AclNextClauseIndex returns 3.
4. When you add the third clause entry, a Get operation on the fdryL2AclNextClauseIndex returns a “noSuchInstance”
5. If you remove the second clause entry (#2), a Get operation on the fdryL2AclNextClauseIndex, returns 2 since it is the lowest available index.

Name, OID, and Syntax	Access	Description
fdryL2AclNextClauseTable brcdIp.1.2.2.15.6	N/A	This read-only table contains the list of the next lowest available clause index that can be used for creating a new entry in the fdryL2AclTable. The clause index values will not change as a result of switchovers or hitless upgrades, but may change as a result of a device reload. However, the relative order of persistent entries would remain the same.
fdryL2AclNextClauseEntry brcdIp.1.2.2.15.6.1	N/A	An entry specifying the next lowest available clause index for this ACL number. All ACL numbers will have an entry in this table.
fdryL2AclNextClauseIndex brcdIp.1.2.2.15.6.1.1 Syntax: FdryClauseIndexTC	Read-only	The next lowest available clause index for a given Layer 2 ACL number. The maximum value of this object is the configured maximum number of clauses for a Layer 2 ACL. Even though the syntax of “fdryL2AclClauseIndex” is Unsigned32, its value will be between 1 to the configured maximum clause entries for each Layer 2 ACL.

Layer 2 ACL configuration table

Name, OID, and Syntax	Access	Description
fdryL2AclTable brcdIp.1.2.2.15.7	N/A	Table of Layer 2 ACLs. A Layer 2 ACL number can have 64 (default) to 256 clauses. The clause index values will not change as a result of switchovers or hitless upgrades, but may change as a result of a device reload. However, the relative order of persistent entries remains the same.
fdryL2AclEntry brcdIp.1.2.2.15.7.1	N/A	An entry in the L2 Access Control List table.
fdryL2AclNumber brcdIp.1.2.2.15.7.1.1 Syntax: AclNumber	N/A	The access list number for this entry. For Layer 2 ACLs, valid values are 400 - 499.
fdryL2AclClauseIndex brcdIp.1.2.2.15.7.1.2 Syntax: FdryClauseIndexTC	N/A	The index of the clause within a given ACL number. During row creation, the clause index value should match the next available clause index for a given ACL number. It is advisable to first do a Get operation on the fdryL2AclNextClauseTable for a given ACL number, and use the value of fdryL2AclNextClauseIndex returned by the agent.
fdryL2AclAction brcdIp.1.2.2.15.7.1.3 Syntax: Action	Read-create	Action to take if the Layer 2 packet on the port matches this ACL.
fdryL2AclSourceMac brcdIp.1.2.2.15.7.1.4 Syntax: MacAddress	Read-create	Optional Source MAC address. By default, it matches with any source MAC within a packet. Default: ‘000000000000'H
fdryL2AclSourceMacMask brcdIp.1.2.2.15.7.1.5 Syntax: MacAddress	Read-create	Optional Source MAC address mask. For a Set operation, this object can only be used in conjunction with fdryL2AclSourceMac. By default, this matches any source MAC within a packet. If you want to match the first two bytes of the address aabb.ccdd.eeff, use the mask ffff.0000.0000. In this case, the clause matches all source MAC addresses that contain 'aabb' as the first two bytes and any values in the remaining bytes of the MAC address. Default: '000000000000'H
fdryL2AclDestinationMac brcdIp.1.2.2.15.7.1.6 Syntax: MacAddress	Read-create	Optional destination MAC address. By default, it matches any destination MAC within a packet. Default: '000000000000'H
fdryL2AclDestinationMacMask brcdIp.1.2.2.15.7.1.7 Syntax: MacAddress	Read-create	Optional destination MAC address mask. For a Set operation, this object can only be used in conjunction with fdryL2AclDestinationMac. By default, it matches any destination MAC within a packet. If you want to match the first two bytes of the address aabb.ccdd.eeff, use the mask ffff.0000.0000. In this case, the clause matches all destination MAC addresses that contain 'aabb' as the first two bytes and any values in the remaining bytes of the MAC address. Default: '000000000000'H
fdryL2AclVlanId brcdIp.1.2.2.15.7.1.8 Syntax: “fdryVlanIdOrNoneTC”	Read-create	Optional VLAN ID to match against that of the incoming packet. By default, the VLAN ID field is ignored during the match and value 0 is returned. Default: 0

Name, OID, and Syntax	Access	Description
fdryL2AclEthernetType brcdIp.1.2.2.15.7.1.9 Syntax: FdryEnetTypeOrZeroTC	Read-create	Optional Ethernet Type to match against the etype field of the incoming packet. By default, etype field is ignored during the match. Default: invalid
fdryL2AclDot1pPriority brcdIp.1.2.2.15.7.1.10 Syntax: "PortQosTC"	Read-create	The object is optional. It assigns traffic that matches the ACL to a hardware forwarding queue. In addition to changing the internal forwarding priority, if the outgoing interface is an 802.1q interface, this option maps the specified priority to its equivalent 802.1p (QoS) priority and marks the packet with the new 802.1p priority. This option is applicable for inbound Layer 2 ACLs only. **NOTE:** fdryL2AclDot1pPriority following fdryL2AclDot1pPriorityForce cannot be used together in a Layer 2 ACL entry. **NOTE:** This MIB is not supported in the BigIron RX and will return "invalid 127". Default: level0(0)
fdryL2AclDot1pPriorityForce brcdIp.1.2.2.15.7.1.11 Syntax: "PortQosTC"	Read-create	The object is optional. It assigns packets of outgoing traffic that match the Layer 2 ACL to a specific hardware forwarding queue, even though the incoming packet may be assigned to another queue. This option is applicable for inbound ACLs only. **NOTE:** fdryL2AclDot1pPriority following fdryL2AclDot1pPriorityForce cannot be used together in a Layer 2 ACL entry. **NOTE:** This MIB is not supported in the BigIron RX and will return "invalid 127". Default: level0(0)
fdryL2AclDot1pPriorityMapping brcdIp.1.2.2.15.7.1.12 Syntax: "PortQosTC"	Read-create	The object is optional. It matches the packet's 802.1p value. This option does not change the packet's forwarding priority through the device or mark the packet. This keyword is applicable for both inbound and outbound Layer 2 ACLs. **NOTE:** This MIB is not supported in the BigIron RX and will return "invalid 127". Default: level0(0)
fdryL2AclMirrorPackets brcdIp.1.2.2.15.7.1.13 Syntax: TruthValue	Read-create	This object is optional. It is applicable only for the ACLs with permit clause. When you bind a Layer 2 ACL to a port, you can configure the port to mirror the packets to another port using the **acl-mirror-port** CLI command. Then the packets permitted on this port (as a result of the bound ACL) will be mirrored on the other port. Default: "false"

Name, OID, and Syntax	Access	Description
fdryL2AclLogEnable brcdIp.1.2.2.15.7.1.14 Syntax: TruthValue	Read-create	Optional parameter to enable logging only when deny clause is specified. Note that traffic denied by implicit deny mechanism is not subject to logging. The implicit deny occurs when traffic does not match any of the clauses and there is no **permit any any** clause specified at the end of the Layer 2 ACL. Default: false
fdryL2AclRowStatus brcdIp.1.2.2.15.7.1.15 Syntax: RowStatus	Read-create	The row status variable, used according to installation and removal conventions for conceptual rows. Setting this object to active(1) or createAndGo(4) results in the addition of a Layer 2 ACL filter in the router. Duplicate entry will be rejected during row creation. As part of row creation, entries are appended to this table. Row insertion may not be supported. Setting this object to destroy(6) removes the associated filter from the router. Other values in the enumeration are not used.

Layer 2 ACL binding configuration table

The Layer 2 ACL Binding Configuration Table lists the Layer 2 ACLs that have been bound to a port.

Name, OID, and Syntax	Access	Description
fdryL2AclIfBindTable brcdIp.1.2.2.15.8	N/A	Table of L2 ACL binding to port. Layer 2 ACLs and Layer 3 ACLs cannot be bound to the same port. However, you can configure a port to use Layer 2 ACLs, and another port on the same device to use Layer 3 ACLs. In general: • Layer 2 ACLs cannot be bound to virtual interfaces, unlike Layer 3 ACLs. • You cannot modify an existing Layer 2 ACL clause. You must first unbind the Layer 2 ACL, delete it, then create a new clause.
fdryL2AclIfBindEntry brcdIp.1.2.2.15.8.1	N/A	An entry in the Layer 2 ACL binding table. This uses the following indexes: • ifIndex: Identifies the port to be bound • fdryL2AclIfBindDirection: Identifies the direction of the traffic on the port.
fdryL2AclIfBindDirection brcdIp.1.2.2.15.8.1.1 Syntax: Direction	N/A	Indicates if Layer 2 ACLs are bound to incoming or outgoing ports: • inbound(0) • outbound(1))
fdryL2AclIfBindAclNumber Syntax: Unsigned32	Read-create	The Layer 2 ACL number that is to be bound to a physical interface. Valid values: 400 - 499
fdryL2AclIfBindRowStatus brcdIp.1.2.2.15.8.1.2 Syntax: RowStatus	Read-create	The row status variable, used according to the installation and removal conventions for conceptual rows. Setting this object to active(1) or createAndGo(4) binds the Layer 2 ACL to the specified physical port. Setting this object to destroy(6) unbinds the Layer 2 ACL from the port. Other values in the enumeration are not used.

ACLs

Access Control Lists (ACL) can be used to permit or deny packets from entering or leaving a device. For additional information on ACLs, refer to the configuration guide for a product.

Note: The ACL Port MIBs are supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- Brocade MLXe

This chapter contains the following sections:

- "Global ACL" on page 249
- "IPv4 ACL table" on page 249
- "ACl bind to port table (snAgAclBindToPortTable)" on page 256

Global ACL

The following objects are global to ACLs.

Name, OID, and Syntax	Access	Description
snAgAclGblCurRowIndex brcdIp.1.2.2.15.1.1 Syntax: Integer32	Read only	Shows the number of entries in the ACL table.

IPv4 ACL table

The IPv4 ACL Table contains the ACLs defined for the device. The snAgAclGblCurRowIndex object determines the number of ACLs that can be added to this table.

Use this table to create ACLs. Apply the ACLs to interfaces using the snAgAclBindToPortTable.

NOTE
For IPv6 ACLs on FastIron IPv6 devices running software release FSX 04.1.00 or later, refer to "IPv6 ACL table (FastIron X series IPv6 devices)" on page 260.

NOTE
BigIron MG8 and NetIron 40G use the snAgAclIfBindTable (refer to "ACL port table (snAgAclIfBindTable)" on page 257).

Name, OID, and Syntax	Access	Description
snAgAclTable brcdIp.1.2.2.15.2	None	Access Control List Table
snAgAclEntry brcdIp.1.2.2.15.2.1	None	An entry in the Access Control List Table

Name, OID, and Syntax	Access	Description
snAgAclIndex brcdIp.1.2.2.15.2.1.1 Syntax: Integer32	Read only	Shows the index for an ACL entry that is associated with this ACL. This number must be unique among all the entries, even though the value of other objects for an entry maybe the same those of another entry.
snAgAclNumber brcdIp.1.2.2.15.2.1.2 Syntax: AclNumber	Read-write	The access control list number for an entry: • 1 to 99 – Standard access list • 100 to 199 – Extended access list
snAgAclName brcdIp.1.2.2.15.2.1.3 Syntax: DisplayString	Read-write	Shows the ACL name.
snAgAclAction brcdIp.1.2.2.15.2.1.4 Syntax: Integer	Read-write	Indicates if IP packets that matched this access control list are permitted or denied: • deny(0) • permit(1) The default action when no ACLs are configured on a device is to permit all traffic. However, once you configure an ACL and apply it to a port, the default action for that port is to deny all traffic that is not explicitly permitted on the port. Therefore: • If you want to tightly control access, configure ACLs consisting of permit entries for the access you want to permit. The ACLs implicitly deny all other access. • If you want to secure access in environments with many users, you might want to configure ACLs that consist of explicit deny entries, then add an entry to permit all access to the end of each ACL. The software permits packets that are not denied by the deny entries.
snAgAclProtocol brcdIp.1.2.2.15.2.1.5 Syntax: IPProtocol	Read-write	Indicates the protocol denied or permitted by the extended ACL. The IP protocol can be one of the following well-known names or any IP protocol number from 0 to 255: • Internet Control Message Protocol (ICMP) • Internet Group Management Protocol (IGMP) • Internet Gateway Routing Protocol (IGRP) • Internet Protocol (IP) • Open Shortest Path First (OSPF) • Transmission Control Protocol (TCP) • User Datagram Protocol (UDP) Entering “0” indicates any protocol.
snAgAclSourceIp brcdIp.1.2.2.15.2.1.6 Syntax: IpAddress	Read-write	Applies only to extended ACLs. Identifies the source IP address of the packet that will either be permitted or denied.
snAgAclSourceMask brcdIp.1.2.2.15.2.1.7 Syntax: IpAddress	Read-write	Applies only to extended ACLs. Identifies the source IP subnet mask of the packet that will either be permitted or denied.

Name, OID, and Syntax	Access	Description
snAgAclSourceOperator brcdIp.1.2.2.15.2.1.8 Syntax: Operator	Read-write	Applies only to TCP or UDP ports in extended ACLs. Indicates how the policy will be compared to the ports specified in the "snAgAclSourceOperand1" and "snAgAclSourceOperand2" objects: • eq(0) – The policy applies only to packets whose source port number matches the port number specified in the objects. • neq(1) – The policy applies only to packets whose source port numbers are not included in the specified range. • lt(2) – The policy applies only to packets whose source port numbers are less than those in the specified range. • gt(3) – The policy applies only to packets whose source port numbers are greater than those in the specified range. • range(4) – The policy applies to packets whose source port numbers fall within the specified range. • undefined(7)
snAgAclSourceOperand1 brcdIp.1.2.2.15.2.1.9 Syntax: Integer	Read-write	Applies only to TCP or UDP ports in extended ACLs. Shows the source port number to be matched. If used with the "snAgAclSourceOperand2" object, it defines the start of the range of source port numbers to be matched. Valid values: 0 – 65535. A value of 0 means that this object is not applicable.
snAgAclSourceOperand2 brcdIp.1.2.2.15.2.1.10 Syntax: Integer	Read-write	Applies only to TCP or UDP ports in extended ACLs. Used with the "snAgAclSourceOperand1" object, it defines the end of the range of source port numbers to be matched. Valid values: 0 – 65535. A value of 0 means that this object is not applicable. On devices running Enterprise IronWare Release 07.8.00 and later, this object filters traffic containing ICMP packets based on the type number and the code number of the ICMP packets. Use this object to identify the ICMP message type number. Make sure you indicate a code number in the "snAgAcIIcmpCode" object. Valid values for ICMP type number are: • 0 = not applicable • 1 = Echo reply • 4 = Destination unreachable • 5 = Source quench • 6 = Redirect • 9 = Echo request • 10 = Router advertisement • 11 = Router solicitation • 12 = Time exceeded • 13 = Parameter problem • 14 = Timestamp request • 15 = Timestamp reply • 16 = Information request • 17 = Information reply • 18 = Address mask request • 19 = Address mask reply
snAgAclDestinationIp brcdIp.1.2.2.15.2.1.11 Syntax: IpAddress	Read-write	Applies only to extended ACLs. Identifies the destination IP address of the packet that will either be permitted or denied.

Name, OID, and Syntax	Access	Description
snAgAclDestinationMask brcdIp.1.2.2.15.2.1.12 Syntax: IpAddress	Read-write	Applies only to extended ACLs. Identifies the destination subnet mask of the packet that will either be permitted or denied.
snAgAclDestinationOperator brcdIp.1.2.2.15.2.1.13 Syntax: Operator	Read-write	Applies only to TCP or UDP ports in extended ACLs. Indicates how the policy will be compared to the ports specified in the "snAgAclDestinationOperand1" and "snAgAclDestinationOperand2" objects: • eq(0) – The policy applies only to packets whose destination port number matches the port number specified in the objects. • neq(1) – The policy applies only to packets whose destination port numbers are not included in the specified range. • lt(2) – The policy applies only to packets whose destination port numbers are less than those in the specified range. • gt(3) – The policy applies only to packets whose destination port numbers are greater than those in the specified range. • range(4) – The policy applies to packets whose destination port numbers fall within the specified range. • undefined(7)
snAgAclDestinationOperand1 brcdIp.1.2.2.15.2.1.14 Syntax: Integer	Read-write	Applies only to TCP or UDP ports in extended ACLs. Shows the destination port number to be matched. If used with the "snAgAclDestinationOperand2" object, it defines the start of the range of destination port numbers to be matched. Valid values: 0 – 65535. A value of 0 means that this object is not applicable.
snAgAclDestinationOperand2 brcdIp.1.2.2.15.2.1.15 Syntax: Integer	Read-write	Applies only to TCP or UDP ports in extended ACLs. Used with the "snAgAclDestinationOperand1" object, it defines the end of the range of destination port numbers to be matched. Valid values: 0 – 65535. A value of 0 means that this object is not applicable.
snAgAclPrecedence brcdIp.1.2.2.15.2.1.16 Syntax: PrecedenceValue	Read-write	Applies only to extended ACLs. Indicates the IP precedence value that a packet must have to be permitted or denied. • routine(0) • priority(1) • immediate(2) • flash(3) • flash-override(4) • critical(5) • internet(6) • network(7) The following priorities specify a hardware forwarding queue: routine(0), priority(1), immediate(2), flash(3)

Name, OID, and Syntax	Access	Description
snAgAclTos brcdIp.1.2.2.15.2.1.17 Syntax: TosValue	Read-write	Applies only to extended ACLs. Indicates the type of service a packet must have to be denied or permitted: • normal(0) – The ACL matches packets that have the normal TOS. If TOS is not defined, packets are matched to this value. • minMonetaryCost(1) – The ACL matches packets that have the minimum monetary cost TOS. • maxReliability(2) – The ACL matches packets that have the maximum reliability TOS. • maxThroughput(4) – The ACL matches packets that have the maximum throughput TOS. • minDelay(8) – The ACL matches packets that have the minimum delay TOS.
snAgAclEstablished brcdIp.1.2.2.15.2.1.18 Syntax: Integer	Read-write	Applies only to extended ACLs. Enables or disables the filtering of established TCP packets that have the ACK or RESET flag turned on. This additional filter only applies to TCP transport protocol. • disabled(0) • enabled(1)
snAgAclLogOption brcdIp.1.2.2.15.2.1.19 Syntax: TruthVal	Read-write	Determines if ACL matches are logged: • false(0) – Do not log ACL matches • true(1) – Log ACL matches
snAgAclStandardFlag brcdIp.1.2.2.15.2.1.20 Syntax: TruthVal	Read-write	Indicates if this is a standard ACL: • false(0) – The ACL is an extended ACL • true(1) – The ACL is a standard ACL
snAgAclRowStatus brcdIp.1.2.2.15.2.1.21 Syntax: SnRowStatus	Read-write	Creates or deletes an ACL entry. • other(1) • valid(2) • delete(3) • create(4)
snAgAclFlowCounter brcdIp.1.2.2.15.2.1.22 Syntax: Counter64	Read only	Shows an approximate count of flows that match the individual ACL entry.
snAgAclPacketCounter brcdIp.1.2.2.15.2.1.23 Syntax: Counter64	Read only	Shows the number of packets that matched the ACL entry.
snAgAclComments brcdIp.1.2.2.15.2.1.24 Syntax: DisplayString	Read-write	Indicates the description of an individual ACL entry.
snAgAclIpPriority brcdIp.1.2.2.15.2.1.25 Syntax: Integer	Read-write	Indicates the QoS priority option for this ACL. This priority assigns traffic that matches the ACL to a hardware forwarding queue. In addition to changing the internal forwarding priority, if the outgoing interface is an 802.1Q interface, this option maps the specified priority to its equivalent 802.1p (CoS) priority and marks the packet with the new 802.1p priority. **NOTE:** This option is available in IronWare software release 07.6.01 and later, and applies only to JetCore devices and 10 Gigabit Ethernet modules.

Name, OID, and Syntax	Access	Description
snAgAclPriorityForce brcdIp.1.2.2.15.2.1.26 Syntax: Integer	Read-write	Indicates priority that is being forced on the outgoing packet. This parameter allows you assign packets of outgoing traffic that match the ACL to a specific hardware forwarding queue, even though the incoming packet may be assigned to another queue. Valid values: • qosp0(0) • qosp1(1) • qosp2(2) • qosp3(3) • Not defined(4) Default: Not defined(4). **NOTE:** This option is available in IronWare software release 07.6.01 and later, and applies only to JetCore devices and 10 Gigabit Ethernet modules.
snAgAclPriorityMapping brcdIp.1.2.2.15.2.1.27 Syntax: Integer	Read-write	Indicates the priority of the incoming packet to be matched. This option maps the packet's 802.1p value. It does not change the packet's forwarding priority through the device nor does it mark the packet. Valid values: 0 – 8 Default: Not defined(8) **NOTE:** This option is available in IronWare software release 07.6.01 and later, and applies only to JetCore devices.
snAgAclDscpMarking brcdIp.1.2.2.15.2.1.28 Syntax: Integer	Read-write	Indicates the DSCP marking of a packet that will be matched. Valid values: 0 – 64 Default: Not defined(64) **NOTE:** This option is available in IronWare software release 07.6.01 and later, and applies only to JetCore devices and 10 Gigabit Ethernet modules.
snAgAclDscpMapping brcdIp.1.2.2.15.2.1.29 Syntax: Integer	Read-write	Indicates the DCSP value of the incoming packet value to be matched. Valid values: 0 – 64 Default: Not defined(64) **NOTE:** This option is available in IronWare software release 07.6.01 and later, and applies only to JetCore devices and 10 Gigabit Ethernet modules.

Name, OID, and Syntax	Access	Description
snAgAclIcmpCode brcdIp.1.2.2.15.2.1.30 Syntax: Integer	Read write	If you entered a value for ICMP message type number in the "snAgAclSourceOperand2" object, enter the code number in this object. **Valid value for type code 1, Echo reply** • 1 = Echo reply **Valid values for type code4, Destination unreachable** • 1 = Network unreachable • 2 = Host unreachable • 3 = Protocol unreachable • 4 = Port unreachable • 5 = Fragmentation needed by don't fragment bit set • 6 = Source route failed • 7 = Destination network unknown • 8 = Destination host unknown • 9 = Source host isolated • 10 = Destination network administratively prohibited • 11 = Destination host administratively prohibited • 12 = Network unreachable for TOS • 13 = Host unreachable for TOS • 14 = Communication administratively prohibited by filter • 15 = Host precedence violation • 16 = Precedence cutoff in effect **Valid values for type code 5, Source quench** • 1 = Source quench **Valid values for type code 6, Redirect** • 1 = Redirect for network • 2 = Redirect for host • 3 = Redirect for TOS and network • 4 = Redirect for TOS and host
snAgAclIcmpCode (continued)		**Valid value for type code 9, Echo request** • 1 = Echo request **Valid value for type code 10, Router advertisement** • 1 = Router advertisement **Valid value for type code 11, Router solicitation** • 1 = Router solicitation **Valid values for type code 12, Time exceeded** • 1 = Time to live equals 0 during transmit • 2 = Time to live equals 0 during reassembly **Valid values for type code 13, Parameter problem** • 1 = IP header bad (catchall error) • 2 = Required option missing **Valid value for type code 14, Timestamp request** • 1 = Timestamp request **Valid value for type code 15,Timestamp reply** • 1 = Timestamp reply **Valid value for type code 16, Information request** • 1 = Information request **Valid value for type code 17 Information reply** • 1 = Information reply **Valid value for type code 18 Address mask request** • 1 = Address mask request **Valid value for type code 19 Address mask reply** • 1 = Address mask reply

ACl bind to port table (snAgAclBindToPortTable)

The ACL Bind to Port Table contains ACL port bindings for a Layer 3 Switch. Port numbers and bind direction are used to index entries.

This table has been deprecated.

Name, OID, and Syntax	Access	Description
snAgAclBindToPortTable brcdIp.1.2.2.15.3 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, NetIron CER devices.	None	The ACL Bind to Port Table
snAgAclBindToPortEntry brcdIp.1.2.2.15.3.1	None	An entry in the ACL Bind to Port table
snAgAclPortNum brcdIp.1.2.2.15.3.1.1 Syntax: Integer32	Read only	Shows the format of port number.. • LS octet – port number (max 255) • Next octet – slot number (max 255) • MS Octet: 0 (phy) – 0000 to 0FFFF 1 (ve) – 10000 to 1FFFF
snAgAclPortBindDirection brcdIp.1.2.2.15.3.1.2 Syntax: Direction	Read only	Shows the traffic direction to which the ACL will be applied: • inbound(0) • outbound(1)
snAgAclNum brcdIp.1.2.2.15.3.1.3 Syntax: Integer32	Read-write	Shows the defined ACL number that will be bound to the port.
snAgAclNameString brcdIp.1.2.2.15.3.1.4 Syntax: DisplayString	Read-write	Shows the defined ACL name that will be bound to the port.
snAgBindPortListInVirtualInterface brcdIp.1.2.2.15.3.1.5 Syntax: OctetString	Read-write	Contains a list of ports for binding virtual interface
snAgAclPortRowStatus brcdIp.1.2.2.15.3.1.6 Syntax: SnRowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

ACL port table (snAgAclIfBindTable)

The snAgAclIfBindTable contains the ACLs defined for the BigIron MG8 and NetIron 40G. Other devices use the snAgAclTable (refer to "IPv4 ACL table").

Note: ACL port MIBs are supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- NetIron IMR 640 Router
- Brocade MLXe

Name, OID, and Syntax	Access	Description
snAgAclIfBindTable brcdIp.1.2.2.15.4	None	The ACL Bind to Port Table
snAgAclIfBindEntry brcdIp.1.2.2.15.4.1	None	An entry in the ACL Bind to Port table
snAgAclIfBindIndex brcdIp.1.2.2.15.4.1.1 Syntax: InterfaceIndex	Read only	The number of the virtual or physical interface to which this ACL is bound.
snAgAclIfBindDirection brcdIp.1.2.2.15.4.1.2 Syntax: Direction	Read only	Shows the traffic direction to which the ACL will be applied: • inbound(0) • outbound(1)
snAgAclIfBindNum brcdIp.1.2.2.15.4.1.3 Syntax: INTEGER	Read-write	Shows the defined ACL number that will be bound to the port.
snAgAclIfBindNameString brcdIp.1.2.2.15.4.1.4 Syntax: DisplayString	Read-write	Shows the defined ACL name that will be bound to the port.

Name, OID, and Syntax	Access	Description
snAgAclIfBindVifPortList brcdIp.1.2.2.15.4.1.5 Syntax: Octet string	Read-write	Contains a list of ports for binding virtual interface. Each port index is an ifIndex. If there are four or more consecutive ifIndexes then, they will be encoded. Encoding and decoding scheme is range based. Each range prefix with 0000 (2 octets) where 0000 is not a valid ifIndex. The next 2 octets indicates lower range ifIndex, followed by 2 octets of higher range ifIndex. individual (non- range) ones will be displayed as is. For example: Port list: 0001..0005 0015 0032..0047 Port list in PDU: 0000 0001 0005 000f 0000 0020 002f
snAgAclIfRowStatus brcdIp.1.2.2.15.4.1.6 Syntax: SnRowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

ACL port table (AgAclAccntTable)

The AgAclAccnt Table contains the ACLs defined for the BigIron and NetIron devices.

Note: The ACL Account MIBs are supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- Brocade MLXe

Name, OID, and Syntax	Access	Description
agAclAccntTable brcdIp.1.2.2.15.5.	None	Table of ACL Accounting Statistics for router
agAclAccntEntry brcdIp.1.2.2.15.5.1	None	An entry in the ACL Accounting table.
agAclAccntKind brcdIp.1.2.2.15.5.1.1 Syntax: Integer	None	Kind of ACL Accounting statistics needed.
agAclAccntIfIndex brcdIp.1.2.2.15.5.1.2 Syntax: InterfaceIndex	None	Physical or virtual interface on which ACL accounting is desired. For Receive ACL, we use the lowest port of the management module as value for this object.
agAclAccntDirection brcdIp.1.2.2.15.5.1.3 Syntax: Direction	None	ACL port direction, inbound or outbound. For receive-acl kind, direction cannot be outbound.
agAclAccntAclNumber brcdIp.1.2.2.15.5.1.4 Syntax: AclNumber	None	The access-list number for this entry.
agAclAccntFilterId brcdIp.1.2.2.15.5.1.5 Syntax: Unsigned	None	Filter ID within a given ACL. This is a zero based value.
agAclAccntAclName brcdIp.1.2.2.15.5.1.6 Syntax: AclNameString	Read-only	ACL name for an entry, if applicable. Otherwise, null string is returned.
agAclAccntOneSecond brcdIp.1.2.2.15.5.1.7 Syntax: Counter64	Read-only	Last one second accounting data.
agAclAccntOneMinute brcdIp.1.2.2.15.5.1.8 Syntax: Counter64	Read-only	Last one minute accounting data.
agAclAccntFiveMinute brcdIp.1.2.2.15.5.1.9 Syntax: Counter64	Read-only	Last five minute accounting data.
agAclAccntCumulative brcdIp.1.2.2.15.5.1.10 Syntax: Counter64	Read-only	Cumulative accounting data since the ACL was installed.

Name, OID, and Syntax	Access	Description
agAclAccntRaclDropCnt brcdIp.1.2.2.15.5.1.11 Syntax: Counter64	Read-only	Receive-ACL drop counter used for rate limiting. Not used for other ACL kind. The value returned is per ACL, instead of per filter within the ACL. This object supports rate limiting statistics for ACL and L2 ACL enabled interfaces.
agAclAccntRaclFwdCnt brcdIp.1.2.2.15.5.1.12 Syntax: Counter64	Read-only	Receive-ACL forward counter used for rate limiting. Not used for other ACL kind. The value returned is per ACL, instead of per filter within the ACL. This object supports rate limiting statistics for ACL and L2 ACL enabled interfaces.
agAclAccntRaclRemarkCnt brcdIp.1.2.2.15.5.1.13 Syntax: Counter64	Read-only	Receive-ACL remark counter used for rate limiting. Not used for other ACL kind. The value returned is per ACL, instead of per filter within the ACL. This object supports rate limiting statistics for ACL and L2 ACL enabled interfaces.
agAclAccntRaclTotalCnt brcdIp.1.2.2.15.5.1.14 Syntax: Counter64	Read-only	Receive-ACL total counter used for rate limiting. Not used for other ACL kind. The value returned is per ACL, instead of per filter within the ACL. This object supports rate limiting statistics for ACL and L2 ACL enabled interfaces.
agAclAccntRaclTotalSWHitCountCnt brcdIp.1.2.2.15.5.1.15 Syntax: Counter64	Read-only	Receive-ACL cumulative software hit counter. Not used for other ACL kind. The value returned is per ACL, instead of per filter within the ACL.

IPv6 ACL table (FastIron X series IPv6 devices)

This table contains the IPv6 ACLs for FastIron X Series IPv6 devices running software release 04.1.00 or later.

NOTE
Releases prior to FSX 04.1.00 and IPv6 devices that support IPv4 routing only, use the "IPv4 ACL table".

NOTE
The objects in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, NetIron CER devices.

Name, OID, and Syntax	Access	Description
fdryIpv6AclTable brcdIp.1.2.16.1.1.1 Syntax: Sequence of FdryIpv6AclEntry	None	The IPv6 Access Control List table.
fdryIpv6AclEntry brcdIp.1.2.16.1.1.1.1 Syntax: FdryIpv6AclEntry	None	An entry in the IPv6 Access Control List table.
fdryIpv6AclIndex brcdIp.1.2.16.1.1.1.1.1 Syntax:	None	The index number for an ACL entry. This is a unique number even though the name is not unique for a given ACL with the same or different source address, prefix length, destination address, destination prefix length, protocol type, action (permit or deny) type, and operator (neq, eq, gt, and lt).
fdryIpv6AclName brcdIp.1.2.16.1.1.1.1.2 Syntax: DisplayString (size (0..199))	Read-create	The ACL name for an entry.
fdryIpv6AclAction brcdIp.1.2.16.1.1.1.1.3 Syntax: Action	Read-create	The action to take if the IP packet matches this ACL.
fdryIpv6AclProtocol brcdIp.1.2.16.1.1.1.1.4 Syntax: IpProtocol	Read-create	The transport protocols. 0 means any protocol.
fdryIpv6AclSourceIp brcdIp.1.2.16.1.1.1.1.5 Syntax: Ipv6Address	Read-create	The source IPv6 address.
fdryIpv6AclSourcePrefixLen brcdIp.1.2.16.1.1.1.1.6 Syntax: Unsigned32	Read-create	The source IPv6 address prefix length.
fdryIpv6AclSourceOperator brcdIp.1.2.16.1.1.1.1.7 Syntax: Operator	Read-create	The type of comparison to perform. This applies only to TCP or UDP.
fdryIpv6AclSourceOperand1 brcdIp.1.2.16.1.1.1.1.8 Syntax: Unsigned32	Read-create	This object refers to the transport protocol port number.
fdryIpv6AclSourceOperand2 brcdIp.1.2.16.1.1.1.1.9 Syntax: Unsigned32 (0..65535)	Read-create	This object refers to the transport protocol port number.
fdryIpv6AclDestinationIp brcdIp.1.2.16.1.1.1.1.10 Syntax: Ipv6Address	Read-create	The destination IPv6 address.

Name, OID, and Syntax	Access	Description
fdryIpv6AclDestinationPrefixLen brcdIp.1.2.16.1.1.1.1.11 Syntax: Unsigned32	Read-create	The destination IPv6 address prefix length.
fdryIpv6AclDestinationOperator brcdIp.1.2.16.1.1.1.1.12 Syntax: Operator	Read-create	The type of comparison to perform. This applies only to TCP or UDP.
fdryIpv6AclDestinationOperand1 brcdIp.1.2.16.1.1.1.1.13 Syntax: Unsigned32 (0..65535)	Read-create	This object refers to the transport protocol port number.
fdryIpv6AclDestinationOperand2 brcdIp.1.2.16.1.1.1.1.14 Syntax: Unsigned32 (0..65535)	Read-create	This object refers to the transport protocol port number.
fdryIpv6AclEstablished brcdIp.1.2.16.1.1.1.1.15 Syntax: RtrStatus	Read-create	Enables or disables the filtering of established TCP packets for which the ACK or RESET flag is on. This filter applies only to the TCP transport protocol.
fdryIpv6AclLogOption brcdIp.1.2.16.1.1.1.1.16 Syntax: TruthValue	Read-create	The log flag. This should be set to one, which enables logging.
fdryIpv6AclComments brcdIp.1.2.16.1.1.1.1.17 Syntax: DisplayString (size (0..255))	Read-create	A description of the individual ACL entry.
fdryIpv6AclRowStatus brcdIp.1.2.16.1.1.1.1.18 Syntax: RowStatus	Read-create	Creates or deletes an ACL entry.

Chapter

15

Traffic Control and Prioritization

Quality of service

This chapter presents the objects that can be used to prioritize traffic.

Quality of Service (QoS) provides guaranteed bandwidth for certain traffic flows, by assigning priorities to queues that will be used by the traffic. For more information on QoS, refer to the configuration guide for a product.

The following tables are available to configure QoS:

- "QoS profile table" on page 263
- "QoS bind table" on page 264

QoS profile table

The following table contains the configuration of QoS profile groups.

Name, OID, and Syntax	Access	Description
snQosProfileTable brcdIp.1.1.3.14.1	None	The QoS Profile Table.
snQosProfileEntry brcdIp.1.1.3.14.1.1	None	An entry of the QoS Profile Table. Each entry represents a queue profile.
snQosProfileIndex brcdIp.1.1.3.14.1.1.1 Syntax: Integer	Read only	The table index of QoS Profile. There can be up to four profiles in this table.
snQosProfileName brcdIp.1.1.3.14.1.1.2 Syntax: DisplayString	Read-write	Shows the name of the QoS profile. Valid values: Up to 32 characters.
snQosProfileRequestedBandwidth brcdIp.1.1.3.14.1.1.3 Syntax: Integer	Read-write	Shows the requested bandwidth for the QoS profile.
snQosProfileCalculatedBandwidth brcdIp.1.1.3.14.1.1.4 Syntax: Integer	Read only	Shows the calculated bandwidth of the QoS profile.

QoS bind table

The following table binds 802.1p tags to the entries in the “QoS profile table” on page 263.

Name, OID, and Syntax	Access	Description
snQosBindTable brcdIp.1.1.3.14.2	None	The QoS Bind Table.
snQosBindEntry brcdIp.1.1.3.14.2.1	None	An entry of the snQosBindTable.
snQosBindIndex brcdIp.1.1.3.14.2.1.1 Syntax: Integer	Read only	The table index of QoS Bind.
snQosBindPriority brcdIp.1.1.3.14.2.1.2 Syntax: Integer32	Read only	Shows the QoS bind priority.
snQosBindProfileIndex brcdIp.1.1.3.14.2.1.3 Syntax: Integer (1..8)	Read-write	Is an index that serves as a pointer to the index of the “snQosProfileTable”.

CAR

This section presents the objects for Committed Access Rate (CAR), a Rate Limiting feature. Rate Limiting is a method of traffic control. You can configure a set of fixed or adaptive rate limits to regulate network traffic flow on an interface. The objects in this section are for the Fixed Rate Limiting feature.

Note: CAR is not supported on the following devices:

- NetIron XMR
- NetIron MLX
- NetIron CES 2000
- BigIron RX
- Brocade MLXe

The following tables are available to configure CAR:

- “CAR port table” on page 265
- “VLAN CAR objects” on page 266

CAR port table

The CAR Port Table shows the definitions of CAR objects. This table is indexed by the "snPortCARifIndex", "snPortCARDirection", and "snPortCARRowIndex" objects.

Name, OID, and Syntax	Access	Description
snPortCARTable brcdIp.1.1.3.16.1.1	None	The CAR Port Table
snPortCAREntry brcdIp.1.1.3.16.1.1.1	None	An entry in the CAR Port Table
snPortCARifIndex brcdIp.1.1.3.16.1.1.1.1 Syntax: Integer	Read only	Shows the ifIndex value for this rate limit entry.
snPortCARDirection brcdIp.1.1.3.16.1.1.1.2 Syntax: Integer	Read only	Specifies the transmission direction of the Rate-Limit object. • input(0) – for inbound traffic • output(1) – for outbound traffic
snPortCARRowIndex brcdIp.1.1.3.16.1.1.1.3 Syntax: Integer	Read only	Shows the table index for rate limit objects. Rows are numbered in sequential order. When a row is added, it is assigned the next sequential number. When a row is deleted, the row is skipped.
snPortCARType brcdIp.1.1.3.16.1.1.1.4 Syntax: RateLimitType	Read only	Shows the type of traffic to which the rate limit is applied. • all(3) – all traffic. • standardAcc(1) – traffic matches standard access list. • quickAcc(2) – traffic matches rate-limit's access list.
snPortCARAccIdx brcdIp.1.1.3.16.1.1.1.5 Syntax: Integer32	Read only	Indicates the index to the access list if rate limit type is one of the following: • standardAcc(1) – traffic matches standard access list. • quickAcc(2) – traffic matches rate-limit's access list.
snPortCARRate brcdIp.1.1.3.16.1.1.1.6 Syntax: Integer32	Read only	Shows the committed access rate for the long term average transmission rate in bits per second. Traffic that falls under this rate always conforms to this rate.
snPortCARLimit brcdIp.1.1.3.16.1.1.1.7 Syntax: Integer32	Read only	Shows the normal burst size in bytes. Normal burst size is the number of bytes that are guaranteed to be transported by the network at the average rate under normal conditions during the committed time interval.
snPortCARExtLimit brcdIp.1.1.3.16.1.1.1.8 Syntax: Integer32	Read only	Shows the extended burst limit in bytes. The extended burst limit determines how large traffic bursts can be before all the traffic exceeds the rate limit.
snPortCARConformAction brcdIp.1.1.3.16.1.1.1.9 Syntax: Integer	Read only	Indicates what happens to packets when the traffic is within the Rate Limit. • continue(1) – Continue to evaluate the subsequent rate limits. • drop(2) – Drop the packet. • precedCont(3) – Rewrite the IP precedence and transmit the packet. • precedXmit(4) – Rewrite the IP precedence and transmit the packet. • xmit(5) – Transmit the packet.

Name, OID, and Syntax	Access	Description
snPortCARExceedAction brcdIp.1.1.3.16.1.1.1.10 Syntax: Integer	Read only	Indicates what happens to packets when the traffic exceeds the Rate Limit. • continue(1) – Continue to evaluate the subsequent rate limits. • drop(2) – Drop the packet. • precedCont(3) – Rewrite the IP precedence and transmit the packet. • precedXmit(4) – Rewrite the IP precedence and transmit the packet. • xmit(5) – Transmit the packet.
snPortCARStatSwitchedPkts brcdIp.1.1.3.16.1.1.1.11 Syntax: Counter64	Read only	Indicates the number of packets permitted by this rate limit.
snPortCARStatSwitchedBytes brcdIp.1.1.3.16.1.1.1.12 Syntax: Counter64	Read only	Indicates the number of bytes permitted by this interface.
snPortCARStatFilteredPkts brcdIp.1.1.3.16.1.1.1.13 Syntax: Counter64	Read only	Indicates the number of packets which exceeded this rate limit.
snPortCARStatFilteredBytes brcdIp.1.1.3.16.1.1.1.14 Syntax: Counter64	Read only	Indicates the number of bytes which exceeded this rate limit.
snPortCARStatCurBurst brcdIp.1.1.3.16.1.1.1.15 Syntax: Gauge32	Read only	Shows the current burst size of received.

VLAN CAR objects

The objects in the following table contain the rate limit configuration for VLANs. This table is indexed by the "snVLanCARVLanId", "snVLanCARDirection", and "snVLanCARRowIndex" objects.

Name, OID, and Syntax	Access	Description
snVLanCARTable brcdIp.1.1.3.17.1.1	None	The VLAN rate limit table.
snVLanCAREntry brcdIp.1.1.3.17.1.1.1	None	An entry in the VLAN CAR Table.
snVLanCARVLanId brcdIp.1.1.3.17.1.1.1.1 Syntax: Integer	Read only	Shows the VLAN ID. VLAN ID is one of the indices of this table. Each VLAN ID can have a membership of multiple ports. Valid values: 1 – 4095

Name, OID, and Syntax	Access	Description
snVLanCARDirection brcdIp.1.1.3.17.1.1.1.2 Syntax: Integer	Read only	Specifies the transmission direction of the Rate-Limit object. • input(0) – for inbound traffic • output(1) – for outbound traffic
snVLanCARRowIndex brcdIp.1.1.3.17.1.1.1.3 Syntax: Integer	Read only	Shows the table index for rate limit objects for the VLAN. Rows are numbered in sequential order. When a row is added, it is assigned the next sequential number. When a row is deleted, the row is skipped.
snVLanCARType brcdIp.1.1.3.17.1.1.1.4 Syntax: Integer	Read only	Shows the type of traffic to which the rate limit is applied. • all(3) – all traffic. • standardAcc(1) – traffic matches standard access list. • quickAcc(2) – traffic matches rate-limit's access list.
snVLanCARAccIdx brcdIp.1.1.3.17.1.1.1.5 Syntax: Integer32	Read only	Indicates the index to the access list if rate limit type is one of the following: • standardAcc(1) – traffic matches standard access list. • quickAcc(2) – traffic matches rate-limit's access list.
snVLanCARRate brcdIp.1.1.3.17.1.1.1.6 Syntax: Integer32	Read only	Shows the committed access rate for long term average transmission for this VLAN. This rate is in bits per second. Traffic that falls under this rate always conforms to this rate.
snVLanCARLimit brcdIp.1.1.3.17.1.1.1.7 Syntax: Integer32	Read only	Shows the normal burst size in bytes. Normal burst size is the number of bytes that are guaranteed to be transported by the network at the average rate under normal conditions during the committed time interval.
snVLanCARExtLimit brcdIp.1.1.3.17.1.1.1.8 Syntax: Integer32	Read only	Shows the extended burst limit in bytes. The extended burst limit determines how large traffic bursts can be before all the traffic exceeds the rate limit.
snVLanCARConformAction brcdIp.1.1.3.17.1.1.1.9 Syntax: Integer	Read only	Indicates what happens to packets when the traffic is within the Rate Limit. • continue(1) – Continue to evaluate the subsequent rate limits. • drop(2) – Drop the packet. • precedCont(3) – Rewrite the IP precedence and transmit the packet. • precedXmit(4) – Rewrite the IP precedence and transmit the packet. • xmit(5) – Transmit the packet.
snVLanCARExceedAction brcdIp.1.1.3.17.1.1.1.10 Syntax: Integer	Read only	Indicates what happens to packets when the traffic exceeds the Rate Limit. • continue(1) – Continue to evaluate the subsequent rate limits. • drop(2) – Drop the packet. • precedCont(3) – Rewrite the IP precedence and transmit the packet. • precedXmit(4) – Rewrite the IP precedence and transmit the packet. • xmit(5) – Transmit the packet.
snVLanCARStatSwitchedPkts brcdIp.1.1.3.17.1.1.1.11 Syntax: Counter64	Read only	Indicates the number of packets permitted by this rate limit.

Name, OID, and Syntax	Access	Description
snVLanCARStatSwitchedBytes brcdIp.1.1.3.17.1.1.1.12 Syntax: Counter64	Read only	Indicates the number of bytes permitted by this interface.
snVLanCARStatFilteredPkts brcdIp.1.1.3.17.1.1.1.13 Syntax: Counter64	Read only	Indicates the number of packets which exceeded this rate limit.
snVLanCARStatFilteredBytes brcdIp.1.1.3.17.1.1.1.14 Syntax: Counter64	Read only	Indicates the number of bytes which exceeded this rate limit.
snVLanCARStatCurBurst brcdIp.1.1.3.17.1.1.1.15 Syntax: Gauge32	Read only	Shows the current burst size of received packets.

Rate limit counter table (agRateLimitCounterTable)

The following table shows rate limit counter entries.

agRateLimitCounterTable brcdIp.1.1.3.16.1.2	N/A	The rate limit counter table.
agRateLimitCounterEntry brcdIp.1.1.3.16.1.2.1	N/A	A collection of rate limit counter objects on a interface, direction and configuration row index within that interface.
agRateLimitCounterFwdedOctets brcdIp.1.1.3.16.1.2.1.1 Syntax: Counter64	Read only	The forwarded octet count for this rate limit entry.
agRateLimitCounterDroppedOctets brcdIp.1.1.3.16.1.2.1.2 Syntax: Counter64	Read only	The dropped octet count for this rate limit entry.
agRateLimitCounterReMarkedOctets brcdIp.1.1.3.16.1.2.1.3 Syntax: Counter64	Read only	The remarked octet count for this rate limit entry.
agRateLimitCounterTotalOctets brcdIp.1.1.3.16.1.2.1.4 Syntax: Counter64	Read only	The total octet count for this rate limit entry.

Chapter

Multicast 16

IGMP

The multicast feature allows packets to be simultaneously transmitted to a selected set of destinations, such one or more multicast groups. Refer to the configuration guide for a product for details on the features discussed in this chapter.

The Internet Group Membership Protocol (IGMP) allows Layer 3 Switches to limit the multicast of IGMP packets to only those ports on the Layer 3 Switch that are identified as IP Multicast members. Devices support IGMP versions 1 and 2. The Layer 3 Switch actively sends out host queries to identify IP Multicast groups on the network, inserts the group information in an IGMP packet, and forwards the packet to IP Multicast neighbors.

NOTE
The objects in this section are not supported on the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX, NetIron CES, and NetIron CER devices.

Objects for IGMP are presented in the following sections:

- "General IGMP objects" on page 270
- "IGMP interface table" on page 270
- "IGMP static group MIB table" on page 271

General IGMP objects

The following general IGMP objects are available in all devices.

Object Name and Number	Access	Description
snIgmpQueryInterval brcdIp.1.2.6.1.1 Syntax: Integer	Read-write	Specifies how often the Layer 3 Switch sends out IGMP host query packets to query an interface for group membership. Valid values: 1 – 3600 seconds. Default: 60 seconds For a Layer 3 Switch, the object "snDvmrpEnable" must have been set to "enabled(1)" before this object can be written. For a Layer 2 Switch, the object "snSwGroupIpMcastMode" must have been set to "enabled(1)" and the object "snSwIpMcastQuerierMode" must have been set to "querier(1)" before this object can be written.
snIgmpGroupMembershipTime brcdIp.1.2.6.1.2 Syntax: Integer	Read-write	Specifies how many seconds an IP Multicast group can remain on a Layer 3 Switch interface in the absence of a group report. Valid values: 1 – 7200 seconds. Default: 60 seconds For a Layer 3 Switch, the object "snDvmrpEnable" must have been set to "enabled(1)" before this object can be written. For a Layer 2 Switch, the object "snSwGroupIpMcastMode" must have been set to "enabled(1)" before this object can be written.

IGMP interface table

The IGMP Interface Table contains the group membership information of a port.

Object Name and Number	Access	Description
snIgmpIfTable brcdIp.1.2.6.1.3	None	The IGMP Interface Table.
snIgmpIfEntry brcdIp.1.2.6.1.3.1	None	An entry in the IGMP Interface Table.
snIgmpIfEntryIndex brcdIp.1.2.6.1.3.1.1 Syntax: Integer32	Read only	The table entry index.
snIgmpIfPortNumber brcdIp.1.2.6.1.3.1.2 Syntax: Integer32	Read only	Shows the port number (interface) on which the group was learned.
snIgmpIfGroupAddress brcdIp.1.2.6.1.3.1.3 Syntax: IpAddress	Read only	Shows the group's IP address learned from the interface.
snIgmpIfGroupAge brcdIp.1.2.6.1.3.1.4 Syntax: Integer32	Read only	Specifies how many seconds the Layer 3 Switch will wait for an IGMP response from an interface before concluding that the group member on that interface is down. The switch will then begin to remove the interface from the group. Valid values: 1 – 10 seconds Default: 5 seconds

IGMP static group MIB table

The IGMP Static Group MIB table is available beginning with IronWare software release 07.6.02.

The table contains a list of IGMP static group entries. This table is available when IP Multicast Traffic Reduction is enabled on a Layer 2 Switch. The snSwGroupIpMcastMode MIB object enables or disables IP Multicast using SNMP.

By default, Layer 2 Switches forward all IP multicast traffic out of all ports except the port on which the traffic was received. To reduce multicast traffic through the Layer 2 Switch, you can enable IP Multicast Traffic Reduction. This feature configures the Layer 2 Switch to forward multicast traffic only on the ports attached to multicast group members. The Layer 2 Switch determines the ports that are attached to multicast group members based on entries in the IGMP table. Each entry in the table consists of an IP multicast group address and the Layer 2 Switch ports from which the Layer 2 Switch has received Group Membership reports for that group.

After you enable IP Multicast Traffic Reduction, when the Layer 2 Switch receives traffic for an IP multicast group, the Layer 2 Switch looks in the IGMP table for an entry for that group. If the Layer 2 Switch finds an entry, the Layer 2 Switch forwards the group traffic out the ports listed in the group entry. If the table does not contain an entry for the group, the Layer 2 Switch broadcasts the traffic.

The IGMP table is populated by receipt of Group Membership messages from IP multicast group members. Each Group Membership message contains the member's IP address and the group address.

Name, OID, and Syntax	Access	Description
snIgmpStaticGroupTable brcdIp.1.2.6.1.4	None	The IGMP Static Group Table
snIgmpStaticGroupEntry brcdIp.1.2.6.1.4.1	None	An entry in the IGMP static group. Each entry contains membership information.
snIgmpStaticGroupIfIndex brcdIp.1.2.6.1.4.1.1 Syntax: Integer	Read only	Shows the interface for which the group was configured.
snIgmpStaticGroupAddress brcdIp.1.2.6.1.4.1.2 Syntax: IpAddress	Read only	Shows the IP address for the group.
snIgmpStaticGroupPortList brcdIp.1.2.6.1.4.1.3 Syntax: OctetString	Read-write	Contains a list of ports that are members of the static group. Each port contains a 16-bit integer ifIndex.
snIgmpStaticGroupRowStatus brcdIp.1.2.6.1.4.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • other(1) – Row is inoperative • valid(2) – Row exists and is valid

PIM

The sections below describe the SNMP support for Protocol-Independent Multicast (PIM).

The products listed below support RFC 2934, except for the following tables: pimIpMRouteTable, pimIpMRouteNextHopTable and pimComponentTable.

- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- BigIron RX
- NetIron XMR
- NetIron MLX
- NetIron CES
- NetIron CER
- Brocade MLXe

The products listed above also support the proprietary scalar MIBs discussed in the section “Common PIM objects” on page 272.

SNMP support for PIM on other products are discussed in the following sections:

- “PIM virtual interface table” on page 273
- “PIM neighbor table” on page 275
- “PIM virtual interface statistics table” on page 276
- “PIM-SM” on page 278

Common PIM objects

NOTE
Only objects specified below are supported on the BigIron MG8, NetIron 40G, NetIron IMR 640, BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The following table presents objects that are common to all PIM interfaces.

Name, OID, and Syntax	Access	Description
snPimEnable brcdIp.1.2.9.1.1 Syntax: Integer	Read-write	Determines if PIM is enabled on this Layer 3 Switch: • disabled(0) • enabled(1) Default: disabled(0) The remaining object applies only if this object is set to enabled(1).
snPimNeighborRouterTimeout brcdIp.1.2.9.1.2 Syntax: Integer	Read-write	Specifies the number of seconds the PIM Layer 3 Switch waits before it considers a neighbor to be absent. Absence of PIM hello messages from a neighboring Layer 3 Switch indicates that a neighbor is not present. Valid values: 60 – 8000 seconds Default: 180 seconds

Name, OID, and Syntax	Access	Description
snPimHelloTime brcdIp.1.2.9.1.3 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the number of seconds that periodic hellos are sent out on PIM interfaces. Layer 3 Switches use hello messages to inform neighboring Layer 3 Switches of their presence. Valid values: 10 – 3600 seconds Default: 60 seconds
snPimPruneTime brcdIp.1.2.9.1.4 Syntax: Integer	Read-write	Specifies the number of seconds that a PIM Layer 3 Switch will maintain a prune state for a forwarding entry. The first multicast that the Layer 3 Switch receives from an interface is forwarded to all other PIM interfaces on the Layer 3 Switch. If there is no presence of groups on that interface, the leaf node sends a prune message upstream and stores a prune state. This prune state travels up the tree and installs a prune state. A prune state is maintained until the prune timer expires or a graft message is received for the forwarding entry. Valid values: 10 – 3600 seconds Default: 180 seconds
snPimGraftRetransmitTime brcdIp.1.2.9.1.5 Syntax: Integer	Read-write	Defines the number of seconds between the transmission of graft messages. A graft message is sent by a Layer 3 Switch to cancel a prune state. When a Layer 3 Switch receives a graft message, the Layer 3 Switch responds with a Graft ACK (acknowledge) message. If this Graft ACK message is lost, the Layer 3 Switch that sent the graft message will resend it. Valid values: 10 – 3600 seconds Default: 180 seconds
snPimInactivityTime brcdIp.1.2.9.1.6 Syntax: Integer	Read-write	Defines how long a forwarding entry can remain unused before the Layer 3 Switch deletes it. The Layer 3 Switch deletes a forwarding entry if the entry is not used to send multicast packets. This object is used only to keep the forwarding entries for the active sessions. Valid values: 10 – 3600 seconds Default: 180 seconds

PIM virtual interface table

The PIM Virtual Interface Table lists the PIM virtual interfaces on a Layer 3 Switch.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snPimVInterfaceTable brcdIp.1.2.9.1.7	None	The PIM Virtual Interface Table.
snPimVInterfaceEntry brcdIp.1.2.9.1.7.1	None	An entry in the PIM Virtual Interface Table.
snPimVInterfaceVifIndex brcdIp.1.2.9.1.7.1.1 Syntax: Integer	Read only	The ifIndex value of this PIM virtual interface. There can be up to 48 entries.
snPimVInterfaceType brcdIp.1.2.9.1.7.1.2 Syntax: Integer	Read-write	Indicates the type of PIM virtual interface the row represents: • tunnel(1) • subnet(2) or a physical interface
snPimVInterfaceLocalAddress brcdIp.1.2.9.1.7.1.3 Syntax: IpAddress	Read-write	Indicates the IP address of the local end of the interface being configured. IP tunneling must also be enabled and defined on the destination Layer 3 Switch interface as well.
snPimVInterfaceLocalSubnetMask brcdIp.1.2.9.1.7.1.4 Syntax: IpAddress	Read only	Shows the network mask for the IP address of the PIM virtual interface. For a tunnel, this should be 0.0.0.0.
snPimVInterfaceRemoteAddress brcdIp.1.2.9.1.7.1.5 Syntax: IpAddress	Read-write	Shows the IP address of the remote end of this PIM virtual interface.
snPimVInterfaceDR brcdIp.1.2.9.1.7.1.6 Syntax: IpAddress	Read only	Defines the designated Layer 3 Switch on this PIM virtual interface. For point-to-point interfaces, this object has the value 0.0.0.0.
snPimVInterfaceTtlThreshold brcdIp.1.2.9.1.7.1.7 Syntax: Integer	Read-write	Determines the minimum time-to-live value to forward the packets out of this interface. Valid values: 1 – 31 Default: 1

Name, OID, and Syntax	Access	Description
snPimVInterfaceStatus brcdIp.1.2.9.1.7.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snPimVInterfaceMode brcdIp.1.2.9.1.7.1.9 Syntax: Integer	Read-write	Shows the configured mode of this PIM interface: • dense(1) – Traffic is initially flooded to all PIM interface neighbors. Branches that do not want the data are pruned. • sparse(2) – PIM interface neighbors must join the multicast group if they want to receive the traffic.

PIM neighbor table

The PIM Neighbor Table is a conceptual table that lists the Layer 3 Switch's PIM neighbors.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snPimNeighborTable brcdIp.1.2.9.1.8	None	The PIM Neighbor Table
snPimNeighborEntry brcdIp.1.2.9.1.8.1	None	An entry in the PIM Neighbor Table
snPimNeighborEntryIndex brcdIp.1.2.9.1.8.1.1 Syntax: Integer32	Read only	The table entry index.
snPimNeighborVifIndex brcdIp.1.2.9.1.8.1.2 Syntax: Integer32	Read only	Shows the value of VifIndex for the virtual interface used to reach this PIM neighbor.
snPimNeighborAddress brcdIp.1.2.9.1.8.1.3 Syntax: IpAddress	Read only	Shows the IP address of the this PIM neighbor.
snPimNeighborUpTime brcdIp.1.2.9.1.8.1.4 Syntax: Time ticks	Read only	Indicates the last time when this PIM neighbor became a neighbor of the local Layer 3 Switch.
snPimNeighborExpiryTime brcdIp.1.2.9.1.8.1.5 Syntax: Time ticks	Read only	Displays the time remaining before this PIM neighbor will be aged out.

PIM virtual interface statistics table

The PIM Virtual Interface Statistics table lists the Layer 3 Switch's PIM virtual interface statistical counters.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snPimVlfStatTable brcdIp.1.2.9.1.9	None	The PIM Virtual Interface Statistics Table.
snPimVlfStatEntry brcdIp.1.2.9.1.9.1	None	An entry in the PIM Virtual Interface Statistics Table.
snPimVlfStatVifIndex brcdIp.1.2.9.1.9.1.1 Syntax: Integer	Read only	The ifIndex value of this PIM virtual interface. There can be up – 32 entries.
snPimVlfStatInJoinPkts brcdIp.1.2.9.1.9.1.2 Syntax: Counter32	Read only	Shows the number of Join/Prune messages sent or received on the interface. **NOTE:** Unlike PIM dense, PIM Sparse uses the same messages for Joins and Prunes.T
snPimVlfStatOutJoinPkts brcdIp.1.2.9.1.9.1.3 Syntax: Counter32	Read only	Indicates the number of join packets that have been sent on the PIM virtual interface.
snPimVlfStatDiscardJoinPkts brcdIp.1.2.9.1.9.1.4 Syntax: Counter32	Read only	Shows the number of join packets that have been discarded by the PIM virtual interface.
snPimVlfStatInPrunePkts brcdIp.1.2.9.1.9.1.5 Syntax: Counter32	Read only	Shows the number of prune packets that have arrived on the PIM virtual interface.
snPimVlfStatOutPrunePkts brcdIp.1.2.9.1.9.1.6 Syntax: Counter32	Read only	Shows the number of prune packets that have been sent on the PIM virtual interface.
snPimVlfStatDiscardPrunePkts brcdIp.1.2.9.1.9.1.7 Syntax: Counter32	Read only	Shows the number of prune packets that have been discarded by the PIM virtual interface.
snPimVlfStatInAssertPkts brcdIp.1.2.9.1.9.1.8 Syntax: Counter32	Read only	Shows the number of assert packets that have arrived on the PIM virtual interface.
snPimVlfStatOutAssertPkts brcdIp.1.2.9.1.9.1.9 Syntax: Counter32	Read only	Shows the number of assert packets that have been sent on the PIM virtual interface.
snPimVlfStatDiscardAssertPkts brcdIp.1.2.9.1.9.1.10 Syntax: Counter32	Read only	Shows the number of assert packets that have been discarded by the PIM virtual interface.

Name, OID, and Syntax	Access	Description
snPimVlfStatInHelloPkts brcdIp.1.2.9.1.9.1.11 Syntax: Counter32	Read only	Shows the number of hello packets that have arrived on the PIM virtual interface.
snPimVlfStatOutHelloPkts brcdIp.1.2.9.1.9.1.12 Syntax: Counter32	Read only	Shows the number of hello packets that have been sent on the PIM virtual interface.
snPimVlfStatDiscardHelloPkts brcdIp.1.2.9.1.9.1.13 Syntax: Counter32	Read only	Shows the number of hello packets that have been discarded by the PIM virtual interface.
snPimVlfStatInGraftPkts brcdIp.1.2.9.1.9.1.14 Syntax: Counter32	Read only	Shows the number of graft packets that have arrived on the PIM virtual interface.
snPimVlfStatOutGraftPkts brcdIp.1.2.9.1.9.1.15 Syntax: Counter32	Read only	Shows the number of graft packets that have been sent on the PIM virtual interface.
snPimVlfStatDiscardGraftPkts brcdIp.1.2.9.1.9.1.16 Syntax: Counter32	Read only	Shows the number of graft packets that have been discarded by the PIM virtual interface.
snPimVlfStatInGraftAckPkts brcdIp.1.2.9.1.9.1.17 Syntax: Counter32	Read only	Shows the number of graft acknowledge packets that have arrived on the PIM virtual interface.
snPimVlfStatOutGraftAckPkts brcdIp.1.2.9.1.9.1.18 Syntax: Counter32	Read only	Shows the number of graft acknowledge packets that have been sent on the PIM virtual interface.
snPimVlfStatDiscardGraftAckPkts brcdIp.1.2.9.1.9.1.19 Syntax: Counterv32	Read only	Shows the number of graft acknowledge packets that have been discarded by the PIM virtual interface.

PIM-SM

The following tables are available for the PIM Sparse feature.

- "PIM sparse: candidate BSR table" on page 278
- "PIM RP set table" on page 279
- "PIM RP candidate table" on page 279

NOTE
The tables in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snPimJoinPruneInterval brcdIp.1.2.9.2.1 Syntax: Integer	Read-write	Determines the number of seconds when periodic PIM Spare Join/Prune messages are to be sent. These messages inform other PIM Sparse Layer 3 Switches about clients who want to become receivers (Join) or stop being receivers (Prune) for PIM Sparse groups. Valid values: 10 – 3600 seconds Default: 60 seconds

PIM sparse: candidate BSR table

The Candidate Bootstrap Router (BSR) Table contains information about BSRs that can are candidates to be the active BSR for the domain. The Bootstrap Router (BSR) distributes Rendezvous Point (RP) information to the other PIM Sparse routers within the domain. Each PIM Sparse domain has one active BSR. For redundancy, you can configure ports on multiple routers as candidate BSRs. The PIM Sparse protocol uses an election process to select one of the candidate BSRs as the active BSR for the domain. The BSR with the highest BSR priority is elected. If the priorities result in a tie, then the candidate BSR interface with the highest IP address is elected.

Name, OID, and Syntax	Access	Description
snPimCandidateBSRTable brcdIp.1.2.9.2.2	None	The Candidate Bootstrap Router Table.
snPimCandidateBSREntry brcdIp.1.2.9.2.2.1	None	An entry in the Candidate Bootstrap Router Table.
snPimCandidateBSRPortID brcdIp.1.2.9.2.2.1.1 Syntax: Integer32	Read-write	Identifies the IP address of the PIM interface: • Bit 0 to bit 7 – Port number. • Bit 8 to bit 11– Slot number.
snPimCandidateBSRIPAddress brcdIp.1.2.9.2.2.1.2 Syntax: IpAddress	Read only	Shows the unicast address of the candidate BSR. Valid values: 1 – 32.
snPimCandidateBSRHashMaskLen brcdIp.1.2.9.2.2.1.3 Syntax: Integer	Read-write	Indicates the hash mask value for this Layer 3 Switch as a candidate bootstrap router.
snPimCandidateBSRPreference brcdIp.1.2.9.2.2.1.4 Syntax: Integer	Read-write	Indicates the preference value for this Layer 3 Switch as a candidate bootstrap router. Valid values: 0 – 255 Default: 100

PIM RP set table

The PIM RP Set Table contains information about candidate Rendezvous Points (RPs) for IP multicast groups. When the local Layer 3 Switch is the BSR, this information is obtained from the advertisements received from the Candidate-RP. When the local Layer 3 Switch is not the BSR, this information is obtained from the received RP-Set messages.

Name, OID, and Syntax	Access	Description
snPimRPSetTable brcdIp.1.2.9.2.3	None	The PIM RP Set Table
snPimRPSetEntry brcdIp.1.2.9.2.3.1	None	An entry in the PIM RP Set Table
snPimRPSetGroupAddress brcdIp.1.2.9.2.3.1.1 Syntax: IpAddress	Read only	Shows the IP multicast group address. This object plus the snPimRPSetGroupMask, form the group prefix for the Candidate-RP.
snPimRPSetMask brcdIp.1.2.9.2.3.1.2 Syntax: IpAddress	Read only	Shows the IP multicast group address. This object plus the "snPimRPSetGroupAddress" object form the group prefix for the Candidate-RP.
snPimRPSetIPAddress brcdIp.1.2.9.2.3.1.3 Syntax: IpAddress	Read only	Shows the IP address of the Candidate-RP.
snPimRPSetHoldTime brcdIp.1.2.9.2.3.1.4 Syntax: Integer	Read only	Shows the holdtime, in seconds, of a Candidate-RP. If the local router is not the BSR, this value is 0.

PIM RP candidate table

The PIM Rendezvous Point Table listing the IP multicast groups for which the local router is to advertise itself as a Candidate-RP. If this table is empty, then the local router will advertise itself as a Candidate-RP for all groups snPimEnable must be "enabled" before this table is read or written.

Name, OID, and Syntax	Access	Description
snPimCandidateRPTable brcdIp.1.2.9.2.4	None	The PIM RP Candidate Table
snPimCandidateRPEntry brcdIp.1.2.9.2.4.1	None	An entry the PIM RP Candidate Table
snPimCandidateRPGroupAddress brcdIp.1.2.9.2.4.1.1 Syntax: IpAddress	Read only	Shows the IP multicast group address. This object combined with the snPimCandidateRPGroupMask object forms the group prefix for which the local router will advertise itself as a Candidate-RP.
snPimCandidateRPMask brcdIp.1.2.9.2.4.1.2 Syntax: IpAddress	Read only	Shows the multicast group address mask. This object combined with snPimCandidateRPGroupMask forms the group prefix for which the local router will advertise itself as a Candidate-RP.

Name, OID, and Syntax	Access	Description
snPimCandidateRPIPAddress brcdIp.1.2.9.2.4.1.3 Syntax: IpAddress	Read-write	Indicates the unicast IP address of the interface that will be advertised as a Candidate-RP.
snPimCandidateRPRowStatus brcdIp.1.2.9.2.4.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

DVMRP

Distance Vector Multicast Routing Protocol (DVMRP) is one of the multicast routing protocol supported in Layer 3 Switches, such as the BigIron products.

The objects in this section apply to the DVMRP feature, if that feature is enabled in the Layer 3 Switch. For additional information on DVMRP, refer to the configuration guide for a product.

The following sections present the objects and tables for configuring DVMRP:

- “Global DVMRP objects” on page 281
- “DVMRP virtual interface table” on page 282
- “DVMRP neighbor table” on page 284
- “DVMRP route table” on page 285
- “DVMRP routing next hop table” on page 285
- “DVMRP virtual interface statistics table” on page 286

Global DVMRP objects

Name, OID, and Syntax	Access	Description
snDvmrpVersion brcdIp.1.2.5.1.1 Syntax: DisplayString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the DVMRP version in the Layer 3 Switch. There can be up to 255 characters in this object.
snDvmrpEnable brcdIp.1.2.5.1.2 Syntax: Integer	Read-write	Indicates if DVMRP is enabled on this Layer 3 Switch: • disabled(0) • enabled(1) Default: disabled(0)
snDvmrpGenerationId brcdIp.1.2.5.1.3 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the generation identifier for the routing process. This is used by neighboring Layer 3 Switches to determine if pruning information should be resent.
snDvmrpProbeInterval brcdIp.1.2.5.1.4 Syntax: Integer	Read-write	Defines how often neighbor probe messages are sent to the ALL-DVMRP-ROUTERS IP multicast group address. A Layer 3 Switch's probe message lists those neighbor DVMRP routers from which it has received probes. Valid values: 5 – 30 seconds Default: 10 seconds
snDvmrpReportInterval brcdIp.1.2.5.1.5 Syntax: Integer	Read-write	Defines how often Layer 3 Switches propagate their complete routing tables to other DVMRP neighbor routers. Valid values: 10 –2000 seconds Default: 60 seconds
snDvmrpTriggerInterval brcdIp.1.2.5.1.6 Syntax: Integer	Read-write	Defines how often trigger updates, which reflect changes in the network topology, are sent. For example, changes in a network topology, including router up or down, or changes in the metric, would cause trigger updates to be sent. Valid values: 5 –30 seconds Default: 5 seconds
snDvmrpNeighborRouterTimeout brcdIp.1.2.5.1.7 Syntax: Integer	Read-write	Specifies the how long a router waits before it determines that an attached DVMRP neighbor router as down. Valid values: 40 – 8000 seconds Default: 180 seconds

Name, OID, and Syntax	Access	Description
snDvmrpRouteExpireTime brcdIp.1.2.5.1.8 Syntax: Integer	Read-write	Defines how long a route is considered valid in the absence of the next route update. Valid values: 20 – 4000 seconds Default: 200 seconds
snDvmrpRouteDiscardTime brcdIp.1.2.5.1.9 Syntax: Integer	Read-write	Defines how long a router waits before it deletes a route. Valid values: 40 – 8000 seconds Default: 340 seconds
snDvmrpPruneAge brcdIp.1.2.5.1.10 Syntax: Integer	Read-write	Defines how long a prune state will remain in effect for a source-routed multicast tree. After the prune age period expires, flooding will resume. Valid values: 20 – 3600 seconds Default: 180 seconds
snDvmrpGraftRetransmitTime brcdIp.1.2.5.1.11 Syntax: Integer	Read-write	Defines how long a router that is sending a graft message will wait for a the first graft acknowledgement from an upstream router before re-transmitting that message. Subsequent retransmissions are sent at an interval twice that of the preceding interval. Valid values: 5 – 3600 seconds Default: 10 seconds
snDvmrpDefaultRoute brcdIp.1.2.5.1.12 Syntax: IpAddress	Read-write	This is the IP address of a router that is connected to one of the directly attached subnet. If a multicast route is not present on the local router, this default route will be used for multicast forwarding. "snDvmrpEnable" must be set to "enabled" before this object can be written.

DVMRP virtual interface table

The DVMRP Virtual Interface Table contains the router's DVMRP virtual interfaces.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snDvmrpVInterfaceTable brcdIp.1.2.5.1.13	None	The DVMRP Virtual Interface Table
snDvmrpVInterfaceEntry brcdIp.1.2.5.1.13.1	None	An entry in the The DVMRP Virtual Interface Table. This row augments ipMRouteInterfaceEntry in the IP Multicast MIB, where the threshold object resides.
snDvmrpVInterfaceVifIndex brcdIp.1.2.5.1.13.1.1 Syntax: Integer	Read only	The ifIndex value of this DVMRP virtual interface.
snDvmrpVInterfaceType brcdIp.1.2.5.1.13.1.2 Syntax: Integer	Read-write	Indicates the type of this DVMRP virtual interface: • tunnel(1) – Tunnel interface, for which the interface is a querier. • subnet(3) – Physical interface, for which the interface is not a querier.

Name, OID, and Syntax	Access	Description
snDvmrpVInterfaceOperState brcdIp.1.2.5.1.13.1.3 Syntax: Integer	Read only	Shows the current state of this DVMRP virtual interface: • up(1) • down(2)
snDvmrpVInterfaceLocalAddress brcdIp.1.2.5.1.13.1.4 Syntax: IpAddress	Read-write	Shows the IP address of the local end of this DVMRP virtual interface.
snDvmrpVInterfaceRemoteAddress brcdIp.1.2.5.1.13.1.5 Syntax: IpAddress	Read-write	Shows the IP address of the remote end of this DVMRP virtual interface. For a tunnel, enter the IP address of the neighboring router. For a subnet, enter the subnet address.
snDvmrpVInterfaceRemoteSubnet Mask brcdIp.1.2.5.1.13.1.6 Syntax: IpAddress	Read only	Shows the subnet mask for a directly connected subnet. For a tunnel, this should be 0.0.0.0.
snDvmrpVInterfaceMetric brcdIp.1.2.5.1.13.1.7 Syntax: Integer	Read-write	Defines the distance metric for this DVMRP virtual interface. The router uses the metric when establishing reverse paths to some networks on directly attached interfaces. Valid values: 1 – 31 hops Default: 1
snDvmrpVInterfaceTtlThreshold brcdIp.1.2.5.1.13.1.8 Syntax: Integer	Read-write	Defines the minimum value required in a packet in order for the packet to be forwarded out of the interface. For example, if the TTL for an interface is set at 10, then only those packets with a TTL value of 10 or more are forwarded. Likewise, if an interface is configured with a TTL Threshold value of 1, all packets received on that interface are forwarded. Valid values: 1 – 64 Default: 1
snDvmrpVInterfaceAdvertiseLocal brcdIp.1.2.5.1.13.1.9 Syntax: Integer	Read-write	Determines if advertising of this local route is enabled: • disabled(0) • enabled(1) Default: enabled(1)
snDvmrpVInterfaceEncapsulation brcdIp.1.2.5.1.13.1.10 Syntax: Integer	Read-write	Indicates if the encapsulation of the DVMRP control packets when using IPINIP encapsulation is enabled: • disabled(0) • enabled(1) Default: disabled(0)
snDvmrpVInterfaceStatus brcdIp.1.2.5.1.13.1.11 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

DVMRP neighbor table

The DVMRP Neighbor Table lists the router's DVMRP neighbors, as discovered by the receiving Neighbor Probe messages.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snDvmrpNeighborTable brcdIp.1.2.5.1.14	None	The DVMRP Neighbor Table.
snDvmrpNeighborEntry brcdIp.1.2.5.1.14.1	None	An entry in the DVMRP Neighbor Table.
snDvmrpNeighborEntryIndex brcdIp.1.2.5.1.14.1.1 Syntax: Integer32	Read only	The table entry index.
snDvmrpNeighborVifIndex brcdIp.1.2.5.1.14.1.2 Syntax: Integer32	Read only	The value of VifIndex for the virtual interface used to reach this DVMRP neighbor.
snDvmrpNeighborAddress brcdIp.1.2.5.1.14.1.3 Syntax: IpAddress	Read only	Shows the IP address of the DVMRP neighbor for which this entry contains information.
snDvmrpNeighborUpTime brcdIp.1.2.5.1.14.1.4 Syntax: Time ticks	Read only	Shows the last time since this DVMRP neighbor became a neighbor of the local router.
snDvmrpNeighborExpiryTime brcdIp.1.2.5.1.14.1.5 Syntax: Time ticks	Read only	Shows the number of seconds remaining before this DVMRP neighbor will be aged out.
snDvmrpNeighborGenerationId brcdIp.1.2.5.1.14.1.6 Syntax: Integer32	Read only	Shows the neighboring router's generation identifier.
snDvmrpNeighborMajorVersion brcdIp.1.2.5.1.14.1.7 Syntax: Integer	Read only	Shows the neighboring router's major DVMRP version number. Valid values: 0 – 255
snDvmrpNeighborMinorVersion brcdIp.1.2.5.1.14.1.8 Syntax: Integer	Read only	Shows the neighboring router's minor DVMRP version number. Valid values: 0 – 255
snDvmrpNeighborCapabilities brcdIp.1.2.5.1.14.1.9 Syntax: Integer32	Read only	Describes the neighboring router's capabilities. The following shows the position of each bit: **Bit position and Meaning** 3: trace bit. If on, neighbor can handle mtrace requests 2: generationID bit. If on, the neighbor sends its generationID in Probe messages 1: prune bit. If on, he neighbor supports pruning 0: leaf bit. If on, the neighbor has only one interface with other neighbors

DVMRP route table

DVMRP uses a routing table instead of the unicast routing table. The DVMRP Route Table contains information on the DVMRP source and destination routes.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snDvmrpRouteTable brcdIp.1.2.5.1.15	None	The DVMRP Route Table
snDvmrpRouteEntry brcdIp.1.2.5.1.15.1	None	An entry in the DVMRP Route Table
snDvmrpRouteEntryIndex brcdIp.1.2.5.1.15.1.1 Syntax: Integer32	Read only	The table entry index.
snDvmrpRouteSource brcdIp.1.2.5.1.15.1.2 Syntax: IpAddress	Read only	Shows the network address of the source. This object plus the value of the "snDvmrpRouteSourceMask" object identifies the sources of this entry.
snDvmrpRouteSourceMask brcdIp.1.2.5.1.15.1.3 Syntax: IpAddress	Read only	Shows the network mask of the source. This object plus the value of the "snDvmrpRouteSource" object identifies the sources of this entry.
snDvmrpRouteUpstreamNeighbor brcdIp.1.2.5.1.15.1.4 Syntax: IpAddress	Read only	Shows the address of the upstream neighbor (for example, RPF neighbor) from which IP datagrams were received.
snDvmrpRouteVifIndex brcdIp.1.2.5.1.15.1.5 Syntax: Integer32	Read only	The value of snDvmrpVInterfaceVifIndex for the virtual interface on which IP datagrams sent by these sources are received.
snDvmrpRouteMetric brcdIp.1.2.5.1.15.1.6 Syntax: Integer32	Read only	Shows the number of hops to the source subnet.
snDvmrpRouteExpiryTime brcdIp.1.2.5.1.15.1.7 Syntax: Time ticks	Read only	Shows the amount of time remaining before this entry will be aged out.

DVMRP routing next hop table

The DVMRP Routing Next Hop Table contains information on the next hop for routing IP multicast datagrams.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snDvmrpRouteNextHopTable brcdIp.1.2.5.1.16	None	The DVMRP Routing Next Hop Table
snDvmrpRouteNextHopEntry brcdIp.1.2.5.1.16.1	None	An entry the DVMRP Routing Next Hop Table.
snDvmrpRouteNextHopSource brcdIp.1.2.5.1.16.1.1 Syntax: IpAddress	Read only	Shows the network mask of the source. This object plus the "snDvmrpRouteNextHopSourceMask" object identify the source of the next hop.
snDvmrpRouteNextHopSourceMask brcdIp.1.2.5.1.16.1.2 Syntax: IpAddress	Read only	Shows the network mask of the source. This object plus the "snDvmrpRouteNextHopSource" object identify the sources of the next hop.
snDvmrpRouteNextHopVifIndex brcdIp.1.2.5.1.16.1.3 Syntax: Integer32	Read only	The snDvmrpVInterfaceVifIndex value of the virtual interface for the outgoing interface for this next hop.
snDvmrpRouteNextHopType brcdIp.1.2.5.1.16.1.4 Syntax: Integer	Read only	Identifies the type of router for the next hop: • leaf(1) – There are no neighbors at the next hop • branch(2) – Neighbors are attached to the next hop

DVMRP virtual interface statistics table

The DVMRP Virtual Interface Statistics Table provides information about the DVMRP routes.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snDvmrpVlfStatTable brcdIp.1.2.5.1.17	None	The DVMRP Virtual Interface Statistics Table
snDvmrpVlfStatEntry brcdIp.1.2.5.1.17.1	None	An entry in the DVMRP Virtual Interface Statistics Table
snDvmrpVlfStatVifIndex brcdIp.1.2.5.1.17.1.1 Syntax: Integer	Read only	The ifIndex value of this DVMRP virtual interface.
snDvmrpVlfStatInPkts brcdIp.1.2.5.1.17.1.2 Syntax: Counter32	Read only	Shows the number of packets that have arrived on the DVMRP virtual interface.
snDvmrpVlfStatOutPkts brcdIp.1.2.5.1.17.1.3 Syntax: Counter32	Read only	Shows the number of packets that have been sent on the DVMRP virtual interface.
snDvmrpVlfStatInOctets brcdIp.1.2.5.1.17.1.4 Syntax: Counter32	Read only	Shows the number of octets that have arrived on the DVMRP virtual interface.
snDvmrpVlfStatOutOctets brcdIp.1.2.5.1.17.1.5 Syntax: Counter32	Read only	Shows the number of octets that have been sent on the DVMRP virtual interface.
snDvmrpVlfStatInProbePkts brcdIp.1.2.5.1.17.1.6 Syntax: Counter32	Read only	Shows the number of probe packets that have arrived on the DVMRP virtual interface.
snDvmrpVlfStatOutProbePkts brcdIp.1.2.5.1.17.1.7 Syntax: Counter32	Read only	Shows the number of probe packets that have been sent on the DVMRP virtual interface.
snDvmrpVlfStatDiscardProbePkts brcdIp.1.2.5.1.17.1.8 Syntax: Counter32	Read only	Shows the number of probe packets that have been discarded by the DVMRP virtual interface.
snDvmrpVlfStatInRtUpdatePkts brcdIp.1.2.5.1.17.1.9 Syntax: Counter32	Read only	Shows the number of route update packets that have arrived on the DVMRP virtual interface.
snDvmrpVlfStatOutRtUpdatePkts brcdIp.1.2.5.1.17.1.10 Syntax: Counter32	Read only	Shows the number of route update packets that have been sent on the DVMRP virtual interface.
snDvmrpVlfStatDiscardRtUpdatePkts brcdIp.1.2.5.1.17.1.11 Syntax: Counter32	Read only	Shows the number of route update packets that have been discarded by the DVMRP virtual interface.

Name, OID, and Syntax	Access	Description
snDvmrpVlfStatInGraftPkts brcdIp.1.2.5.1.17.1.12 Syntax: Counter32	Read only	Shows the number of graft packets that have arrived on the DVMRP virtual interface.
snDvmrpVlfStatOutGraftPkts brcdIp.1.2.5.1.17.1.13 Syntax: Counter32	Read only	Shows the number of graft packets that have been sent on the DVMRP virtual interface.
snDvmrpVlfStatDiscardGraftPkts brcdIp.1.2.5.1.17.1.14 Syntax: Counter32	Read only	Shows the number of graft packets that have been discarded by the DVMRP virtual interface.
snDvmrpVlfStatInGraftAckPkts brcdIp.1.2.5.1.17.1.15 Syntax: Counter32	Read only	Shows the number of graft acknowledge packets that have arrived on the DVMRP virtual interface.
snDvmrpVlfStatOutGraftAckPkts brcdIp.1.2.5.1.17.1.16 Syntax: Counter32	Read only	Shows the number of graft acknowledge packets that have been sent on the DVMRP virtual interface.
snDvmrpVlfStatDiscardGraftAckPkts brcdIp.1.2.5.1.17.1.17 Syntax: Counter32	Read only	Shows the number of graft acknowledge packets that have been discarded by the DVMRP virtual interface.
snDvmrpVlfStatInPrunePkts brcdIp.1.2.5.1.17.1.18 Syntax: Counter32	Read only	Shows the number of prune packets that have arrived on the DVMRP virtual interface.
snDvmrpVlfStatOutPrunePkts brcdIp.1.2.5.1.17.1.19 Syntax: Counter32	Read only	Shows the number of prune packets that have been sent on the DVMRP virtual interface.
snDvmrpVlfStatDiscardPrunePkts brcdIp.1.2.5.1.17.1.20 Syntax: Counter32	Read only	Shows the number of prune packets that have been discarded by the DVMRP virtual interface.

Chapter

VLANs 17

VLAN by port information table

For VLAN MIB support on the BigIron RX, Brocade MLXe, NetIron XMR and NetIron MLX devices refer to “Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX” on page 305

Refer to the configuration guide for a product for details on the features discussed in this chapter.

This table applies to a Layer 2 device if the object “snSwGroupOperMode” on page 129 is configured with a value of vlanByPort(2), allowing switch ports to be configured with a VLAN ID. Each VLAN switch port could have a number of VLAN IDs.

NOTE
This table is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snVLanByPortTable brcdIp.1.1.3.2.1	None	The VLAN by Port Information Table for Layer 2 switches.
snVLanByPortEntry brcdIp.1.1.3.2.1.1	None	An entry in the VLAN By Port Information table.
snVLanByPortVLanIndex brcdIp.1.1.3.2.1.1.1 Syntax: Integer	Read only	Shows the index to this table. The VLAN ID number must not be greater than the value of the object “snVLanGroupVlanMaxEntry” on page 132. Each VLAN Identifier can be a member of multiple ports.
snVLanByPortVLanId brcdIp.1.1.3.2.1.1.2	Read-write	The VLAN ID index to the this table. Each VLAN Identifier can be a member of multiple ports. Valid values: 1 – 4095.
snVLanByPortPortMask brcdIp.1.1.3.2.1.1.3 Syntax: PortMask	Read-write	Applies only to ServerIron Stackable devices. Shows the standalone switch VLAN port membership. This object was obsoleted for Chassis devices.
snVLanByPortQos brcdIp.1.1.3.2.1.1.4 Syntax: Integer	Read-write	Shows the QoS settings for the devices. For Stackable device, the values can be one of the following: • low(0) – low priority • high(1) – high priority For Chassis devices, the value can be one of the following: • level0(0) • level1(1) • level2(2) • level3(3) • level4(4) • level5(5) • level6(6) • level7(7)

Name, OID, and Syntax	Access	Description
snVLanByPortStpMode brcdIp.1.1.3.2.1.1.5 Syntax: Integer	Read-write	Indicates whether or not Spanning Tree Protocol (STP) is enabled: • disabled(0) • enabled(1)
snVLanByPortStpPriority brcdIp.1.1.3.2.1.1.6 Syntax: Integer	Read-write	Shows the value of the dot1dStpPriority, which is the first two octets of the STP bridge ID. The STP bridge ID is eight octets long. This object contains the writable portion of the bridge ID. The last six octets are contained in the dot1dBaseBridgeAddress of the object "snVLanByPortBaseBridgeAddress". Valid values: 1 – 65535.
snVLanByPortStpGroupMax Age brcdIp.1.1.3.2.1.1.7 Syntax: Integer	Read-write	Shows the value of dot1dStpBridgeMaxAge, which is the last six octets or the STP bridge ID. All bridges use this object for MaxAge when this bridge is acting as the root. **NOTE:** 802.1D-1990 specifies that the range for this parameter is related to the value of dot1dStpBridgeHelloTime in the object "snVLanByPortStpGroupHelloTime". The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC 1493 Bridge MIB.) Valid values: 6 – 40.
snVLanByPortStpGroupHell o Time brcdIp.1.1.3.2.1.1.8 Syntax: Integer	Read-write	Shows the value of the dot1dStpBridgeHelloTime, which is the value used by all bridges when this bridge is acting as the root. The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC1493 Bridge MIB). Valid values: 1 – 10
snVLanByPortStpGroupForw ardDelay brcdIp.1.1.3.2.1.1.9 Syntax: Integer	Read-write	Shows the value of dot1dStpBridgeForwardDelay, which is the value used by all bridges for ForwardDelay when this bridge is acting as the root. **NOTE:** 802.1D-1990 specifies that the range for this parameter is related to the value of dot1dStpBridgeMaxAge, which is in the object "snVLanByPortStpGroupMaxAge". The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC1493 Bridge MIB). Valid values: 2 –30.

Name, OID, and Syntax	Access	Description
snVLanByPortRowStatus brcdIp.1.1.3.2.1.1.10 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVLanByPortOperState brcdIp.1.1.3.2.1.1.11 Syntax: Integer	Read only	Activates the VLAN entry and sets it to running mode. • notActivated(0) – The VLAN entry is not activated and not in running mode • activated(1) – The VLAN entry is activated and in running mode Default: notActivated(0)
snVLanByPortBaseNumPorts brcdIp.1.1.3.2.1.1.12 Syntax: Integer32	Read only	Indicates the number of ports controlled by this bridging entity.
snVLanByPortBaseType brcdIp.1.1.3.2.1.1.13 Syntax: Integer	Read only	Indicates what type of bridging this bridge can perform. If a bridge is actually performing a certain type of bridging this will be indicated by entries in the port table for the given type. • unknown(1) • transparent-only(2) • sourceroute-only(3) • srt(4)
snVLanByPortStpProtocolSpecification brcdIp.1.1.3.2.1.1.14 Syntax: Integer	Read only	Shows what version of STP is being run: • unknown(1) • decLb100(2) – Indicates the DEC LANbridge 100 Spanning Tree protocol • ieee8021d(3) – Returns "ieee8021d(3)". If future versions of the IEEE Spanning Tree Protocol are released that are incompatible with the current version, a new value will be defined.
snVLanByPortStpMaxAge brcdIp.1.1.3.2.1.1.15 Syntax: Integer	Read only	Shows the value of dot1dStpMaxAge, which is the maximum age that the STP information can exist before it is discarded. The STP information is the information learned from the network. The value of this object is in hundredths of a second, and is the actual value that this bridge is currently using. (Refer to RFC1493 Bridge MIB.)
snVLanByPortStpHelloTime brcdIp.1.1.3.2.1.1.16 Syntax: Timeout	Read only	Shows the value of dot1dStpHelloTime, which is the interval between the transmission of Configuration bridge PDUs by this node. This value applies to any port when it is the root of the spanning tree or is trying to become the root. This is the actual value that this bridge is currently using. This value is in hundredths of a second. (Refer to RFC1493 Bridge MIB.)

Name, OID, and Syntax	Access	Description
snVLanByPortStpHoldTime brcdIp.1.1.3.2.1.1.17 Syntax: Integer32	Read only	Shows the value of dot1dStpHoldTime, which is the interval when no more than two configuration bridge PDUs shall be transmitted by this node. The interval is in units of hundredths of a second. (Refer to RFC1493 Bridge MIB.)
snVLanByPortStpForwardDelay brcdIp.1.1.3.2.1.1.18 Syntax: Timeout	Read only	Shows the value of dot1dStpForwardDelay, which is the time that controls how long a port stays in the listening and learning states as its spanning state moves towards the forwarding state. This value is also used when a topology change has been detected and is underway. The value is used to age all dynamic entries in the Forwarding Database. This value is the one that this bridge is currently using, in contrast to dot1dStpBridgeForwardDelay in the object "snVLanByPortStpGroupForwardDelay", which is the value that this bridge and all others would start using when this bridge becomes the root. This time value is in hundredths of a second, (Refer to RFC1493 Bridge MIB.)
snVLanByPortStpTimeSinceTopologyChange brcdIp.1.1.3.2.1.1.19 Syntax: Time ticks	Read only	Shows the time since the last time the bridge detected a topology change. This time is in hundredths of a second.
snVLanByPortStpTopChanges brcdIp.1.1.3.2.1.1.20 Syntax: Counter32	Read only	Shows the total number of topology changes detected by this bridge since the management entity was last reset or initialized.
snVLanByPortStpRootCost brcdIp.1.1.3.2.1.1.21 Syntax: Integer32	Read only	Shows the value of dot1dStpRootCost, which is the cost of the path to the root as seen from this bridge. (Refer to RFC1493 Bridge MIB.)
snVLanByPortStpRootPort brcdIp.1.1.3.2.1.1.22 Syntax: Integer32	Read only	Shows the value of dot1dStpRootPort, which is the number of the port that offers the lowest cost path from this bridge to the root bridge. (Refer to RFC1493 Bridge MIB.)
snVLanByPortStpDesignatedRoot brcdIp.1.1.3.2.1.1.23 Syntax: BridgeId	Read only	Shows the value of dot1dStpDesignatedRoot, which is the bridge ID of the root of the spanning tree as determined by STP as executed by this node. This value is used as the Root Identifier parameter in all Configuration Bridge PDUs originated by this node. (Refer to RFC1493 Bridge MIB.)
snVLanByPortBaseBridgeAddress brcdIp.1.1.3.2.1.1.24 Syntax: BridgeId	Read only	Indicates the value of the dot1dBaseBridgeAddress, which is the MAC address used by this bridge when it must be referred to in a unique fashion. It is recommended that this is the smallest MAC address of all ports that belong to this bridge; however it must be unique. When concatenated with dot1dStpPriority a unique BridgeIdentifier is formed which is used in the STP.
snVLanByPortVLanName brcdIp.1.1.3.2.1.1.25 Syntax: DisplayString	Read-write	Indicates the name of the community string that is allowed to access the VLAN. Valid values: Up to 32 characters.

Name, OID, and Syntax	Access	Description
snVLanByPortRouterIntf brcdIp.1.1.3.2.1.1.26 Syntax: Integer32 **NOTE:** This object was deprecated on devices running FastIron software release 07.2.00 and later. It is not supported on the Brocade MLX Series, NetIron XMR, NetIron CES, or NetIron CER. Use snVLanByPortCfgRouterIntf instead.	Read-write	Is optional and applies only to routers. It shows the ID of the virtual interface of a router to the VLAN. If an SNMP-Get value is zero, then this object was not configured. Valid values: 1 – 60.
snVLanByPortChassisPortMask brcdIp.1.1.3.2.1.1.27 Syntax: OctetString	Read-write	Applies only to devices running Release 07.1.00 and earlier. It is replaced by "snVLanByPortPortList" for later releases. It shows the VLAN switch port membership. This object has 32 octets.
snVLanByPortPortList brcdIp.1.1.3.2.1.1.28 Syntax: OctetString	Read-write	Applies to all devices except ServerIron products. It lists the membership of a VLAN By Port. Each port index is a 16-bit integer in big endian order. The first 8-bits are the slot number, the other 8-bits are the port number.

VLAN by port membership table

The following table is the Port VLAN (Layer 2 VLAN) port membership table.

Name, OID, and Syntax	Access	Description
snVLanByPortMemberTable brcdIp.1.1.3.2.6	None	This table is used to create or delete a port VLAN (Layer 2 VLAN) entry.
snVLanByPortMemberEntry brcdIp.1.1.3.2.6.1	None	An entry in the Port VLAN Port Membership table.
snVLanByPortMemberVLanId brcdIp.1.1.3.2.6.1.1 Syntax: Integer	Read only	The VLAN identifier (VLAN ID). Valid values: 1 – 4095 VLAN IDs.

Name, OID, and Syntax	Access	Description
snVLanByPortMemberPortId brcdIp.1.1.3.2.6.1.2 Syntax: Integer	Read only	The ifIndex which is a member of the port VLAN.
snVLanByPortMemberRowStatus brcdIp.1.1.3.2.6.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • other(1) – Some other case • valid(2) – Row exists and is valid

Example

If you want to delete port 11/14 (untagged) from VLAN 1964, then add it to VLAN 104, enter the following lines:

```
/* 654=ifIndex of 11/14 (64*10+14), value 3=delete*/
SetRequest(snVLanByPortMemberRowStatus.1964.654=3)
/* 654=ifIndex of 11/14 (64*10+14), value 4=create*/
SetRequest(snVLanByPortMemberRowStatus.104.654=4)
```

The first line deletes port 11/14 from VLAN 1964. The second line adds port 11/14 to VLAN 104.

Port VLAN configuration table

Name, OID, and Syntax	Access	Description
snVLanByPortCfgTable brcdIp.1.1.3.2.7	None	The Port VLAN (Layer 2 VLAN) configuration table.
snVLanByPortCfgEntry brcdIp.1.1.3.2.7.1	None	An entry of the port VLAN configuration table.
snVLanByPortCfgVLanId brcdIp.1.1.3.2.7.1.1 Syntax: Integer	Read-write	The VLAN ID index to this table. Each VLAN Identifier can be a member of multiple ports. Valid values: 1 – 4095.

Name, OID, and Syntax	Access	Description
snVLanByPortCfgQos brcdIp.1.1.3.2.7.1.2 Syntax: PortQosTC	Read-write	Shows the quality of service settings for the devices. For Stackable devices, the values can be one of the following: • low(0) – low priority • high(1) – high priority For Chassis devices, the value can be one of the following: • level0(0) • level1(1) • level2(2) • level3(3) • level4(4) • level5(5) • level6(6) • level7(7)
snVLanByPortCfgStpMode brcdIp.1.1.3.2.7.1.3 Syntax: Integer	Read-write	Indicates whether or not Spanning Tree Protocol (STP) is enabled: • disabled(0) • enabled(1) The following values are supported on FES, FWSX, and FastIron SuperX software releases 02.2.00 and later: • disabled(0) • enableStp(1) • enableRstp(2)
snVLanByPortCfgStpPriority brcdIp.1.1.3.2.7.1.4 Syntax: Integer	Read-write	Shows the value of the dot1dStpPriority, which is the first two octets of the STP or RSTP bridge ID. The STP and RSTP bridge IDs are eight octets long. This object contains the writable portion of the bridge ID. The last six octets are contained in the dot1dBaseBridgeAddress of the object "snVLanByPortBaseBridgeAddress." Valid values: 1 – 65535.
snVLanByPortCfgStpGroup MaxAge brcdIp.1.1.3.2.7.1.5 Syntax: Integer32	Read-write	Shows the value of dot1dStpBridgeMaxAge, which is the last six octets or the STP or RSTP bridge ID. All bridges use this object for MaxAge when this bridge is acting as the root. **NOTE:** 802.1D-1990 specifies that the range for this parameter is related to the value of dot1dStpBridgeHelloTime in the object "snVLanByPortStpGroupHelloTime". The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC 1493 Bridge MIB.) Valid values: 6 – 40.
snVLanByPortCfgStpGroup Hello Time brcdIp.1.1.3.2.7.1.6 Syntax: Integer	Read-write	Shows the value of the dot1dStpBridgeHelloTime, which is the value used by all bridges when this bridge is acting as the root. The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC1493 Bridge MIB.) Valid values: 1 – 10

Name, OID, and Syntax	Access	Description
snVLanByPortCfgStpGroupForwardDelay brcdIp.1.1.3.2.7.1.7 Syntax: Integer32	Read-write	Shows the value of dot1dStpBridgeForwardDelay, which is the value used by all bridges for ForwardDelay when this bridge is acting as the root. **NOTE:** 802.1D-1990 specifies that the range for this parameter is related to the value of dot1dStpBridgeMaxAge, which is in the object "snVLanByPortStpGroupMaxAge". The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC1493 Bridge MIB).
snVLanByPortCfgBaseNumPorts brcdIp.1.1.3.2.7.1.8 Syntax: Integer32	Read only	The number of ports controlled by this bridging entity.
snVLanByPortCfgBaseType brcdIp.1.1.3.2.7.1.9 Syntax: Integer	Read only	Indicates what type of bridging this bridge can perform. If a bridge is actually performing a certain type of bridging this will be indicated by entries in the port table for the given type. • unknown(1), • transparentOnly(2), • sourcerouteOnly(3), • srt(4))
snVLanByPortCfgStpProtocolSpecification brcdIp.1.1.3.2.7.1.10 Syntax: Integer	Read only	Shows what version of STP is being run: • unknown(1) • decLb100(2) – Indicates the DEC LANbridge 100 Spanning Tree protocol • ieee8021d(3) – Return "ieee8021d(3)". If future versions of the IEEE Spanning Tree Protocol are released that are incompatible with the current version, a new value will be defined.
snVLanByPortCfgStpMaxAge brcdIp.1.1.3.2.7.1.11 Syntax: Integer	Read only	Shows the value of dot1dStpMaxAge, which is the maximum age that the STP information can exist before it is discarded. The STP information is learned from the network. The value of this object is in hundredths of a second, and is the actual value that this bridge is currently using. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpHelloTime brcdIp.1.1.3.2.7.1.12 Syntax: Timeout	Read only	Shows the value of dot1dStpHelloTime, which is the interval between the transmission of Configuration bridge PDUs by this node. This value applies to any port when it is the root of the spanning tree or is trying to become the root. This is the actual value that this bridge is currently using. This value is in hundredths of a second. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpHoldTime brcdIp.1.1.3.2.7.1.13 Syntax: Integer32	Read only	Shows the value of dot1dStpHoldTime, which is the interval when no more than two Configuration bridge PDUs shall be transmitted by this node. The interval is in units of hundredths of a second. (Refer to RFC1493 Bridge MIB.)

Name, OID, and Syntax	Access	Description
snVLanByPortCfgStpForwardDelay brcdIp.1.1.3.2.7.1.14 Syntax: Timeout	Read only	Shows the value of dot1dStpForwardDelay, which controls how fast a port changes its spanning state when moving towards the forwarding state. The value determines how long the port stays in each of the listening and learning states, which precede the forwarding state. This value is also used, when a topology change has been detected and is underway, to age all dynamic entries in the forwarding database. **NOTE:** This value is the one that this bridge is currently using in contrast to dot1dStpBridgeForwardDelay, which is the value that this bridge and all others would start using should this bridge become the root. This value is measured in hundredths of a second. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpTimeSinceTopologyChange brcdIp.1.1.3.2.7.1.15 Syntax: Time ticks	Read only	Shows the time since the last topology change was detected by the bridge entity. This time is in hundredths of a second.
snVLanByPortCfgStpTopChanges brcdIp.1.1.3.2.7.1.16 Syntax: Counter32	Read only	Shows the total number of topology changes detected by this bridge since the management entity was last reset or initialized.
snVLanByPortCfgStpRootCost brcdIp.1.1.3.2.7.1.17 Syntax: Integer32	Read only	Shows the value of dot1dStpRootCost, which is the cost of the path to the root as seen from this bridge. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpRootPort brcdIp.1.1.3.2.7.1.18 Syntax: Integer32	Read only	Shows the value of dot1dStpRootPort, which is the port number of the port which offers the lowest cost path from this bridge to the root bridge. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpDesignatedRoot brcdIp.1.1.3.2.7.1.19 Syntax: BridgeId	Read only	Shows the dot1dStpDesignatedRoot, which is the bridge identifier of the root of the spanning tree as determined by the Spanning Tree Protocol as executed by this node. This value is used as the root identifier parameter in all configuration bridge PDUs originated by this node. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgBaseBridgeAddress brcdIp.1.1.3.2.7.1.20 Syntax: MAC address	Read only	Shows the MAC address used by this bridge when it must be referred to in a unique fashion. It is recommended that this be the numerically smallest MAC address of all ports that belong to this bridge, however, it is only required to be unique. When concatenated with dot1dStpPriority a unique bridge identifier is formed which is used in the Spanning Tree Protocol.
snVLanByPortCfgVLanName brcdIp.1.1.3.2.7.1.21 Syntax: DisplayString	Read-write	Shows the name of the VLAN community string. Valid values: Up to 32 characters.
snVLanByPortCfgRouterIntf brcdIp.1.1.3.2.7.1.22 Syntax: Integer32	Read-write	This object is optional. It identifies the virtual interface for the router to the VLAN, and applies only to the router. If an SNMP-Get value is zero, that means this object was not configured.

Name, OID, and Syntax	Access	Description
snVLanByPortCfgRowStatus brcdIp.1.1.3.2.7.1.23 Syntax: Integer	Read-write	Determines whether or not the VLAN will be deleted: • other(1) • valid(2) • delete(3)
snVLanByPortCfgStpVersion brcdIp.1.1.3.2.7.1.24 Syntax: Integer Supported on FES, FWSX, and FastIron SuperX software releases 02.2.00 and later	Read-write	Shows the version of Spanning Tree Protocol the bridge is currently running. • stpCompatible(0) – STP (IEEE 802.1D) • rstp(2) – RSTP (IEEE 802.1w)

VLAN by protocol configuration table

The following table applies to protocol VLANs.

NOTE
This table is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snVLanByProtocolTable brcdIp.1.1.3.2.2	None	The VLAN by Protocol Configuration Table.
snVLanByProtocolEntry brcdIp.1.1.3.2.2.1	None	An entry in the VLAN By Protocol Configuration Table.
snVLanByProtocolVLanId brcdIp.1.1.3.2.2.1.1	Read only	Shows the VLAN ID index to both the VLAN By Port Info Table and this table.
snVLanByProtocolIndex brcdIp.1.1.3.2.2.1.2 Syntax: Integer	Read only	Shows the protocol used by this VLAN. The following IP/IPX protocols are used by VLANs in Layer 3 VLAN: • IP(1) • IPX(2) The following protocols are used in Layer 2 bridging: • appleTalk(3) • decNet(4) • netBios(5) • others(6) – other protocols which are defined here.
snVLanByProtocolDynamic brcdIp.1.1.3.2.2.1.3 Syntax: Integer	Read-write	Applies to only to switches. Indicates whether or not dynamic port inclusion is enabled: • disabled(0) • enabled(1)
snVLanByProtocolStaticMask brcdIp.1.1.3.2.2.1.4 Syntax: PortMask	Read-write	Applies to ServerIron stackable devices. It indicates the standalone switch Protocol VLAN port membership (portmask) applied in static mode.

Name, OID, and Syntax	Access	Description
snVLanByProtocolExcludeMask brcdIp.1.1.3.2.2.1.5 Syntax: PortMask	Read-write	Applies to ServerIron stackable devices. It indicates the standalone switch Protocol VLAN port membership (portmask) applied in exclusive mode.
snVLanByProtocolRouterIntf brcdIp.1.1.3.2.2.1.6 Syntax: Integer	Read-write	Applies to routers only and is optional. It shows the virtual interface of a router to the VLAN. This object is not configured if an SNMP-Get is equal to zero
snVLanByProtocolRowStatus brcdIp.1.1.3.2.2.1.7 Syntax: Integer	Read-write	Applies to all devices, except for ServerIron products. Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVLanByProtocolDynamicMask brcdIp.1.1.3.2.2.1.8 Syntax: PortMask	Read only	Applies only to stackable ServerIron products. It shows the portmask, which is the standalone switch Protocol VLAN active port membership. This object was obsoleted for Chassis devices.
snVLanByProtocolChassisStaticMask brcdIp.1.1.3.2.2.1.9 Syntax: OctetString	Read-write	Applies to all devices, except for ServerIron products. This object has 32 octets. It has been obsoleted after Release 07.1.00 and replaced by the object "snVLanByProtocolStaticPortList". For Release 07.1.00 and earlier, this object shows the Chassis Protocol VLAN port membership applied in static mode.
snVLanByProtocolChassisExcludeMask brcdIp.1.1.3.2.2.1.10 Syntax: OctetString	Read-write	Applies to all devices, except for ServerIron products. This object has 32 octets. It has been obsoleted after Release 07.1.00 and replaced by the object "snVLanByProtocolExcludePortList". For Release 07.1.00 and earlier, this object shows the Chassis Protocol VLAN port membership applied in exclusive mode.
snVLanByProtocolChassisDynamicMask brcdIp.1.1.3.2.2.1.11 Syntax: OctetString	Read-write	Applies to all devices, except for ServerIron products. This object has 32 octets. It has been obsoleted after Release 07.1.00 and replaced by the object "snVLanByProtocolDynamicPortList". For Release 07.1.00 and earlier, this object shows the Chassis Protocol VLAN active port membership.
snVLanByProtocolVLanName brcdIp.1.1.3.2.2.1.12 Syntax: DisplayString	Read-write	Shows the name of the community string that is allowed to access the VLAN. Valid values: Up to 32 characters.
snVLanByProtocolStaticPortList brcdIp.1.1.3.2.2.1.13 Syntax: OctetString	Read-write	Applies to all devices, except for ServerIron products. This object is an index of ports that are the configured to be members of the Protocol VLAN. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number; the other 8 bits are the port number.

Name, OID, and Syntax	Access	Description
snVLanByProtocolExcludePortList brcdIp.1.1.3.2.2.1.14 Syntax: OctetString	Read-write	Applies to all devices, except for ServerIron products. This object is an index of ports that are excluded from port membership of the Protocol VLAN. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number; the other 8 bits are the port number.
snVLanByProtocolDynamicPortList brcdIp.1.1.3.2.2.1.15 Syntax: OctetString	Read only	Applies to all devices, except for ServerIron products. This object is an index of ports that can dynamically join the port membership of the Protocol VLAN. Each port index is a 16-bit integer in big endian order. The first 8 its are the slot number; the other 8 bits are the port number.

VLAN by IP subnet configuration table

The following table applies to protocol VLANs that use the IP routing protocol.

NOTE
This table is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The remaining objects for IP are presented in the chapter “Global Router and IP” on page 347.

Name, OID, and Syntax	Access	Description
snVLanByIpSubnetTable brcdIp.1.1.3.2.3	None	The VLAN by IP Subnet Configuration Table.
snVLanByIpSubnetEntry brcdIp.1.1.3.2.3.1	None	An entry in the VLAN By IP Subnet Configuration table
snVLanByIpSubnetVLanId brcdIp.1.1.3.2.3.1.1Syntax: Integer	Read only	Shows the VLAN ID index to both of the VLAN By Port Info Table and this table. Valid values: 1 - 4095
snVLanByIpSubnetIpAddress brcdIp.1.1.3.2.3.1.2 Syntax: IpAddress	Read only	Shows the IP address for the subnet of the protocol-based IP VLAN.
snVLanByIpSubnetSubnetMask brcdIp.1.1.3.2.3.1.3 Syntax: IpAddress	Read only	Subnet mask associated with the subnet IP address.
snVLanByIpSubnetDynamic brcdIp.1.1.3.2.3.1.4 Syntax: Integer	Read-write	Applies only to switches. Indicates whether or not dynamic port inclusion is enabled:odisabled(0)oenabled(1)
snVLanByIpSubnetStaticMask brcdIp.1.1.3.2.3.1.5 Syntax: PortMask	Read-write	Applies only to stackable ServerIron products.It shows the port membership of the standalone switch VLAN by Subnet in static mode.
snVLanByIpSubnetExcludeMask brcdIp.1.1.3.2.3.1.6 Syntax: PortMask	Read-write	Applies only to stackable ServerIron products.It shows the port membership of the standalone switch VLAN by Subnet in exclusive mode.

Name, OID, and Syntax	Access	Description
snVLanByIpSubnetRouterIntf brcdIp.1.1.3.2.3.1.7 Syntax: Integer	Read-write	Applies only to routers and is optional. It shows the virtual interface of a router to the VLAN.Valid values: 0 - 60. It is not configured if an SNMP-Get is equal to zero.
snVLanByIpSubnetRowStatus brcdIp.1.1.3.2.3.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) - Delete the row • create(4) - Create a new row • modify(5) - Modify an existing row. If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) - No such row • invalid(1) - Row is inoperative • valid(2) - Row exists and is valid
snVLanByIpSubnetDynamicMask brcdIp.1.1.3.2.3.1.9 Syntax: PortMask	Read only	Applies only to ServerIron stackable products.It shows the standalone switch VLAN by Subnet active port membership.
snVLanByIpSubnetChassisStaticMask brcdIp.1.1.3.2.3.1.10 Syntax: Octet string	Read-write	This object has 32 octets.It is replaced by the object "snVLanByIpSubnetStaticPortList" in later releases.It shows the chassis VLAN by Subnet port membership applied in static mode.
snVLanByIpSubnetChassisExcludeMask brcdIp.1.1.3.2.3.1.11 Syntax: Octet string	Read-write	This object has 32 octets.It is replaced by the object "snVLanByIpSubnetExcludePortList" in later releases.It shows the chassis VLAN by Subnet port membership applied in exclusive mode.
snVLanByIpSubnetChassisDynamicMask brcdIp.1.1.3.2.3.1.12 Syntax: Octet string	Read-write	This object has 32 octets.It is replaced by the object "snVLanByIpSubnetDynamicPortList" in later releases.It shows the chassis VLAN by Subnet port membership applied in exclusive mode.
snVLanByIpSubnetVLanName brcdIp.1.1.3.2.3.1.13 Syntax: Display string	Read-write	Shows the name of the community string that is allowed to access the VLAN. Valid values: Up to 32 characters.
snVLanByIpSubnetStaticPortListfdry.1.1.3.2.3.1.14 Syntax: Octet string	Read-write	This object is an index of ports that are the configured to be members of the VLAN by IP Subnet. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number; the other 8 bits are the port number.
snVLanByIpSubnetExcludePortList brcdIp.1.1.3.2.3.1.15 Syntax: Octet string	Read-write	This object is an index of ports that are excluded from port membership of the VLAN by IP Subnet. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number; the other 8 bits are the port number.
snVLanByIpSubnetDynamicPortList brcdIp.1.1.3.2.3.1.16 Syntax: Octet string	Read only	This object is an index of ports that can dynamically join the port membership of the VLAN By IP Subnet. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number; the other 8 bits are the port number.

VLAN by IPX network configuration table

NOTE
This is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The following table applies to protocol VLANs that use the IPX routing protocol. Unless otherwise stated in the object description, all objects in this table apply to all devices.

The remaining objects for IP are presented in the chapter "IPX" on page 443.

Name, OID, and Syntax	Access	Description
snVLanByIpxNetTable brcdIp.1.1.3.2.4	None	An entry of the VLAN By IPX Network Number Table.
snVLanByIpxNetEntry brcdIp.1.1.3.2.4.1	None	An entry in the VLAN by IPX Network Configuration table.
snVLanByIpxNetVLanId brcdIp.1.1.3.2.4.1.1 Syntax: Integer	Read only	The VLAN ID index to both of the VLAN By Port Info Table and this table. Valid values: 1 – 4095.
snVLanByIpxNetNetworkNum brcdIp.1.1.3.2.4.1.2 Syntax: OctetString	Read only	Shows the IPX Network Number. This object has four octets.
snVLanByIpxNetFrameType brcdIp.1.1.3.2.4.1.3 Syntax: Integer	Read only	Shows the frame type for the Layer 3 VLAN: • notApplicable(0) – If none of the options below is selected • ipxEthernet8022(1) • ipxEthernet8023(2) • ipxEthernetII(3) • ipxEthernetSnap(4) Each IPX Network Number must be assigned with one unique Frame type; otherwise an SNMP-SET error will be returned.
snVLanByIpxNetDynamic brcdIp.1.1.3.2.4.1.4 Syntax: Integer	Read-write	Applies only to switches. Indicates whether or not dynamic port inclusion is enabled. • disabled(0) • enabled(1)
snVLanByIpxNetStaticMask brcdIp.1.1.3.2.4.1.5 **Syntax: PortMask**	Read-write	Applies only to stackable ServerIron products. It shows the VLAN by IPX network port membership applied in static mode.
snVLanByIpxNetExcludeMask brcdIp.1.1.3.2.4.1.6 Syntax: PortMask	Read-write	Applies only to stackable ServerIron products. It shows the VLAN by IPX network port membership applied in exclusive mode.
snVLanByIpxNetRouterIntf brcdIp.1.1.3.2.4.1.7 Syntax: Integer	Read-write	Applies only to routers and is optional. It shows the virtual interface of a router to the VLAN. Valid values: 0 – 60; however, if this object is not configured if an SNMP-Get is equal to zero.

Name, OID, and Syntax	Access	Description
snVLanByIpxNetRowStatus brcdIp.1.1.3.2.4.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVLanByIpxNetDynamicMask brcdIp.1.1.3.2.4.1.9 Syntax: PortMask	Read only	Applies only to stackable ServerIron products. It shows the VLAN By IPX network active port membership.
snVLanByIpxNetChassisStaticMask brcdIp.1.1.3.2.4.1.10 Syntax: OctetString	Read-write	Applies to all devices running Release 07.1.00 and earlier, except for ServerIron products. This object has 32 octets. It is replaced by snVLanByIpxNetStaticPortList in later releases. It shows the chassis VLAN by IPX network port membership applied in static mode.
snVLanByIpxNetChassisExcludeMask brcdIp.1.1.3.2.4.1.11 Syntax: OctetString	Read-write	Applies to all devices running Release 07.1.00 and earlier, except for ServerIron products. This object has 32 octets. It is replaced by snVLanByIpxNetExcludePortList in later releases. It shows the chassis VLAN by IPX network port membership applied in exclusive mode.
snVLanByIpxNetChassisDynamicMask brcdIp.1.1.3.2.4.1.12 Syntax: OctetString	Read only	Applies to all devices running Release 07.1.00 and earlier, except for ServerIron products. This object has 32 octets. It is replaced by snVLanByIpxNetDynamicPortList in later releases. It shows the chassis VLAN by IPX network port membership.
snVLanByIpxNetVLanName brcdIp.1.1.3.2.4.1.13 Syntax: DisplayString	Read-write	Applies to all devices except for ServerIron products. It shows the name of the community string that can access this VLAN. Valid values: Up to 32 characters.
snVLanByIpxNetStaticPortList brcdIp.1.1.3.2.4.1.14 Syntax: OctetString	Read-write	Applies to all devices, except ServerIron products. Lists the membership of a VLAN By IPX network. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number, the other 8 bits are the port number.
snVLanByIpxNetExcludePortList brcdIp.1.1.3.2.4.1.15 Syntax: OctetString	Read-write	Applies to all devices, except ServerIron products. It lists the ports that are excluded from the VLAN by IPX network membership. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number, the other 8 bits are the port number.
snVLanByIpxNetDynamicPortList brcdIp.1.1.3.2.4.1.16 Syntax: OctetString	Read only	Applies to all devices, except ServerIron products. It lists the ports that can dynamically join the membership of the VLAN by IPX network. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number, the other 8 bits are the port number.

VLAN by AppleTalk cable configuration table

The following table applies to protocol VLANs that use AppleTalk routing protocol. Objects in this table apply to all devices except ServerIron products.

NOTE
This is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The remaining objects for IP are presented in the chapter “AppleTalk” on page 455.

Name, OID, and Syntax	Access	Description
snVLanByATCableTable brcdIp.1.1.3.2.5	None	A table of VLAN by AppleTalk Network Number.
snVLanByATCableEntry brcdIp.1.1.3.2.5.1	None	An entry of the AppleTalk Cable VLAN table.
snVLanByATCableVLanId brcdIp.1.1.3.2.5.1.1 Syntax: Integer	Read only	The VLAN ID of a port VLAN to which the AppleTalk Cable VLAN attaches. Valid values: 1 – 4095.
snVLanByATCableIndex brcdIp.1.1.3.2.5.1.2 Syntax: Integer	Read only	AppleTalk Cable VLAN index number.
snVLanByATCableRouterIntf brcdIp.1.1.3.2.5.1.3 Syntax: Integer	Read-write	Shows the virtual interface of a router to the AppleTalk Cable VLAN Valid values: 0 – 60; however, an SNMP-Get will equal zero if this object is not configured. Only router products accept the SNMP-SET operation.
snVLanByATCableRowStatus brcdIp.1.1.3.2.5.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVLanByATCableChassisStaticMask brcdIp.1.1.3.2.5.1.5 Syntax: OctetString	Read-write	Applies only to devices running Release 07.1.00 and earlier. It is replaced in earlier releases by the object snVLanByATCableStaticPortList. Shows a list of ports that are statically configured to become port members of a VLAN. It has 32 octets.
snVLanByATCableVLanName brcdIp.1.1.3.2.5.1.6 Syntax: DisplayString	Read-write	Shows the community string that can access this VLAN. Valid values: Up to 32 characters.
snVLanByATCableStaticPortList brcdIp.1.1.3.2.5.1.7 Syntax: OctetString	Read-write	Shows a list of port indices that configured to be membership of the AppleTalk Cable VLAN. Each port index is a 16-bit integer in big endian order. The first 8 bits are the slot number, the other 8 bits are the port number.

Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX

The following MIB objects for VLANs are supported on the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices.

VLAN by port membership table

The following table is the Port VLAN (Layer 2 VLAN) port membership table.

TABLE 14 VLAN By Port Member Table

Name, OID, and Syntax	Access	Description
snVlanByPortMemberTable brcdIp.1.1.3.2.6	None	This table is used to create or delete a port VLAN (Layer 2 VLAN) entry.
snVLanByPortMemberEntry brcdIp.1.1.3.2.6.1	None	An entry in the Port VLAN Port Membership table.
snVLanByPortMemberVLanId brcdIp.1.1.3.2.6.1.1 Syntax: Integer	Read only	The VLAN identifier (VLAN ID). Valid values: 1 – 4095 VLAN IDs.
snVLanByPortMemberPortId brcdIp.1.1.3.2.6.1.2 Syntax: Integer	Read only	The ifIndex which is a member of the port VLAN.
snVLanByPortMemberRowStatus brcdIp.1.1.3.2.6.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • other(1) – Some other case • valid(2) – Row exists and is valid

Port VLAN configuration table

TABLE 15 Port VLAN Configuration Table

Name, OID, and Syntax	Access	Description
snVLanByPortCfgTable brcdIp.1.1.3.2.7	None	The Port VLAN (Layer 2 VLAN) configuration table.
snVLanByPortCfgEntry brcdIp.1.1.3.2.7.1	None	An entry of the port VLAN configuration table.

TABLE 15 Port VLAN Configuration Table (Continued)

Name, OID, and Syntax	Access	Description
snVLanByPortCfgVLanId brcdIp.1.1.3.2.7.1.1 Syntax: Integer	Read-write	The VLAN ID index to this table. Each VLAN Identifier can be a member of multiple ports. Valid values: 1 – 4095.
snVLanByPortCfgQos brcdIp.1.1.3.2.7.1.2 Syntax: Integer	Read-write	Shows the quality of service settings for the devices. For Stackable devices, the values can be one of the following: • low(0) – low priority • high(1) – high priority For Chassis devices, the value can be one of the following: • level0(0) • level1(1) • level2(2) • level3(3) • level4(4) • level5(5) • level6(6) • level7(7)
snVLanByPortCfgStpMode brcdIp.1.1.3.2.7.1.3 Syntax: Integer	Read-write	Indicates whether or not Spanning Tree Protocol (STP) is enabled: • disabled(0) • enabled(1)
snVLanByPortCfgStpPriority brcdIp.1.1.3.2.7.1.4 Syntax: Integer	Read-write	Shows the value of the dot1dStpPriority, which is the first two octets of the STP or RSTP bridge ID. The STP and RSTP bridge IDs are eight octets long. This object contains the writable portion of the bridge ID. The last six octets are contained in the dot1dBaseBridgeAddress of the object “snVLanByPortBaseBridgeAddress.” Valid values: 1 – 65535.
snVLanByPortCfgStpGroupMaxAge brcdIp.1.1.3.2.7.1.5 Syntax: Integer	Read-write	Shows the value of dot1dStpBridgeMaxAge, which is the last six octets or the STP or RSTP bridge ID. All bridges use this object for MaxAge when this bridge is acting as the root. **NOTE:** 802.1D-1990 specifies that the range for this parameter is related to the value of dot1dStpBridgeHelloTime in the object “snVLanByPortStpGroupHelloTime”. The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC 1493 Bridge MIB.) Valid values: 6 – 40.
snVLanByPortCfgStpGroupHello Time brcdIp.1.1.3.2.7.1.6 Syntax: Integer	Read-write	Shows the value of the dot1dStpBridgeHelloTime, which is the value used by all bridges when this bridge is acting as the root. The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC1493 Bridge MIB.) Valid values: 1 – 10

TABLE 15 Port VLAN Configuration Table (Continued)

Name, OID, and Syntax	Access	Description
snVLanByPortCfgStpGroupForwardDelay brcdIp.1.1.3.2.7.1.7 Syntax: Integer	Read-write	Shows the value of dot1dStpBridgeForwardDelay, which is the value used by all bridges for ForwardDelay when this bridge is acting as the root. **NOTE:** 802.1D-1990 specifies that the range for this parameter is related to the value of dot1dStpBridgeMaxAge, which is in the object "snVLanByPortStpGroupMaxAge". The granularity of this timer is specified by 802.1D-1990 to be one second. An agent may return a badValue error if a set is attempted to a value which is not a whole number of seconds. (Refer to RFC1493 Bridge MIB). Valid values: 2 – 30.
snVLanByPortCfgBaseNumPorts brcdIp.1.1.3.2.7.1.8 Syntax: Integer	Read-only	The number of ports controlled by this bridging entity.
snVLanByPortCfgBaseType brcdIp.1.1.3.2.7.1.9 Syntax: Integer	Read-only	Indicates what type of bridging this bridge can perform. If a bridge is actually performing a certain type of bridging this will be indicated by entries in the port table for the given type. • unknown(1) • transparent-only(2) • sourceroute-only(3) • srt(4)
snVLanByPortCfgStpProtocolSpecification brcdIp.1.1.3.2.7.1.10 Syntax: Integer	Read-only	Shows what version of STP is being run: • unknown(1) • decLb100(2) – Indicates the DEC LANbridge 100 Spanning Tree protocol • ieee8021d(3) – Return "ieee8021d(3)". If future versions of the IEEE Spanning Tree Protocol are released that are incompatible with the current version, a new value will be defined.
snVLanByPortCfgStpMaxAge brcdIp.1.1.3.2.7.1.11 Syntax: Integer	Read-only	Shows the value of dot1dStpMaxAge, which is the maximum age that the STP information can exist before it is discarded. The STP information is learned from the network. The value of this object is in hundredths of a second, and is the actual value that this bridge is currently using. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpHelloTime brcdIp.1.1.3.2.7.1.12 Syntax: Timeout	Read-only	Shows the value of dot1dStpHelloTime, which is the interval between the transmission of Configuration bridge PDUs by this node. This value applies to any port when it is the root of the spanning tree or is trying to become the root. This is the actual value that this bridge is currently using. This value is in hundredths of a second. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpHoldTime brcdIp.1.1.3.2.7.1.13 Syntax: Integer	Read-only	Shows the value of dot1dStpHoldTime, which is the interval when no more than two Configuration bridge PDUs shall be transmitted by this node. The interval is in units of hundredths of a second. (Refer to RFC1493 Bridge MIB.)

TABLE 15 Port VLAN Configuration Table (Continued)

Name, OID, and Syntax	Access	Description
snVLanByPortCfgStpForwardDelay brcdIp.1.1.3.2.7.1.14 Syntax: Timeout	Read-only	Shows the value of dot1dStpForwardDelay, which controls how fast a port changes its spanning state when moving towards the forwarding state. The value determines how long the port stays in each of the listening and learning states, which precede the forwarding state. This value is also used, when a topology change has been detected and is underway, to age all dynamic entries in the forwarding database. **NOTE:** This value is the one that this bridge is currently using in contrast to dot1dStpBridgeForwardDelay, which is the value that this bridge and all others would start using should this bridge become the root. This value is measured in hundredths of a second. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpTimeSinceTopologyChange brcdIp.1.1.3.2.7.1.15 Syntax: Time ticks	Read-only	Shows the time since the last topology change was detected by the bridge entity. This time is in hundredths of a second.
snVLanByPortCfgStpTopChanges brcdIp.1.1.3.2.7.1.16 Syntax: Counter	Read-only	Shows the total number of topology changes detected by this bridge since the management entity was last reset or initialized.
snVLanByPortCfgStpRootCost brcdIp.1.1.3.2.7.1.17 Syntax: Integer	Read-only	Shows the value of dot1dStpRootCost, which is the cost of the path to the root as seen from this bridge. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpRootPort brcdIp.1.1.3.2.7.1.18 Syntax: Integer	Read-only	Shows the value of dot1dStpRootPort, which is the port number of the port which offers the lowest cost path from this bridge to the root bridge. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgStpDesignatedRoot brcdIp.1.1.3.2.7.1.19 Syntax: BridgeId	Read-only	Shows the dot1dStpDesignatedRoot, which is the bridge identifier of the root of the spanning tree as determined by the Spanning Tree Protocol as executed by this node. This value is used as the root identifier parameter in all configuration bridge PDUs originated by this node. (Refer to RFC1493 Bridge MIB.)
snVLanByPortCfgBaseBridgeAddress brcdIp.1.1.3.2.7.1.20 Syntax: MAC address	Read-only	Shows the MAC address used by this bridge when it must be referred to in a unique fashion. It is recommended that this be the numerically smallest MAC address of all ports that belong to this bridge, however, it is only required to be unique. When concatenated with dot1dStpPriority a unique bridge identifier is formed which is used in the Spanning Tree Protocol.
snVLanByPortCfgVLanName brcdIp.1.1.3.2.7.1.21 Syntax: DisplayString	Read-write	Shows the name of the VLAN community string. Valid values: Up to 32 characters.
snVLanByPortCfgRouterIntf brcdIp.1.1.3.2.7.1.22 Syntax: Integer	Read-write	This object is optional. It identifies the virtual interface for the router to the VLAN, and applies only to the router. If an SNMP-Get value is zero, that means this object was not configured.

TABLE 15 Port VLAN Configuration Table (Continued)

Name, OID, and Syntax	Access	Description
snVLanByPortCfgRowStatus brcdIp.1.1.3.2.7.1.23 Syntax: Integer	Read-write	Determines whether or not the VLAN will be deleted: • other(1) • valid(2) • delete(3)
snVLanByPortCfgStpVersion brcdIp.1.1.3.2.7.1.24 Syntax: Integer	Read-write	Shows the version of Spanning Tree Protocol the bridge is currently running. • stpCompatible(0) – STP (IEEE 802.1D) • rstp(2) – RSTP (IEEE 802.1w)
snVLanByPortCfgInOctets brcdIp.1.1.3.2.7.1.25 Syntax: Counter64	Read-only	The number of bytes received on this VLAN. This can be used as the per VE router, if there is one-to-one map for VLAN-VE.

Port VLAN configuration table

Chapter

18

Router Redundancy Protocols

About router redundancy protocols

The objects in this chapter are for the following protocols:

- Foundry Standby Routing Protocol (FSRP) allows alternate paths to be provided to a host using a virtual router. FSRP is a proprietary router redundancy protocol that was available on devices before the other router redundancy protocols. The protocol has been retired in B2R flash images, starting with IronWare release 07.6.01. (Refer to “FSRP objects” on page 311.)
- Virtual Router Redundancy Protocol (VRRP) is a standard router redundancy protocol described in RFC 2338. VRRP is a protocol that provides redundancy to routers within a LAN. VRRP allows you to provide alternate router paths for a host without changing the IP address or MAC address by which the host knows its gateway. The VRRP feature is available in Layer 3 Switches. (Refer to the sections “VRRP global variables” on page 314, “VRRP interface tables” on page 315, and “VRRP virtual router parameters tables” on page 316.)
- VRRP Extended (VRRPE) is an enhanced version of VRRP that overcomes limitations in the standard protocol. The VRRPE feature is also available in Layer 3 Switches. (Refer to the sections “VRRP global variables” on page 314, “VRRP interface tables” on page 315, and “VRRP virtual router parameters tables” on page 316.)
- Virtual Switch Redundancy Protocol (VSRP), which is a proprietary protocol that provides redundancy and sub-second failover in Layer 2 and Layer 3 mesh topologies. Based on the Virtual Router Redundancy Protocol Extended (VRRPE), VSRP provides one or more backups for a Layer 2 Switch or Layer 3 Switch. If the active Layer 2 Switch or Layer 3 Switch becomes unavailable, one of the backups takes over as the active device and continues forwarding traffic for the network. (Refer to “VSRP” on page 325.)

NOTE
VRRP, VRRPE, and VSRP are separate protocols. You cannot use them together.

This chapter presents the objects for the protocols. Traps for FSRP and VRRP are discussed in the section “Traps and Objects to Enable Traps” on page 627.

Refer to the configuration guide for a product for details on the features discussed in this chapter.

For BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX, see “Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX” on page 331.

FSRP objects

The Foundry Standby Routing Protocol (FSRP) allows alternate paths to be provided to a host. To provide path redundancy between given hosts, a virtual router is created. To create a virtual router, unique IP addresses are assigned to ports on existing routers in the network routers that could provide a path between the given hosts.

For more information on FSRP, refer to the configuration guide for a product. This chapter presents the objects for FSRP. You must determine if you device supports FSRP before using the MIB objects for FSRP traps.

Note: Foundry Standby Routing Protocol (FSRP) MIBs are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- NetIron CES
- NetIron CER
- FastIron devices
- Brocade MLXe

For objects referring to FSRP traps, refer to the chapter “Traps and Objects to Enable Traps” on page 627.

This section presents the following objects:

- “FSRP global variables” on page 312
- “FSRP interface table” on page 312

FSRP global variables

The following object applies to all FSRP interfaces.

Name, OID, and Syntax	Access	Description
snFsrpGroupOperMode brcdIp.1.2.7.1.1 Syntax: Integer	Read-write	Indicates if FSRP is enabled: • disabled(0) • enabled(1) **NOTE:** Do not enable both FSRP and VRRP. It is recommended that you use only one of these router redundancy protocols on a Layer 3 Switch. Default: disabled(0)

FSRP interface table

The FSRP Interface Table describes the configuration of FSRP interfaces.

Name, OID, and Syntax	Access	Description
snFsrpIfTable brcdIp.1.2.7.2.1	None	The FSRP Interface Table.
snFsrpIfEntry brcdIp.1.2.7.2.1.1	None	An entry in the FSRP Interface Table.
snFsrpIfPort brcdIp.1.2.7.2.1.1.1 Syntax: Integer	Read only	Identifies the physical router port number of this FSRP interface.

Name, OID, and Syntax	Access	Description
snFsrpIfIpAddress brcdIp.1.2.7.2.1.1.2 Syntax: IpAddress	Read only	Identifies the IP address of the physical router port of this interface.
snFsrpIfVirRtrIpAddr brcdIp.1.2.7.2.1.1.3 Syntax: IpAddress	Read-write	Identifies the IP address of the virtual router for the interface. The Virtual Router IP address needs to be configured on the interface before the Redundant Router Function can operate on the interface. This address has to be same on all the routers that are going to participate in the Redundant Router Function on a given subnet.
snFsrpIfOtherRtrIpAddr brcdIp.1.2.7.2.1.1.4 Syntax: IpAddress	Read-write	Identifies the IP address of the other router on this IP subnet. The other router is the router that operates FSRP and to which the keep alive message needs to be sent by this router. This object must be configured in order for FSRP to work correctly
snFsrpIfPreferLevel brcdIp.1.2.7.2.1.1.5 Syntax: Integer	Read-write	Decides which router should become the active router for the interface. The active router is the one with the higher priority. A higher number indicates a higher priority. Valid values: 1 – 255 Default: 100
snFsrpIfTrackPortMask Syntax: PortMask	Read-write	This object is not supported.
snFsrpIfRowStatus brcdIp.1.2.7.2.1.1.7 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snFsrpIfState brcdIp.1.2.7.2.1.1.8 Syntax: Integer	Read only	Specifies the state of the FSRP Router interface: • init(0) – initialization state • negotiating(1) – negotiating state • standby(2) – standby state • active(3) – active state
snFsrpIfKeepAliveTime brcdIp.1.2.7.2.1.1.9 Syntax: Integer	Read-write	Defines the heartbeat of the interface. Valid values: 1 – 120 seconds. Default: 3 seconds
snFsrpIfRouterDeadTim e brcdIp.1.2.7.2.1.1.10 Syntax: Integer	Read-write	Defines the hold time of the FSRP router. Valid values: 3 – 255 seconds Default: nine seconds

Name, OID, and Syntax	Access	Description
snFsrpIfChassisTrackPortMask brcdIp.1.2.7.2.1.1.11 Syntax: OctetString	Read-write	Applies only to chassis products running Release 07.1.00 software. This object is replaced by the "snFsrpIfTrackPortList" object in later releases. For chassis products running Release 07.1.00, this object shows the chassis router FSRP Track port membership. It specifies the identity of the physical port whose state is to be monitored. Each bit is a port of the system. Valid values: Up to 32 octets Default: 0 If this object is configured, then the preference level of this interface will be adjusted dynamically, depending on the state of the track port. The preference level is configured in the "snFsrpIfPreferLevel" object. The interface's preference level is reduced by the value of the preference level parameter when the track port states first changes from UP to DOWN. When the track port comes up, the interface's preference level is increased by the amount specified by the preference level.
snFsrpIfTrackPortList brcdIp.1.2.7.2.1.1.12 Syntax: OctetString	Read-write	Shows the router FSRP physical track port membership. It specifies the identity of the physical port whose state is to be monitored. Each port index is a 16-bit integer in big endian order. 8-bit is the slot number, the other 8-bit is the port number. Default: 0 length octet string If this object is configured, then the preference level of this interface will be adjusted dynamically, depending on the state of the track port. The preference level is configured in the "snFsrpIfPreferLevel" object. The interface's preference level is reduced by the value of the preference level parameter when the track port states first changes from UP to DOWN. When the track port comes up, the interface's preference level is increased by the amount specified by the preference level.

VRRP global variables

NOTE
This is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX devices.

The following table contains the global objects that applies to VRRP, VRRPE, and VSRP protocol.

Name, OID, and Syntax	Access	Description
snVrrpGroupOperMode brcdIp.1.2.12.1.1 Syntax: Integer	Read-write	Indicates if VRRP is enabled for this system: • disabled(0) – Disable VRRP • enabled(1) – Activate VRRP Default: disabled(0)
snVrrpGroupOperModeVrrpextended brcdIp.1.2.12.1.6 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Available in IronWare software release 07.6.01. Indicates if VRRPE is enabled on this device: disabled(0) enabled(1) Default: disabled(0)

VRRP interface tables

NOTE
This is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices.

This section presents:

- "VRRP interface table" on page 315
- "VRRP and VRRPE interface table 2" on page 316

VRRP interface table

The objects in this section apply to VRRP, VRRPE, and VSRP, depending on which protocol is enabled in the device. This table has been replaced by the "snVrrpIf2Table" table, which is presented in the "VRRP and VRRPE interface table 2" on page 316

This table has been deprecated.

Name, OID, and Syntax	Access	Description
snmaxTable brcdIp.1.2.12.2.1	None	The VRRP Interface Table.
snVrrpIfEntry brcdIp.1.2.12.2.1.1	None	An entry in the VRRP Interface Table.
snVrrpIfPort brcdIp.1.2.12.2.1.1.1 snVrrpIfPort32	Read only	Shows the IP port of this VRRP interface.
snVrrpIfAuthType brcdIp.1.2.12.2.1.1.2 snVrrpIfPort	Read-write	Indicates the authentication type of this interface. • noAuth(0) • simpleTextPasswd(1) • ipAuthHeader(2)
snVrrpIfAuthPassword brcdIp.1.2.12.2.1.1.3 Syntax: OctetString	Read-write	Shows the simple text password for this interface. You can use a simple text password if the object "snVrrpIfAuthType" object is set to simpleTextPasswd(1).
snVrrpIfRxHeaderErrCnts brcdIp.1.2.12.2.1.1.4 Syntax: Counter32	Read only	Shows the number of VRRP or VRRPE packets received by the interface that had a header error.
snVrrpIfRxAuthTypeErrCnts brcdIp.1.2.12.2.1.1.5 Syntax: Counter32	Read only	Shows the number of VRRP or VRRPE packets received by the interface that had an authentication error.
snVrrpIfRxAuthPwdMismatchErrCnts brcdIp.1.2.12.2.1.1.6 Syntax: Counter32	Read only	Shows the number of VRRP or VRRPE packets received by the interface that had a password value that does not match the password used by the interface for authentication.
snVrrpIfRxVridErrCnts brcdIp.1.2.12.2.1.1.7 Syntax: Counter32	Read only	Shows the number of VRRP or VRRPE packets received by the interface that contained a VRID that is not configured on this interface.

VRRP and VRRPE interface table 2

The following table replaces the "snmaxTable" (presented in the section "VRRP interface table" on page 315), which uses the slot/port number to index an entry. This new table uses the ifindex to present the configuration and statistics of VRRP and VRRPE interfaces. Each entry in the table describes one VRRP or VRRPE interface.

Name, OID, and Syntax	Access	Description
snVrrpIf2Table brcdIp.1.2.12.4.1	None	The VRRP and VRRPE table 2 for interfaces, using the ifindex
snVrrpIf2Entry brcdIp.1.2.12.4.1.1	None	An entry in the table
snVrrpIf2AuthType brcdIp.1.2.12.4.1.1.1 Syntax: Integer	Read-write	The authentication type of the interface: • noAuth(0) • simpleTextPasswd(1) • ipAuthHeader(2)
snVrrpIf2AuthPassword brcdIp.1.2.12.4.1.1.2 Syntax: OctetString	Read-write	Password for the interface if the snVrrpIf2AuthType type is set to simpleTextPasswd(1).
snVrrpIf2RxHeaderErrCnts brcdIp.1.2.12.4.1.1.3 Syntax: Counter32	Read only	The number of packets received by the interface that had a header error.
snVrrpIf2RxAuthTypeErrCnts brcdIp.1.2.12.4.1.1.4 Syntax: Counter32	Read only	The number of packets received by the interface that had an authentication error.
snVrrpIf2RxAuthPwdMismatchErrCnts brcdIp.1.2.12.4.1.1.5 Syntax: Counter32	Read only	The number of packets received by the interface that had a password value that does not match the password used by the interface for authentication.
snVrrpIf2RxVridErrCnts brcdIp.1.2.12.4.1.1.6 Syntax: Counter32	Read only	The number of packets received by the interface that contained a VRID that is not configured on this interface.

VRRP virtual router parameters tables

There are two types of VRRP Virtual Router Parameters Table:

- "VRRP virtual router table" on page 317
- "VRRP and VRRPE parameter table 2" on page 321

NOTE
These tables are not supported on the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices.

VRRP virtual router table

This table has been replaced by the "snVrrpVirRtr2Table" in IronWare release 07.6.01. The new table is presented in the section "VRRP and VRRPE parameter table 2" on page 321.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snVrrpVirRtrTable brcdIp.1.2.12.3.1	None	The VRRP Virtual Router Table
snVrrpVirRtrEntry brcdIp.1.2.12.3.1.1	None	An entry in the VRRP Virtual Router Table.
snVrrpVirRtrPort brcdIp.1.2.12.3.1.1.1 Syntax: Integer32	Read only	Shows the port number of this VRRP interface.
snVrrpVirRtrId brcdIp.1.2.12.3.1.1.2 Syntax: Integer	Read only	Shows the VRID that has been configured on this interface. If multiple VRIDs are configured, there is an entry for each VRID.
snVrrpVirRtrOwnership brcdIp.1.2.12.3.1.1.3 Syntax: Integer	Read-write	Indicates the owner of the router interface. The owner or master router owns the IP addresses associated with the VRID: • incomplete(0) – no IP address has been assigned to this VRRP router interface. • owner(1) – The owner or the master router is the owner of the VRRP router interface. • backup(2) – The backup router is the owner of the interface.
snVrrpVirRtrCfgPriority brcdIp.1.2.12.3.1.1.4 Syntax: Integer	Read-write	Applies only if the object "snVrrpVirRtrOwnership" is set to backup(2). It indicates the backup router's preferability to becoming the active router for the interface. The higher the number, the higher the priority. If two or more devices are tied with the highest priority, the Backup interface with the highest IP address becomes the active router for the VRID. Valid values: 3 – 254 Default: 100
snVrrpVirRtrTrackPriority brcdIp.1.2.12.3.1.1.5 Syntax: Integer	Read-write	Applies to interfaces that are configured with track ports. It indicates the priority of the track ports. A higher the number indicates a higher priority. Track port priority is always lower than the "snVrrpVirRtrCfgPriority" priority. This object is adjusted dynamically with the "snVrrpVirRtrCurrPriority" object when the Track Port state first changes from up to down. Valid values: 1 – 254

Name, OID, and Syntax	Access	Description
snVrrpVirRtrCurrPriority brcdIp.1.2.12.3.1.1.6 Syntax: Integer	Read only	The current VRRP priority of this Layer 3 Switch for the VRID. The current priority can differ from the configured priority for the following reasons: • The VRID is still in the initialization stage and has not yet become a Master or Backup. In this case, the current priority is 0. • The VRID is configured with track ports and the link on a tracked interface has gone down. A higher the number indicates a higher priority. This object is adjusted dynamically with the "snVrrpVirRtrTrackPriority" object. Valid values: 1 – 254
snVrrpVirRtrHelloInt brcdIp.1.2.12.3.1.1.7 Syntax: Integer	Read-write	Shows the number of seconds between hello messages that are sent between the master and the backup. Valid values: 1 – 84 seconds Default: 1 second
snVrrpVirRtrDeadInt brcdIp.1.2.12.3.1.1.8 Syntax: Integer	Read-write	Applies only to VRRP backups. It shows the configured value for the dead interval. The dead interval is the number of seconds that a backup router waits for a Hello message from the VRID master before determining that the Master is no longer active. If the Master does not send a Hello message before the dead interval expires, the backups negotiate (compare priorities) to select a new Master for the VRID. Valid values: 0 – 84 seconds. A value of 0 means that this object has not been configured. Default: 0 seconds
snVrrpVirRtrPreemptMode brcdIp.1.2.12.3.1.1.9 Syntax: Integer	Read-write	Indicates if the backup preempt mode is enabled. The Backup preempt mode prevents a backup router with a higher VRRP priority from taking control of the VRID from another backup router that has a lower priority, but has already assumed control of the VRID: • disabled(0) – Prohibit preemption • enabled(1) – Allow preemption Default: enabled(1)
snVrrpVirRtrState brcdIp.1.2.12.3.1.1.10 Syntax: Integer	Read only	Specifies the state of the VRRP Router's interface: • init(0) – Initialization state. • master(1) – Master state. • backup(2) – Backup state.
snVrrpVirRtrActivate brcdIp.1.2.12.3.1.1.11 Syntax: Integer	Read-write	Indicates if the VRRP Router feature is enabled. • disabled(0) – The VRRP Router is deactivated • enabled(1) – The VRRP Router has been activated
snVrrpVirRtrIpAddrMask brcdIp.1.2.12.3.1.1.12 Syntax: OctetString	Read-write	The number of IP addresses of this virtual router of this interface.

Name, OID, and Syntax	Access	Description
snVrrpVirRtrTrackPortMask brcdIp.1.2.12.3.1.1.13 Syntax: OctetString	Read-write	This object was obsoleted after release 07.1.00 and replaced by "snVrrpVirRtrTrackPortList". It specifies the identity of the physical port whose state is to be monitored. Each bit represents a port on a device. Valid values: There can be up to 64 octets in this object: • Chassis devices can have up to 32 octets. • Stackable devices can have up to 4 octets. Default: 0 octets If this object is configured on an interface, then the Preference Level for the interface will be adjusted dynamically, depending on the state of the Track Port: • When the Track Port states first changes from up to down, the interface's Preference Level is reduced by the value of the Preference Level parameter. • The next time the Track Port state changes from down to up, the interface's Preference Level is increased by the amount specified by the Preference Level.
snVrrpVirRtrTrackVifMask brcdIp.1.2.12.3.1.1.14 Syntax: OctetString	Read-write	This object was obsoleted after release 07.1.00 and replaced by "snVrrpVirRtrTrackVifPortList". It specifies the identity of the virtual interface whose state is to be monitored. Each bit represents a port on a device. Valid values: • Chassis devices can have up to 32 octets. • Stackable devices can have up to 4 octets. Default: 0 octets If this object is configured on an interface, then the Preference Level for the interface will be adjusted dynamically, depending on the state of the Track Port: • When the Track Port states first changes from up to down, the interface's Preference Level is reduced by the value of the Preference Level parameter. • The next time the Track Port state changes from down to up, the interface's Preference Level is increased by the amount specified by the Preference Level.
snVrrpVirRtrRowStatus brcdIp.1.2.12.3.1.1.15 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVrrpVirRtrRxArpPktDropCnts brcdIp.1.2.12.3.1.1.16 Syntax: Counter32	Read only	Shows the number of ARP packets addressed to the interface that were dropped.

Name, OID, and Syntax	Access	Description
snVrrpVirRtrRxIpPktDropCnts brcdIp.1.2.12.3.1.1.17 Syntax: Counter32	Read only	Shows the number of IP packets addressed to the interface that were dropped.
snVrrpVirRtrRxPortMismatchCnts brcdIp.1.2.12.3.1.1.18 Syntax: Counter32	Read only	Shows the number of packets received that did not match the configuration for the receiving interface.
snVrrpVirRtrRxNumOfIpMismatchCnts brcdIp.1.2.12.3.1.1.19 Syntax: Counter32	Read only	Shows the number of packets received that did not match the configured IP addresses.
snVrrpVirRtrRxIpMismatchCnts brcdIp.1.2.12.3.1.1.20 Syntax: Counter32	Read only	Shows the number of receive VRRP IP addresses that did not match the configured VRRP addresses.
snVrrpVirRtrRxHelloIntMismatchCnts brcdIp.1.2.12.3.1.1.21 Syntax: Counter32	Read only	Shows the number of packets received that did not match the configured Hello interval.
snVrrpVirRtrRxPriorityZeroFromMasterCnts brcdIp.1.2.12.3.1.1.22 Syntax: Counter32	Read only	Shows the counts of the virtual router interface with priority zero from the master.
snVrrpVirRtrRxHigherPriorityCnts brcdIp.1.2.12.3.1.1.23 Syntax: Counter32	Read only	Shows the number of VRRP packets received by the interface that had a higher backup priority for the VRID than what this interface's backup priority is.
snVrrpVirRtrTransToMasterStateCnts brcdIp.1.2.12.3.1.1.24 Syntax: Counter32	Read only	Shows the number of times this interface has changed from the backup state to the master state for the VRID.
snVrrpVirRtrTransToBackupStateCnts brcdIp.1.2.12.3.1.1.25 Syntax: Counter32	Read only	Shows the number of times this interface has changed from the master state to the backup state for the VRID.
snVrrpVirRtrCurrDeadInt brcdIp.1.2.12.3.1.1.26 Syntax: Integer32	Read only	Shows the number of seconds a backup waits for a Hello message from the master before determining that the Master is no longer active. If the Master does not send a Hello message before the dead interval expires, the backups negotiate (compare priorities) to select a new master.

Name, OID, and Syntax	Access	Description
snVrrpVirRtrTrackPortList brcdIp.1.2.12.3.1.1.27 Syntax: OctetString	Read-write	This object is available on devices running IronWare release later than 07.1.00. It specifies the identity of the physical port whose state is to be monitored. Each port index is a 16-bit integer in big endian order. The first 8-bit is the slot number; the next 8-bit is the port number. Default value is 0 length octet string. If this object is configured on an interface, then the Preference Level for the interface will be adjusted dynamically, depending on the state of the Track Port: • When the Track Port state first changes from up to down, the interface's Preference Level is reduced by the value of the Preference Level parameter. • The next time the Track Port state changes from down to up, the interface's Preference Level is increased by the amount specified by the Preference Level.
snVrrpVirRtrTrackVifPortLis t brcdIp.1.2.12.3.1.1.28 Syntax: OctetString	Read-write	This object is available on devices running IronWare release later than 07.1.00. This object specifies the identity of the virtual interface whose state is to be monitored. Each port index is a 16-bit integer in big endian order. The first 8-bit is the slot number; the next 8-bit is the port number. Default value is 0 length octet string. If this object is configured on an interface, then the Preference Level for the interface will be adjusted dynamically, depending on the state of the Track Port: • When the Track Port states first changes from up to down, the interface's Preference Level is reduced by the value of the Preference Level parameter. • The next time the Track Port state changes from down to up, the interface's Preference Level is increased by the amount specified by the Preference Level.

VRRP and VRRPE parameter table 2

In IronWare Release 07.6.01, the following table replaces the "snVrrpVirRtrTable", which uses slot/port number to index entries. This new table uses the ifindex method to present the configuration and statistics for VRRP and VRRPE. Each entry in the table describes one VRRP or VRRPE router.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snVrrpVirRtr2Table brcdIp.1.2.12.5.1	None	The VRRP Virtual Router Table 2.
snVrrpVirRtr2Entry brcdIp.1.2.12.5.1.1	None	An entry in the VRRP Virtual Router Table 2.
snVrrpVirRtr2Id brcdIp.1.2.12.5.1.1.1 Syntax: Integer	Read only	Shows one of the VRID configured on this interface. If multiple VRIDs are configured on the interface, there is an entry for each VRID.

Name, OID, and Syntax	Access	Description
snVrrpVirRtr2Ownership brcdIp.1.2.12.5.1.1.2 Syntax: Integer	Read-write	Indicates the owner of the VRRP router interface. The owner or master router owns the IP addresses associated with the VRID: • incomplete(0) – No IP address has been assigned to this VRRP or VRRPE interface. • owner(1) – The owner or the master router is the owner of the VRRP router interface. This applies only to VRRP. • backup(2) – The backup router (VRRP or VRRPE) is the owner of the interface. This is the only value that can be assigned to a VRRPE router interface.
snVrrpVirRtr2CfgPriority brcdIp.1.2.12.5.1.1.3 Syntax: Integer	Read-write	Indicates the preferability of a router for becoming the active router for the interface. A higher number indicates a higher priority. If two or more devices are tied with the highest priority, the Backup interface with the highest IP address becomes the active router for the VRID. Valid values: 0 – 255, where: • 0 – The master no longer participates in the VRRP and a backup router should transition to be the new master • 255 – The router is the Owner Default: 100.
snVrrpVirRtr2TrackPriority brcdIp.1.2.12.5.1.1.4 Syntax: Integer	Read-write	Applies to interfaces that are configured with track ports. It indicates the priority of the track ports. The higher the number the higher the priority. Track port priority is always lower than the "snVrrpVirRtrCfgPriority" priority. This object dynamically adjusts the value of the "snVrrpVirRtr2CfgPriority" object when the Track Port state first changes from Up to Down. Valid values: 1 – 254.
snVrrpVirRtr2CurrPriority brcdIp.1.2.12.5.1.1.5 Syntax: Integer	Read only	The current VRRP or VRRPE priority of this Layer 3 Switch for the VRID. The current priority can differ from the configured priority for the following reasons: • The VRID is still in the initialization stage and has not become a Master or Backup yet. In this case, the current priority is 0. • The VRID is configured with track ports and the link on a tracked interface has gone down. A higher number indicates a higher priority. This object is adjusted dynamically when the tracked port first changes from Up to Down. Valid values: 1 – 254.
snVrrpVirRtr2HelloInt brcdIp.1.2.12.5.1.1.6 Syntax: Integer	Read-write	Shows the number of seconds between hello advertisements from the master and the backup. Valid values: 1 – 84. Default: 1 second.
snVrrpVirRtr2DeadInt brcdIp.1.2.12.5.1.1.7 Syntax: Integer	Read-write	Applies only to VRRP or VRRPE backups. It shows the configured value for the dead interval. The dead interval is the number of seconds that a backup router waits for a Hello message from the VRID master before determining that the Master is no longer active. If the Master does not send a Hello message before the dead interval expires, the backups negotiate (compare priorities) to select a new Master for the VRID. Valid values: 1 – 84. Default: 0, which means that this object has not been configured.

Name, OID, and Syntax	Access	Description
snVrrpVirRtr2PreemptMode brcdIp.1.2.12.5.1.1.8 Syntax: Integer	Read-write	Indicates if the backup preempt mode is enabled: • disabled(0) – prohibit preemption • enabled(1) – allow preemption Default: enabled(1). The Backup preempt mode prevents a backup router with a higher VRRP priority from taking control of the VRID from another backup router that has a lower priority, but has already assumed control of the VRID.
snVrrpVirRtr2State brcdIp.1.2.12.5.1.1.9 Syntax: Integer	Read only	Specifies the VRRP or VRRPE router's interface state: • init(0) – Initialization state. • master(1) – Master state. • backup(2) – Backup state.
snVrrpVirRtr2IpAddrMask brcdIp.1.2.12.5.1.1.10 Syntax: OctetString	Read-write	The number of IP Addresses of this virtual router of this interface
snVrrpVirRtr2Activate brcdIp.1.2.12.5.1.1.11 Syntax: Integer	Read-write	Indicates if VRRP or VRRPE router is enabled. • disabled(0) – The router is deactivated • enabled(1) – The router has been activated
snVrrpVirRtr2BackupInt brcdIp.1.2.12.5.1.1.12 Syntax: Integer	Read-write	Time interval between backup routers hello message advertisements in seconds. The default is 60 seconds.
snVrrpVirRtr2RowStatus brcdIp.1.2.12.5.1.1.13 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row • If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. • The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVrrpVirRtr2RxIpPktDropCnts brcdIp.1.2.12.5.1.1.14 Syntax: Counter32	Read only	Shows the number of IP packets addressed to the interface that were dropped.
svVrrpIf2Rtr2RxIpPktDropCnts brcdIp.1.2.12.5.1.1.15 Syntax: Counter32	Read only	Shows the number of IP packets addressed to the interface that were dropped.
snVrrpVirRtr2RxPortMismatchCnts brcdIp.1.2.12.5.1.1.16 Syntax: Counter32	Read only	Shows the number of packets received that did not match the configuration for the receiving interface.

Name, OID, and Syntax	Access	Description
snVrrpVirRtr2RxNumOfIpMismatchCnts brcdIp.1.2.12.5.1.1.17 Syntax: Counter32	Read only	Shows the number of packets received that did not match the configured IP addresses.
snVrrpVirRtr2RxIpMismatchCnts brcdIp.1.2.12.5.1.1.18 Syntax: Counter32	Read only	Shows the number of VRRP IP addresses received that did not match the VRRP or VRRPE addresses
snVrrpVirRtr2RxHelloIntMismatchCnts brcdIp.1.2.12.5.1.1.19 Syntax: Counter32	Read only	Shows the number of packets received that did not match the configured Hello interval.
snVrrpVirRtr2RxPriorityZeroFromMasterCnts brcdIp.1.2.12.5.1.1.20 Syntax: Counter32	Read only	Shows the count of the virtual router interface that received priority zero from the master.
snVrrpVirRtr2RxHigherPriorityCnts brcdIp.1.2.12.5.1.1.21 Syntax: Counter32	Read only	Shows the number of packets received by the interface that had a higher backup priority for the VRID than this interface's backup priority for the VRID.
snVrrpVirRtr2TransToMasterStateCnts brcdIp.1.2.12.5.1.1.22 Syntax: Counter32	Read only	Shows the number of times this interface has changed from the master state to the backup state for the VRID.
snVrrpVirRtr2TransToBackupStateCnts brcdIp.1.2.12.5.1.1.23 Syntax: Counter32	Read only	Shows the number of times this interface has changed from the master state to the backup state.
snVrrpVirRtr2CurrDeadInt brcdIp.1.2.12.5.1.1.24 Syntax: Integer32	Read only	Shows the current dead interval in 100 milliseconds for the virtual router. This is the time period that a backup waits for a Hello message from the master before determining that the Master is no longer active. If the Master does not send a Hello message before the dead interval expires, the backups negotiate (compare priorities) to select a new master for the VRID.

Name, OID, and Syntax	Access	Description
snVrrpVirRtr2TrackPortList brcdIp.1.2.12.5.1.1.25 Syntax: OctetString	Read-write	Specifies the router's physical track port membership. The membership includes physical port and virtual ports whose state is to be monitored. Each port index is an ifIndex. If there are four or more consecutive ifIndexes, then encoding and decoding scheme is range based, as follows: • Each range prefix with 0000 (2 octets) is not a valid ifIndex. • The first two octets in a set of four octets indicate the beginning of the range. The next two octets show the end of the range. • IfIndexes that are not in a range are displayed as it is. For example, you may see the following lists: • Port list: 0001..0005 0015 0032..0047 0001..0005 and 0032..0047 show ranges of ifindexes; whereas, 0015 is one ifindex • Port list in PDU: 0000 0001 0005 000f 0000 0020 002f The list contains ifindexes not in a range. If this object is configured, then the Preference Level of this interface will be adjusted dynamically depending on the state of the Track Port. The interface's Preference Level is reduced by the value of Preference Level parameter when the Track Port states first changes from Up to Down. When the Track Port returns to the Up state, the interface's Preference Level is increased by the amount specified by the Preference Level.
snVrrpVirRtr2AdvertiseBackup brcdIp.1.2.12.5.1.1.26 Syntax: Integer	Read-write	Indicates if the ability for this Backup to advertise itself to the current Master is enabled: • disabled(0) • enabled(1) Default: disabled(0}.
snVrrpVirRtr2MasterIpAddr brcdIp.1.2.12.5.1.1.27 Syntax: IpAddress	Read only	Shows the Master's real or virtual (primary) IP address. This IP address is listed as the source in VRRP and VRRPE advertisement that was last received by this virtual router.
snVrrpVirRtr2IpAddrCount brcdIp.1.2.12.5.1.1.28 Syntax: Integer	Read only	Shows the number of IP addresses that are associated with this virtual router. This number is equal to the number or rows in the vrrpAssoIpAddrTable of the standard MIB that corresponds to a given ifindex and VRID pair.
snVrrpVirRtr2VirtualMacAddr brcdIp.1.2.12.5.1.1.29 Syntax: MAC address	Read only	Shows the virtual MAC address of the virtual router.

VSRP

Virtual Switch Redundancy Protocol (VSRP) is a proprietary protocol that provides redundancy and sub-second failover in Layer 2 and Layer 3 mesh topologies. Based on the Virtual Router Redundancy Protocol Extended (VRRPE), VSRP provides one or more backups for a Layer 2 Switch or Layer 3 Switch. If the active Layer 2 Switch or Layer 3 Switch becomes unavailable, one of the backups takes over as the active device and continues forwarding traffic for the network.

Refer to the configuration guide for your device for detailed discussion on VSRP.

The following objects are available for VSRP to provide SNMP support for VSRP:

- “Global VSRP objects” on page 326
- “VSRP interface table” on page 326
- “VSRP virtual router table” on page 327

These MIB objects are supported in the IronWare MIB of the following software releases:

- BigIron software release 07.6.01 and later.
- NetIron Multi-Service IronWare software release 03.8.00 and later.

Global VSRP objects

The following are the global objects for VSRP. They are equivalent to the **router vsrp** and **snmp-server enable traps vsrp** CLI commands.

NOTE
Only one of the virtual router protocols can be enabled at any one time.

Name, OID, and Syntax	Access	Description
snVsrpGroupOperModeVsrp brcdIp.1.1.3.21.1.1 Syntax: Integer	Read-write	Indicates if VSRP is enabled or disable on this system: • disabled(0) - the default. • enabled(1)
snVsrpGroupOperModeVsrp brcdIp.1.1.3.21.1.2 Syntax: Integer	Read-write	Indicates if a trap is generated whenever a VSRP state change occurs. • disabled(0) • enabled(1)- the default.
snVsrpIfMaxNumVridPerIntf brcdIp.1.1.3.21.1.3 Syntax: Integer32	Read only	Indicates the maximum number of VRID that an interface can have.
snVsrpIfMaxNumVridPerSystem brcdIp.1.1.3.21.1.4 Syntax: Integer32	Read only	Indicates the maximum number of VRID that a system can have.
snVsrpClearVrrpStat brcdIp.1.1.3.21.1.5 Syntax: Integer	Read-write	Clears the VSRP statistics. • normal(0) • clear(1)

VSRP interface table

The following table contains objects used to configure VSRP interfaces. They are equivalent to the **vsrp auth-type** CLI command.

NOTE
Make sure that "snVsrpGroupOperModeVsrp" is set to enable(1).

Name, OID, and Syntax	Access	Description
snVsrpIfTable brcdIp.1.1.3.21.2.1	None	The VSRP Interface Table
snVsrpIfEntry brcdIp.1.1.3.21.2.1.1	None	An entry in the VSRP Interface Table.
snVsrpIfVlanId brcdIp.1.1.3.21.2.1.1.1 Syntax: Integer32	Read-only	VLAN ID used to index the entries in this table.
snVsrpIfAuthType brcdIp.1.1.3.21.2.1.1.2 Syntax: Integer	Read-write	Indicates the authorization type used to verify access to the interface: • noAuth(0) • simpleTextPasswd(1) • ipAuthHeader(2) (Not supported in NetIron Multi-Service IronWare software releases.)
snVsrpIfAuthPassword brcdIp.1.1.3.21.2.1.1.3 Syntax: OctetString	Read-write	Defines the password required if the "snVsrpIfAuthType" object is set to simpleTextPasswd(1). This object can contain 1 – 7 octets.

VSRP virtual router table

The VSRP Virtual Router Table describes the configuration of the VSRP virtual router. They are equivalent to the **vsrp vrid** and **show vsrp** CLI commands.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrTable brcdIp.1.1.3.21.3.1	None	The VSRP Virtual Router Table
snVsrpVirRtrEntry brcdIp.1.1.3.21.3.1.1	None	An entry in the VSRP Virtual Router Table.
snVsrpVirRtrVlanId brcdIp.1.1.3.21.3.1.1.1 Syntax: Integer32	Read only	VLAN index of the VSRP router.
snVsrpVirRtrId brcdIp.1.1.3.21.3.1.1.2 Syntax: Integer	Read only	Shows a virtual router ID for the interface.
snVsrpVirRtrOwnership brcdIp.1.1.3.21.3.1.1.3 Syntax: Integer	Read-write	Indicates the owner of the VSRP router interface. The owner or master router owns the IP addresses associated with the VRID: • incomplete(0) – No IP address has been assigned to this interface. • owner(1) – This does not apply to VSRP. • backup(2) – The backup router is the owner of the interface. This is the only value that can be assigned to a VSRP router interface.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrCfgPriority brcdIp.1.1.3.21.3.1.1.4 Syntax: Integer	Read-write	Indicates the preferability of a router for becoming the active router for the interface. A higher number indicates a higher priority. If two or more devices are tied with the highest priority, the Backup interface with the highest IP address becomes the active router for the VRID. This object can be set only if "snVsrpVirRtrCfgPriority" is set to backup(2) Valid values: 1 – 254 Default: 100.
snVsrpVirRtrTrackPriority brcdIp.1.1.3.21.3.1.1.5 Syntax: Integer	Read-write	Indicates the amount by which the default track priority is reduced when a tracked interface goes down. The higher the number, the higher the priority. After this object is configured, the "snVsrpVirRtrCurrPriority" of this interface will be adjusted dynamically with this track priority the first time the Track Port states changes from UP to DOWN **NOTE:** Supported in the NetIron Multi-Service IronWare software release 03.8.00 and later. Valid values: 1 – 254
snVsrpVirRtrCurrPriority brcdIp.1.1.3.21.3.1.1.6 Syntax: Integer	Read only	The current VSRP priority of this Layer 3 Switch for the VRID. The current priority can differ from the configured priority for the following reasons: • The VRID is still in the initialization stage and has not become a Master or Backup. In this case, the current priority is 0. • The VRID is configured with track ports and the link on a tracked interface has gone down. A higher number indicates a higher priority. This object is adjusted dynamically when the tracked port first changes from Up to Down. Valid values: 1 – 254.
snVsrpVirRtrHelloInt brcdIp.1.1.3.21.3.1.1.7 Syntax: Integer	Read-write	Shows the number of seconds between hello advertisements sent from the master and the backup. Valid values: 1 – 84. Default: 1 second. **NOTE:** This object cannot be combined with either the snVsrpVirRtrDeadInt or snVsrpVirRtrHoldDownInt object in one SNMP set request.
snVsrpVirRtrDeadInt brcdIp.1.1.3.21.3.1.1.8 Syntax: Integer	Read-write	Shows the number of seconds a Backup waits for a Hello message from the Master for the VRID before determining that the Master is no longer active. If the Master does not send a Hello messages before the dead interval expires and the backups negotiate (compare priorities) to select a new master for the Valid values: 1 – 84. Default: 3 seconds. **NOTE:** This object cannot be combined with the snVsrpVirRtrHelloInt object in one SNMP set request.
snVsrpVirRtrPreemptMode brcdIp.1.1.3.21.3.1.1.9 Syntax: Integer	Read-write	Enables or disables preemption. When preemption is enabled, a higher priority Backup router preempts a lower priority Master. • disabled(0) • enabled(1) - the default.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrState brcdIp.1.1.3.21.3.1.1.10 Syntax: Integer	Read only	Specifies the virtual router's interface state: • init(0) – Initialization state • master(1) – Master state • backup(2) – Backup state
snVsrpVirRtrIpAddrMask brcdIp.1.1.3.21.3.1.1.11 Syntax: OctetString	Read-write	The numbers of IP Addresses for this virtual router of this interface. This object is for Layer 3 VSRP." Valid values: Up to 64 octets
snVsrpVirRtrActivate brcdIp.1.1.3.21.3.1.1.12 Syntax: Integer	Read-write	Indicates if VRRP or VRRPE router has been activated. • disabled(0) – The router has not been activated • enabled(1) – The router has been activated
snVsrpVirRtrTrackPortList brcdIp.1.1.3.21.3.1.1.13 Syntax: OctetString	Read-write	Specifies the router's physical track port membership. The membership includes physical port and virtual ports whose state is to be monitored. Each port index is an ifIndex. If there are four or more consecutive ifIndexes, then encoding and decoding scheme is range based, as follows: • Each range prefix with 0000 (2 octets) is not a valid ifIndex. • The first two octets in a set of four octets indicate the beginning of the range. The next two octets show the end of the range. • Ifindexes that are not in a range are displayed as individual indexes. For example, you may see the following lists: • Port list: 0001..0005 0015 0032..0047 0001..0005 and 0032..0047 show ranges of ifindexes; whereas, 0015 is one ifindex • Port list in PDU: 0000 0001 0005 000f 0000 0020 002f The list contains ifindexes not in a range. If this object is configured, then the Preference Level of this interface will be adjusted dynamically depending on the state of the Track Port. The interface's Preference Level is reduced by the value of Preference Level parameter when the Track Port states first changes from Up to Down. When the Track Port returns to the Up state, the interface's Preference Level is increased by the amount specified by the Preference Level.
snVsrpVirRtrAdvertiseBackup brcdIp.1.1.3.21.3.1.1.14 Syntax: Integer	Read-write	Indicates if the ability for this Backup to advertise itself to the current Master is enabled: • disabled(0) • enabled(1) Default: disabled(0).
snVsrpVirRtrHoldDownInt brcdIp.1.1.3.21.3.1.1.15 Syntax: Integer	Read-write	The amount of time a Backup that has sent a Hello packet announcing its intent to become Master waits before beginning to forward traffic for the VRID. The hold-down interval prevents Layer 2 loops from occurring during VSRP's rapid failover. The interval can from 1 – 84 seconds. Default: 2 seconds. **NOTE:** This object cannot be combined the snVsrpVirRtrHelloInt object in one SNMP set request.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrInitTtl brcdIp.1.1.3.21.3.1.1.16 Syntax: Integer	Read-write	Indicates the time-to-live value (TTL) in the hello packets. TTL is the maximum number of hops a VSRP Hello packet can traverse before being dropped. TTL in a packet helps regulate the distance that a hello packet can travel. It prevents the flooding of VSRP hello packets in the network. Valid values: 1 – 84 seconds. Default: 1 second on most devices; 2 seconds in the NetIron Multi-Service IronWare software release 03.8.00 and later.
snVsrpVirRtrIncPortList brcdIp.1.1.3.21.3.1.1.17 Syntax: OctetString	Read-write	Groups all free ports of a VLAN into their control ports.
snVrrpVirRtrBackupInt brcdIp.1.1.3.21.3.1.1.19 Syntax: Integer	Read-write	Indicates the time interval when backup routers send hello message advertisements. Valid values: 60 – 3600 seconds Default: 60 seconds
snVsrpVirRtrRowStatus brcdIp.1.1.3.21.3.1.1.20 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. • The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVsrpVirRtrRxNumOfIp MismatchCnts brcdIp.1.1.3.21.3.1.1.24 Syntax: Counter32	Read only	**NOTE:** Supported in the NetIron Multi-Service IronWare software release 03.8.00 and later. Shows the received number of mismatched IP addresses for VSRP.
snVsrpVirRtrRxIpMismat chCnts brcdIp.1.1.3.21.3.1.1.25 Syntax: Counter32	Read only	**NOTE:** Supported in the NetIron Multi-Service IronWare software release 03.8.00 and later. Shows the number of received VSRP IP Addresses that are mismatched.
snVsrpVirRtrRxHelloIntM ismatchCnts brcdIp.1.1.3.21.3.1.1.26 Syntax: Counter32		**NOTE:** Supported in the NetIron Multi-Service IronWare software release 03.8.00 and later. Shows the number of the virtual router interface with hello interval that are mismatched.
snVsrpVirRtrRxPriorityZe roFromMasterCnts brcdIp.1.1.3.21.3.1.1.27 Syntax: Counter32	Read only	**NOTE:** Supported in the NetIron Multi-Service IronWare software release 03.8.00 and later. Shows the number of advertisements with priority of zero received from the master.
snVsrpVirRtrTransToMas terStateCnts brcdIp.1.1.3.21.3.1.1.29 Syntax: Counter32	Read only	Shows the number of times this interface has changed from the master state to the backup state for the VRID.
snVsrpVirRtrTransToBac kupStateCnts brcdIp.1.1.3.21.3.1.1.30 Syntax: Counter32	Read only	Shows the number of times this interface has changed from the master state to the backup state.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrCurrDeadInt brcdIp.1.1.3.21.3.1.1.31 Syntax: Integer32	Read only	Shows the current dead in 100-millisecond intervals for the virtual router. This is the time period that a backup waits for a Hello message from the master before determining that the Master is no longer active. If the Master does not send a Hello message before the dead interval expires and the backups negotiate (compare priorities) to select a new master for the
snVsrpVirRtrCurHelloInt brcdIp.1.1.3.21.3.1.1.32 Syntax: Integer	Read only	Shows the current backup router hello interval.
snVsrpVirRtrCurHoldDownInt brcdIp.1.1.3.21.3.1.1.33 Syntax: Integer	Read only	Shows the current value of the hold-down interval. Valid values: 1 - 84
snVsrpVirRtrCurInitTtl brcdIp.1.1.3.21.3.1.1.34 Syntax: Integer	Read only	Shows the current time-to-live value. Valid values: 1 - 255
snVsrpVirRtrHelloMacAddress brcdIp.1.1.3.21.3.1.1.35 Syntax: MAC address	Read only	**NOTE:** Supported in the NetIron Multi-Service IronWare software release 03.8.00 and later. Shows the Hello MAC address
snVsrpVirRtrHelloIpAddress brcdIp.1.1.3.21.3.1.1.36 Syntax: IpAddress	Read only	**NOTE:** Supported in the NetIron Multi-Service IronWare software release 03.8.00 and later. Shows the master router's real/virtual (primary) IP address. This is the IP address listed as the source in VSRP advertisement, which is last received by this virtual router.

Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX

VRRP and VRRP-E are supported on the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices. The implementation fully complies with RFC 2787 - Definitions of Managed Objects for the Virtual Router Redundancy Protocol.

VSRP virtual router table

The VSRP Virtual Router Table describes the configuration of the VRRP virtual router.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrTable brcdIp.1.1.3.21.3.1	None	The VSRP Virtual Router Table
snVsrpVirRtrEntry brcdIp.1.1.3.21.3.1.1	None	An entry in the VSRP Virtual Router Table.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrVlanId brcdIp.1.1.3.21.3.1.1.1 Syntax: Integer	Read-only	VLAN index of the VSRP router.
snVsrpVirRtrId brcdIp.1.1.3.21.3.1.1.2 Syntax: Integer	Read-only	Shows a virtual router ID for the interface.
snVsrpVirRtrOwnership brcdIp.1.1.3.21.3.1.1.3 Syntax: Integer	Read-write	Indicates the owner of the VSRP router interface. The owner or master router owns the IP addresses associated with the VRID: • incomplete(0) – No IP address has been assigned to this interface. • owner(1) – This does not apply to VSRP. • backup(2) – The backup router is the owner of the interface. This is the only value that can be assigned to a VSRP router interface.
snVsrpVirRtrCfgPriority brcdIp.1.1.3.21.3.1.1.4 Syntax: Integer	Read-write	Indicates the preferability of a router for becoming the active router for the interface. A higher number indicates a higher priority. If two or more devices are tied with the highest priority, the Backup interface with the highest IP address becomes the active router for the VRID. This object can be set only if "snVsrpVirRtrCfgPriority" is set to backup(2) Valid values: 1 – 254 Default: 100.
snVsrpVirRtrTrackPriority brcdIp.1.1.3.21.3.1.1.5 Syntax: Integer	Read-write	Applies to interfaces that are configured with track ports. It indicates the priority of the track ports. A higher number indicates a higher priority. This object dynamically adjusts the value of the "snVrrpVirRtr2CfgPriority" object when the Track Port state first changes from Up to Down. Valid values: 1 – 254.
snVsrpVirRtrCurrPriority brcdIp.1.1.3.21.3.1.1.6 Syntax: Integer	Read-only	The current VSRP priority of this Layer 3 Switch for the VRID. The current priority can differ from the configured priority for the following reasons: • The VRID is still in the initialization stage and has not become a Master or Backup. In this case, the current priority is 0. • The VRID is configured with track ports and the link on a tracked interface has gone down. A higher number indicates a higher priority. This object is adjusted dynamically when the tracked port first changes from Up to Down. Valid values: 1 – 254.
snVsrpVirRtrHelloInt brcdIp.1.1.3.21.3.1.1.7 Syntax: Integer	Read-write	Shows the number of seconds between hello advertisements sent from the master and the backup. Valid values: 1 – 84. Default: 1 second.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrDeadInt brcdIp.1.1.3.21.3.1.1.8 Syntax: Integer	Read-write	Shows the number of seconds a Backup waits for a Hello message from the Master for the VRID before determining that the Master is no longer active. If the Master does not send a Hello messages before the dead interval expires and the backups negotiate (compare priorities) to select a new master for the Valid values: 1 – 84. Default: 1 second.
snVsrpVirRtrState brcdIp.1.1.3.21.3.1.1.10 Syntax: Integer	Read-only	Specifies the virtual router's interface state: • init(0) – Initialization state • master(1) – Master state • backup(2) – Backup state
snVsrpVirRtrActivate brcdIp.1.1.3.21.3.1.1.12 Syntax: Integer	Read-write	Indicates if VRRP or VRRPE router has been activated. • disabled(0) – The router has not been activated • enabled(1) – The router has been activated
snVsrpVirRtrCurrPriority brcdIp.1.1.3.21.3.1.1.13 Syntax: OctetString	Read-write	Specifies the router's physical track port membership. The membership includes physical port and virtual ports whose state is to be monitored. Each port index is an ifIndex. If there are four or more consecutive ifIndexes, then encoding and decoding scheme is range based, as follows: • Each range prefix with 0000 (2 octets) is not a valid ifIndex. • The first two octets in a set of four octets indicate the beginning of the range. The next two octets show the end of the range. • Ifindexes that are not in a range are displayed as individual indexes. For example, you may see the following lists: • Port list: 0001..0005 0015 0032..0047 0001..0005 and 0032..0047 show ranges of ifindexes; whereas, 0015 is one ifindex • Port list in PDU: 0000 0001 0005 000f 0000 0020 002f The list contains ifindexes not in a range. If this object is configured, then the Preference Level of this interface will be adjusted dynamically depending on the state of the Track Port. The interface's Preference Level is reduced by the value of Preference Level parameter when the Track Port states first changes from Up to Down. When the Track Port returns to the Up state, the interface's Preference Level is increased by the amount specified by the Preference Level.
snVsrpVirRtrAdvertiseBackup brcdIp.1.1.3.21.3.1.1.14 Syntax: Integer	Read-write	Indicates if the ability for this Backup to advertise itself to the current Master is enabled: • disabled(0) • enabled(1) Default: disabled(0}.
snVsrpVirRtrHoldDownInt brcdIp.1.1.3.21.3.1.1.15 Syntax: Integer	Read-write	The amount of time a Backup that has sent a Hello packet announcing its intent to become Master waits before beginning to forward traffic for the VRID. The hold-down interval prevents Layer 2 loops from occurring during VSRP's rapid failover. The interval can from 1 – 84 seconds. Default: 2 seconds.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrInitTtl brcdIp.1.1.3.21.3.1.1.16 Syntax: Integer	Read-write	Indicates the time-to-live value (TTL) in the hello packets. TTL is the maximum number of hops a VSRP Hello packet can traverse before being dropped. TTL in a packet helps regulate the distance that a hello packet can travel. It prevents the flooding of VSRP hello packets in the network. Valid values: 1 – 84 seconds. Default: 1 second.
snVsrpVirRtrIncPortList brcdIp.1.1.3.21.3.1.1.17 Syntax: OctetString	Read-write	Groups all free ports of a VLAN into their control ports.
snVrrpVirRtrBackupInt brcdIp.1.1.3.21.3.1.1.19 Syntax: Integer	Read-write	Indicates the time interval when backup routers send hello message advertisements. Valid values: 60 – 3600 seconds Default: 60 seconds
snVsrpVirRtrRowStatus brcdIp.1.1.3.21.3.1.1.20 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. • The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snVsrpVirRtrTransToMasterStateCnts brcdIp.1.1.3.21.3.1.1.29 Syntax: Counter	Read-only	Shows the number of times this interface has changed from the master state to the backup state for the VRID.
snVsrpVirRtrTransToBackupStateCnts brcdIp.1.1.3.21.3.1.1.30 Syntax: Counter	Read-only	Shows the number of times this interface has changed from the master state to the backup state.
snVsrpVirRtrCurrDeadInt brcdIp.1.1.3.21.3.1.1.31 Syntax: Integer	Read-only	Shows the current dead in 100-millisecond intervals for the virtual router. This is the time period that a backup waits for a Hello message from the master before determining that the Master is no longer active. If the Master does not send a Hello message before the dead interval expires and the backups negotiate (compare priorities) to select a new master for the
snVsrpVirRtrCurHelloInt brcdIp.1.1.3.21.3.1.1.32 Syntax: Integer	Read-only	Shows the current backup router hello interval.
snVsrpVirRtrCurHoldDownInt brcdIp.1.1.3.21.3.1.1.33 Syntax: Integer	Read-only	Shows the current value of the hold-down interval.
snVsrpVirRtrCurInitTtl brcdIp.1.1.3.21.3.1.1.34 Syntax: Integer	Read-only	Shows the current time-to-live value.

Name, OID, and Syntax	Access	Description
snVsrpVirRtrHelloMacAddress brcdIp.1.1.3.21.3.1.1.35 Syntax: MAC address	Read-only	Shows the Hello MAC address
snVsrpVirRtrMasterIpAddr brcdIp.1.1.3.21.3.1.1.36 Syntax: IpAddress	Read-only	Shows the master router's real/virtual (primary) IP address. This is the IP address listed as the source in VSRP advertisement, which is last received by this virtual router.

VSRP virtual router table

Chapter

RIP 19

IP RIP general group

Routing Information Protocol (RIP) is an IP route exchange protocol that uses a distance vector (a number representing distance) to measure the cost of a given route. The cost is a distance vector because the cost often is equivalent to the number of hops between the Layer 3 Switch and the destination network.

A Layer 3 Switch can receive multiple paths to a destination. A RIP route can have a maximum cost of 15.

Refer to the configuration guide for a product for details on the features discussed in this chapter.

Note: IP RIP MIBs are supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe

The following objects are general objects for RIP.

Name, OID, and Syntax	Access	Description
snRtIpRipEnable brcdIp.1.2.3.1.1 Syntax: Integer	Read-write	Indicates if IP RIP routing is enabled: • disabled(0) • enabled(1) Default: disabled
snRtIpRipUpdateTime brcdIp.1.2.3.1.2 Syntax: Integer	Read-write	Specifies the RIP update interval in seconds. Valid values: 1 – 21845seconds
snRtIpRipRedisEnable brcdIp.1.2.3.1.3 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates if redistribution of static routes from the IP route table into RIP is enabled: • disabled(0) • enabled(1) Default: disabled

Name, OID, and Syntax	Access	Description
snRtIpRipRedisDefMetric brcdIp.1.2.3.1.4 Syntax: Integer	Read-write	Shows the default metric to be used when static routes are redistributed to RIP. Valid values: 1 – 15
snRtIpRipSetAllPortConfig brcdIp.1.2.3.1.5 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	The value of this object is a number corresponding to a row in the "snRtIpRipPortConfigPortIndex" object of the "snRtIpRipPortConfigTable". The values of the "snRtIpRipPortVersion" and "snRtIpRipPortPoisonReverse" objects will be written to that row. **NOTE:** Before setting this object, all the intended data of the given row of the table must be set. Otherwise, the current data of the row will be used to set the entire "IP RIP port configuration table". The previous setting will be overwritten by the new one.
snRtIpRipGblFiltList brcdIp.1.2.3.1.6 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	An IP RIP global filter list. Each octet contains a filter ID number that forms a group of filters. A valid entry in the "snRtIpRipRouteFilterTable" with the corresponding filter ID number in the "snRtIpRipRouteFilterId" object must be created before a filter list is initialized. Valid values: 1 – 64 octets.
snRtIpRipFiltOnAllPort brcdIp.1.2.3.1.7 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Applies the IP RIP global filter object "snRtIpRipGblFiltList" to all interfaces. This object is used to add and delete all RIP filter lists to and from all interfaces. Prior to sending this command, "snRtIpRipGblFiltList" must contain the correct filter list. The values that can be written are: • deleteAllInBound(2) – delete all in-bound filter lists from all ports. • deleteAllOutBound(3) – delete all out-bound filter lists from all ports. • addAllInBound(4) – add all in-bound filter lists to all ports. • addAllOutBound(5) – add all out-bound filter lists to all ports. If a set operation failed, then a SET with value of (2) or (3) returns the error code "GenError". If the operation succeeded, then entries in this filter list are deleted immediately. The following values can be returned on reads: • valid(1) – set operation is done and is valid.
snRtIpRipDistance brcdIp.1.2.3.1.8 Syntax: Integer	Read-write	Shows the administrative distance of this filter. Valid values: 1 – 255.
snRtIpRipEcmpEnable brcdIp.1.2.3.1.9 Syntax: RtrStatus **NOTE:** This MIB object is supported on FastIron devices running software release 07.2.00.	Read-write	Enable or disable ECMP for IP RIP. 0 = disables ECMP 1 = enables ECMP

IP RIP port configuration table

The IP RIP Port Configuration Table contains the configuration of RIP on a particular interface. Before you can use this table, RIP must be enabled in the device and the “Redistribution table” on page 340 must be configured with permit and deny commands.

NOTES: IP RIP MIBs are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- NetIron CES
- NetIron CER
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe

Name, OID, and Syntax	Access	Description
snRtIpRipPortConfigTable brcdIp.1.2.3.2	None	The IP Rip Port Configuration Table.
snRtIpRipPortConfigEntry brcdIp.1.2.3.2.1	None	An entry in the IP Rip Port Configuration Table.
snRtIpRipPortConfigPortIndex brcdIp.1.2.3.2.1.1 Syntax: PortIndex	Read only	The port index for an entry in the IP Rip Port Configuration Table.
snRtIpRipPortVersion brcdIp.1.2.3.2.1.2 Syntax: Integer	Read-write	Specifies the IP RIP version on this port: • disabled(0) – RIP is disabled on this port • v1Only(1) – RIP version 1 only • v2Only(2) – RIP version 2 only • v1CompatibleV2(3) – RIP version 2 is compatible with version 1
snRtIpRipPortPoisonReverse brcdIp.1.2.3.2.1.3 Syntax: Integer	Read-write	Indicates if poison reverse is enabled: • disabled(0) • enabled(1) Poison reverse prevents routing loops and slow convergence within the network.
snRtIpRipPortLearnDefault brcdIp.1.2.3.2.1.4 Syntax: Integer	Read-write	Indicates if the ability to learn advertised routes is enabled on the interface: • disabled(0) • enabled(1)

Redistribution table

The RIP Redistribution Table contains routes where RIP routes will be redistributed. RIP can redistribute routes from other routing protocols such as OSPF and BGP4 into RIP. A redistributed route is one that a Layer 3 Switch learns through another protocol, then distributes into RIP.

Name, OID, and Syntax	Access	Description
snRtIpRipRedisTable brcdIp.1.2.3.3	None	IP RIP Redistribution table.
snRtIpRipRedisEntry brcdIp.1.2.3.3.1	None	An entry in the IP RIP Redistribution table.
snRtIpRipRedisIndex brcdIp.1.2.3.3.1.1 Syntax: Integer	Read only	The table index for a IP RIP Redistribution entry. There can be up to 64 entries in this table.
snRtIpRipRedisAction brcdIp.1.2.3.3.1.2 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates what to do if routes match this IP RIP Redistribution entry. • deny(0) • permit(1)
snRtIpRipRedisProtocol brcdIp.1.2.3.3.1.3 Syntax: Integer	Read-write	Indicates which protocol will to be distributed: • other(1) – Cannot be used for SNMP-SET: • all(2) • static(3) • ospf(4) • bgp(5) • isis(6)
snRtIpRipRedisIp brcdIp.1.2.3.3.1.4 Syntax: IpAddress **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Shows the IP address of the IP route to be distributed. The address 0.0.0.0 means that all routes will be distributed.

Name, OID, and Syntax	Access	Description
snRtIpRipRedisMask brcdIp.1.2.3.3.1.5 Syntax: IpAddress **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Shows the IP subnet mask of the IP route to be distributed.
snRtIpRipRedisMatchMetric brcdIp.1.2.3.3.1.6 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the metric of the route to be matched to determine the redistribution. Valid values: 0 – 65535. A value of 0 means that any metric value will be matched.
snRtIpRipRedisSetMetric brcdIp.1.2.3.3.1.7 Syntax: Integer	Read-write	Specifies the new metric of the route to be advertised. Valid values: 0 – 15. A value of 0 indicates that the default metric will be used.
snRtIpRipRedisRowStatus brcdIp.1.2.3.3.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snRtIpRipRedisRouteMapName brcdIp.1.2.3.3.1.9 Syntax: DisplayString	Read-write	Indicates the name of the route map used for this redistribution entry.

IP RIP route filter table

The IP RIP Route Filter Table defines the IP network numbers the router will learn from the RIP protocol. The numbers are stored in the router's IP routing table. Once RIP filters are defined, you can assign them to individual interfaces.

Note: IP RIP Route Filter MIBs are not supported on the following products:

- BigIron RX

- NetIron XMR
- NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe

Name, OID, and Syntax	Access	Description
snRtIpRipRouteFilterTable brcdIp.1.2.3.4	None	IP RIP Route Filter Table.
snRtIpRipRouteFilterEntry brcdIp.1.2.3.4.1	None	An entry of the IP RIP route filter table.
snRtIpRipRouteFilterId brcdIp.1.2.3.4.1.1 Syntax: Integer	Read only	Shows the filter ID to identify a filter entry. There can be up to 64 entries in this table.
snRtIpRipRouteFilterAction brcdIp.1.2.3.4.1.2 Syntax: Integer	Read-write	Indicates what action to take if the IP RIP packet matches this filter. • deny(0) • permit(1)
snRtIpRipRouteFilterIpAddr brcdIp.1.2.3.4.1.3 Syntax: IpAddress	Read-write	Indicates the route IP address that needs to be matched by any IP address in a RIP packet. A value of 0.0.0.0 means that any IP address in any RIP packets will be matched.
snRtIpRipRouteFilterSubnetMask brcdIp.1.2.3.4.1.4 Syntax: IpAddress	Read-write	If "snRtIpRipRouteFilterIpAddr" is 0, this value is ignored, and all IP RIP packets will be matched. Otherwise, this mask is applied to the IP RIP packet and then compared to "snRtIpRipRouteFilterIpAddr" to determine a match.
snRtIpRipRouteFilterRowStatus brcdIp.1.2.3.4.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IP RIP neighbor filter table

The IP RIP Neighbor Filter Table specifies the routers from which a router will receive RIP routes. By default, RIP routes will be learned from all neighbors.

Name, OID, and Syntax	Access	Description
snRtIpRipNbrFilterTable brcdIp.1.2.3.5	None	IP RIP Neighbor Filter Table
snRtIpRipNbrFilterEntry brcdIp.1.2.3.5.1	None	An entry of the IP RIP neighbor filter table.
snRtIpRipNbrFilterId brcdIp.1.2.3.5.1.1 Syntax: Integer	Read only	Indicates the ID of this entry in the table. There can be up to 64 entries in this table.
snRtIpRipNbrFilterAction brcdIp.1.2.3.5.1.2 Syntax: Integer	Read-write	Indicates what action to take if the source IP address in a packet matches the source IP address in this filter. The IP address to be matched is defined by the "snRtIpRipNbrFilterSourceIp" object. • deny(0) • permit(1)
snRtIpRipNbrFilterSourcelp brcdIp.1.2.3.5.1.3 Syntax: IpAddress	Read-write	Shows the source IP address that needs to be matched by the RIP packet. An IP address of 0.0.0.0 always matches any source IP addresses in any IP RIP packets.
snRtIpRipNbrFilterRowStatus brcdIp.1.2.3.5.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IP RIP port access table

The IP RIP Port Access Table allows a group of RIP filters to be applied to an IP interface. The filters can be applied to either incoming or outgoing traffic.

Note: IP RIP Port Access MIBs are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- NetIron CES
- NetIron CER
- BigIron MG8

- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe

Name, OID, and Syntax	Access	Description
snRtIpRipPortAccessTable brcdIp.1.2.3.6	None	IP interface RIP access table.
snRtIpRipPortAccessEntry brcdIp.1.2.3.6.1	None	An entry of the IP interface RIP access table.
snRtIpRipPortAccessPort brcdIp.1.2.3.6.1.1 Syntax: PortIndex	Read only	The port number to which the IP RIP filter applies.
snRtIpRipPortAccessDir brcdIp.1.2.3.6.1.2 Syntax: Integer	Read only	Specifies if the filter is for incoming or outgoing packets:. • in(1) – Incoming packet • out(2) – Outgoing packet
snRtIpRipPortAccessFilterList brcdIp.1.2.3.6.1.3 Syntax: OctetString	Read-write	Contains an IP RIP filter list. Valid values: Up to 64 octets. Each octet contains a filter ID number that consists of a group of filters. Before a filter list can be created, there must be valid entries in the IP RIP Route Filter Table ("snRtIpRipRouteFilterTable" object) with their corresponding filter ID number entered in the "snRtIpRipRouteFilterId" object.
snRtIpRipPortAccessRowStatus brcdIp.1.2.3.6.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Global RIP statistics

These objects provide global RIP statistics. They were introduced in Service Provider Release 09.1.02 and Enterprise IronWare Release 07.8.00.

Note: Global RIP Statistics MIBs are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router

- Brocade MLXe

Name, Identifier, and Syntax	Access	Description
snRtIpRipStats brcdIp.1.2.3.9 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	NA	RIP Statistics group.
snRtIpRipStatsOutRequest brcdIp.1.2.3.9.1 Syntax: Integer	Read only	Number of outgoing RIP requests.
snRtIpRipStatsOutResponse brcdIp.1.2.3.9.2 Syntax: Integer	Read only	Number of outgoing RIP responses.
snRtIpRipStatsInRequest brcdIp.1.2.3.9.3 Syntax: Integer	Read only	Number of incoming RIP requests.
snRtIpRipStatsInResponse brcdIp.1.2.3.9.4 Syntax: Integer	Read only	Number of incoming RIP responses.
snRtIpRipStatsUnrecognized brcdIp.1.2.3.9.5 Syntax: Integer	Read only	Number of unrecognized RIP packets.
snRtIpRipStatsBadVersion brcdIp.1.2.3.9.6 Syntax: Integer	Read only	Number of RIP packets with bad version number.
snRtIpRipStatsBadAddrFamily brcdIp.1.2.3.9.7 Syntax: Integer	Read only	Number of RIP packets with bad address family value.
snRtIpRipStatsBadRequestFormat brcdIp.1.2.3.9.8 Syntax: Integer	Read only	Number of RIP packets with bad request format.
snRtIpRipStatsBadMetrics brcdIp.1.2.3.9.9 Syntax: Integer	Read only	Number of RIP packets with bad metric value.
snRtIpRipStatsBadRespFormat brcdIp.1.2.3.9.10 Syntax: Integer	Read only	Number of RIP packets with bad response format.
snRtIpRipStatsRespFromNonRipPort brcdIp.1.2.3.9.11 Syntax: Integer	Read only	Number of RIP packet responses coming from non-RIP configured ports.

Name, Identifier, and Syntax	Access	Description
snRtIpRipStatsResponseFromLoopback brcdIp.1.2.3.9.12 Syntax: Integer	Read only	Number of RIP packet responses coming from loopback ports.
snRtIpRipStatsPacketRejected brcdIp.1.2.3.9.13 Syntax: Integer	Read only	Number of RIP packets rejected.

RFC 1724 - RIP version 2 MIB extension

Chapter

Global Router and IP

20

Global router objects

This section contains global MIB objects switching properties of the Layer 3 Switch, independent of any routing protocol.

Name, OID, and Syntax	Access	Description
snGblRtRouteOnly brcdIp.1.2.8.1.1 Syntax: Integer	Read-write	Determines if the Layer 3 Switch will route or switch packets: • disabled(0) – Router will first route the packets. If it cannot route them, it will switch packets. • enabled(1) – Router will only route the packets; it will not switch them.

IP general group

The following are general objects for the IP group.

Name, OID, and Syntax	Access	Description
snRtClearArpCache brcdIp.1.2.2.1.1 Syntax: ClearStatus	Read-write	Clears learned ARP entries but does not remove any static ARP entries. The value for this object can be: • normal(0) – Do not clear learned entries • clear(1) – Clear learned entries This object is also available in the ServerIron.
snRtClearIpCache brcdIp.1.2.2.1.2 Syntax: ClearStatus	Read-write	Clears the entries in the "IP forwarding cache table". The value for this object can be: • normal(0) – Do not clear entries • clear(1) – Clear entries • This object is also available in the ServerIron.
snRtClearIpRoute brcdIp.1.2.2.1.3 Syntax: ClearStatus	Read-write	Clears the IP route tables. The value for this object can be: • normal(0) – Do not clear entries • clear(1) – Clear entries • This object is also available in the ServerIron.

Name, OID, and Syntax	Access	Description
snRtBootpServer brcdIp.1.2.2.1.4 Syntax: IpAddress **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER, devices.	Read-write	Shows the IP address of the bootp server to which bootp packet need to be relayed.
snRtBootpRelayMax brcdIp.1.2.2.1.5 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER, devices.	Read-write	Specifies the maximum number of hops the bootp packet should travel. Valid values: Up to 15 hops
snRtArpAge brcdIp.1.2.2.1.6 Syntax: Integer	Read-write	Specifies the number of minutes that an ARP entry can be valid without having to be relearned. Valid values: Up to 240 minutes. A value of zero (0) means that the entry will not age out.
snRtIpIrdpEnable brcdIp.1.2.2.1.7 Syntax: Integer	Read-write	Indicates if router advertisement is enabled on this device: • disabled(0) • enabled(1)
snRtIpLoadShare brcdIp.1.2.2.1.8 Syntax: Integer	Read-write	Indicates if more than one route will be enabled to share the loads: • disabled(0) • enabled(1)
snRtIpProxyArp brcdIp.1.2.2.1.9 Syntax: Integer	Read-write	Indicates if the proxy ARP function is enabled: • disabled(0) • enabled(1)
snRtIpRarp brcdIp.1.2.2.1.10 Syntax: Integer	Read-write	Indicates if the RARP server is enabled: • disabled(0) • enabled(1)
snRtIpTtl brcdIp.1.2.2.1.11 Syntax: Integer	Read-write	Indicates the time-to-live (TTL) value that will be used in the IP header of an IP packet that was generated by this device. Valid values: 1 – 255

Name, OID, and Syntax	Access	Description
snRtIpSetAllPortConfig brcdIp.1.2.2.1.12 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER, devices.	Read-write	Shows the index number of a row in the "snRtIpPortConfigTable" on page 356, such as "snRtIpPortConfigPortIndex" on page 356. All the writeable data from that row will be copied to all appropriate rows in all IP Interface Port Configuration Tables **NOTE:** Prior to setting this object, make sure that the row identified in this object contains a value for all its objects; otherwise, the current data of the row will be used to set the entire IP interface configuration table.
snRtIpFwdCacheMaxEntries brcdIp.1.2.2.1.13 Syntax: Integer32	Read only	Shows the maximum number of entries in the "IP forwarding cache table".
snRtIpFwdCacheCurEntries brcdIp.1.2.2.1.14 Syntax: Integer32	Read only	Shows the current number of entries in the "IP forwarding cache table".
snRtIpMaxStaticRouteEntries brcdIp.1.2.2.1.15 Syntax: Integer	Read only	Shows the maximum number of entries in the IP Static Route table.
snRtIpDirBcastFwd brcdIp.1.2.2.1.16 Syntax: Integer	Read-write	Indicates if the directed broadcast forwarding feature is enabled: • disabled(0) • enabled(1)
snRtIpLoadShareNumOfPaths brcdIp.1.2.2.1.17 Syntax: Integer32	Read-write	Specifies the number of routes to be used to share the load.
snRtIpLoadShareMaxPaths brcdIp.1.2.2.1.18 Syntax: Integer32	Read only	Indicates the maximum number of routes that can be configured to share the loads.
snRtIpLoadShareMinPaths brcdIp.1.2.2.1.19 Syntax: Integer32	Read only	Indicates the minimum number of routes that can be configured to share the loads.
snRtIpProtocolRouterId brcdIp.1.2.2.1.20 Syntax: IpAddress	Read-write	Shows the router ID for all IP Protocols.
snRtIpSourceRoute brcdIp.1.2.2.1.21 Syntax: Integer	Read-write	Indicates if strict source routing is enabled to drop source routed packets: • disabled(0) • enabled(1)

IP static route table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The IP Static Route Table contains a list of static routes. These routes can be one of the following types:

- Standard – the static route consists of the destination network address and network mask, plus the IP address of the next-hop gateway.
- Interface-based – the static route consists of the destination network address and network mask, plus the Layer 3 Switch interface through which you want the Layer 3 Switch to send traffic for the route. Typically, this type of static route is for directly attached to destination networks.
- Null – the static route consists of the destination network address and network mask, plus the "null0" parameter. Typically, the null route is configured as a backup route for discarding traffic if the primary route is unavailable.

IP Static Route Table also serves as the default route table.

Name, OID, and Syntax	Access	Description
snRtIpStaticRouteTable brcdIp.1.2.2.2	None	IP static route table
snRtIpStaticRouteEntry brcdIp.1.2.2.2.1	None	An entry in the IP static route table.
snRtIpStaticRouteIndex brcdIp.1.2.2.2.1.1 Syntax: Integer32	Read only	The table index for a static route entry.
snRtIpStaticRouteDest brcdIp.1.2.2.2.1.2 Syntax: IpAddress	Read-write	Shows the destination IP address of the default route. The address 0.0.0.0 is the IP address of the default router.
snRtIpStaticRouteMask brcdIp.1.2.2.2.1.3 Syntax: IpAddress	Read-write	Shows the subnet mask of the default route's destination IP address. The subnet mask 0.0.0.0 is the subnet mask of the default router.
snRtIpStaticRouteNextHop brcdIp.1.2.2.2.1.4 Syntax: IpAddress	Read-write	Shows the IP address of the next-hop router (gateway) for the route.
snRtIpStaticRouteMetric brcdIp.1.2.2.2.1.5 Syntax: Integer32	Read-write	Shows the metrics to next hop router. Default: 1

Name, OID, and Syntax	Access	Description
snRtIpStaticRouteRowStatus brcdIp.1.2.2.2.1.6 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • other(1) – Row is inoperative • valid(2) – Row exists and is valid
snRtIpStaticRouteDistance brcdIp.1.2.2.2.1.7 Syntax: Integer	Read-write	Specifies the administrative distance of the route. When comparing equal routes to a destination, the Layer 3 Switch prefers lower administrative distances over higher ones. Valid values: 1 – 255 Default: 1

IP filter table

An IP filter is an access policy that determines whether the device forwards or drops IP packets. A filter consists of source and destination IP information and the action to take when a packet matches the values in the filter.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The following objects define IP Filters. They are available in all products.

Name, OID, and Syntax	Access	Description
snRtIpFilterTable brcdIp.1.2.2.3	None	IP Filter Table.
snRtIpFilterEntry brcdIp.1.2.2.3.1	None	An entry in the IP Filter Table
snRtIpFilterIndex brcdIp.1.2.2.3.1.1 Syntax: Integer32	Read only	Shows the index for an entry in the IP Filter Table.
snRtIpFilterAction brcdIp.1.2.2.3.1.2 Syntax: Integer	Read-write	Determines what action to take if the IP packet matches this filter. • deny(0) • permit(1) • qosEnabled(2) Once you configure an IP access policy, the device denies all IP packets by default unless you explicitly permit them. Thus, if you want the device to permit all IP packets except the ones that you filter out, you must configure the last IP access policy to permit all IP packets.

Name, OID, and Syntax	Access	Description
snRtIpFilterProtocol brcdIp.1.2.2.3.1.3 Syntax: Integer	Read-write	Specifies the transport protocol that you can filter. Only the traffic for the transport protocol selected will be allowed: • all(0) – All traffic of the transport protocols listed below will be permitted • ICMP(1) • IGMP(2) • IGRP(88) • OSPF(89) • TCP(6) • UDP(17) In addition, if you filter TCP or UDP, you can also specify a particular application port (such as "HTTP" or "80") or a logical expression consisting of an operator and port names or numbers.
snRtIpFilterSourceIp brcdIp.1.2.2.3.1.4 Syntax: IpAddress	Read-write	Shows the source IP address. The policy will be applied to packets that come from this IP address.
snRtIpFilterSourceMask brcdIp.1.2.2.3.1.5 Syntax: IpAddress	Read-write	Shows the source IP subnet mask. The policy will be applied to packets that come from this subnet mask.
snRtIpFilterDestIp brcdIp.1.2.2.3.1.6 Syntax: IpAddress	Read-write	Shows the destination IP address. The IP access policy will be applied to packets that are going to this IP address.
snRtIpFilterDestMask brcdIp.1.2.2.3.1.7 Syntax: IpAddress	Read-write	Shows the destination IP subnet mask. The IP access policy will be applied to packets that are going to this subnet mask.
snRtIpFilterOperator brcdIp.1.2.2.3.1.8 Syntax: Integer	Read-write	Applies only if the value of the object "snRtIpFilterProtocol" is TCP or UDP. It specifies the type of comparison to be performed to TCP and UDP packets: • greater(1) – The policy applies to TCP or UDP port numbers that are greater than the value of the "snRtIpFilterOperand" object. • equal(2) – The policy applies to TCP or UDP port numbers that are equal to the value of the "snRtIpFilterOperand" object. • less(3) – The policy applies to TCP or UDP port numbers that are less than the value of the "snRtIpFilterOperand" object. • notEqual(4) – The policy applies to all TCP or UDP port numbers except to those that are equal to the value of the "snRtIpFilterOperand" object.
snRtIpFilterOperand brcdIp.1.2.2.3.1.9 Syntax: Integer	Read-write	Applies only if the value of the object "snRtIpFilterProtocol" is TCP or UDP. Specifies the TCP or UDP port number that will be used in this filter. Valid values: 0 – 65535. 0 means that this object is not applicable.

Name, OID, and Syntax	Access	Description
snRtIpFilterRowStatus brcdIp.1.2.2.3.1.10 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snRtIpFilterEstablished brcdIp.1.2.2.3.1.11 Syntax: Integer	Read-write	Applies only to TCP packets. Indicates if the filtering of established TCP packets is enabled for packets that have the ACK or RESET flag on: • disabled(0) • enabled(1)
snRtIpFilterQosPriority brcdIp.1.2.2.3.1.12 Syntax: Integer	Read-write	The router Layer 4 QoS Priority values are: • low(0) – lower priority • high(1) – higher priority The Priority values are: • level0(0) – lower priority • level1(1) • level2(2) • level3(3), • level4(4) • level5(5) • level6(6) • level7(7) – higher priority

IP interface port address table

NOTE
This table is supported on the Brocade MLXe, NetIron XMR, NetIron MLX.

The IP Interface Port Address Table shows the port's IP address and its port type.

Name, OID, and Syntax	Access	Description
snRtIpPortAddrTable brcdIp.1.2.2.6	None	IP port address table.
snRtIpPortAddrEntry brcdIp.1.2.2.6.1	None	An entry in the IP Port Address table.

Name, OID, and Syntax	Access	Description
snRtIpPortAddrPortIndex brcdIp.1.2.2.6.1.1 Syntax: PortIndex	Read only	The index of the port address entry. • For FastIron or NetIron products, the value of this object is from 1 to 42 • For BigIron products, the value of this object is an encoded number: Bit 0 to bit 7 – Port number. Bit 8 to bit 11 – Slot number.
snRtIpPortAddress brcdIp.1.2.2.6.1.2 Syntax: IpAddress	Read only	Specifies the port IP address.
snRtIpPortSubnetMask brcdIp.1.2.2.6.1.3 Syntax: IpAddress	Read-write	Specifies the port IP address subnet mask.
snRtIpPortAddrType brcdIp.1.2.2.6.1.4 Syntax: Integer	Read-write	Shows the port type of the entry: • primary(1) • secondary(2) Default: primary(1)
snRtIpPortRowStatus brcdIp.1.2.2.6.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a set with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IP interface port access table

This table determines if the port is for incoming or outgoing traffic and the filter used on the interface.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snRtIpPortAccessTable brcdIp.1.2.2.7	None	IP Port Access Table.
snRtIpPortAccessEntry brcdIp.1.2.2.7.1	None	An entry in the IP Port Access Table.

Name, OID, and Syntax	Access	Description
snRtIpPortAccessPortIndex brcdIp.1.2.2.7.1.1 Syntax: PortIndex	Read only	The index for an entry in the IP Port Access Table. • For FastIron or NetIron products, the value of this object is from 1 to 42 • For BigIron products, the value of this object is an encoded number: Bit 0 to bit 7 – Port number. Bit 8 to bit 11 – Slot number. Beginning with software release 07.2.00, the following values have been added: Bit 16, set to 1 – Virtual router interface Bit 17, set to 1 – Loopback interface.
snRtIpPortAccessDirection brcdIp.1.2.2.7.1.2 Syntax: Integer	Read only	Specifies if the port is for incoming or outgoing traffic. • in(1) • out(2)
snRtIpPortAccessFilters brcdIp.1.2.2.7.1.3 Syntax: OctetString	Read-write	Each octet represents a filter number.
snRtIpPortAccessRowStatus brcdIp.1.2.2.7.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Port configuration tables

The following table defines the size, encapsulation format, and cost of the packet that will be transmitted through a port.

IP interface port configuration table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

The following table is used by all devices except BigIron MG8 and NetIron 40G (refer to “IP interface configuration table” on page 357).

Name, OID, and Syntax	Access	Description
snRtIpPortConfigTable brcdIp.1.2.2.8	None	IP Port Configuration Table.
snRtIpPortConfigEntry brcdIp.1.2.2.8.1	None	An entry in the IP Port Configuration Table.
snRtIpPortConfigPortIndex brcdIp.1.2.2.8.1.1 Syntax: PortIndex	Read only	An index for an entry in the IP Port Configuration Table • For FastIron or NetIron products, the value of this object is from 1 to 42 • For BigIron products, the value of this object is an encoded number: Bit 0 to bit 7 – Port number. Bit 8 to bit 11 – Slot number. Beginning with software release 07.2.00, the following values have been added: Bit 16, set to 1 – Virtual router interface Bit 17, set to 1 – Loopback interface.
snRtIpPortMtu brcdIp.1.2.2.8.1.2 Syntax: Integer	Read-write	Indicates the maximum size of IP packets that will be transmitted on the port.
snRtIpPortEncap brcdIp.1.2.2.8.1.3 Syntax: Integer	Read-write	Shows the encapsulation format that will be used on the IP frame transmitted on the port. • ethernet(1) – Ethernet • snap(2) – ATM and Ethernet • hdlc(3) – POS • ppp(4) – POS
snRtIpPortMetric brcdIp.1.2.2.8.1.4 Syntax: Integer	Read-write	Specifies the metric or cost to the router adds to the route. Valid values: 1 – 15 Default: 1
snRtIpPortDirBcastFwd brcdIp.1.2.2.8.1.5 Syntax: Integer	Read-write	Indicates if the directed broadcast forwarding feature is enabled. A directed broadcast is a packet containing all ones (or in some cases, all zeros) in the host portion of the destination IP address. When a router forwards such a broadcast, it sends a copy of the packet out each of its enabled IP interfaces: • disabled(0) • enabled(1) Default: enabled(1)

IP interface configuration table

The snRtIpIfConfigTable defines the size, encapsulation format, and cost of the packet that will be transmitted through a port on BigIron MG8 and NetIron 40G devices. Other devices use the snRtIpPortConfigTable (refer to “IP interface port configuration table” on page 355).

Name, OID, and Syntax	Access	Description
snRtIpIfConfigTable brcdIp.	None	IP Port IF Configuration Table.
snRtIpIfConfigEntry brcdIp.	None	An entry in the IP Port IF Configuration Table.
snRtIpIfConfigInterfaceIndex brcdIp. Syntax: PortIndex	Read only	An index for an entry in the IP Port Configuration Table.
snRtIpIfMtu brcdIp. Syntax: Integer	Read-write	Indicates the maximum size of IP packets that will be transmitted on the port.
snRtIpIfEncap brcdIp. Syntax: Integer	Read-write	Shows the encapsulation format that will be used on the IP frame transmitted on the port. • ethernet(1) – Ethernet • snap(2) – ATM and Ethernet • hdlc(3) – POS • ppp(4) – POS • other(5)
snRtIpIfMetric brcdIp. Syntax: Integer	Read-write	Specifies the metric or cost to the router adds to the route. Valid values: 1 – 15 Default: 1
snRtIpIfDirBcastFwd brcdIp. Syntax: Integer	Read-write	Indicates if the directed broadcast forwarding feature is enabled. A directed broadcast is a packet containing all ones (or in some cases, all zeros) in the host portion of the destination IP address. When a router forwards such a broadcast, it sends a copy of the packet out each of its enabled IP interfaces: • disabled(0) • enabled(1) Default: enabled(1)

Broadcast forwarding group

This section contains the following tables:

- “General UDP broadcast forwarding group” on page 358
- “UDP broadcast forwarding port table” on page 358
- “UDP helper table” on page 359
- “General trace route group” on page 361
- “Trace route result table” on page 361

General UDP broadcast forwarding group

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, and NetIron MLX devices.

Name, OID, and Syntax	Access	Description
snRtUdpBcastFwdEnable brcdIp.1.2.2.9 Syntax: Integer	Read-write	Indicates if the UDP broadcast forwarding feature is enabled: • disabled(0) – When this object is set to disabled, entries in the UDP Broadcast Forwarding Port Table are deleted. • enabled(1) – When UDP broadcast forwarding is enabled, default entries are added to the UDP broadcast forwarding port table. Default: enabled(1)

UDP broadcast forwarding port table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, and NetIron MLX devices.

This table contains a list of UDP port numbers for which forwarding UDP broadcast is enabled.

Name, OID, and Syntax	Access	Description
snRtUdpBcastFwdPortTable brcdIp.1.2.2.9.2.1	None	The UDP Broadcast Forwarding Port Table
snRtUdpBcastFwdPortEntry brcdIp.1.2.2.9.2.1.1	None	An entry in the UDP Broadcast Forwarding Port Table.
snRtUdpBcastFwdPortIndex brcdIp.1.2.2.9.2.1.1.1 Syntax: Integer	Read only	The index of an entry in the UDP Broadcast Forwarding Port Tables. There can be up to 20 entries.

Name, OID, and Syntax	Access	Description
snRtUdpBcastFwdPortNumber brcdIp.1.2.2.9.2.1.1.2 Syntax: Integer	Read-write	Shows the port number for which the UDP broadcast forwarding feature has been enabled. Possible port numbers are: • port(68) – bootpc • port(67) – bootps • port(9) – discard • port(53) – dns • port(90) – dnsix • port(7) – echo • port(434) – mobile-ip • port(138) – netbios-dgm • port(137) – netbios-ns • port(123) – ntp • port(65) – tacacs • port(517) – talk • port(37) – time • port(69) – tftp Other application port numbers can also be specified.
snRtUdpBcastFwdPortRowStatus brcdIp.1.2.2.9.2.1.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

UDP helper table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, and NetIron MLX devices.

A UDP Helper Table contains addresses that are used to forward a client's broadcast request for a UDP application when the client and server are on different networks. There can be up to four helper addresses on each interface. Helper addresses can be configured on an Ethernet port or a virtual interface.

Name, OID, and Syntax	Access	Description
snRtUdpHelperTable brcdIp.1.2.2.9.3.1	None	UDP Helper Table
snRtUdpHelperEntry brcdIp.1.2.2.9.3.1.1	None	An entry of the UDP Helper Table.

Name, OID, and Syntax	Access	Description
snRtUdpHelperPortIndex brcdIp.1.2.2.9.3.1.1.1 Syntax: PortIndex	Read only	Indicates the port index for a UDP Helper address. • For FastIron or NetIron products, the value of this object is from 1 to 42 • For BigIron products, the value of this object is an encoded number, where: Bit 0 to bit 7 – Port number. Bit 8 to bit 11 – Slot number. Beginning with software release 07.2.00, the following values have been added: Bit 16, set to 1 – Virtual router interface. Bit 17, set to 1 – Loopback interface.
snRtUdpHelperIndex brcdIp.1.2.2.9.3.1.1.2 Syntax: Integer	Read only	An index in the UDP Helper Table for this entry. Valid values: 1– 4.
snRtUdpHelperAddrTypr brcdIp.1.2.2.9.3.1.1.3 Syntax: Integer	Read-write	Indicates if the address is unicast or subnet broadcast address. Valid values: • unicast(1) • broadcast(2)
snRtUdpHelperAddr brcdIp.1.2.2.9.3.1.1.4 Syntax: IpAddress	Read-write	Shows the IP address of the UDP helper. UDP packets will be forwarded to this address. It can be a helper address or a subnet broadcast address, but it cannot be 255.255.255.255 or 0.0.0.0.
snRtUdpHelperRowStatus brcdIp.1.2.2.9.3.1.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Trace route group

This group uses the following method to detect routes used to reach a destination address.

1. The originating Layer 3 Switch sends a probe packet (a UDP packet) to the destination address with a time-to-Live (TTL) value of 1.
2. The first Layer 3 Switch that receives this packet decrements the TTL, then drops the packet and returns a ICMP packet to the originator.
3. The originating Layer 3 Switch records the route in the “snRtIpTraceRouteResultTable”.
4. The originating Layer 3 Switch sends a probe packet (a UDP packet) to the destination address with a TTL value of 2.
5. The second Layer 3 Switch that receives this packet decrements the TTL, then drops the packet and returns an ICMP packet to the originator.

6. The originating Layer 3 Switch records the route in “snRtIpTraceRouteResultTable”.

This procedure is repeated until the destination is reached or the maximum TTL is reached.

General trace route group

The following objects define the trace route probe packet.

Name, OID, and Syntax	Access	Description
snRtIpTraceRouteTargetAddr brcdIp.1.2.2.10.1.1 Syntax: IpAddress	Read-write	Shows the target IP address of the trace route.
snRtIpTraceRouteMinTtl brcdIp.1.2.2.10.1.2 Syntax: Integer	Read-write	Indicates the minimum TTL value carried in the first probe packet. Valid values: 1 – 255 minutes Default: 1 minute
snRtIpTraceRouteMaxTtl brcdIp.1.2.2.10.1.3 Syntax: Integer	Read-write	Indicates the maximum TTL value carried in the last probe packet. Valid values: 1 – 255 minutes. Default: 30 minutes
snRtIpTraceRouteTimeOut brcdIp.1.2.2.10.1.4 Syntax: Integer	Read-write	Indicates the number of seconds the Layer 3 Switch waits for a response from the probe packet (i.e. the ICMP packet) before timing out. Valid values: 1 – 255seconds. Default: 2 seconds
snRtIpTraceRouteControl brcdIp.1.2.2.10.1.5 Syntax: Integer	Read-write	Indicates the progress of the trace route: • start(1) – snRtIpTraceRouteDestAddr must have been initialized before start(1) can be written. • abort(2) – Stops the current trace route operation. • success(3) – The destination address is reached. • failure(4) – Either the destination address is not reach, trace route times out, or the ending TTL is reached before the operation is completed. • inProgress(5) – Trace route operation has started. Only "start" and "abort" are writable values; whereas, "success", "failure" and "inProgress" are read only (or returned) values. The “snRtIpTraceRouteResultTable” on page 361 contains the routes and target addresses.

Trace route result table

This table contains the routes and the target addresses used in the trace route operation to reach the destination address.

Name, OID, and Syntax	Access	Description
snRtIpTraceRouteResultTable brcdIp.1.2.2.10.2.1	None	Trace Route Results Table.
snRtIpTraceRouteResultEntry brcdIp.1.2.2.10.2.1.1	None	An entry in the Trace Route Results Table.

Name, OID, and Syntax	Access	Description
snRtIpTraceRouteResultIndex brcdIp.1.2.2.10.2.1.1.1 Syntax: Integer32	Read only	The index for an entry in the Trace Route Results Table.
snRtIpTraceRouteResultAddr brcdIp.1.2.2.10.2.1.1.2 Syntax: IpAddress	Read only	Indicates the IP address of the Layer 3 Switch or the target IP address of the Layer 3 Switch.
snRtIpTraceRouteResultRoundTripTime1 brcdIp.1.2.2.10.2.1.1.3 Syntax: Time ticks	Read only	Shows the round trip time between the transmission of the first probe packet and the received response of the ICMP packet.
snRtIpTraceRouteResultRoundTripTime2 brcdIp.1.2.2.10.2.1.1.4 Syntax: Time ticks	Read only	Shows the round trip time between the transmission of the second probe and the received response of the ICMP packet.

IP forwarding cache table

The IP forwarding cache provides a fast-path mechanism for forwarding IP packets. The cache contains entries for IP destinations.

Name, OID, and Syntax	Access	Description
snRtIpFwdCacheTable brcdIp.1.2.2.11	None	IP Forwarding Cache Table.
snRtIpFwdCacheEntry brcdIp.1.2.2.11.1	None	An entry in the IP Forwarding Cache Table.
snRtIpFwdCacheIndex brcdIp.1.2.2.11.1.1 Syntax: Integer32	Read only	An index in the IP Forwarding Cache Table for this entry.
snRtIpFwdCacheIp brcdIp.1.2.2.11.1.2 Syntax: IpAddress	Read only	Shows the IP address of a forwarding cache station.
snRtIpFwdCacheMac brcdIp.1.2.2.11.1.3 Syntax: OctetString	Read only	Shows the MAC address of a forwarding cache station. This object has six octets.
snRtIpFwdCacheNextHopIp brcdIp.1.2.2.11.1.4 Syntax: IpAddress	Read only	Indicates the IP address of the Layer 3 Switch for the next hop.

Name, OID, and Syntax	Access	Description
snRtIpFwdCacheOutgoingPort brcdIp.1.2.2.11.1.5 Syntax: Integer	Read only	Specifies the outgoing port to which packets will be forwarded. Valid values: 0 – 3900. A value of zero indicates that there is no outgoing port for this entry. Non-zero value has the following meaning: • Bit 0 to bit 7 – Port number. • Bit 8 to bit 11 – Slot number. For virtual Layer 3 Switch interface, slot number is 15. Port number is the virtual Layer 3 Switch port number, which is a value from 1 – 60.
snRtIpFwdCacheType brcdIp.1.2.2.11.1.6 Syntax: Integer	Read only	Indicates the type of entry this is: • dynamic(1) • permanent(2)
snRtIpFwdCacheAction brcdIp.1.2.2.11.1.7 Syntax: Integer	Read only	Indicates the action taken with this entry: • other(1) • forward(2) • forUs(3) • waitForArp(4) • complexFilter(5) • icmpDeny(6) • dropPacket(7)
snRtIpFwdCacheFragCheck brcdIp.1.2.2.11.1.8 Syntax: Integer	Read only	Indicates if fragmentation-needed is enabled: • disabled(0) • enabled(1) **NOTE:** Devices cannot forward the packet without fragmenting it.
snRtIpFwdCacheSnapHdr brcdIp.1.2.2.11.1.9 Syntax: Integer	Read only	Indicates if Ethernet SNAP (also called IEEE 802.3) encapsulation is enabled: • disabled(0) • enabled(1)
snRtIpFwdCacheVLanId brcdIp.1.2.2.11.1.10 Syntax: Integer32	Read only	Shows the VLAN ID of an IP Forwarding Cache Table entry. A value of zero indicates that no VLAN is associated with this entry.
snRtIpFwdCacheOutgoingIf brcdIp.1.2.2.11.1.11 Syntax: Integer	Read only	Shows the outgoing interface that will be used to forward packets. An value of zero indicates that no outgoing interface is associated with this entry.

IP prefix list table

An IP prefix list specifies a list of networks. When you apply an IP prefix list to a neighbor, the Layer 3 Switch sends or receives only a route whose destination is in the IP prefix list. You can configure up to 100 prefix lists. The software interprets the prefix lists in sequential order, beginning with the lowest sequence number.

Name, OID, and Syntax	Access	Description
snIpPrefixListTable brcdIp.1.2.2.14	None	IP Prefix List Table.
snIpPrefixListEntry brcdIp.1.2.2.14.1	None	An entry in the IP Prefix List Table.
snIpPrefixListName brcdIp.1.2.2.14.1.1 Syntax: OctetString	Read only	Specifies the name of the prefix list. This name can be used when applying the prefix list to a neighbor. It appears in an octet string; each character of the name is represented by one octet. There can be up to 32 octets for this name.
snIpPrefixListSequence brcdIp.1.2.2.14.1.2 Syntax: Integer32	Read only	Shows the sequence of an entry in the table. There can be up to 100 prefix list entries. If a sequence number is not specified, then entries are numbered in increments of 5, beginning with prefix list entry 5. Incoming or outgoing routes are matched against the entries in the IP Prefix List in numerical order, beginning with the lowest sequence number.
snIpPrefixListDesc brcdIp.1.2.2.14.1.3 Syntax: OctetString	Read-write	Specifies the description of the prefix. This description is in an octet string; each character in the description is represented by one octet. There can be up to 80 octets in the description.
snIpPrefixListAction brcdIp.1.2.2.14.1.4 Syntax: Integer	Read-write	Indicates what to do with the route if it matches this entry: • deny(0) • permit(1)
snIpPrefixListAddr brcdIp.1.2.2.14.1.5 Syntax: IpAddress	Read-write	Shows the IP address of the prefix.
snIpPrefixListMask brcdIp.1.2.2.14.1.6 Syntax: IpAddress **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES,and NetIron CER devices.	Read-write	Shows the number of bits in the prefix network mask.
snIpPrefixListGeValue brcdIp.1.2.2.14.1.7 Syntax: Integer	Read-write	Specifies that the prefix is greater than the value of the "snIpPrefixListMask" object. Valid values: 0 – 32
snIpPrefixListLeValue brcdIp.1.2.2.14.1.8 Syntax: Integer	Read-write	Specifies that the prefix is less than the value of the "snIpPrefixListMask" object. Valid values: 0 – 32

Name, OID, and Syntax	Access	Description
NOTE: You can specify a range of length for prefixes that are more specific than the values for the "snIpPrefixListAddr" and "snIpPrefixListMask" objects. The <ge-value> or <le-value> you specify must meet the following condition: length < ge-value <= le-value <= 32 If a value for "snIpPrefixListGeValue" is specified, then the mask-length range is from the value of "snIpPrefixListGeValue" to 32. If a value for "snIpPrefixListLeValue" is specified, then mask-length range is from length to the value of "snIpPrefixListLeValue". If no value is specified for either the less than or greater than objects, then routes must exactly match the prefixes on the list.		
snIpPrefixListRowStatus brcdIp.1.2.2.14.1.9 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snIpPrefixListLength brcdIp.1.2.2.14.1.10 Syntax: Integer32	Read-write	The length of the IP prefix's mask.

IP AS-Path access list table

The IP AS-Path Access List Table (snIpAsPathAccessListTable) has been deprecated in IronWare software release 07.5.00 and is no longer supported on devices.

IP AS-Path access list string table

AS-PATH is a list of the other ASs through which a route passes. BGP4 routers can use the AS-path to detect and eliminate routing loops. The IP AS-Path Access List Table contains filters that are used to deny or permit updates received from BGP4 neighbors.

Name, OID, and Syntax	Access	Description
snIpAsPathAccessListStringTable brcdIp.1.2.2.16	None	IP As-Path Access List Table.
snIpAsPathAccessListStringEntry brcdIp.1.2.2.16.1	None	An entry in the IP As-Path Access List Table.

Name, OID, and Syntax	Access	Description
snIpAsPathAccessListStringName brcdIp.1.2.2.16.1.1 Syntax: DisplayString	Read only	An index for the entry in the table.
snIpAsPathAccessListStringSequence brcdIp.1.2.2.16.1.2 Syntax: Integer32	Read only	The sequence index for this entry in this table.
snIpAsPathAccessListStringAction brcdIp.1.2.2.16.1.3 Syntax: Integer	Read-write	Determines what to do with the packet if its address matches this entry: • deny(0) • permit(1)
snIpAsPathAccessListStringRegExpression brcdIp.1.2.2.16.1.4 Syntax: Integer	Read-write	Specifies the AS path information that will be permitted or denied. This object contains a regular expression. Each character of the regular expression string is represented by one octet.
snIpAsPathAccessListStringRowStatus brcdIp.1.2.2.16.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are deleted immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

ECMP MIB Objects

NOTE
The MIB objects presented in this section are supported on FastIron SX devices running software release 07.2.00 that support IPv6.

SNMP ECMP MIB objects allows you to configure ECMP for IPV6 using SNMP. ECMP enables the router to balance traffic to a specific destination across multiple equal-cost paths.

To use these objects, do the following.

1. Enable ECMP for RIP using the snRtIpRipEcmpEnable MIB object.

   IP Load sharing is enabled by default. However, ECMP must be enabled for RIP IP load sharing.

2. Enable IPv6 load sharing using the fdryIpv6LoadShare MIB object.

   IPv6 load sharing is enabled by default. If it needs to be enabled, set fdryIpv6LoadShare to 1.

3. Configure the maximum number of load sharing paths for IPv6 using the fdryIpv6LoadShareNumOfPaths MIB object.

Name, Identifier, and Syntax	Access	Description
fdryIpv6LoadShare brcdIp.1.2.17.1.1.1 Syntax: RtrStatus	Read-write	This object directs the IPv6 traffic to distribute the traffic load to IPv6 routes if more than one IPv6 route is available. 0 = disables IPv6 load sharing 1 = enables IPv6 load sharing
fdryIpv6LoadShareNumOf Paths brcdIp.1.2.17.1.1.2 Syntax: Unsigned32	Read-write	Enter the number of IPv6 routes to be used to share load. Enter a value from 2 - 6.

Chapter

21

OSPF

OSPF general objects

This chapter presents the objects for the Open Shortest Path First (OSPF) protocol. OSPF objects in this section are available on all devices, except on the ServerIron, ServerIron ADX, BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX. For OSPF MIB objects on the NetIron XMR, and NetIron MLX, refer to “Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron” on page 401

For objects relating to OSPF traps, refer to the chapter “Traps and Objects to Enable Traps” on page 627.

Refer to the configuration guide for a product for details on the features discussed in this chapter.

NOTE
Beginning with software release 07.6.03, devices support RFC 1850 instead of the objects in this chapter. Also, BigIron MG8, NetIron 40G, and FastIron Edge Switch support RFC 1850.

The OSPF General objects provide information about the OSPF Process. They apply globally to the routers.

Name, OID, and Syntax	Access	Description
snOspfRouterId brcdIp.1.2.4.1.1 Syntax: RouterID **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Shows the IP address of the Autonomous System Boundary Router. Conventionally, this ID defaults to IP address of one of the routers to ensure uniqueness in the network. This object contains a 32-bit integer. Reference: RFC 1583 “OSPF Version 2”, section C.1 Global parameters
snOspfAdminStat brcdIp.1.2.4.1.2 Syntax: Integer	Read-write	Specifies the state of the OSPF in the router: • disabled(0) – OSPF is disabled on all interfaces • enabled(1) – OSPF is active on at least one interface

Name, OID, and Syntax	Access	Description
snOspfASBdrRtrStatus brcdIp.1.2.4.1.3 Syntax: TruthVal **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates if this router is an Autonomous System Boundary Router: • false(0) • true(1) Reference: RFC 1583 “OSPF Version 2”, Section 3.3 Classification of routers
snOspfRedisMode brcdIp.1.2.4.1.4 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies if OSPF redistribution has been enabled on this router: • disabled(0) – OSPF redistribution is disabled • enabled(1) – OSPF redistribution is active
snOspfDefaultOspfMetric Value brcdIp.1.2.4.1.5 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Shows the cost of using a default OSPF Metric value on this route. Valid values: 1 – 65535
snOspfExternLSACount brcdIp.1.2.4.1.6 Syntax: Gauge32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	The number of external link-state advertisements in the link-state database. Reference: RFC 1583 “OSPF Version 2”, section A.4.5 AS external link advertisements (LS type 5)

Name, OID, and Syntax	Access	Description
snOspfExternLSACksumSum brcdIp.1.2.4.1.7 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Indicates the 32-bit unsigned sum of the LS checksums of the external link-state advertisements contained in the link-state database. This sum can be used to determine if there has been a change in a router's link-state database and to compare the link-state database of two routers.
snOspfOriginateNewLSAs brcdIp.1.2.4.1.8 Syntax: Counter **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the number of new link-state advertisements that have been originated by the router. This number increments each time the router originates a new LSA.
snOspfRxNewLSAs brcdIp.1.2.4.1.9 Syntax: Counter32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the number of link-state advertisements received by the router. This number does not include newer instantiations of self-originated link-state advertisements.
snOspfOspfRedisMetricType brcdIp.1.2.4.1.10 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates the type of route: • type1(1) – External Type 1 (comparable value) the intra-area and inter-area routes. It is an OSPF metric plus the external Metric. • type2(2) – External Type 2 (non-comparable value) routes, it is the external metric.

Name, OID, and Syntax	Access	Description
snOspfExtLsdbLimit brcdIp.1.2.4.1.11 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Provides compliance with RFC 1765 in the handling of OSPF external link-state database (LSDB) overflow Specifies the maximum number of non-default AS-external-LSAs entries that can be stored in the link-state database. When the number of non-default AS-external-LSAs in a router's link-state database reaches ospfExtLsdbLimit, the router enters Overflow State.The router never holds more than ospfExtLsdbLimit non-default AS-external-LSAs in its database. OspfExtLsdbLimit MUST be set identically in all routers attached to the OSPF backbone and any regular OSPF area. (i.e., OSPF stub areas and NSSAs are excluded). Valid values: 1 – 2000. If the value is -1, then there is no limit.
snOspfExitOverflowInterval brcdIp.1.2.4.1.12 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the number of seconds that a router will attempt to leave the overflow state once it is in that state. This value allows the router to again originate non-default AS-external-LSAs. If this object is set to 0, the router will not leave the overflow state until it is restarted. Valid values: 0 – 86400 seconds.
snOspfRfc1583Compatibility brcdIp.1.2.4.1.13 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies if the OSPF route is compatible with RFC1583 or RFC2178: • disabled(0) – Compatible with RFC 2178. • enabled(1) – Compatible with RFC 1583.
snOspfRouterIdFormat brcdIp.1.2.4.1.14 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the format of how Router ID will be entered in the "snOspfRouterId" object: • integer(0) – Integer. • ipAddress(1) – IP address.

Name, OID, and Syntax	Access	Description
snOspfDistance brcdIp.1.2.4.1.15 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the OSPF administrative distance for intra-area routes. Default: 110 Valid values: 1 – 255
snOspfDistanceIntra brcdIp.1.2.4.1.16 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the OSPF administrative distance for intra-area routes. Default: 110 Valid values: 1 – 255
snOspfDistanceInter brcdIp.1.2.4.1.17 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the OSPF administrative distance for inter-area routes. Default: 110 Valid values: 1 – 255
snOspfDistanceExternal brcdIp.1.2.4.1.18 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the OSPF administrative distance for external routes. Valid values: 1 – 255 Default: 110

OSPF area table

The OSPF Area Data Structure contains information that describes the various OSPF areas. The interfaces and virtual links are configured as part of these areas. Area 0.0.0.0, by definition, is the Backbone Area.

Reference: RFC 1583 “OSPF Version 2”, section 6 The Area Data Structure.

NOTE
The object in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfAreaTable brcdIp.1.2.4.2.1	None	The OSPF Area Table
snOspfAreaEntry brcdIp.1.2.4.2.1.1	None	An entry in the OSPF Area Table
snOspfAreaId brcdIp.1.2.4.2.1.1.1 Syntax: AreaID	Read only	Specifies the address of the area. This address identifies the router, independent of its IP address. Area ID 0.0.0.0 is used for the OSPF backbone. The format used for this ID is specified by the "snOspfAreaIdFormat" object. Reference: RFC 1583 "OSPF Version 2", section C.2 Area parameters
snOspfImportASExtern brcdIp.1.2.4.2.1.1.2 Syntax: Integer32	Read-write	Indicates the type of OSPF area that this router supports: • 0 – Stub area. OSPF routers within a stub area cannot send or receive external LSAs. In addition, OSPF routers in a stub area must use a default route to the area's Area Border Router (ABR) or Autonomous System Boundary Router (ASBR) to send traffic out of the area. • 1 – Normal area. OSPF routers within a normal area can send and receive external link-state advertisements • 2 – NSSA area ASBR of an NSSA can import external route information into the area. Reference: RFC 1583 "OSPF Version 2", section C.2 Area parameters
snOspfStubMetric brcdIp.1.2.4.2.1.1.3 Syntax: BigMetric	Read-write	The metric value applied at the default type of service (ospfMetric). By default, this equals the least metric at the type of service among the interfaces to other areas. This object exist only if the value of snOspfAreaSummary is snOspfAreaSummary(2); Otherwise, an SNMP_GET or GET_NEXT attempt of this Object will return NO_SUCH_NAME.
snOspfAreaRowStatus brcdIp.1.2.4.2.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snOspfAreaIdFormat brcdIp.1.2.4.2.1.1.5 Syntax: Integer	Read-write	Specifies the format of Area ID entered in the "snOspfIfAreaId" object: • integer(0) – Integer • ipAddress(1) – IP address

Area range table

The area range allows you to assign an aggregate value to a range of IP addresses. This aggregate value becomes the address that is advertised instead all of the individual addresses it represents being advertised. The Area Range table contains the aggregate value of the ranges of IP addresses that are configured to be propagated from an OSPF area.

Reference: RFC 1583 “OSPF Version 2”, section C.2 Area parameters.

NOTE
The objects in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfAreaRangeTable brcdIp.1.2.4.3.1	None	The Area Range Table.
snOspfAreaRangeEntry brcdIp.1.2.4.3.1.1	None	An entry in the Area Range Table.
snOspfAreaRangeAreaID brcdIp.1.2.4.3.1.1.1 Syntax: AreaID	Read only	Specifies the ID of the area where the address range can be found. The object “snOspfAreaRangeAreaIdFormat” determines the format of this object.
snOspfAreaRangeNet brcdIp.1.2.4.3.1.1.2 Syntax: IpAddress	Read only	Specifies the IP Address of the net or subnet indicated by the range.
snOspfAreaRangeMask brcdIp.1.2.4.3.1.1.3 Syntax: IpAddress	Read-write	Specifies the subnet mask that pertains to the net or subnet.
snOspfAreaRangeRowStatus brcdIp.1.2.4.3.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snOspfAreaRangeAreaIdFormat brcdIp.1.2.4.3.1.1.5 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the “snOspfAreaRangeAreaID” object: • integer(0) – Integer. • ipAddress(1) – IP Address.

OSPF interface configuration tables

The OSPF Interface Table augments the ifTable with OSPF specific information.

References:

- Reference: RFC 1583 “OSPF Version 2”, section C.3 Router interface parameters.
- Reference: RFC 1583 “OSPF Version 2”, section E Authentication.

NOTE
This objects in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

OSPF interface configuration table

Name, OID, and Syntax	Access	Description
snOspfIfTable brcdIp.1.2.4.4.1	None	The OSPF Interface Configuration Table.
snOspfIfEntry brcdIp.1.2.4.4.1.1	None	An entry in the OSPF Interface Configuration Table.
snOspfIfPort brcdIp.1.2.4.4.1.1.1 Syntax: Integer32	Read only	The physical router port of this OSPF interface.
snOspfIfAreaId brcdIp.1.2.4.4.1.1.2 Syntax: AreaID	Read-write	Specifies the address of the area in a 32-bit integer. This address uniquely identifies the area to which the interface connects. Area ID 0.0.0.0 is used for the OSPF backbone. Default:’00000000’h, which equals to 0.0.0.0
snOspfIfAdminStat brcdIp.1.2.4.4.1.1.3 Syntax: Integer	Read-write	Indicates if neighbor relationships may be formed on this interface: • disabled(0) – The interface is external to OSPF • enabled(1) – Neighbor relationships may be formed on the interface, which will be advertised as an internal route to an area. Default: enabled(1)
snOspfIfRtrPriority brcdIp.1.2.4.4.1.1.4 Syntax: DesignatedRouterPriority	Read-write	Specifies the priority of this interface. This object is used in the designated router election algorithm for multi-access networks. Valid values: 0 – 255. A value of 0 signifies that the router is not eligible to become the designated router on this particular network. If two or more routers have the same priority value, then the router with the highest router ID becomes the designated router. The router with the next highest router ID becomes the backup designated router.
snOspfIfTransitDelay brcdIp.1.2.4.4.1.1.5 Syntax: UpToMaxAge	Read-write	Shows the time it takes to transmit link-state update packets on this interface. Valid values: 0 – 3600 seconds Default: 1 second

Name, OID, and Syntax	Access	Description
snOspfIfRetransInterval brcdIp.1.2.4.4.1.1.6 Syntax: UpToMaxAge	Read-write	Specifies the number of seconds between link-state advertisement retransmissions, for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets. Values can be from 0 – 3600 seconds. Default: 5 seconds
snOspfIfHelloInterval brcdIp.1.2.4.4.1.1.7 Syntax: HelloRange	Read-write	Specifies the number of seconds that router waits before it sends the next Hello packet on this interface. This value must be the same for all routers attached to a common network. Values can be from 1 – 65535 seconds (up to 'FFFF'h). Valid values: 1 – 65535 seconds Default: 10 seconds
snOspfIfRtrDeadInterval brcdIp.1.2.4.4.1.1.8 Syntax: PositiveInteger	Read-write	Specifies the number of seconds that neighbor routers wait for a router's Hello packets before they declare that the router is down. This should be a multiple of the Hello interval. This value must be the same for all routers attached to a common network. Valid values: 1 – 2147483647 seconds Default: 40 seconds
snOspfIfAuthType brcdIp.1.2.4.4.1.1.9 Syntax: Integer	Read-write	Specifies the authentication type for an interface. Valid values: • none(0) • simplePassword(1) • md5(2) • reserved for specification by IANA(> 2) Additional authentication types may be assigned locally on a per interface basis, up to 255. Default: none(0)
snOspfIfAuthKey brcdIp.1.2.4.4.1.1.10 Syntax: OctetString	Read-write	Indicates the authentication key. • If the authentication type selected is simple password, then this object requires an alphanumeric password. If the value is shorter than eight octets, the agent will left-adjust and zero-fill the key to equal eight octets. The simple password setting takes effect immediately. All OSPF packets transmitted on the interface contain this password. Any OSPF packet received on the interface is checked for this password. If the password is not present, then the packet is dropped. The password can be up to eight characters long. • If the authentication type is MD5, then a key ID and an MD5 key are required. The key ID is a number from 1 to 255 and identifies the MD5 key that is being used. The MD5 key can be up to sixteen alphanumeric characters long. Default:'0000000000000000'h, which is equal to 0.0.0.0.0.0.0.0 When read, "snOspfIfAuthKey" always returns a blank. Reference: RFC 1583 "OSPF Version 2", section 9, The Interface Data Structure
snOspfIfMetricValue brcdIp.1.2.4.4.1.1.11 Syntax: Integer	Read-write	Specifies the cost of using this type of service (TOS) on this interface. The default value of the TOS 0 Metric is equal to 10^8 divided by the ifSpeed.

Name, OID, and Syntax	Access	Description
snOspfIfRowStatus brcdIp.1.2.4.4.1.1.12 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snOspfIfMd5AuthKeyId brcdIp.1.2.4.4.1.1.13 Syntax: Integer	Read-write	Specifies the ID of the MD5 authentication key. If the object "snOspfVirtIfAuthType" is set to MD5, this object identifies the algorithm and secret key used to create the message digest appended to the OSPF packet. Key identifiers are unique per-interface (or equivalently, per-subnet). The value of this object must be a number from 1 – 255.
snOspfIfMd5AuthKey brcdIp.1.2.4.4.1.1.14 Syntax: OctetString	Read-write	Specifies the MD5 authentication key. If the object "snOspfVirtIfAuthType" is set to MD5, the value of this object is encrypted and included in each OSPF packet transmitted. The agent will left-adjust and zero-fill the key to equal 16 octets. When read, snOspfIfMd5AuthKey always returns a blank.
snOspfIfMd5ActivationWaitTime brcdIp.1.2.4.4.1.1.15 Syntax: Integer	Read-write	Determines when a newly configured MD5 authentication key is valid. This parameter provides a graceful transition from one MD5 key to another without disturbing the network. All new packets transmitted after the key activation wait time interval use the newly configured MD5 key. OSPF packets that contain the old MD5 key are accepted for up to five minutes after the new MD5 key is in operation. The range for the key activation wait time is from 0 – 14400 seconds. Default: 300 seconds
snOspfIfAreaIdFormat brcdIp.1.2.4.4.1.1.16 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the "snOspfIfAreaId" object • integer(0) – Integer • ipAddress(1) – IP Address
snOspfIfPassiveMode brcdIp.1.2.4.4.1.1.17 Syntax: Integer	Read-write	Indicates if passive mode is enabled on this interface: • disabled(0) • enabled(1)
snOspfIfDatabaseFilterAllOut brcdIp.1.2.4.4.1.1.18 Syntax: Integer	Read-write	Determines if the filtering of outgoing OSPF LSA on this interface is enabled: • disabled(0) – Filtering is disabled • enabled(1) – Filtering is enabled

Name, OID, and Syntax	Access	Description
snOspfIfMtuIgnore brcdIp.1.2.4.4.1.1.19 Syntax: Integer	Read-write	Determines if the MTU detection mode of this interface is enabled: • disabled(0) – MTU detection mode is disabled • enabled(1) – MTU detection mode is enabled
snOspfIfNetworkP2mp brcdIp.1.2.4.4.1.1.20 Syntax: Integer	Read-write	This object is not supported. Determines if the P2MP mode of this interface is enabled: • disabled(0) – P2MP mode is disabled • enabled(1) – P2MP mode is enabled

OSPF interface 2 configuration table

Name, OID, and Syntax	Access	Description
snOspfIf2Table brcdIp.1.2.4.4.2	None	Determines if the P2MP mode of this interface is enabled: • disabled(0) – P2MP mode is disabled • enabled(1) – P2MP mode is enabled
snOspfIf2Entry brcdIp.1.2.4.4.2.1	None	An entry in the OSPF Interface 2 Configuration Table.
snOspfIf2Port brcdIp.1.2.4.4.2.1.1 Syntax: Integer32	Read only	The physical router port of this OSPF interface.
snOspfIf2AreaId brcdIp.1.2.4.4.2.1.2 Syntax: AreaID	Read-write	Specifies the address of the area in a 32-bit integer. This address uniquely identifies the area to which the interface connects. Area ID 0.0.0.0 is used for the OSPF backbone. Default: '00000000'h, which equals to 0.0.0.0
snOspfIf2AdminStat brcdIp.1.2.4.4.2.1.3 Syntax: Integer	Read-write	Indicates if neighbor relationships may be formed on this interface: • disabled(0) – The interface is external to OSPF • enabled(1) – Neighbor relationships may be formed on the interface, which will be advertised as an internal route to an area. Default: enabled(1)
snOspfIf2RtrPriority brcdIp.1.2.4.4.2.1.4 Syntax: DesignatedRouterPriority	Read-write	Specifies the priority of this interface. This object is used in the designated router election algorithm for multi-access networks. Valid values: 0 – 255. A value of 0 signifies that the router is not eligible to become the designated router on this particular network. If two or more routers have the same priority value, then the router with the highest router ID becomes the designated router. The router with the next highest router ID becomes the backup designated router.
snOspfIf2TransitDelay brcdIp.1.2.4.4.2.1.5 Syntax: UpToMaxAge	Read-write	Shows the time it takes to transmit link-state update packets on this interface. Valid values: 0 – 3600 seconds Default: 1 second

Name, OID, and Syntax	Access	Description
snOspfIf2RetransInterval brcdIp.1.2.4.4.2.1.6 Syntax: UpToMaxAge	Read-write	Specifies the number of seconds between link-state advertisement retransmissions, for adjacencies belonging to this interface. This value is also used when retransmitting database description and link-state request packets. Valid values: 0 – 3600 seconds Default: 5 seconds
snOspfIf2HelloInterval brcdIp.1.2.4.4.2.1.7 Syntax: HelloRange	Read-write	Specifies the number of seconds that router waits before it sends the next Hello packet on this interface. This value must be the same for all routers attached to a common network. Values can be from 1 – 65535 seconds (up to 'FFFF'h). Valid values: 1 – 65535 seconds Default: 10 seconds
snOspfIf2RtrDeadInterval brcdIp.1.2.4.4.2.1.8 Syntax: PositiveInteger	Read-write	Specifies the number of seconds that neighbor routers wait for a router's Hello packets before they declare that the router is down. This should be a multiple of the Hello interval. This value must be the same for all routers attached to a common network. Valid values: 1 – 2147483647 seconds Default: 40 seconds
snOspfIf2AuthType brcdIp.1.2.4.4.2.1.9 Syntax: Integer	Read-write	Specifies the authentication type for an interface. Valid values:: • none(0) • simplePassword(1) • md5(2) • reserved for specification by IANA(> 2) Additional authentication types may be assigned locally on a per interface basis. The value of this object can be up – 255. Default: none(0)
snOspfIf2AuthKey brcdIp.1.2.4.4.2.1.10 Syntax: OctetString	Read-write	Indicates the authentication key. • If the authentication type selected is simple password, then this object requires an alphanumeric password. If the value is shorter than eight octets, the agent will left-adjust and zero-fill the key to equal eight octets. The simple password setting takes effect immediately. All OSPF packets transmitted on the interface contain this password. Any OSPF packet received on the interface is checked for this password. If the password is not present, then the packet is dropped. The password can be up to eight characters long. • If the authentication type is MD5, then a key ID and an MD5 key are required. The key ID is a number from 1 to 255 and identifies the MD5 key that is being used. The MD5 key can be up to sixteen alphanumeric characters long. Valid values: Up to eight octets. Default: '0000000000000000'h which is equal to 0.0.0.0.0.0.0.0 When read, "snOspfIf2AuthKey" always returns a blank. Reference: RFC 1583 "OSPF Version 2", section 9 The Interface Data Structure

Name, OID, and Syntax	Access	Description
snOspfIf2MetricValue brcdIp.1.2.4.4.2.1.11 Syntax: Integer	Read-write	Specifies the cost of using this type of service (TOS) on this interface. The default value of the TOS 0 Metric is equal to 10^8 divided by the ifSpeed. Valid values: 0 – 65535
snOspfIf2RowStatus brcdIp.1.2.4.4.2.1.12 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snOspfIf2Md5AuthKeyId brcdIp.1.2.4.4.2.1.13 Syntax: Integer	Read-write	Specifies the ID of the MD5 authentication key. If the object "snOspfVirtIfAuthType" is set to MD5, this object identifies the algorithm and secret key used to create the message digest appended to the OSPF packet. Key identifiers are unique per interface (or equivalently, per subnet). The value of this object must be a number from 1 – 255.
snOspfIf2Md5AuthKey brcdIp.1.2.4.4.2.1.14 Syntax: OctetString	Read-write	Specifies the MD5 authentication key. If the object "snOspfVirtIfAuthType" is set to MD5, the value of this object is encrypted and included in each OSPF packet transmitted. The agent will left-adjust and zero-fill the key to equal 16 octets. When read, "snOspfIf2Md5AuthKey" always returns a blank. Valid values: Up to 16 octets.
snOspfIf2Md5ActivationWaitTime brcdIp.1.2.4.4.2.1.15 Syntax: Integer	Read-write	Determines when a newly configured MD5 authentication key is valid. This parameter provides a graceful transition from one MD5 key to another without disturbing the network. All new packets transmitted after the key activation wait time interval use the newly configured MD5 key. OSPF packets that contain the old MD5 key are accepted for up to five minutes after the new MD5 key is in operation. The range for the key activation wait time is from 0 – 14400 seconds. Default: 300 seconds
snOspfIf2AreaIdFormat brcdIp.1.2.4.4.2.1.16 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the "snOspfIfAreaId" object • integer(0) – Integer • ipAddress(1) – IP Address
snOspfIf2PassiveMode brcdIp.1.2.4.4.2.1.17 Syntax: Integer	Read-write	Indicates if passive mode is enabled on this interface: • disabled(0) • enabled(1)
snOspfIf2DatabaseFilterAllOut brcdIp.1.2.4.4.2.1.18 Syntax: Integer	Read-write	Determines if the filtering of outgoing OSPF LSA on this interface is enabled: • disabled(0) – Filtering is disabled • enabled(1) – Filtering is enabled

Name, OID, and Syntax	Access	Description
snOspfIf2MtuIgnore brcdIp.1.2.4.4.2.1.19 Syntax: Integer	Read-write	Determines if the MTU detection mode of this interface is enabled: • disabled(0) – MTU detection mode is disabled • enabled(1) – MTU detection mode is enabled
snOspfIf2NetworkP2mp brcdIp.1.2.4.4.2.1.20 Syntax: Integer	Read-write	Determines if the P2MP mode of this interface is enabled: • disabled(0) – P2MP mode is disabled • enabled(1) – P2MP mode is enabled
snOspfIf2NetworkP2pt brcdIp.1.2.4.4.2.1.21 Syntax: Integer	Read-write	This object enables and disables OSPF point-to-point mode on an interface: • disabled(0) – Disables the feature • enabled(1) – Enables the feature

OSPF virtual interface table

The Virtual Interface Table describes the virtual links that the OSPF process is configured to carry.

References:

- RFC 1583 “OSPF Version 2”, section C.4 Virtual link parameters
- RFC 1583 “OSPF Version 2”, section 9 The Interface Data Structure

NOTE
The objects in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfVirtIfTable brcdIp.1.2.4.5.1	None	The OSPF Virtual Interface Table.
snOspfVirtIfEntry brcdIp.1.2.4.5.1.1	None	An entry in the OSPF Virtual Interface Table.
snOspfVirtIfAreaID brcdIp.1.2.4.5.1.1.1 Syntax: AreaID	Read only	Specifies the ID of the transit Area that the Virtual link traverses. A value of 0.0.0.0 is not valid.
snOspfVirtIfNeighbor brcdIp.1.2.4.5.1.1.2 Syntax: RouterID	Read only	Shows the IP address of the ID of the router that is serving as the virtual neighbor.
snOspfVirtIfTransitDelay brcdIp.1.2.4.5.1.1.3 Syntax: UpToMaxAge	Read-write	Shows the time it takes to transmit link-state update packets on this interface. Valid values: 0 – 3600 seconds Default: 1 second

Name, OID, and Syntax	Access	Description
snOspfVirtIfRetransInterval brcdIp.1.2.4.5.1.1.4 Syntax: UpToMaxAge	Read-write	Specifies the interval between the retransmission of link-state advertisements to router adjacencies for this interface. Valid values: 0 – 3600 seconds Default: 5 seconds This value is also used when retransmitting database description and link-state request packets. This value should be greater than the expected roundtrip time.
snOspfVirtIfHelloInterval brcdIp.1.2.4.5.1.1.5 Syntax: HelloRange	Read-write	Specifies the number of seconds that router waits before it sends the next Hello packet on this interface. This value must be the same for all routers attached to a common network. Valid values: from 1 – 65535 seconds Default: 10 seconds This value must be the same for the virtual neighbor.
snOspfVirtIfRtrDeadInterval brcdIp.1.2.4.5.1.1.6 Syntax: PositiveInteger	Read-write	Specifies the number of seconds that neighbor routers wait for a router's Hello packets before they declare that the router is down. This should be a multiple of the Hello interval. This value must be the same for the virtual neighbor. Default: 60 seconds
snOspfVirtIfAuthType brcdIp.1.2.4.5.1.1.7 Syntax: Integer	Read-write	Specifies the authentication type for an interface. Valid values: • none(0) • simplePassword(1) • md5(2) • reserved for specification by IANA(> 2) Additional authentication types may be assigned locally on a per interface basis. Default: none(0)
snOspfVirtIfAuthKey brcdIp.1.2.4.5.1.1.8 Syntax: OctetString	Read-write	Specifies the authentication key: • If the authentication type selected is simple password, then this object requires an alphanumeric password. If the value is shorter than eight octets, the agent will left-adjust and zero-fill the key to equal eight octets. The simple password setting takes effect immediately. All OSPF packets transmitted on the interface contain this password. Any OSPF packet received on the interface is checked for this password. If the password is not present, then the packet is dropped. The password can be up to eight characters long. • If the authentication type is MD5, then a key ID and an MD5 key are required. The key ID is a number from 1 to 255 and identifies the MD5 key that is being used. The MD5 key can be up to sixteen alphanumeric characters long. When read, "snOspfIfAuthKey" always returns a blank. Default: 0000000000000000'h, which is 0.0.0.0.0.0.0.0

Name, OID, and Syntax	Access	Description
snOspfVirtIfRowStatus brcdIp.1.2.4.5.1.1.9 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snOspfVirtIfMd5AuthKeyId brcdIp.1.2.4.5.1.1.10 Syntax: Integer	Read-write	Specifies the ID of the MD5 authentication key. This object identifies the algorithm and secret key used to create the message digest appended to the OSPF packet. Key identifiers are unique per interface. If the object "snOspfVirtIfAuthType" is set to MD5, the value of this object must be a number from 1 to 255.
snOspfVirtIfMd5AuthKey brcdIp.1.2.4.5.1.1.11 Syntax: OctetString	Read-write	Specifies the MD5 authentication key. The value of this object is encrypted and included in each OSPF packet transmitted. If the value of this object is shorter than 16 octets, the agent will left-adjust and zero-fill the key to equal 16 octets. When read, snOspfIfMd5AuthKey always returns a blank.
snOspfVirtIfMd5ActivationWaitTime brcdIp.1.2.4.5.1.1.12 Syntax: Integer	Read-write	Determines when a newly configured MD5 authentication key is valid. This parameter provides a graceful transition from one MD5 key to another without disturbing the network. All new packets transmitted after the key activation wait time interval use the newly configured MD5 key. OSPF packets that contain the old MD5 key are accepted for up to five minutes after the new MD5 key is in operation. Valid values: 0 – 14400 seconds Default: 300 seconds
snOspfVirtIfAreaIdFormat brcdIp.1.2.4.5.1.1.13 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the "snOspfVirtIfAreaID" object: • integer(0) – Integer. • ipAddress(1) – IP address.

OSPF redistribution of routes table

The OSPF Redistribution of Routes Table contains a list of routes that will be used to decide whether a particular RIP or static route is to be imported into OSPF domain. Routes will be imported if the parameter "Import Route into OSPF" is enabled. They will be imported as external type 2 routes.

NOTE
The objects in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfRedisTable brcdIp.1.2.4.6.1	None	The OSPF Redistribution Table contains a list of routes that could be imported into the OSPF domain.
snOspfRedisEntry brcdIp.1.2.4.6.1.1	None	An entry in the OSPF Redistribution Table
snOspfRedisIndex brcdIp.1.2.4.6.1.1.1 Syntax: Integer	Read only	An ID identifying this destination route. There can be up to 64 entries for this object.
snOspfRedisIpAddress brcdIp.1.2.4.6.1.1.2 Syntax: IpAddress	Read-write	Shows the destination IP address that is associated with this particular route.
snOspfRedisMask brcdIp.1.2.4.6.1.1.3 Syntax: IpAddress	Read-write	Shows the subnet mask of this route.
snOspfRedisAction brcdIp.1.2.4.6.1.1.4 Syntax: Integer	Read-write	Specifies what action to be taken if the route matches this entry: • noImport(0) – Do not import route into the OSPF domain • import(1) – Import the route is into OSPF domain as external type 2 route
snOspfRedisProtocol brcdIp.1.2.4.6.1.1.5 Syntax: Integer	Read-write	Specifies how routes are imported into the OSPF domain: • rip(1) – the RIP route. • all(2) – all protocol route. • static(3) – the static route. • bgp(4) – the BGP route. • connected(5) – the connected route. • isis(6) – the ISIS route.
snOspfRedisSetOspfMetric brcdIp.1.2.4.6.1.1.6 Syntax: Integer	Read-write	The value indicates to which the route metric should match: • disabled(0) – the route metric does NOT match the OSPF metric field. • enabled(1) – the route metric matches the OSPF metric field.
snOspfRedisOspfMetricValue brcdIp.1.2.4.6.1.1.7 Syntax: Integer	Read-write	Specifies the cost of using this type of service (TOS) on this interface. Valid values: 0 – 65535.
snOspfRedisMatchRipMetric brcdIp.1.2.4.6.1.1.8 Syntax: Integer	Read-write	The value indicates to which the route metric should match: • disabled(0) – the route metric does NOT match the RIP metric field. • enabled(1) – the route metric matches the RIP metric field.

Name, OID, and Syntax	Access	Description
snOspfRedisRipMetricValue brcdIp.1.2.4.6.1.1.9 Syntax: Integer	Read-write	Specifies the cost of using RIP on this interface. Valid values: 1 – 15 hops.
snOspfRedisRowStatus brcdIp.1.2.4.6.1.1.10 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

OSPF neighbor table

The OSPF Neighbor Table describes non-virtual neighbors in the locality of the router.

Reference:

- RFC 1583 “OSPF Version 2”, section 10 The Neighbor Data Structure
- RFC 1583 “OSPF Version 2”, section 12.1.2 Options

NOTE
The objects in this section are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfNbrTable brcdIp.1.2.4.7.1	None	A table of non-virtual neighbor information.
snOspfNbrEntry brcdIp.1.2.4.7.1.1	None	An entry in the OSPF Neighbor Information Table. One entry represents one neighbor.
snOspfNbrEntryIndex brcdIp.1.2.4.7.1.1.1 Syntax: Integer32	Read only	The table entry index of this neighbor.
snOspfNbrPort brcdIp.1.2.4.7.1.1.2 Syntax: Integer32	Read only	Shows the physical port ID of this neighbor.
snOspfNbrIpAddr brcdIp.1.2.4.7.1.1.3 Syntax: IpAddress	Read only	Shows the IP address of this neighbor.
snOspfNbrIndex brcdIp.1.2.4.7.1.1.4 Syntax: Integer32	Read only	Contains an index of each neighbor’s port and IP address.

Name, OID, and Syntax	Access	Description
snOspfNbrRtrId brcdIp.1.2.4.7.1.1.5 Syntax: RouterID	Read only	Specifies the IP address of the neighboring router in the Autonomous System. The value of this object is a A 32-bit integer. Default: '00000000'h, which is equal to 0.0.0.0
snOspfNbrOptions brcdIp.1.2.4.7.1.1.6 Syntax: Integer32	Read only	The bit mask that is set corresponding to the neighbor's options field: • Bit 0 – The system will operate on type of service metrics other than TOS 0. The neighbor will ignore all metrics except for the TOS 0 metric. • Bit 1 – The associated area accepts and operates on external information; it is a stub area. • Bit 2 – The system is capable of routing IP Multicast datagrams. It implements the multicast extensions to OSPF. • Bit 3 – The associated area is an NSSA. These areas are capable of carrying type 7 external advertisements, which are translated into type 5 external advertisements at NSSA borders. Default: 0
snOspfNbrPriority brcdIp.1.2.4.7.1.1.7 Syntax: DesignatedRouterPriority32	Read only	Specifies the priority of this interface. This object is used in the designated router election algorithm for multi-access networks. Valid values: 0 – 255 Default: 1. A value of 0 signifies that the router is not eligible to become the designated router on this particular network. If two or more routers have the same priority value, then the router with the highest router ID becomes the designated router. The router with the next highest router ID becomes the backup designated router.

Name, OID, and Syntax	Access	Description
snOspfNbrState brcdIp.1.2.4.7.1.1.8 Syntax: Integer	Read only	Shows the state of the communication between the Layer 3 Switch and the neighbor: • down(1) – There has been no recent information received from the neighbor. • attempt(2) – This state is only valid for neighbors attached to non-broadcast networks. It indicates that no recent information has been received from the neighbor. • init(3) – A Hello packet has recently been seen from the neighbor. However, bidirectional communication has not yet been established with the neighbor. (The router itself did not appear in the neighbor's Hello packet.) All neighbors in this state (or higher) are listed in the Hello packets sent from the associated interface. • twoWay(4) – Communication between the two routers is bidirectional. This is the most advanced state before beginning adjacency establishment. The Designated Router and Backup Designated Router are selected from the set of neighbors in the 2-Way state or greater. • exchangeStart(5) – The first step in creating an adjacency between the two neighboring routers. The goal of this step is to decide which router is the master, and to decide upon the initial Database Description (DD) sequence number. Neighbor communications in this state or greater are called adjacencies. • exchange(6) – The router is describing its entire link-state database by sending DD packets to the neighbor. Each DD packet has a DD sequence number, and is explicitly acknowledged. Only one DD packet can be outstanding at any time. In this state, link-state Request packets can also be sent asking for the neighbor's more recent advertisements. All adjacencies that are in the exchange state or greater are used by the flooding procedure. In fact, these adjacencies are fully capable of transmitting and receiving all types of OSPF routing protocol packets. • loading(7) – Link-state Request packets are sent to the neighbor asking for the more recent advertisements that have been discovered (but not yet received) in the exchange state. • full(8) – The neighboring routers are fully adjacent. These adjacencies will now appear in router links and network link advertisements. Default: down(1)
snOspfNbrEvents brcdIp.1.2.4.7.1.1.9 Syntax: Counter	Read only	Shows the number of times this neighbor’s state has changed state, or the number of times an error occurred.
snOspfNbrLsRetransQLen brcdIp.1.2.4.7.1.1.10 Syntax: Gauge32	Read only	Specifies the interval between the retransmission of link-state advertisements to router adjacencies for this interface. The range is 0 – 3600 seconds. Default: 5 seconds

OSPF virtual neighbor table

The OSPF Virtual Neighbor Table describes all virtual neighbors. Since Virtual links are configured in the virtual interface table, this table is read only.

Reference: RFC 1583 “OSPF Version 2”, section 15 Virtual Links.

Name, OID, and Syntax	Access	Description
snOspfVirtNbrTable brcdIp.1.2.4.8.1	None	The OSPF Virtual Neighbor Table.
snOspfVirtNbrEntry brcdIp.1.2.4.8.1.1	None	An entry in the OSPF Virtual Neighbor Table.
snOspfVirtNbrEntryIndex brcdIp.1.2.4.8.1.1.1 Syntax: Integer32	Read only	The ID of an entry in OSPF Virtual Neighbor Table.
snOspfVirtNbrArea brcdIp.1.2.4.8.1.1.2 Syntax: AreaID	Read only	Shows the ID of the transit area. The format is defined in the “snOspfVirtNbrAreaIdFormat” object.
snOspfVirtNbrRtrId brcdIp.1.2.4.8.1.1.3 Syntax: RouterID	Read only	Identifies the IP address of the neighboring router in the Autonomous System. This is a 32-bit integer.
snOspfVirtNbrIpAddr brcdIp.1.2.4.8.1.1.4 Syntax: IpAddress	Read only	Shows the IP address of this virtual neighbor.
snOspfVirtNbrOptions brcdIp.1.2.4.8.1.1.5 Syntax: Integer32	Read only	Shows a bit map that corresponds to the neighbor’s options field. Thus, Bit 1, if set, indicates that the neighbor supports Type of Service Routing; if zero, no metrics other than TOS 0 are in use by the neighbor.

Name, OID, and Syntax	Access	Description
snOspfVirtNbrState brcdIp.1.2.4.8.1.1.6 Syntax: Integer	Read only	Shows the state of the communication between the Layer 3 Switch and the virtual neighbor: • down(1) – There has been no recent information received from the neighbor. • attempt(2) – This state is only valid for neighbors attached to non-broadcast networks. It indicates that no recent information has been received from the neighbor. • init(3) – A Hello packet has recently been seen from the neighbor. However, bidirectional communication has not yet been established with the neighbor. (The router itself did not appear in the neighbor's Hello packet.) All neighbors in this state (or higher) are listed in the Hello packets sent from the associated interface. • twoWay(4) – Communication between the two routers is bidirectional. This is the most advanced state before beginning adjacency establishment. The Designated Router and Backup Designated Router are selected from the set of neighbors in the 2-Way state or greater. • exchangeStart(5) – The first step in creating an adjacency between the two neighboring routers. The goal of this step is to decide which router is the master, and to decide upon the initial DD sequence number. Neighbor communications in this state or greater are called adjacencies. • exchange(6) – The router is describing its entire link-state database by sending DD packets to the neighbor. Each DD packet has a DD sequence number, and is explicitly acknowledged. Only one DD packet can be outstanding at any time. In this state, link-state Request packets can also be sent asking for the neighbor's more recent advertisements. All adjacencies in exchange state or greater are used by the flooding procedure. In fact, these adjacencies are fully capable of transmitting and receiving all types of OSPF routing protocol packets. • loading(7) – Link-state Request packets are sent to the neighbor asking for the more recent advertisements that have been discovered (but not yet received) in the exchange state. • full(8) – The neighboring routers are fully adjacent. These adjacencies will now appear in router links and network link advertisements.
snOspfVirtNbrEvents brcdIp.1.2.4.8.1.1.7 Syntax: Counter32	Read only	Shows the number of times the state of this virtual link has changed or an error has occurred.
snOspfVirtNbrLSRetransQLen brcdIp.1.2.4.8.1.1.8 Syntax: Gauge32	Read only	Shows the current length of the retransmission queue.
snOspfVirtNbrAreaIdFormat brcdIp.1.2.4.8.1.1.9 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the "snOspfVirtNbrRtrId" object: • integer(0) – Integer • ipAddress(1) – IP address

OSPF link-state database

The link-state database contains the link-state advertisement from all the areas to which the device is attached.

Reference: RFC 1583 “OSPF Version 2”, section 12 Link State Advertisements.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfLsdbTable brcdIp.1.2.4.9.1	None	The OSPF Process’s link-state database.
snOspfLsdbEntry brcdIp.1.2.4.9.1.1	None	An entry in the OSPF Process’s link-state database. Each entry represents a single link-state advertisement.
snOspfLsdbEntryIndex brcdIp.1.2.4.9.1.1.1 Syntax: Integer32	Read only	The ID of the entry in the link-state database.
snOspfLsdbAreaId brcdIp.1.2.4.9.1.1.2 Syntax: AreaID	Read only	Shows the Area from which the LSA was received. The value is in a 32-bit format. Reference: RFC 1583 “OSPF Version 2”, section C.2 Area parameters
snOspfLsdbType brcdIp.1.2.4.9.1.1.3 Syntax: Integer	Read only	Specifies the type of the link-state advertisement. Each link-state type has a separate advertisement format. • routerLink(1) • networkLink(2) • summaryLink(3) • asSummaryLink(4) Reference: RFC 1583 “OSPF Version 2”, section A.4.1 The Link State Advertisement header
snOspfLsdbLsId brcdIp.1.2.4.9.1.1.4 Syntax: IpAddress	Read only	Specifies the link-state ID. This ID is an LS type-specific field containing either a Router ID or an IP Address. It identifies the piece of the routing domain that is being described by the advertisement. Reference: RFC 1583 “OSPF Version 2”, section 12.1.4 Link State ID
snOspfLsdbRouterId brcdIp.1.2.4.9.1.1.5 Syntax: RouterID	Read only	Identifies the originating router in the Autonomous System. This information is in a 32-bit number. The format is determined by the “snOspfLsdbAreaIdFormat” object. Reference: RFC 1583 “OSPF Version 2”, section C.1 Global parameters **NOTE:** OSPF Sequence Number is a 32-bit signed integer. It starts with the value ’80000001’h or -’7FFFFFFF’h, and increments until ’7FFFFFFF’h Thus, a typical sequence number will be very negative.

Name, OID, and Syntax	Access	Description
snOspfLsdbSequence brcdIp.1.2.4.9.1.1.6 Syntax: Integer32	Read only	Shows the sequence number of this entry. The OSPF neighbor that sent the LSA stamps the LSA with a sequence number to enable the Layer 3 Switch and other OSPF routers to determine which LSA for a given route is the most recent. This object can be used to detect old and duplicate link-state advertisements. The higher the sequence number, the more recent the advertisement. Reference: RFC 1583 “OSPF Version 2”, section 12.1.6 LS sequence number
snOspfLsdbAge brcdIp.1.2.4.9.1.1.7 Syntax: Integer32	Read only	Shows the age of the link-state advertisement in seconds. Reference: RFC 1583 “OSPF Version 2”, section 12.1.1 LS age
snOspfLsdbChecksum brcdIp.1.2.4.9.1.1.8 Syntax: Integer32	Read only	Indicates the checksum for the LSA packet. The checksum is based on all the fields in the packet except the age field. The Layer 3 Switch uses the checksum to verify that the packet is not corrupted. Reference: RFC 1583 “OSPF Version 2”, section 2.1.7 LS checksum
snOspfLsdbAdvertisement brcdIp.1.2.4.9.1.1.9 Syntax: OctetString	Read only	Shows the data in the link-state advertisement, including its header in octets. Reference: RFC 1583 “OSPF Version 2”, section Section 12 Link State Advertisements
snOspfLsdbAreaIdFormat brcdIp.1.2.4.9.1.1.10 Syntax: Integer	Read only	Specifies the format of how RouterId will be entered in the “snOspfLsdbRouterId” object: • integer(0) – Integer • ipAddress(1) – IP address

OSPF link state database, external

The link-state database contains the link-state advertisement from throughout the areas that the device is attached to.

This table is identical to the OSPF LSDB Table in format, but contains only external link-state advertisement. The purpose is to allow external LSAs to be displayed once for the router rather than once in each non-stub area.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfExtLsdbTable brcdIp.1.2.4.10.1	None	The Link-State External Database Table. Reference: RFC 1583 “OSPF Version 2”, section Section 12 Link State Advertisements
snOspfExtLsdbEntry brcdIp.1.2.4.10.1.1	None	An entry in the Link-State External Database Table. Each entry represents a single link-state advertisement.
snOspfExtLsdbEntryIndex brcdIp.1.2.4.10.1.1.1 Syntax: Integer32	Read only	The table entry index of this link-state database.

Name, OID, and Syntax	Access	Description
snOspfExtLsdbType brcdIp.1.2.4.10.1.1.2 Syntax: Integer	Read only	Shows the type of the link-state advertisement. Each link-state type has a separate advertisement format. Reference: RFC 1583 “OSPF Version 2”, section Appendix A.4.1 The Link State Advertisement header
snOspfExtLsdbLsId brcdIp.1.2.4.10.1.1.3 Syntax: Integer	Read only	Specifies the external link-state ID. This ID is an LS type-specific field containing either a Router ID or an IP Address. It identifies the piece of the routing domain that is being described by the advertisement. Reference: RFC 1583 “OSPF Version 2”, section 12.1.4 Link-state ID
snOspfExtLsdbRouterId brcdIp.1.2.4.10.1.1.4 Syntax: Integer	Read only	Identifies the originating router in the Autonomous System. This information is in a 32-bit number. Reference: RFC 1583 “OSPF Version 2”, section C.1 Global parameters **NOTE:** OSPF Sequence Number is a 32-bit signed integer. It starts with the value ’80000001’h, or -’7FFFFFFF’h. It increments until ’7FFFFFFF’h Thus, a typical sequence number will be very negative.
snOspfExtLsdbSequence brcdIp.1.2.4.10.1.1.5 Syntax: Integer32	Read only	Shows the sequence number of this entry. The OSPF neighbor that sent the LSA stamps it with a sequence number to enable the Layer 3 Switch and other OSPF routers to determine which LSA for a given route is the most recent. This object can be used to detect old and duplicate link-state advertisements. The higher the sequence number, the more recent the advertisement. Reference: RFC 1583 “OSPF Version 2”, section 12.1.6 LS sequence number
snOspfExtLsdbAge brcdIp.1.2.4.10.1.1.6 Syntax: Integer32	Read only	Shows the age of the link-state advertisement in seconds. Reference: RFC 1583 “OSPF Version 2”, section 12.1.1 LS age
snOspfExtLsdbChecksum brcdIp.1.2.4.10.1.1.7 Syntax: Integer32	Read only	Indicates the checksum for the LSA packet. The checksum is based on all the fields in the packet except the age field. The Layer 3 Switch uses the checksum to verify that the packet is not corrupted. Reference: RFC 1583 “OSPF Version 2”, section 12.1.7 LS checksum
snOspfExtLsdbAdvertisement brcdIp.1.2.4.10.1.1.8 Syntax: OctetString	Read only	Shows the data in the link-state advertisement, including its header in octets. There can be up to 36 octets in this object. Reference: RFC 1583 “OSPF Version 2”, section 12 Link State Advertisements

OSPF area status table

The OSPF Area Status Data Structure contains information regarding the configured parameters and cumulative statistics of the router’s attached areas. The interfaces and virtual links are configured as part of these areas. Area 0.0.0.0 is the Backbone Area.

Reference: RFC 1583 “OSPF Version 2”, section 6 The Area Data Structure.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfAreaStatusTable brcdIp.1.2.4.11.1	None	The OSPF Area Status Table.
snOspfAreaStatusEntry brcdIp.1.2.4.11.1.1	None	An entry in the OSPF Area Status Table.
snOspfAreaStatusEntryIndex brcdIp.1.2.4.11.1.1.1 Syntax: Integer32	Read only	The ID of an entry in the OSPF Area Status Table.
snOspfAreaStatusAreaId brcdIp.1.2.4.11.1.1.2 Syntax: AreaID	Read only	Specifies the ID of an area. The format of this 32-bit integer is determined by the value of the "snOspfAreaStatusAreaIdFormat" object. Area ID 0.0.0.0 is used for the OSPF backbone. Reference: RFC 1583 "OSPF Version 2", section C.2 Area parameters
snOspfAreaStatusImportASExtern brcdIp.1.2.4.11.1.1.3 Syntax: Integer32	Read only	The area's support for importing AS external link-state advertisements. Reference: RFC 1583 "OSPF Version 2", section C.2 Area parameters Default: 1
snOspfAreaStatusStubMetric brcdIp.1.2.4.11.1.1.4 Syntax: BigMetric	Read only	The metric value applied at the default type of service (ospfMetric). By default, this equals the least metric at the type of service among the interfaces to other areas. This object exist only if the value of snOspfAreaSummary is snOspfAreaSummary(2); Otherwise, an SNMP_GET or GET_NEXT attempt of this Object will return NO_SUCH_NAME.
snOspfAreaStatusSpfRuns brcdIp.1.2.4.11.1.1.5 Syntax: Counter32	Read only	Shows the number of times that the intra-area route table has been recalculated using this area's link-state database.
snOspfAreaStatusAreaBdrRtrCount brcdIp.1.2.4.11.1.1.6 Syntax: Gauge32	Read only	Show the number of area border routers that are reachable within this area. This is initially zero, the default, and is calculated in each shortest path first (SPF) pass.
snOspfAreaStatusASBdrRtrCount brcdIp.1.2.4.11.1.1.7 Syntax: Gauge32	Read only	Shows the total number of Autonomous System border routers that are reachable within this area. This is initially zero, the default, and is calculated in each SPF pass.
snOspfAreaStatusLSACount brcdIp.1.2.4.11.1.1.8 Syntax: Gauge32	Read only	Shows the total number of link-state advertisements in this area's link-state database, excluding AS external LSAs. Default: 0

Name, OID, and Syntax	Access	Description
snOspfAreaStatusLSACksumSum brcdIp.1.2.4.11.1.1.9 Syntax: Integer32	Read only	Shows the total link-state advertisements of area's link-state database. This number is a 32-bit unsigned sum of the LS checksums, excluding external (LS type 5) link-state advertisements. The value can be used to determine if there has been a change in a router's link-state database, and to compare the link-state database of two routers. Default: 0
snOspfAreaStatusAreaIdFormat brcdIp.1.2.4.11.1.1.10 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the "snOspfAreaStatusAreaId" object: • integer(0) – Integer. • ipAddress(1) – IP address.

OSPF interface status table

The OSPF Interface Status Table describes the interfaces from the viewpoint of OSPF. It augments the ifStatusTable with OSPF specific information.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfIfStatusTable brcdIp.1.2.4.12.1	None	The OSPF Interface Status Table.
snOspfIfStatusEntry brcdIp.1.2.4.12.1.1	None	An entry in the OSPF Interface Status Table. Each entry represents one interface from the viewpoint of OSPF.
snOspfIfStatusEntryIndex brcdIp.1.2.4.12.1.1.1 Syntax: Integer32	Read only	The ID of an entry in the OSPF Interface Status Table.
snOspfIfStatusPort brcdIp.1.2.4.12.1.1.2 Syntax: Integer32	Read only	Shows the ID of the physical router port of this OSPF interface.
snOspfIfStatusIpAddress brcdIp.1.2.4.12.1.1.3 Syntax: IpAddress	Read only	Shows the IP address of this OSPF interface.
snOspfIfStatusAreaId brcdIp.1.2.4.12.1.1.4 Syntax: AreaID	Read only	Identifies the area to which the interface connects. This ID is a 32-bit integer. Area ID 0.0.0.0 (in the '00000000'h format) is used for the OSPF backbone. The format of this ID is determined by the value of the "snOspfIfStatusAreaIdFormat" object.

Name, OID, and Syntax	Access	Description
snOspfIfStatusType brcdIp.1.2.4.12.1.1.5 Syntax: Integer	Read only	Identifies the OSPF interface type. (By way of a default, this field may be derived from the corresponding value of ifType.) • broadcast(1) – For broadcast LANs such as Ethernet and IEEE 802.5 • nbma(2) – For X.25, Frame Relay, and similar technologies • pointToPoint(3) – For point-to-point interfaces
snOspfIfStatusAdminStat brcdIp.1.2.4.12.1.1.6 Syntax: Integer	Read only	Shows if OSPF has been enabled to form neighbor relationships on the interface: • disabled(0) – The interface is external to OSPF • enabled(1) – OSPF has been enabled to form neighbor relationships and the interface will be advertised as an internal route to some area
snOspfIfStatusRtrPriority brcdIp.1.2.4.12.1.1.7 Syntax: DesignatedRouterPriority	Read only	Specifies the priority of this interface. This object is used in the designated router election algorithm for multi-access networks. Valid values: 0 – 255 Default: 1. A value of 0 means that the router is not eligible to become the designated router on this particular network. If two or more routers have the same priority value, then the router with the highest router ID becomes the designated router. The router with the next highest router ID becomes the backup designated router.
snOspfIfStatusTransitDelay brcdIp.1.2.4.12.1.1.8 Syntax: UpToMaxAge	Read only	Shows the time it takes to transmit link-state update packets on this interface. Valid values: 0 – 3600 seconds Default: 1 second
snOspfIfStatusRetransInterval brcdIp.1.2.4.12.1.1.9 Syntax: UpToMaxAge	Read only	Shows the number of seconds between retransmissions of link-state advertisements, to adjacencies that belong to this interface. This value is also used when retransmitting database description and link-state request packets. Valid values: 0 – 3600 seconds Default: 5 seconds
snOspfIfStatusHelloInterval brcdIp.1.2.4.12.1.1.10 Syntax: HelloRange	Read only	Specifies the number of seconds that router waits before it sends the next Hello packet on this interface. This value must be the same for all routers attached to a common network. Valid values: 1 – 65535 seconds Default: 10 seconds
snOspfIfStatusRtrDeadInterval brcdIp.1.2.4.12.1.1.11 Syntax: PositiveInteger	Read only	Specifies the number of seconds that neighbor routers wait for a router's Hello packets before they declare that the router is down. This should be a multiple of the Hello interval and must be the same for all routers attached to a common network. Default: 40 seconds
snOspfIfStatusState brcdIp.1.2.4.12.1.1.12 Syntax: Integer	Read only	Shows the OSPF Interface State. • down(1) • loopback(2) • waiting(3) • pointToPoint(4) • designatedRouter(5) • backupDesignatedRouter(6) • otherDesignatedRouter(7) Default: down(1)

Name, OID, and Syntax	Access	Description
snOspfIfStatusDesignatedRouter brcdIp.1.2.4.12.1.1.13 Syntax: IpAddress	Read only	Shows the IP Address of the designated router. Default: '00000000'h, which equals to 0.0.0.0
snOspfIfStatusBackupDesignatedRouter brcdIp.1.2.4.12.1.1.14 Syntax: IpAddress	Read only	Shows the IP Address of the backup router. Default: '00000000'h, which equals to 0.0.0.0
snOspfIfStatusEvents brcdIp.1.2.4.12.1.1.15 Syntax: Counter32	Read only	Shows the following: • The number of times that the state of this OSPF interface has changed • The number of times an error has occurred
snOspfIfStatusAuthType brcdIp.1.2.4.12.1.1.16 Syntax: Integer32	Read only	Specifies the authentication type for an interface. Valid values:: • none(0) • simplePassword(1) • md5(2) • reserved for specification by IANA(> 2) Additional authentication types may be assigned locally on a per interface basis. Default: none(0)
snOspfIfStatusAuthKey brcdIp.1.2.4.12.1.1.17 Syntax: OctetString	Read only	Indicates the area's authentication key. • If the authentication type selected is simple password, then this object requires an alphanumeric password. If the value is shorter than eight octets, the agent will left-adjust and zero-fill the key to equal eight octets. The simple password setting takes effect immediately. All OSPF packets transmitted on the interface contain this password. Any OSPF packet received on the interface is checked for this password. If the password is not present, then the packet is dropped. The password can be up to eight characters long. • If the authentication type is MD5, then a key ID and an MD5 key are required. The key ID is a number from 1 to 255 and identifies the MD5 key that is being used. The MD5 key can be up to sixteen alphanumeric characters long. When read, "snOspfIfAuthKey" always returns a blank. Reference: RFC 1583 "OSPF Version 2", section 9 The Interface Data Structure Default: '0000000000000000'h – 0.0.0.0.0.0.0.0
snOspfIfStatusMetricValue brcdIp.1.2.4.12.1.1.18 Syntax: Integer	Read only	Specifies the cost of using this TOS on this interface. The default value of the TOS 0 Metric is 10^8 or ifSpeed. Valid values: 0 – 65535
snOspfIfStatusMd5AuthKeyId brcdIp.1.2.4.12.1.1.19 Syntax: Integer	Read only	Specifies the ID of the MD5 authentication key. This object identifies the algorithm and secret key used to create the message digest appended to the OSPF packet. Key identifiers are unique per interface. If the object "snOspfVirtIfAuthType" is set to MD5, the value of this object must be a number from 1 – 255.

Name, OID, and Syntax	Access	Description
snOspfIfStatusMd5AuthKey brcdIp.1.2.4.12.1.1.20 Syntax: OctetString	Read only	Specifies the MD5 authentication key. The value of this object is encrypted and included in each OSPF packet transmitted. If the value of this object is shorter than 16 octets, the agent will left-adjust and zero-fill the key to equal 16 octets. When read, snOspfIfMd5AuthKey always returns a blank.
snOspfIfStatusMd5Activation WaitTime brcdIp.1.2.4.12.1.1.21 Syntax: Integer	Read only	Determines when a newly configured MD5 authentication key is valid. This parameter provides a graceful transition from one MD5 key to another without disturbing the network. All new packets transmitted after the key activation wait time interval use the newly configured MD5 key. OSPF packets that contain the old MD5 key are accepted for up to five minutes after the new MD5 key is in operation. The range for the key activation wait time is from 0 – 14400 seconds.
snOspfIfStatusAreaIdFormat brcdIp.1.2.4.12.1.1.22 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the "snOspfIfStatusAreaId" object: • integer(0) – Integer. • ipAddress(1) – IP address

OSPF virtual interface status table

The Virtual Interface Status Table contains information about this router's virtual interfaces.

Reference: RFC 1583 "OSPF Version 2", section C.4 Virtual link parameters.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfVirtIfStatusTable brcdIp.1.2.4.13.1	None	The OSPF Virtual Interface Status Table.
snOspfVirtIfStatusEntry brcdIp.1.2.4.13.1.1	None	An entry in the The OSPF Virtual Interface Status Table. Each entry represents one interface.
snOspfVirtIfStatusEntryInde x brcdIp.1.2.4.13.1.1.1 Syntax: Integer32	Read only	The ID of the entry in this table.
snOspfVirtIfStatusAreaID brcdIp.1.2.4.13.1.1.2 Syntax: AreaID	Read only	Shows the ID of the transit area that the virtual link traverses. The value of this object cannot be 0.0.0.0. The format of this object is determined by the value of the "snOspfVirtIfStatusAreaIdFormat" object.
snOspfVirtIfStatusNeighbor brcdIp.1.2.4.13.1.1.3 Syntax: RouterID	Read only	Shows the ID or IP address of the router that is serving as the virtual neighbor.
snOspfVirtIfStatusTransitDel ay brcdIp.1.2.4.13.1.1.4 Syntax: UpToMaxAge	Read only	Shows the time it takes to transmit link-state update packets on this interface. Valid values: 0 – 3600 seconds Default: 1 second

Name, OID, and Syntax	Access	Description
snOspfVirtIfStatusRetransInterval brcdIp.1.2.4.13.1.1.5 Syntax: UpToMaxAge	Read only	Specifies the interval between the retransmission of link-state advertisements to router adjacencies for this interface. Valid values: 0 – 3600 seconds Default: 5 seconds
snOspfVirtIfStatusHelloInterval brcdIp.1.2.4.13.1.1.6 Syntax: HelloRange	Read only	Specifies the number of seconds that router waits before it sends the next Hello packet on this interface. This value must be the same for all routers attached to a common network. Valid values: 1 – 65535 seconds Default: 10 seconds This value must be the same for all routers attached to a common network.
snOspfVirtIfStatusRtrDeadInterval brcdIp.1.2.4.13.1.1.7 Syntax: PositiveInteger	Read only	Specifies the number of seconds that neighbor routers wait for a router's Hello packets before they declare that the router is down. This should be a multiple of the Hello interval. This value must be the same for all routers attached to a common network. Default: 60 seconds
snOspfVirtIfStatusState brcdIp.1.2.4.13.1.1.8 Syntax: Integer	Read only	Shows the state of the OSPF virtual interface: • down(1) • pointToPoint(4) Default: down(1)
snOspfVirtIfStatusEvents brcdIp.1.2.4.13.1.1.9 Syntax: Counter32	Read only	Shows the following: • The number of times that the state of this OSPF interface has changed • The number of times an error has occurred
snOspfVirtIfStatusAuthType brcdIp.1.2.4.13.1.1.10 Syntax: Integer32	Read only	Specifies the authentication type for an interface. Valid values:: • none(0) • simplePassword(1) • reserved for specification by IANA(> 1) Additional authentication types may be assigned locally on a per interface basis. Default: none(0)
snOspfVirtIfStatusAuthKey brcdIp.1.2.4.13.1.1.11 Syntax: OctetString	Read only	Specifies the authentication key. • If the authentication type selected is simple password, then this object requires an alphanumeric password. If the value is shorter than eight octets, the agent will left-adjust and zero-fill the key to equal eight octets. The simple password setting takes effect immediately. All OSPF packets transmitted on the interface contain this password. Any OSPF packet received on the interface is checked for this password. If the password is not present, then the packet is dropped. The password can be up to eight characters long. • If the authentication type is MD5, then a key ID and an MD5 key are required. The key ID is a number from 1 to 255 and identifies the MD5 key that is being used. The MD5 key can be up to sixteen alphanumeric characters long. When read, "snOspfIfAuthKey" always returns a blank. Reference: RFC 1583 "OSPF Version 2", section 9 The Interface Data Structure Default: '0000000000000000'h – 0.0.0.0.0.0.0.0

Name, OID, and Syntax	Access	Description
snOspfVirtIfStatusMd5AuthKeyId brcdIp.1.2.4.13.1.1.12 Syntax: Integer	Read only	Specifies the ID of the MD5 authentication key. This object identifies the algorithm and secret key used to create the message digest appended to the OSPF packet. Key identifiers are unique per interface. If the object "snOspfVirtIfAuthType" is set to MD5, the value of this object must be a number from 1 – 255.
snOspfVirtIfStatusMd5AuthKey brcdIp.1.2.4.13.1.1.13 Syntax: OctetString	Read only	Specifies the MD5 authentication key. The value of this object is encrypted and included in each OSPF packet transmitted. If the value of this object is shorter than 16 octets, the agent will left-adjust and zero-fill the key to equal 16 octets. When read, snOspfIfMd5AuthKey always returns a blank.
snOspfVirtIfStatusMd5ActivationWaitTime brcdIp.1.2.4.13.1.1.14 Syntax: Integer	Read only	Determines when a newly configured MD5 authentication key is valid. This parameter provides a graceful transition from one MD5 key to another without disturbing the network. All new packets transmitted after the key activation wait time interval use the newly configured MD5 key. OSPF packets that contain the old MD5 key are accepted for up to five minutes after the new MD5 key is in operation. The range for the key activation wait time is from 0 – 14400 seconds.
snOspfVirtIfStatusAreaIdFormat brcdIp.1.2.4.13.1.1.15 Syntax: Integer	Read only	Specifies the format of how Area ID will be entered in the "snOspfVirtIfStatusAreaID" object: • integer(0) – Integer • ipAddress(1) – IP address

OSPF routing information table

The OSPF Routing Information Table contains information on the OSPF ABR or ASBR routing.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snOspfRoutingInfoTable brcdIp.1.2.4.14.1	None	The OSPF Routing Information Table.
snOspfRoutingInfoEntry brcdIp.1.2.4.14.1.1	None	An entry in the OSPF Routing Information Table.
snOspfRoutingInfoIndex brcdIp.1.2.4.14.1.1.1 Syntax: Integer32	Read only	ID of an entry in this table.
snOspfRoutingInfoRouter brcdIp.1.2.4.14.1.1.2 Syntax: RouterID	Read only	Shows the ID or IP address of the destination router.
snOspfRoutingInfoRouterType brcdIp.1.2.4.14.1.1.3 Syntax: Integer	Read only	Shows what router type the destination router is: • abr(1) – Area Border Router. • asbr(2) – Autonomous System Border Router. • abrANDasbr(3) – Area Border and Autonomous System Border Router.

Name, OID, and Syntax	Access	Description
snOspfRoutingInfoNextHopRouterID brcdIp.1.2.4.14.1.1.4 Syntax: RouterID	Read only	Shows the ID or IP address of the next hop destination router.
snOspfRoutingInfoOutgoingInterface brcdIp.1.2.4.14.1.1.5 Syntax: Integer32	Read only	Shows the outgoing interface of the destination router.

Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron

The **Open Shortest Path First (OSPF)** protocol is supported on the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices. The implementation fully complies with RFC 1850 - OSPF Version 2 Management Information Base.

snOspfAdminStat brcdIp.1.2.4.1.2 Syntax: Integer	Read-write	Specifies the state of the OSPF in the router: • disabled(0) – OSPF is disabled on all interfaces • enabled(1) – OSPF is active on at least one interface

Chapter

22

BGP4

BGP4 general variables

Border Gateway Protocol version 4 (BGP4) is supported on the following products:

- NetIron Internet Backbone router
- BigIron Layer 3 Switch
- NetIron stackable Layer 3 Switch (must have 32MB RAM and 4MB flash module)

No other device supports these MIB objects, unless noted in the sections below.

The implementation complies with RFC 1771. The BGP4 implementation also supports the following RFCs:

- RFC 1745 (OSPF Interactions)
- RFC 1965 (BGP4 Confederations)
- RFC 1997 (BGP Communities Attributes)
- RFC 2385 (TCP MD5 Signature Option)
- RFC 2439 (Route Flap Dampening)
- RFC 2796 (Route Reflection)
- RFC 2842 (Capability Advertisement)

Refer to the configuration guide for a product for details on the features discussed in this chapter.

NOTE
Beginning with software release 07.6.03, devices support RFC 1657 instead of the objects in this chapter. Also, BigIron MG8, NetIron 40G, and FastIron Edge Switch support RFC 1657.

For BGP4 MIB objects on BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices, refer to “Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices” on page 440.

The BGP4 parameters apply globally to a device's BGP4 process.

Name, OID, and Syntax	Access	Description
snBgp4GenAlwaysCompareMed brcdIp.1.2.11.1.1 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, and NetIron CES, and NetIron CER devices.	Read-write	Indicates if the comparison of the Multi-Exit Discriminator for paths from neighbors in different AS is enabled: • disabled(0) • enabled(1)
snBgp4GenAutoSummary brcdIp.1.2.11.1.2 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, and NetIron CES, and NetIron CER devices.	Read-write	Indicates if subnet routes are automatically summarized: • disabled(0) • enabled(1)
snBgp4GenDefaultLocalPreference brcdIp.1.2.11.1.3 Syntax: Integer32 **NOTE:** This object is not supported on theBrocade MLXe, NetIron XMR, NetIron MLX, and NetIron CES, and NetIron CER devices.	Read-write	Sets the default local preference attribute. When the router uses the BGP4 algorithm to select a route to send to the IP route table, one of the parameters the algorithm uses is the local preference. Local preference is an attribute that indicates a degree of preference for a route relative to other routes. BGP4 neighbors can send the local preference value as an attribute of a route in an UPDATE message. Local preference applies only to routes within the local AS. BGP4 routers can exchange local preference information with neighbors who are also in the local AS; however, BGP4 routers do not exchange local preference information with neighbors in remote ASs. Valid values: 0 – 4294967295 Default: 100
snBgp4GenDefaultInfoOriginate brcdIp.1.2.11.1.4 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates if the default Information Originate is enabled: • disabled(0) • enabled(1) By default, the router does not originate and advertise a default route using BGP4. A BGP4 default route is the IP address 0.0.0.0 and the route prefix 0 or network mask 0.0.0.0. For example, 0.0.0.0/0 is a default route. You can enable the router to advertise a default BGP4 route using either of the following methods. Layer 3 Switches check for the existence of an IGP route with 0.0.0.0/0 in the IP route table before creating a local BGP route for 0.0.0.0/0.

Name, OID, and Syntax	Access	Description
snBgp4GenFastExternalFallover brcdIp.1.2.11.1.5 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates if automatic resetting of BGP sessions of any directly adjacent sessions is enabled, if the links used to reach them go down. • disabled(0) • enabled(1)
snBgp4GenNextBootNeighbors brcdIp.1.2.11.1.6 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	The next boot-configured number of neighbors in a BGP Peer Group. The minimum value of this object is the value of the "snBgp4GenMinNeighbors" object. Its maximum value is the value of the "snBgp4GenMaxNeighbors" object.
snBgp4GenNextBootRoutes brcdIp.1.2.11.1.7 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	The next boot-configured number of routes. The minimum value of this MIB is snBgp4GenMinRoutes. The maximum value of this MIB is "snBgp4GenMaxRoutes".
snBgp4GenSynchronization brcdIp.1.2.11.1.8 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	To enable or disable the synchronization between BGP and your IGP. • disabled(0) • enabled(1)
snBgp4GenKeepAliveTime brcdIp.1.2.11.1.9 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates how often the device sends keep alive messages. Valid values: 1 – 65535 seconds Default: 60 seconds
snBgp4GenHoldTime brcdIp.1.2.11.1.10 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines how many seconds the device will wait for a keep alive or update message from a BGP4 neighbor before deciding that the neighbor is dead. Valid values: 1 – 65535 seconds Default: 180 seconds

Name, OID, and Syntax	Access	Description
snBgp4GenRouterId brcdIp.1.2.11.1.11 Syntax: IpAddress **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates the BGP Router IP address.
snBgp4GenTableMap brcdIp.1.2.11.1.12 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Defines the route map name. Each character of the name is represented by one octet. Valid values: Up to 32 octets.
snBgp4GenAdminStat brcdIp.1.2.11.1.13 Syntax: Integer	Read-write	Indicates if BGP4 routing is enabled: • disabled(0) • enabled(1)
snBgp4GenDefaultMetric brcdIp.1.2.11.1.14 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates the default metric values for the BGP4 protocol. The Layer 3 Switches can redistribute directly connected routes, static IP routes, RIP routes, and OSPF routes into BGP4. The MED (metric) is a global parameter that specifies the cost that will be applied to all routes by default when they are redistributed into BGP4. Valid values: 0 – 4294967295
snBgp4GenMaxNeighbors brcdIp.1.2.11.1.15 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of neighbors that can be configured in a BGP Peer Group.
snBgp4GenMinNeighbors brcdIp.1.2.11.1.16 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the minimum number of neighbors that can be configured in a BGP Peer Group.
snBgp4GenMaxRoutes brcdIp.1.2.11.1.17 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of configured routes.

Name, OID, and Syntax	Access	Description
snBgp4GenMinRoutes brcdIp.1.2.11.1.18 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the minimum number of configured routes.
snBgp4GenMaxAddrFilters brcdIp.1.2.11.1.19 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of configured BGP4 address filters.
snBgp4GenMaxAggregateAddresses brcdIp.1.2.11.1.20 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of configured BGP4 aggregate addresses.
snBgp4GenMaxAsPathFilters brcdIp.1.2.11.1.21 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of configured BGP4 AS-PATH filters.
snBgp4GenMaxCommunityFilters brcdIp.1.2.11.1.22 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of configured BGP4 community filters.
snBgp4GenMaxNetworks brcdIp.1.2.11.1.23 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of configured BGP4 networks.

Name, OID, and Syntax	Access	Description
snBgp4GenMaxRouteMapFilters brcdIp.1.2.11.1.24 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the maximum number of configured BGP4 route map filters.
snBgp4GenNeighPrefixMinValue brcdIp.1.2.11.1.25 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the minimum configured value of BGP4 neighbor prefix.
snBgp4GenOperNeighbors brcdIp.1.2.11.1.2632 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the current operational max number of neighbors configured for a BGP Group.
snBgp4GenOperRoutes brcdIp.1.2.11.1.27 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the current operational number of routes.
snBgp4GenLocalAs brcdIp.1.2.11.1.28 Syntax: Integer	Read only	Shows the BGP4 local autonomous system number. Valid values: 0 - 65536 **NOTE:** This object is deprecated for NetIron software release 04.0.00 and later. The object "snBgp4GenLocalAs4" can be used instead.
snBgp4GenRoutesInstalled brcdIp.1.2.11.1.29 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the BGP4 installed routes.

Name, OID, and Syntax	Access	Description
snBgp4GenAsPathInstalled brcdIp.1.2.11.1.30 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the BGP4 installed autonomous system path.
snBgp4ExternalDistance brcdIp.1.2.11.1.31 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the administrative distance for BGP external routes. Default: 200
snBgp4InternalDistance brcdIp.1.2.11.1.32 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the administrative distance for BGP internal routes. Default: 200
snBgp4LocalDistance brcdIp.1.2.11.1.33 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the administrative distance for BGP local routes. Default: 200
snBgp4OperNumOfAttributes brcdIp.1.2.11.1.34 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the operational number of attribute entries.
snBgp4NextBootMaxAttributes brcdIp.1.2.11.1.35 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Defines the next boot maximum attribute entries. Default: 10000, which means to reset to default

Name, OID, and Syntax	Access	Description
snBgp4ClusterId brcdIp.1.2.11.1.36 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Defines a cluster ID which is represented by 4-unsigned-byte integers (0..0xFFFFFFFF). 0 means to reset to default.
snBgp4ClientToClientReflection brcdIp.1.2.11.1.37 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates if the client to client reflection in BGP4 is enabled. • disabled(0) • enabled(1)
snBgp4GenTotalNeighbors brcdIp.1.2.11.1.38 Syntax: Integer32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Shows the current total number of neighbors running in a BGP group.
snBgp4GenMaxPaths brcdIp.1.2.11.1.39 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Indicates the maximum number of configured Paths.
snBgp4GenConfedId brcdIp.1.2.11.1.40 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Determines the BGP4 Confederation ID. This ID identifies the confederation to BGP routers outside the confederation. A confederation is a BGP4 AS that has been subdivided into multiple, smaller ASs. Subdividing an AS into smaller ASs simplifies administration and reduces BGP-related traffic, thus reducing the complexity of the Interior Border Gateway Protocol (IBGP) mesh among the BGP routers in the AS. The confederation ID is the AS ID.
snBgp4GenConfedPeers brcdIp.1.2.11.1.41 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the sub-AS numbers that are members of the confederation. There is a maximum of 50 peers. This is a number from 1 to 0xFFFF. It is represented by two octets.

Name, OID, and Syntax	Access	Description
snBgp4GenDampening brcdIp.1.2.11.1.42 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the dampening of BGP4 in the device • none(0) – BGP4 dampening is off • parameters(1) – Parameters are configurable • routemap(2) – Routemap is configurable
snBgp4GenDampenHalfLife brcdIp.1.2.11.1.43 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the number of minutes after which the route's penalty becomes half its value.
snBgp4GenDampenReuse brcdIp.1.2.11.1.44 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies how low a route's penalty must be before the route becomes eligible for use again after being suppressed.
snBgp4GenDampenSuppress brcdIp.1.2.11.1.45 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies how high a route's penalty can be before the Layer 3 Switch suppresses the route.
snBgp4GenDampenMaxSuppress brcdIp.1.2.11.1.46 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the maximum number of minutes that a route can be suppressed regardless of how unstable it is.

Name, OID, and Syntax	Access	Description
snBgp4GenDampenMap brcdIp.1.2.11.1.47 Syntax: OctetString **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read-write	Specifies the name of the route map that will be used to redirect traffic. The name is an octet string. Each character is represented by one octet. Valid values: Up to 32 octets.
snBgp4GenLocalAs4 brcdIp.1.2.11.1.48 Syntax: InetAutonomousSystemNumber	Read-write	BGP4 local autonomous system (AS) number to support 4 byte AS format.

BGP4 network table

The BGP4 network table shows the weight used for the network.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4NetworkTable brcdIp.1.2.11.10.1	None	The BGP4 Network Table.
snBgp4NetworkEntry brcdIp.1.2.11.10.1.1	None	An entry in the BGP4 Network Table.
snBgp4NetworkIp brcdIp.1.2.11.10.1.1.1 Syntax: IpAddress	Read only	Shows the IP Address for a network entry.
snBgp4NetworkSubnetMask brcdIp.1.2.11.10.1.1.2 Syntax: IpAddress	Read only	Shows the subnet mask for a network entry.
snBgp4NetworkWeight brcdIp.1.2.11.10.1.1.3 Syntax: Integer	Read-write	Shows the weight of the neighbor connection. Valid values: 0 – 65535

Name, OID, and Syntax	Access	Description
snBgp4NetworkBackdoor brcdIp.1.2.11.10.1.1.4 Syntax: Integer	Read-write	Indicates if the backdoor option is enabled for this network: • disabled(0) • enabled(1) The backdoor option changes the administrative distance of the route to this network from the EBGP administrative distance (20 by default) to the Local BGP weight (200 by default). The route is tagged as a backdoor route. Use this option when you want the router to prefer IGP routes such as RIP or OSPF routes over the EBGP route for the network
snBgp4NetworkRowStatus brcdIp.1.2.11.10.1.1.5 Syntax: Integer		Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

BGP4 address filter table

You can configure the router to explicitly permit or deny specific IP addresses received in updates from BGP4 neighbors by defining IP address filters. The router permits all IP addresses by default. You can define up to 100 IP address filters for BGP4.

- If you want “permit” to remain the default behavior, define individual filters to deny specific IP addresses.
- If you want to change the default behavior to “deny”, define individual filters to permit specific IP addresses.

NOTE
Once you define a filter, the default action for addresses that do not match a filter is “deny”. To change the default action to “permit”, configure the last filter as “permit any any”.

Address filters can be referred to by a BGP neighbor's distribute list number as well as by match statements in a route map.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4AddrFilterTable brcdIp.1.2.11.2.1	None	The BGP4 Address Filter Table
snBgp4AddrFilterEntry brcdIp.1.2.11.2.1.1	None	An entry in the BGP4 Address Filter Table
snBgp4AddrFilterIndex brcdIp.1.2.11.2.1.1.1 Syntax: Integer32	Read only	The table index for a filter entry.
snBgp4AddrFilterAction brcdIp.1.2.11.2.1.1.2 Syntax: Integer	Read-write	Indicates what the device will do if the BGP address matches this filter: • deny(0) • permit(1)
snBgp4AddrFilterSourceIp brcdIp.1.2.11.2.1.1.3 Syntax: IpAddress	Read-write	Specifies the source IP address.
snBgp4AddrFilterSourceMask brcdIp.1.2.11.2.1.1.4 Syntax: IpAddress	Read-write	Specifies the source IP subnet mask.
snBgp4AddrFilterDestIp brcdIp.1.2.11.2.1.1.5 Syntax: IpAddress	Read-write	Specifies the destination IP address.
snBgp4AddrFilterDestMask brcdIp.1.2.11.2.1.1.6 Syntax: IpAddress	Read-write	Specifies the destination IP subnet mask.
snBgp4AddrFilterRowStatus brcdIp.1.2.11.2.1.1.7 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

BGP4 aggregate address table

By default, the Layer 3 Switch advertises individual routes for all the networks. The aggregation feature allows you to configure the Layer 3 Switch to aggregate routes in a range of networks into a single CIDR number.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4AggregateAddrTable brcdIp.1.2.11.3.1	None	The BGP4 Aggregate Address Table
snBgp4AggregateAddrEntry brcdIp.1.2.11.3.1.1	None	An entry in the BGP4 Aggregate Address Table
snBgp4AggregateAddrIp brcdIp.1.2.11.3.1.1.1 Syntax: IpAddress	Read only	Shows the aggregate Address IP address. Specify 0 for the host portion and for the network portion that differs among the networks in the aggregate. For example, to aggregate 10.0.1.0, 10.0.2.0, and 10.0.3.0, enter the IP address 10.0.0.0 and the network mask 255.255.0.0 in the next object.
snBgp4AggregateAddrMask brcdIp.1.2.11.3.1.1.2 Syntax: IpAddress	Read only	Shows the aggregate Address IP subnet mask.
snBgp4AggregateAddrOption brcdIp.1.2.11.3.1.1.3 Syntax: Integer	Read only	Specifies the type of aggregate address option that is being used: • address(1) – Adds an address. This is the default option. • asSet(2) – Causes the router to aggregate AS-path information for all the routes in the aggregate address into a single AS-path. • summaryOnly(3) – Prevents the router from advertising more specific routes contained within the aggregate route. • suppressMap(4) – Prevents the more specific routes contained in the specified route map from being advertised. • advertiseMap(5) – Configures the router to advertise the more specific routes in the specified route map. • attributeMap(6) – Configures the router to set attributes for the aggregate routes based on the specified route map.

Name, OID, and Syntax	Access	Description
snBgp4AggregateAddrMap brcdIp.1.2.11.3.1.1.4 Syntax: OctetString	Read-write	Specifies the name of the route map to be used if the "snBgp4AggregateAddrOption" object is set to suppressMap(4), advertiseMap(5), or attributeMap(6). The value of this object is an octet string. Each character in the address map name is represented by one octet. There can be up to 32 octets in this object.
snBgp4AggregateAddrRowStatus brcdIp.1.2.11.3.1.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

BGP4 attribute entries table

The BGP4 Attribute Entries Table contains the sets of BGP4 attributes stored in the router's memory. Each set of attributes is unique and can be associated with one or more routes.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4AttributeTable brcdIp.1.2.11.18.1	None	The BGP4 Attribute Entries Table.
snBgp4AttributeEntry brcdIp.1.2.11.18.1.1	None	An entry in the BGP4 Attribute Entries Table.
snBgp4AttributeIndex brcdIp.1.2.11.18.1.1.1 Syntax: Integer32	Read only	Shows the index for a route entry.
snBgp4AttributeNextHop brcdIp.1.2.11.18.1.1.2 Syntax: Integer	Read only	Shows the IP address of the next hop router for routes that have this set of attributes.
snBgp4AttributeMetric brcdIp.1.2.11.18.1.1.3 Syntax: Integer32	Read only	Shows the cost of the route entry.

Name, OID, and Syntax	Access	Description
snBgp4AttributeOrigin brcdIp.1.2.11.18.1.1.4 Syntax: Integer	Read only	Shows the origin of this route: • igp(0) – Routes with this set of attributes came to BGP through IGP. • egp(1) – Routes with this set of attributes came to BGP through EGP. • incomplete(2) – Routes came from an origin other than one of the above. For example, they may have been redistributed from OSPF or RIP.
snBgp4AttributeAggregatorAs brcdIp.1.2.11.18.1.1.5 Syntax: Integer32	Read only	Shows the aggregator AS number for an attribute entry. AS in which the network information in the attribute set was aggregated. This value applies only to aggregated routes and is otherwise 0.
snBgp4AttributeRouterId brcdIp.1.2.11.18.1.1.6 Syntax: Integer	Read only	Shows the ID of the device that originated this aggregator.
snBgp4AttributeAtomicAggregatePresent brcdIp.1.2.11.18.1.1.7 Syntax: Integer	Read only	Shows if this aggregation has resulted in information loss. • false(0) – No information loss • true(1) – Information has been lost
snBgp4AttributeLocalPreference brcdIp.1.2.11.18.1.1.8 Syntax: Integer32	Read only	Shows the degree of preference for routes that use this set of attributes, relative to other routes in the local AS.
snBgp4AttributeCommunityList brcdIp.1.2.11.18.1.1.9 Syntax: OctetString	Read only	Shows the communities that routes with this set of attributes are in. A community is represented by four octets. The community list, could have some well known numbers such as: • BGP_COMMUNITY_ATTRIBUTE_NO_EXPORT0xFFFFFF01 • BGP_COMMUNITY_ATTRIBUTE_NO_ADVERTISE0xFFFFFF02 If the community list is a NULL string (empty list) then the community is INTERNET, which is represented by a number from 1 to 0xFFFFFFFF.
snBgp4AttributeAsPathList brcdIp.1.2.11.18.1.1.10 Syntax: OctetString	Read only	Shows the ASs through which routes with this set of attributes have passed. The local AS is shown in parentheses. This is a number from 1 – 0xFFFF. This integer number is represented by two octets.
snBgp4AttributeOriginator brcdIp.1.2.11.18.1.1.11 Syntax: IpAddress	Read only	Shows the originator of the route in a route reflector environment.
snBgp4AttributeClusterList brcdIp.1.2.11.18.1.1.12 Syntax: OctetString	Read only	Shows the route reflector clusters through which this set of attributes has passed. The list is a group of cluster IDs. Each ID is an IP address represented by four octets.

BGP4 AS-path filter table

A list of the other ASs through which a route passes. BGP4 routers can use the AS-path to detect and eliminate routing loops.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4AsPathFilterTable brcdIp.1.2.11.4.1	None	The BGP4 AS-Path Filter Table
snBgp4AsPathFilterEntry brcdIp.1.2.11.4.1.1	None	An entry in the BGP4 AS-Path Filter Table
snBgp4AsPathFilterIndex brcdIp.1.2.11.4.1.1.1 Syntax: Integer32	Read only	The table index for a filter entry.
snBgp4AsPathFilterAction brcdIp.1.2.11.4.1.1.2 Syntax: Integer	Read-write	Specifies what the device will do if the BGP address matches this filter. • deny(0) • permit(1)
snBgp4AsPathFilterRegExpression brcdIp.1.2.11.4.1.1.3 Syntax: OctetString	Read-write	Shows the AS in the filter that is using a regular expression. Each character of the regular expression string is represented by one octet. Valid values: Up to 256
snBgp4AsPathFilterRowStatus brcdIp.1.2.11.4.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

BGP4 community filter table

You can filter routes received from BGP4 neighbors based on community names.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4CommunityFilterTable brcdIp.1.2.11.5.1	None	The BGP4 Community Filter Table.
snBgp4CommunityFilterEntry brcdIp.1.2.11.5.1.1	None	An entry in the BGP4 Community Filter Table.
snBgp4CommunityFilterIndex brcdIp.1.2.11.5.1.1.1 Syntax: Integer32	Read only	The table index for a filter entry.
snBgp4CommunityFilterAction brcdIp.1.2.11.5.1.1.2 Syntax: Integer	Read-write	Specifies what the device will do if the BGP address matches this filter. • deny(0) • permit(1)
snBgp4CommunityFilterCommNum brcdIp.1.2.11.5.1.1.3 Syntax: OctetString	Read-write	Identifies the filter's number. This is a number from 1 – 0xFFFFFFFF. There can be up to 20 filters. Each integer is represented by four octets.
snBgp4CommunityFilterInternet brcdIp.1.2.11.5.1.1.4 Syntax: Integer	Read-write	Indicates if Internet Community is enabled • disabled(0) • enabled(1)
snBgp4CommunityFilterNoAdvertise brcdIp.1.2.11.5.1.1.5 Syntax: Integer	Read-write	Checks the route to see if it has the keyword "NO_ADVERTISE". If the route has the keyword, it will not be advertised to EBGP peers: • false(0) • true(1)
snBgp4CommunityFilterNoExport brcdIp.1.2.11.5.1.1.6 Syntax: Integer	Read-write	Checks the route to see if it has the keyword "NO_EXPORT". If the route has the keyword, it will not be advertised to EBGP peers outside the local AS: • false(0) • true(1)

Name, OID, and Syntax	Access	Description
snBgp4CommunityFilterRowStatus brcdIp.1.2.11.5.1.1.7 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snBgp4CommunityFilterLocalAs brcdIp.1.2.11.5.1.1.8 Syntax: Integer	Read-write	Checks the route to see if it has the keyword “LOCAL_AS”. If the route has the keyword the community applies only to confederations. The device will advertises the route only within the sub-AS. • false(0) • true(1)

BGP4 route map filter table

A ***route map*** is a named set of match conditions and parameter settings that a Layer 3 Switch can use to modify route attributes and to control redistribution of routes.

BGP4 allows you to include the redistribution filters as part of a route map. A route map examines and modifies route information exchanged between BGP4 and RIP or OSPF.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4RouteMapFilterTable brcdIp.1.2.11.12.1	None	The BGP4 RouteMap Filter Table.
snBgp4RouteMapFilterEntry brcdIp.1.2.11.12.1.1	None	An entry in the BGP4 RouteMap Filter Table.
snBgp4RouteMapFilterMapName brcdIp.1.2.11.12.1.1.1 Syntax: OctetString	Read only	Shows the route map’s name. The value of this object contains an octet string. Each character is represented by one octet. There can be up to 32 octets in this object.
snBgp4RouteMapFilterSequenceNum brcdIp.1.2.11.12.1.1.2 Syntax: Integer32	Read only	Shows the sequence number for this particular route map.

Name, OID, and Syntax	Access	Description
snBgp4RouteMapFilterAction brcdIp.1.2.11.12.1.1.3 Syntax: Integer	Read-write	Tells the device what to do if the BGP address matches this entry. • deny(0) • permit(1)
snBgp4RouteMapFilterRowStatus brcdIp.1.2.11.12.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

BGP4 route map match configuration table

A ***route map*** is a named set of match conditions and parameter settings that a Layer 3 Switch can use to modify route attributes and to control redistribution of routes.

BGP4 allows you to include the redistribution filters as part of a route map. A route map examines and modifies route information exchanged between BGP4 and RIP or OSPF.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4RouteMapMatchTable brcdIp.1.2.11.13.1	None	The BGP4 Route Map Set Table
snBgp4RouteMapMatchEntry brcdIp.1.2.11.13.1.1	None	An entry in the BGP4 Route Map Set Table
snBgp4RouteMapMatchMapName brcdIp.1.2.11.13.1.1.1 Syntax: OctetString	Read only	Shows the name of the route map to be matched. The value of this object is an octet string. Each character of the name is represented by one octet. There can be up to 32 octets in this object.
snBgp4RouteMapMatchSequenceNum brcdIp.1.2.11.13.1.1.2 Syntax: Integer32	Read only	Shows the sequence number for this particular route map. Routes are matched to the route map in ascending numerical order. Matching stops once a match is found.
snBgp4RouteMapMatchAsPathFilter brcdIp.1.2.11.13.1.1.3 Syntax: OctetString	Read-write	Identifies the AS path list number that this route must match. This is a number from 1 – 0xFFFF. There are 10. Each number consists of of two octets.

Name, OID, and Syntax	Access	Description
snBgp4RouteMapMatchCommunityFilter brcdIp.1.2.11.13.1.1.4 Syntax: OctetString	Read-write	Identifies the community filter number that this route must match. This is a number from 1 – 0xFFFF. There are 10. Each number consists of of two octets.
snBgp4RouteMapMatchAddressFilter brcdIp.1.2.11.13.1.1.5 Syntax: OctetString	Read-write	Identifies the address filter number that this route must match. This is a number from 1 – 0xFFFF. There are 10. Each number consists of two octets. There can be a total of 20 octets in this object.
snBgp4RouteMapMatchMetric brcdIp.1.2.11.13.1.1.6 Syntax: Integer32	Read-write	Compares the route's MED (metric) to the this value. There can be up to 20 octets in this object.
snBgp4RouteMapMatchNextHopList brcdIp.1.2.11.13.1.1.7 Syntax: OctetString	Read-write	Compares the IP address of the route's next hop to the IP address filters in this route. This is a number from 1 – 0xFFFF, represented by two octets. There are 16 of them. There can be a total of 32 octets in this object.
snBgp4RouteMapMatchRouteType brcdIp.1.2.11.13.1.1.8 Syntax: Integer	Read-write	Determines the OSPF route type to match: • none(0) • external(1) • externalType1(2) • externalType2(3) • internal(4) • local(5) Currently only externalType1(2), externalType2(3), and internal(4) is supported for SNMP-SET.
snBgp4RouteMapMatchTagList brcdIp.1.2.11.13.1.1.9 Syntax: OctetString	Read-write	Identifies the community tag access list that this route must match. This is a number represented by an octet strings. There can be up to 32 octets in this object.
snBgp4RouteMapMatchRowMask brcdIp.1.2.11.13.1.1.10 Syntax: Integer32	Read-write	This object is used together with the MIB objects above in the same VARBIND to set and reset any MIBs in the table. The bit number is referred to the snBgp4RouteMapMatchEntry number of each row in the table: The bit is ON - means set The bit is OFF - means reset
snBgp4RouteMapMatchAsPathAccessList brcdIp.1.2.11.13.1.1.11 Syntax: OctetString	Read-write	Indicates which BGP AS path access list this route must match. This is an integer from 1 – 0xFFFFFFFF, consisting of five sets of four octets.
snBgp4RouteMapMatchCommunityList brcdIp.1.2.11.13.1.1.12 Syntax: OctetString	Read-write	Indicates which BGP community access list this route must match. This is an integer from 1 – 0xFFFFFFFF, consisting of five sets of four octets.
snBgp4RouteMapMatchAddressAccessList brcdIp.1.2.11.13.1.1.13 Syntax: OctetString	Read-write	Indicates which BGP address access list this route must match. This is an integer from 1 – 0xFFFFFFFF, consisting of five sets of two octets.

Name, OID, and Syntax	Access	Description
snBgp4RouteMapMatchAddressPrefixList brcdIp.1.2.11.13.1.1.14 Syntax: OctetString	Read-write	Indicates the prefix list that must match a BGP address access list. Valid values: Up to 170 octets.
snBgp4RouteMapMatchNextHopAccessList brcdIp.1.2.11.13.1.1.15 Syntax: OctetString	Read-write	Indicates the ID of the next hop router that this route must match. This is an integer from 1 – 0xFFFFFFFF, consisting of five integers. Each integer has two octets.
snBgp4RouteMapMatchNextHopPrefixList brcdIp.1.2.11.13.1.1.16 Syntax: OctetString	Read-write	Indicates the prefix list of the next hop router that this route must. Valid values: Up to 170 octets.

BGP4 route map set configuration table

A ***route map*** is a named set of match conditions and parameter settings that a Layer 3 Switch can use to modify route attributes and to control redistribution of routes.

BGP4 allows you to include the redistribution filters as part of a route map. A route map examines and modifies route information exchanged between BGP4 and RIP or OSPF.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4RouteMapSetTable brcdIp.1.2.11.14.1	None	The BGP4 Route Map Set Table.
snBgp4RouteMapSetEntry brcdIp.1.2.11.14.1.1	None	An entry in the BGP4 Route Map Set Table.
snBgp4RouteMapSetMapName brcdIp.1.2.11.14.1.1.1 Syntax: OctetString	Read only	Specifies the name of the route map you want to use to set or change BGP4 attributes for the network you are advertising The value of this object is an octet string. Each character of the name is represented by one octet.
snBgp4RouteMapSetSequenceNum brcdIp.1.2.11.14.1.1.2 Syntax: Integer32	Read only	Shows the sequence of the route map.
snBgp4RouteMapSetAsPathType brcdIp.1.2.11.14.1.1.3 Syntax: Integer	Read-write	Specifies how an AS path for BGP routes will be modified: • tag(0) – Converts the tag of a route into an AS path. • prepend(1) – Adds the specified AS numbers to the front of the value of the "snBgp4RouteMapSetAsPathString" object of the matching route.

Name, OID, and Syntax	Access	Description
snBgp4RouteMapSetAsPathString brcdIp.1.2.11.14.1.1.4 Syntax: OctetString	Read-write	Specifies the AS-path string. This string is used only if the snBgp4RouteMapSetAsPathCmd was sent together with the value set to prepend(1).
snBgp4RouteMapSetAutoTag brcdIp.1.2.11.14.1.1.5 Syntax: Integer	Read-write	Indicates if the automatic tag option for BGP routes is enabled: • disabled(0) • enabled(1) If enabled, the automatic tag calculates and sets an automatic tag value for the route
snBgp4RouteMapSetCommunityType brcdIp.1.2.11.14.1.1.6 Syntax: Integer	Read-write	Indicates if BGP communities attributes are allowed: • nums(0) – Allow community attributes • none(3) – No community attributes are allowed The old values 1 and 2 are not valid starting with Release 05.03.00.
snBgp4RouteMapSetCommunityNum brcdIp.1.2.11.14.1.1.7 Syntax: Integer32	Read-write	Shows the community number of this route. Applies only if the object "snBgp4RouteMapSetCommunityType" that was sent on this route is set to nums(0).
snBgp4RouteMapSetCommunityAdditive brcdIp.1.2.11.14.1.1.8 Syntax: Integer	Read-write	Indicates if the option to add the existing communities to the route is enabled: • disabled(0) • enabled(1)
snBgp4RouteMapSetLocalPreference brcdIp.1.2.11.14.1.1.9 Syntax: Integer32	Read-write	Specifies the local preference for the route. You can set the preference to a value from 0 – 4294967295.
snBgp4RouteMapSetMetric brcdIp.1.2.11.14.1.1.10 Syntax: Integer32	Read-write	Sets the MED (metric) value for the route.
snBgp4RouteMapSetNextHop brcdIp.1.2.11.14.1.1.11 Syntax: IpAddress	Read-write	Indicates the IP address of the next hop for the BGP routes.
snBgp4RouteMapSetOrigin brcdIp.1.2.11.14.1.1.12 Syntax: Integer	Read-write	Shows the BGP route origin: • igp(0) – Routes with this set of attributes came to BGP through IGP. • egp(1) – Routes with this set of attributes came to BGP through EGP. • incomplete(2) – routes came from an origin other than IGP or EGP. For example, they may have been redistributed from OSPF or RIP.
snBgp4RouteMapSetTag brcdIp.1.2.11.14.1.1.13 Syntax: Integer32	Read-write	Specifies the tag for BGP routes.
snBgp4RouteMapSetWeight brcdIp.1.2.11.14.1.1.14 Syntax: Integer	Read-write	Specifies the BGP weight for the routing table. Valid values: 0 – 65535

Name, OID, and Syntax	Access	Description
snBgp4RouteMapSetRowMask brcdIp.1.2.11.14.1.1.15 Syntax: Integer32	Read-write	This object is used together with the MIB objects above in the same VARBIND to set and reset any MIBs in the table. The bit number is referred to the snBgp4RouteMapSetEntry number of each row in the table. • The bit is ON - means set • The bit is OFF - means reset
snBgp4RouteMapSetCommunityNums brcdIp.1.2.11.14.1.1.16 Syntax: OctetString	Read-write	Shows the community number for this route. Community number is a number from 1 – 0xFFFFFFFF. There are six community numbers. Each number is represented by four octets.
snBgp4RouteMapSetDampenHalfLife brcdIp.1.2.11.14.1.1.17 Syntax: Integer	Read-write	Specifies the number of minutes after which the route's penalty becomes half its value.
snBgp4RouteMapSetDampenReuse brcdIp.1.2.11.14.1.1.18 Syntax: Integer	Read-write	Specifies how low a route's penalty must be before the route becomes eligible for use again after being suppressed.
snBgp4RouteMapSetDampenSuppress brcdIp.1.2.11.14.1.1.19 Syntax: Integer	Read-write	Specifies how high a route's penalty can be before the Layer 3 Switch suppresses the route.
snBgp4RouteMapSetDampenMaxSuppress brcdIp.1.2.11.14.1.1.20 Syntax: Integer	Read-write	Specifies the maximum number of minutes that a route can be suppressed regardless of how unstable it is.

BGP4 redistribution of routes table

The BGP4 redistribution of routes table contains configurations that could be imported into the BGP4 domain. Each entry specifies a particular RIP, OSPF, or static route that will be imported into the BGP4 domain.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4RedisTable brcdIp.1.2.11.11.1	None	The BGP4 Redistribution of Routes Table.
snBgp4RedisEntry brcdIp.1.2.11.11.1.1	None	An entry in the BGP4 Redistribution of Routes Table.

Name, OID, and Syntax	Access	Description
snBgp4RedisProtocol brcdIp.1.2.11.11.1.1.1 Syntax: Integer	Read only	Shows the type of route that was imported into the BGP4 domain: • rip(1) – RIP • ospf(2) – OSPF • static(3) – Static • connected(4) – Connected • isis(5) – ISIS
snBgp4RedisMetric brcdIp.1.2.11.11.1.1.2 Syntax: Integer32	Read-write	Indicates the metric used..
snBgp4RedisRouteMap brcdIp.1.2.11.11.1.1.3 Syntax: OctetString	Read-write	Indicates the name of the route map used. Each character is represented by one octet. Valid values: Up to 32 octets.
snBgp4RedisWeight brcdIp.1.2.11.11.1.1.4 Syntax: Integer	Read-write	Specifies the weight assigned to this entry.
snBgp4RedisMatchInternal brcdIp.1.2.11.11.1.1.5 Syntax: Integer	Read-write	Applies only to the OSPF protocol. • disabled(0) • enabled(1)
snBgp4RedisMatchExternal1 brcdIp.1.2.11.11.1.1.6 Syntax: Integer	Read-write	Applies only to the OSPF protocol. • disabled(0) • enabled(1)
snBgp4RedisMatchExternal2 brcdIp.1.2.11.11.1.1.7 Syntax: Integer	Read-write	Applies only to the OSPF protocol. • disabled(0) • enabled(1)
snBgp4RedisRowStatus brcdIp.1.2.11.11.1.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

BGP4 routes operational status table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4RouteOperStatusTable brcdIp.1.2.11.16.1	None	The BGP4 Router Operational Status Table.
snBgp4RouteOperStatusEntry brcdIp.1.2.11.16.1.1	None	An entry in the BGP4 Router Operational Status Table.
snBgp4RouteOperStatusIndex brcdIp.1.2.11.16.1.1.1 Syntax: Integer32	Read only	The index for a route entry.
snBgp4RouteOperStatusIp brcdIp.1.2.11.16.1.1.2 Syntax: IpAddress	Read only	Shows the IP address of the route.
snBgp4RouteOperStatusSubnetMask brcdIp.1.2.11.16.1.1.3 Syntax: IpAddress	Read only	Shows the IP Subnet Mask of the route.
snBgp4RouteOperStatusNextHop brcdIp.1.2.11.16.1.1.4 Syntax: IpAddress	Read only	Shows the IP address of the next hop in the route.
snBgp4RouteOperStatusMetric brcdIp.1.2.11.16.1.1.5 Syntax: Integer	Read only	Shows the value of the route's MED attribute.
snBgp4RouteOperStatusLocalPreference brcdIp.1.2.11.16.1.1.6 Syntax: Integer32	Read only	Shows the degree of preference for this route relative to other routes in the local AS. When the BGP4 algorithm compares routes on the basis of local preferences, the route with the higher local preference is chosen. The preference can have a value from 0 – 4294967295.
snBgp4RouteOperStatusWeight brcdIp.1.2.11.16.1.1.7 Syntax: Integer32	Read only	The value that this router associates with routes from a specific neighbor. For example, if the router receives routes to the same destination from two BGP4 neighbors, the router prefers the route from the neighbor with the larger weight.
snBgp4RouteOperStatusOrigin brcdIp.1.2.11.16.1.1.8 Syntax: Integer	Read only	Shows the route's origin: • igp(0) – Routes with this set of attributes came to BGP through IGP. • egp(1) – Routes with this set of attributes came to BGP through EGP. • incomplete(2) – routes came from an origin other than IGP or EGP. For example, they may have been redistributed from OSPF or RIP.

Name, OID, and Syntax	Access	Description
snBgp4RouteOperStatusStatus brcdIp.1.2.11.16.1.1.9 Syntax: Integer32	Read only	Shows the route's status. The value of this object is a bit array, a packed bit string. The following shows the meaning of each bit. A bit position may be set to 0 – FALSE or 1 – TRUE: **Bit positionMeaning** 6 – 31reserved 5 aggregate route for multiple networks 4 best route to destination 3 internal, learned through BGP4 2 local, originated on this device 1 suppressed, suppressed during aggregation and thus is not advertised to neighbors 0 valid
snBgp4RouteOperStatusRouteTag brcdIp.1.2.11.16.1.1.10 Syntax: Integer32	Read only	Sets the route's tag. This can be a value from 0 – 4294967295. This object applies only to routes redistributed into OSPF
snBgp4RouteOperStatusCommunityList brcdIp.1.2.11.16.1.1.11 Syntax: OctetString	Read only	Shows the communities the route is in. A community is represented by 4 octets. The community list, could have some well-known numbers such as: • BGP_COMMUNITY_ATTRIBUTE_NO_EXPORT0xFFFFFF01 • BGP_COMMUNITY_ATTRIBUTE_NO_ADVERTISE0xFFFFFF02 If the community list is a NULL string (empty list) then the community is INTERNET, which is represented by a number from 1 – 0xFFFFFFFF.
snBgp4RouteOperStatusAsPathList brcdIp.1.2.11.16.1.1.12 Syntax: OctetString	Read only	Shows the AS Path list of this route. Valid values: 1 – 0xFFFF. This integer is represented by two octets.

BGP4 neighbor general configuration table

The BGP4 protocol does not contain a peer discovery process. You must indicate the neighbor's IP address for each of the router's BGP4 neighbors (peers), as well as the AS each neighbor is in. Neighbors that are in different ASs communicate using EBGP. Neighbors within the same AS communicate use IBGP.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4NeighGenCfgTable brcdIp.1.2.11.6.1	None	The BGP4 Neighborhood General Configuration Table.
snBgp4NeighGenCfgEntry brcdIp.1.2.11.6.1.1	None	An entry in the BGP4 Neighborhood General Configuration Table.

Name, OID, and Syntax	Access	Description
snBgp4NeighGenCfgNeighIp brcdIp.1.2.11.6.1.1.1 Syntax: IpAddress	Read only	Shows the IP Address for a neighbor entry.
snBgp4NeighGenCfgAdvertlevel brcdIp.1.2.11.6.1.1.2 Syntax: Integer	Read-write	Specifies the minimum delay (in seconds) between messages to the specified neighbor. Valid values: 0 – 600 Defaults: • 30 for EBGP neighbors (neighbors in other ASs) • 5 for IBGP neighbors (neighbors in the same AS).
snBgp4NeighGenCfgDefOriginate brcdIp.1.2.11.6.1.1.3 Syntax: Integer	Read-write	Indicates if the default originate for this neighbor is enabled: • disabled(0) • enabled(1) If enabled, the device sends the default route 0.0.0.0 to the neighbor.
snBgp4NeighGenCfgEbgpMultihop brcdIp.1.2.11.6.1.1.4 Syntax: Integer	Read-write	Indicates if the EBGP Muitihop for this neighbor is enabled. • disabled(0) • enabled(1) If enabled, the neighbor is more than one hop away and that the session type with the neighbor is thus EBGP multihop. Default: disabled(0)
snBgp4NeighGenCfgMaxPrefix brcdIp.1.2.11.6.1.1.5 Syntax: Integer32	Read-write	Specifies the maximum number of IP network prefixes (routes) that can be learned from the specified neighbor or peer group. You can specify a value from 0 – 4294967295. Default: 0 (unlimited) The minimum value of the maximum prefix is defined by the "snBgp4GenNeighPrefixMinValue" object. The maximum value of the maximum prefix is defined by the "snBgp4GenOperRoutes" object.
snBgp4NeighGenCfgNextHopSelf brcdIp.1.2.11.6.1.1.6 Syntax: Integer	Read-write	Indicates if the option that allows the router to list itself as the next hop in the updates sent to the specified neighbor is enabled: • disabled(0) • enabled(1) Default: disabled(0)
snBgp4NeighGenCfgRemoteAs brcdIp.1.2.11.6.1.1.7 Syntax: Integer	Read-write	Specifies the AS that the remote neighbor is in. Valid values: 1 – 65535 Default: no default
snBgp4NeighGenCfgSendComm brcdIp.1.2.11.6.1.1.8 Syntax: Integer	Read-write	Indicates if the option to send community attributes in updates to specified neighbors is enabled: • disabled(0) • enabled(1) Default: disabled(0)
snBgp4NeighGenCfgWeight brcdIp.1.2.11.6.1.1.9 Syntax: Integer	Read-write	Assigns a weight to a neighbor connection. BGP4 prefers larger weights over smaller weights. Valid values: 0 – 65535 Default: 0

Name, OID, and Syntax	Access	Description
snBgp4NeighGenCfgWeightFilterList brcdIp.1.2.11.6.1.1.10 Syntax: OctetString	Read-write	Specifies a weight that the device applies to routes received from the neighbor that match the AS-path filter or ACL. Valid values: 1 – 0xFFFF. There are 16 of them. Each integer is represented by two octets.
snBgp4NeighGenCfgRowStatus brcdIp.1.2.11.6.1.1.11 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snBgp4NeighGenCfgUpdateSrcLpbIntf brcdIp.1.2.11.6.1.1.12 Syntax: Integer	Read-write	Specifies the loopback interface number for TCP connections. Valid values: 0 – 8 Generally, loopback interfaces are used for links to IBGP neighbors, which often are multiple hops away, rather than to EBGP neighbors. Zero interface means to restore the interface assignment to the closest interface, which is called the best local address.
snBgp4NeighGenCfgRouteRefClient brcdIp.1.2.11.6.1.1.13 Syntax: Integer	Read-write	Indicates if the option to allow this neighbor to be a router reflector client is enabled: • disabled(0) • enabled(1)
snBgp4NeighGenCfgRemovePrivateAs brcdIp.1.2.11.6.1.1.14 Syntax: Integer	Read-write	Specifies if the option to remove private AS numbers from update messages that routers sent to this neighbor is enabled. • disabled(0) • enabled(1) If enabled, the router will remove AS numbers 64512 – 65535 (the well known BGP4 private AS numbers) from the AS-path attribute in UPDATE messages the device sends to the neighbor. Default: disabled(0)
snBgp4NeighGenCfgEbgpMultihopTtl brcdIp.1.2.11.6.1.1.15 Syntax: Integer	Read-write	Specifies the time-to-live (TTL) for the neighbor. Valid values: 0 – 255. Default: 0. If you leave the EBGP TTL value set to 0, the software uses the IP TTL value.
snBgp4NeighGenCfgShutdown brcdIp.1.2.11.6.1.1.16 Syntax: Integer	Read-write	Indicates if BGP4 neighbor shutdown is enabled: • disabled(0) • enabled(1) If enabled, the device shuts down the session with this neighbor. Shutting down the session allows you to completely configure the neighbor and save the configuration without actually establishing a session with the neighbor. Default: disabled(0)

Name, OID, and Syntax	Access	Description
snBgp4NeighGenCfgKeepAliveTime brcdIp.1.2.11.6.1.1.17 Syntax: Integer	Read-write	Indicates how often the device sends keep alive messages. This object overrides the global settings for the Keepalive Time Valid values: 0 – 65535 seconds
snBgp4NeighGenCfgHoldTime brcdIp.1.2.11.6.1.1.18 Syntax: Integer	Read-write	Determines how many seconds the device will wait for a keep alive or update message from a BGP4 neighbor before deciding that the neighbor is dead. This object overrides the global settings for Hold Time. Valid values: 0 or 3 – 65535 seconds (1 and 2 seconds are not allowed) If you set the Hold Time to 0, the router waits indefinitely for messages from a neighbor.
snBgp4NeighGenCfgDefOrigMap brcdIp.1.2.11.6.1.1.19 Syntax: OctetString	Read-write	Indicates if the name of the default route map. This is an octet string. Each character is represented by one octet. Valid values: Up to 32 octets
snBgp4NeighGenCfgDesc brcdIp.1.2.11.6.1.1.20 Syntax: OctetString	Read-write	Specifies the name for the neighbor. Valid values: Up to 80 octets
snBgp4NeighGenCfgPass brcdIp.1.2.11.6.1.1.21 Syntax: OctetString	Read-write	Specifies an MD5 password for securing sessions between the device and its neighbor. Valid values: Up to 80 octets

BGP4 neighbor distribute group table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4NeighDistGroupTable brcdIp.1.2.11.7.1	None	The BGP4 Neighbor Distribute Group Table
snBgp4NeighDistGroupEntry brcdIp.1.2.11.7.1.1	None	An entry in the BGP4 Neighbor Distribute Group Table
snBgp4NeighDistGroupNeighIp brcdIp.1.2.11.7.1.1.1 Syntax: IpAddress	Read only	Shows the IP Address for this entry.
snBgp4NeighDistGroupDir brcdIp.1.2.11.7.1.1.2 Syntax: Integer	Read only	Indicates if the access list is applied to incoming or outgoing advertisements: • out(0) • in(1)
snBgp4NeighDistGroupAccessList brcdIp.1.2.11.7.1.1.3 Syntax: OctetString	Read-write	Indicates the access list that will be applied to advertisements. This is number from 1 – 0xFFFF. There are 16 of them. Each integer is represented by two octets.

Name, OID, and Syntax	Access	Description
snBgp4NeighDistGroupRowStatus brcdIp.1.2.11.7.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snBgp4NeighDistGroupInFilterList brcdIp.1.2.11.7.1.1.5 Syntax: OctetString	Read-write	Indicates the group filter list that will be applied to incoming advertisements. This is number from 1 – 0xFFFF. There are 16 of them. Each integer is represented by two octets.
snBgp4NeighDistGroupOutFilterList brcdIp.1.2.11.7.1.1.6 Syntax: OctetString	Read-write	Indicates the group filter list that will be applied to outgoing advertisements. This is number from 1 – 0xFFFF. There are 16 of them. Each integer is represented by two octets.
snBgp4NeighDistGroupInIpAccessList brcdIp.1.2.11.7.1.1.7 Syntax: OctetString	Read-write	Indicates the access list that will be applied to incoming advertisements. This is number from 1 – 0xFFFF. There are 16 of them. Each integer is represented by two octets.
snBgp4NeighDistGroupOutIpAccessList brcdIp.1.2.11.7.1.1.8 Syntax: OctetString	Read-write	Indicates the access list that will be applied to outgoing advertisements. This is number from 1 – 0xFFFF. There are 16 of them. Each integer is represented by two octets.
snBgp4NeighDistGroupInPrefixList brcdIp.1.2.11.7.1.1.9 Syntax: OctetString	Read-write	Specifies the prefix name list of incoming advertisements. Valid values; Up to 32 octets
snBgp4NeighDistGroupOutPrefixList brcdIp.1.2.11.7.1.1.10 Syntax: OctetString	Read-write	Specifies the prefix name list of outgoing advertisements. Valid values; Up to 32 octets

BGP4 neighbor filter group table

The BGP4 neighbor filter group table control the routes that the device learns or advertises.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4NeighFilterGroupTable brcdIp.1.2.11.8.1	None	The BGP4 Neighbor Filter Group Table.
snBgp4NeighFilterGroupEntry brcdIp.1.2.11.8.1.1	None	An entry in the BGP4 Neighbor Filter Group table.
snBgp4NeighFilterGroupNeighIp brcdIp.1.2.11.8.1.1.1 Syntax: IpAddress	Read only	Shows the IP Address for a neighbor entry.
snBgp4NeighFilterGroupDir brcdIp.1.2.11.8.1.1.2 Syntax: Integer	Read only	Shows the direction of advertisements to which the access list is applied. • out(0) – Outgoing • in(1) – Incoming
snBgp4NeighFilterGroupAccessList brcdIp.1.2.11.8.1.1.3 Syntax: OctetString	Read-write	Identifies the access list that is being used to filter a neighbor group. This is a number from 1 – 0xFFFF. There are 16 of them. This integer is represented by two octets.
snBgp4NeighFilterGroupRowStatus brcdIp.1.2.11.8.1.1.4 Syntax: IpAddress	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snBgp4NeighFilterGroupInFilterList brcdIp.1.2.11.8.1.1.5 Syntax: OctetString	Read-write	Identifies the filter list that is being used to filter incoming routes from a neighbor group. This is a number from 1 – 0xFFFF. There are 16 of them. This integer is represented by two octets.
snBgp4NeighFilterGroupOutFilterList brcdIp.1.2.11.8.1.1.6 Syntax: OctetString	Read-write	Identifies the filter list that is being used to filter outgoing routes from a neighbor group. This is a number from 1 – 0xFFFF. There are 16 of them. This integer is represented by two octets.
snBgp4NeighFilterGroupInAsPathAccessList brcdIp.1.2.11.8.1.1.7 Syntax: OctetString	Read-write	Identifies the AS path list that is being used to filter incoming routes from a neighbor group. This is a number from 1 – 0xFFFF. There are 16 of them. This integer is represented by two octets.

Name, OID, and Syntax	Access	Description
snBgp4NeighFilterGroupOutAsPathAccessList brcdIp.1.2.11.8.1.1.8 Syntax: OctetString	Read-write	Identifies the AS path list that is being used to filter outgoing routes from a neighbor group. This is a number from 1 – 0xFFFF. There are 16 of them. This integer is represented by two octets.
snBgp4NeighFilterGroupWeight brcdIp.1.2.11.8.1.1.9 Syntax: Integer	Read-write	Assign a weight to a neighbor filter. Valid values: 0 – 65535
snBgp4NeighFilterGroupWeightAccessList brcdIp.1.2.11.8.1.1.10 Syntax: OctetString	Read-write	This is a number from 1 – 0xFFFF. There are 16 of them. This integer is represented by two octets.

BGP4 neighbor route map table

A route map can be one of the parameters a BGP4 network can advertised. The Layer 3 Switch can use the route map to set or change BGP4 attributes when creating a local BGP4 route.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4NeighRouteMapTable brcdIp.1.2.11.9.1	None	The BGP4 Neighbor Route Map Table.
snBgp4NeighRouteMapEntry brcdIp.1.2.11.9.1.1	None	An entry in the BGP4 Route Map Table.
snBgp4NeighRouteMapNeighIp brcdIp.1.2.11.9.1.1.1 Syntax: IpAddress	Read only	Shows the IP Address for a neighbor entry.
snBgp4NeighRouteMapDir brcdIp.1.2.11.9.1.1.2 Syntax: Integer	Read only	Indicates the direction of the advertisement to which the access list is applied: • out(0) • in(1)

Name, OID, and Syntax	Access	Description
snBgp4NeighRouteMapMapName brcdIp.1.2.11.9.1.1.3 Syntax: OctetString	Read-write	Specifies the name of the route map you want to use. The value of this object is an octet string. Each character of the name is represented by one octet. There can be up to 32 octets in this object.
snBgp4NeighRouteMapRowStatus brcdIp.1.2.11.9.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

BGP4 neighbor operational status table

The BGP4 Neighbor Operational Status Table shows the state of a neighbor and statistics about the messages sent and received.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4NeighOperStatusTable brcdIp.1.2.11.15.1	None	The BGP4 Neighbor Operational Status Table.
snBgp4NeighOperStatusEntry brcdIp.1.2.11.15.1.1	None	An entry in the BGP4 Neighbor Operational Status Table.
snBgp4NeighOperStatusIndex brcdIp.1.2.11.15.1.1.1 Syntax: Integer32	Read only	The index for the entry. Each entry represents a neighbor.
snBgp4NeighOperStatusIp brcdIp.1.2.11.15.1.1.2 Syntax: IpAddress	Read only	Shows the IP address of the neighbor.
snBgp4NeighOperStatusRemoteAs brcdIp.1.2.11.15.1.1.3 Syntax: Integer32	Read only	Shows the AS that the neighbor is in.
snBgp4NeighOperStatusBgpType brcdIp.1.2.11.15.1.1.4 Syntax: Integer	Read only	Shows the type of BGP protocol used by this entry: • ebgp(0) – The neighbor is in another AS • ibgp(1) – The neighbor is in the same AS

Name, OID, and Syntax	Access	Description
snBgp4NeighOperStatusState brcdIp.1.2.11.15.1.1.5 Syntax: Integer	Read only	Shows the state of this neighbor: • noState(0) • idle(1) – BGP4 process is waiting to be started. Usually, enabling BGP4 or establishing a neighbor session starts the BGP4 process. A minus sign (-) indicates that the session has gone down and the software is clearing or removing routes. • connect(2) – BGP4 is waiting for the connection process for the TCP neighbor session to be completed. • active(3) – BGP4 is waiting for a TCP connection from the neighbor. • openSent(4) – BGP4 is waiting for an Open message from the neighbor. • openConfirm(5) – BGP4 has received an OPEN message from the neighbor and is now waiting for either a KEEPALIVE or NOTIFICATION message. If the router receives a KEEPALIVE message from the neighbor, the state changes to established(6). If the message is a NOTIFICATION, the state changes to idle(1). • established(6) – BGP4 is ready to exchange UPDATE messages with the neighbor. **NOTE:** If there is more BGP data in the TCP receiver queue, a plus sign (+) is also displayed.
snBgp4NeighOperStatusKeepAliveTime brcdIp.1.2.11.15.1.1.6 Syntax: Integer	Read only	Specifies how often this router sends keep alive messages to the neighbor.
snBgp4NeighOperStatusHoldTime brcdIp.1.2.11.15.1.1.7 Syntax: Integer32	Read only	Specifies how many seconds the router will wait for a keepalive or update message from a BGP4 neighbor before deciding that the neighbor is dead.
snBgp4NeighOperStatusAdvertlevel brcdIp.1.2.11.15.1.1.8 Syntax: Integer32	Read only	Shows the minimum interval between the sending of BGP routing updates.
snBgp4NeighOperStatusKeepAliveTxCounts brcdIp.1.2.11.15.1.1.9 Syntax: Integer32	Read only	Shows the number of keep alive message sent.
snBgp4NeighOperStatusKeepAliveRxCounts brcdIp.1.2.11.15.1.1.10 Syntax: Counter32	Read only	Shows the number of keep alive message received.
snBgp4NeighOperStatusUpdateTxCounts brcdIp.1.2.11.15.1.1.11 Syntax: Counter32	Read only	Shows the number of updated message sent.
snBgp4NeighOperStatusUpdateRxCounts brcdIp.1.2.11.15.1.1.12 Syntax: Counter32	Read only	Shows the number of updated message received.

Name, OID, and Syntax	Access	Description
snBgp4NeighOperStatusNotifTxCounts brcdIp.1.2.11.15.1.1.13 Syntax: Counter32	Read only	Shows the number of Notification message sent.
snBgp4NeighOperStatusNotifRxCounts brcdIp.1.2.11.15.1.1.14 Syntax: Counter32	Read only	Shows the number of Notification message received.
snBgp4NeighOperStatusOpenTxCounts brcdIp.1.2.11.15.1.1.15 Syntax: Counter32	Read only	Shows the number of open message sent.
snBgp4NeighOperStatusOpenRxCounts brcdIp.1.2.11.15.1.1.16 Syntax: Counter32	Read only	Shows the number of open message received.

BGP4 neighbor summary table

The BGP4 neighbor summary table shows statistics for the router's BGP4 neighbors.

Name, OID, and Syntax	Access	Description
snBgp4NeighborSummaryTable brcdIp.1.2.11.17.1	None	The BGP4 Neighbor Summary Table.
snBgp4NeighborSummaryEntry brcdIp.1.2.11.17.1.1	None	An entry in the BGP4 Router Operational Status Table.
snBgp4NeighborSummaryIndex brcdIp.1.2.11.17.1.1.1 Syntax: Integer32	Read only	The index for a route entry.
snBgp4NeighborSummaryIp brcdIp.1.2.11.17.1.1.2 Syntax: IpAddress	Read only	Shows the IP address of the neighbor.

Name, OID, and Syntax	Access	Description
snBgp4NeighborSummaryState brcdIp.1.2.11.17.1.1.3 Syntax: Integer	Read only	Shows the state of the BGP4 process during the current session with the neighbor. • noState(0) • idle(1) – The BGP4 process is waiting to be started. Usually, enabling BGP4 or establishing a neighbor session starts the BGP4 process. A minus sign (-) indicates that the session has gone down and the software is clearing or removing routes. • connect(2) – Waiting for the connection process for the TCP neighbor session to be completed. • active(3) – BGP4 is waiting for a TCP connection from the neighbor. • openSent(4) – BGP4 is waiting for an Open message from the neighbor. • openConfirm(5) – BGP4 has received an OPEN message from the neighbor and is now waiting for either a KEEPALIVE or NOTIFICATION message. If the router receives a KEEPALIVE message from the neighbor, the state changes to established(6). If the message is a NOTIFICATION, the state changes to idle(1). • established(6) – BGP4 is ready to exchange UPDATE messages with the neighbor. If there is more BGP data in the TCP receiver queue, a plus sign (+) is also displayed.
snBgp4NeighborSummaryStateChgTime brcdIp.1.2.11.17.1.1.4 Syntax: Integer32	Read only	Shows the number of times the state of this neighbor has changed. If the state frequently changes between CONNECT and ACTIVE, there may be a problem with the TCP connection.
snBgp4NeighborSummaryRouteReceived brcdIp.1.2.11.17.1.1.5 Syntax: Integer32	Read only	Shows the number of routes received from the neighbor during the current BGP4 session.
snBgp4NeighborSummaryRouteInstalled brcdIp.1.2.11.17.1.1.6 Syntax: Integer32	Read only	Indicates how many of the received routes was accepted and installed in the BGP4 route table.

BGP4 clear neighbor command table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4ClearNeighborCmdTable brcdIp.1.2.11.19.1	None	The BGP4 Clear Neighbor Command Table.
snBgp4ClearNeighborCmdEntry brcdIp.1.2.11.19.1.1	None	An entry in the BGP4 Clear Neighbor Command Table.
snBgp4ClearNeighborCmdIp brcdIp.1.2.11.19.1.1.1 Syntax: IpAddress	Read only	Shows the IP Address of a neighbor entry. If the IP address is 255.255.255.255, then the entry applies to all neighbors.
snBgp4ClearNeighborCmdElement brcdIp.1.2.11.19.1.1.2 Syntax: Integer	Read-write	Indicates what will be cleared • valid(0) – Received in SNMP-GET. • lastPacketWithError(1) – Clears the buffer containing the first 400 bytes of the last BGP4 packet that contained an error. • notificationErrors(2) – Clears the buffer containing the last NOTIFICATION message sent or received. • softOutbound(3) – Update all outbound routes by applying the new or changed filters, but sends only the existing routes affected by the new or changed filters to the neighbor. • traffic(4) – Clears the BGP4 message counters for all neighbors (the default) or a neighbor. • neighbor(5) – Clears the BGP4 message counter for all neighbors within a peer group.

BGP4 neighbor prefix group table

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snBgp4NeighPrefixGroupTable brcdIp.1.2.11.20.1	None	The BGP4 Neighbor Prefix Group Table.
snBgp4NeighPrefixGroupEntry brcdIp.1.2.11.20.1.1	None	An entry in the BGP4 Neighbor Prefix Group Table. Each entry is a neighbor.
snBgp4NeighPrefixGroupNeighIp brcdIp.1.2.11.20.1.1.1 Syntax: IpAddress	Read only	Shows the neighbor's IP Address.

Name, OID, and Syntax	Access	Description
snBgp4NeighPrefixGroupDir brcdIp.1.2.11.20.1.1.2 Syntax: Integer	Read only	Shows the direction of the advertisement to which this filter will be applied: • outgoing(0) – Applied to routes that will be transmitted to the neighbor. • incoming(1) – Applied to routes received from the neighbor.
snBgp4NeighPrefixGroupInAccessList brcdIp.1.2.11.20.1.1.3 Syntax: OctetString	Read-write	If the "snBgp4NeighPrefixGroupDir" object is set to incoming(1), this object shows the name of the prefix list for incoming routes. There can be up to 32 octets in this object.
snBgp4NeighPrefixGroupOutAccessList brcdIp.1.2.11.20.1.1.4 Syntax: OctetString	Read-write	If the "snBgp4NeighPrefixGroupDir" object is set outgoing(0), this object shows the name of the prefix list for outgoing routes. There can be up to 32 octets in this object.
snBgp4NeighPrefixGroupRowStatus brcdIp.1.2.11.20.1.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Support for the BigIron RX, Brocade MLXe, NetIron XMR, and NetIron MLX devices

Border Gateway Protocol version 4 (BGP4) is supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices. The implementation fully complies with RFC 4273 - Definitions of Managed Objects for BGP-4.

The following IronWare MIB objects are supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

TABLE 16 snBgp4GenAdminStat Scalar

Name, OID, and Syntax	Access	Description
snBgp4GenAdminStat brcdIp.1.2.11.1.13 Syntax: Integer	Read-write	Indicates if BGP4 routing is enabled: • disabled(0) • enabled(1)

TABLE 17 snBgp4GenLocalAs Scalar

Name, OID, and Syntax	Access	Description
snBgp4GenLocalAs brcdIp.1.2.11.1.28 Syntax: Integer	Read only	Shows the BGP4 local autonomous system number.

BGP4 neighbor summary table

The BGP4 neighbor summary table shows statistics for the router's BGP4 neighbors.

TABLE 18 BGP4 Neighbor Summary Table

Name, OID, and Syntax	Access	Description
snBgp4NeighborSummaryTable brcdIp.1.2.11.17.1	None	The BGP4 Neighbor Summary Table.
snBgp4NeighborSummaryEntry brcdIp.1.2.11.17.1.1	None	An entry in the BGP4 Router Operational Status Table.
snBgp4NeighborSummaryIndex brcdIp.1.2.11.17.1.1.1 Syntax: Integer	Read only	The index for a route entry.
snBgp4NeighborSummaryIp brcdIp.1.2.11.17.1.1.2 Syntax: IpAddress	Read only	Shows the IP address of the neighbor.

TABLE 18 BGP4 Neighbor Summary Table

Name, OID, and Syntax	Access	Description
snBgp4NeighborSummaryState brcdIp.1.2.11.17.1.1.3 Syntax: Integer	Read only	Shows the state of the BGP4 process during the current session with the neighbor. • noState(0) • idle(1) – The BGP4 process is waiting to be started. Usually, enabling BGP4 or establishing a neighbor session starts the BGP4 process. A minus sign (-) indicates that the session has gone down and the software is clearing or removing routes. • connect(2) – Waiting for the connection process for the TCP neighbor session to be completed. • active(3) – BGP4 is waiting for a TCP connection from the neighbor. • openSent(4) – BGP4 is waiting for an Open message from the neighbor. • openConfirm(5) – BGP4 has received an OPEN message from the neighbor and is now waiting for either a KEEPALIVE or NOTIFICATION message. If the router receives a KEEPALIVE message from the neighbor, the state changes to established(6). If the message is a NOTIFICATION, the state changes to idle(1). • established(6) – BGP4 is ready to exchange UPDATE messages with the neighbor. If there is more BGP data in the TCP receiver queue, a plus sign (+) is also displayed.
snBgp4NeighborSummaryState ChgTime brcdIp.1.2.11.17.1.1.4 Syntax: Integer	Read only	Shows the number of times the state of this neighbor has changed. If the state frequently changes between CONNECT and ACTIVE, there may be a problem with the TCP connection.
snBgp4NeighborSummaryRoute Received brcdIp.1.2.11.17.1.1.5 Syntax: Integer	Read only	Shows the number of routes received from the neighbor during the current BGP4 session.
snBgp4NeighborSummaryRoute Installed brcdIp.1.2.11.17.1.1.6 Syntax: Integer	Read only	Indicates how many of the received routes was accepted and installed in the BGP4 route table.

Chapter

IPX 23

IPX general objects

This chapter presents the objects in the IronWare MIBs for the Internet Packet Exchange (IPX) protocol. IPX is available in Layer 3 Switches, such as the BigIron product.

Refer to the configuration guide for a product for details on IPX support in Foundry devices.

Note: IPX MIBs are not supported on the following products:

- BigIron RX
- All FastIron products
- NetIron CES
- NetIron CER
- NetIron XMR
- NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe
- ServerIron ADX

The following presents the general objects used to define IPX.

Name, OID, and Syntax	Access	Description
snIpxRoutingMode brcdIp.1.2.1.1.1 Syntax: Integer	Read-write	Shows the IPX Routing Mode status: • disabled(0) • enabled(1)
snIpxNetBiosFilterMode brcdIp.1.2.1.1.2 Syntax: Integer	Read-write	Shows the NetBios Filter Mode status. • disabled(0) • enabled(1)
snIpxClearCache brcdIp.1.2.1.1.3 Syntax: ClearStatus	Read-write	Indicates if the cache table will be cleared. • normal(0)l • clear(1)
snIpxClearRoute brcdIp.1.2.1.1.4 Syntax: ClearStatus	Read-write	Indicates if the IPX table will be cleared. • normal(0)l • clear(1)

Name, OID, and Syntax	Access	Description
snIpxClearTrafficCnts brcdIp.1.2.1.1.5 Syntax: ClearStatus	Read-write	Indicates if all IPX traffic counters are cleared: • normal(0) – Do not clear counters • clear(1) – Clear counters The IPX traffic counters affected by this object are: • snIpxRcvPktsCnt • snIpxFwdPktsCnt • snIpxRcvDropPktsCnt • snIpxTxDropPktsCnt • snIpxRcvFiltPktsCnt • snIpxTxFiltPktsCnt
snIpxRcvPktsCnt brcdIp.1.2.1.1.6 Syntax: Counter	Read only	The number of IPX packets received on the Layer 3 Switch.
snIpxTxPktsCnt brcdIp.1.2.1.1.7 Syntax: Counter	Read only	The number of IPX packets that originated on the Layer 3 Switch and sent on its port.
snIpxFwdPktsCnt brcdIp.1.2.1.1.8 Syntax: Counter	Read only	The number of IPX packets received by the Layer 3 Switch from another device and then sent out on its port.
snIpxRcvDropPktsCnt brcdIp.1.2.1.1.9 Syntax: Counter	Read only	The number of packets received by the Layer 3 Switch that the switch dropped.
snIpxRcvFiltPktsCnt brcdIp.1.2.1.1.10 Syntax: Counter	Read only	The number of packets received by a port that matched an inbound IPX filter configured on the port.
snIpxRipGblFiltList brcdIp.1.2.1.1.11 Syntax: OctetString	Read-write	An IPX RIP Global Filter List. There can be up to 32 octets in this object.
snIpxRipFiltOnAllPort brcdIp.1.2.1.1.12 Syntax: Integer	Read-write	Applies the IPX RIP Global filter list in the "snIpxRipGblFiltList" object to all interfaces. This object adds all RIP filter lists and deletes all RIP filter lists from all ports. Before sending this command, the "snIpxRipGblFiltList" object must be defined. The values that can be written are: • deleteAllInBound(2) – Deletes all in-bound filter lists from all ports. • deleteAllOutBound(3) – Deletes all out-bound filter lists from all ports. • addAllInBound(4) – Adds all in-bound filter lists to all ports. • addAllOutBound(5) – Adds all out-bound filter lists to all ports. The following values can be returned on reads: • noSuch(0) – Set operation has not be performed. • valid(1) – Set operation is done and is valid.
snIpxSapGblFiltList brcdIp.1.2.1.1.13 Syntax: OctetString	Read-write	Contains an IPX SAP Global Filter List. There can be up to 32 octets in this object.

Name, OID, and Syntax	Access	Description
snIpxSapFiltOnAllPort brcdIp.1.2.1.1.14 Syntax: Integer	Read-write	Applies the IPX RIP Global filter list in the "snIpxSapGblFiltList" object to all interfaces. This object adds all filter lists and deletes all SAP filter lists from all ports. Before sending this command, the object "snIpxSapGblFiltList" must be defined. The values that can be written are: • deleteAllInBound(2) – Deletes all in-bound filter lists from all ports. • deleteAllOutBound(3) – Deletes all out-bound filter lists from all ports. • addAllInBound(4) – Adds all in-bound filter lists to all ports. • addAllOutBound(5) – Adds all out-bound filter lists to all ports. The following values can be returned on reads: • noSuch(0) – Set operation has not be performed. • valid(1) – Set operation is done and is valid.
snIpxTxDropPktsCnt brcdIp.1.2.1.1.15 Syntax: Counter	Read only	Shows the number of packets that were queued to be sent on a port by the Layer 3 Switch, but then dropped.
snIpxTxFiltPktsCnt brcdIp.1.2.1.1.16 Syntax: Counter	Read only	The number of packets that were queued to be sent on a port that matched an outbound IPX filter that was configured on the port.

IPX cache table

The IPX Cache Table contains information about the IPX forwarding cache for the router.

Name, OID, and Syntax	Access	Description
snIpxCacheTable brcdIp.1.2.1.2.1	None	The IPX Cache table
snIpxCacheEntry brcdIp.1.2.1.2.1.1	None	An entry in the IPX Cache table.
snIpxCacheIndex brcdIp.1.2.1.2.1.1.1 Syntax: Integer	Read only	The table index for a IPX Cache Table entry.
snIpxCacheNetNum brcdIp.1.2.1.2.1.1.2 Syntax: NetNumber	Read only	Shows the network number containing the destination node.
snIpxCacheNode brcdIp.1.2.1.2.1.1.3 Syntax: Physical address	Read only	Shows the number of the destination node.
snIpxCacheOutFilter brcdIp.1.2.1.2.1.1.4 Syntax: Integer	Read only	Shows if an outbound cache filter has been enabled: • disabled(0) • enabled(1)

Name, OID, and Syntax	Access	Description
snIpxCacheEncap brcdIp.1.2.1.2.1.1.5 Syntax: Integer	Read only	Shows the IPX frame encapsulation type. • EthernetII(1) • Ethernet8022(2) • Ethernet8023(3) • EthernetSnap(4)
snIpxCachePort brcdIp.1.2.1.2.1.1.6 Syntax: PortIndex	Read only	Shows the number of the port through which the Layer 3 Switch sends IPX traffic to the destination network and node.
snIpxCacheIf brcdIp.1.2.1.2.1.1.6 Syntax: InterfaceIndex	Read only	Shows the ID of the IPX router interface.

IPX route table

The IPX Route Table contains objects for IPX routes.

Name, OID, and Syntax	Access	Description
snIpxRouteTable brcdIp.1.2.1.3.1	None	IPX route table.
snIpxRouteEntry brcdIp.1.2.1.3.1.1	None	An entry in the IPX route table
snIpxRouteIndex brcdIp.1.2.1.3.1.1.1 Syntax: Integer	Read only	The table index for a IPX route entry.
snIpxDestNetNum brcdIp.1.2.1.3.1.1.2 Syntax: OctetString	Read only	Shows the destination network number. A value of all zeros indicates that any destination network number is accepted.
snIpxFwdRouterNode brcdIp.1.2.1.3.1.1.3 Syntax: Physical address	Read only	Shows the MAC address of the next hop IPX router.
snIpxDestHopCnts brcdIp.1.2.1.3.1.1.4 Syntax: Integer	Read only	Shows the number of hops to reach the destination.
snIpxRouteMetric brcdIp.1.2.1.3.1.1.5 Syntax: Integer	Read only	Shows the metric for the next hop router.
snIpxDestPort brcdIp.1.2.1.3.1.1.6 Syntax: Integer	Read only	Shows the destination port.

IPX server table

The IPX Server Table presents information about the IPX servers.

Name, OID, and Syntax	Access	Description
snIpxServerTable brcdIp.1.2.1.4.1	None	IPX Server table.
snIpxServerEntry brcdIp.1.2.1.4.1.1	None	An entry in the IPX Server table.
snIpxServerIndex brcdIp.1.2.1.4.1.1.1 Syntax: Integer	Read only	The table index for a IPX Server entry.
snIpxServerType brcdIp.1.2.1.4.1.1.2 Syntax: Integer	Read only	Shows the IPX server type.
snIpxServerNetNum brcdIp.1.2.1.4.1.1.3 Syntax: NetNumber	Read only	Shows the IPX server network number.
snIpxServerNode brcdIp.1.2.1.4.1.1.4 Syntax: Physical address	Read only	Shows the IPX server node number.
snIpxServerSocket brcdIp.1.2.1.4.1.1.5 Syntax: Integer	Read only	Shows the IPX server socket number.
snIpxServerHopCnts brcdIp.1.2.1.4.1.1.6 Syntax: Integer	Read only	Shows the IPX number of intervening networks to reach the server.
snIpxServerName brcdIp.1.2.1.4.1.1.7 Syntax: OctetString	Read only	Shows the IPX server name. There can be up to 47 octets in this object.

IPX forward filter table

The following table defines forward filters, which controls the access of remote IPX clients to a server with restricted access.

Name, OID, and Syntax	Access	Description
snIpxFwdFilterTable brcdIp.1.2.1.5.1	None	IPX Forward Filter Table
snIpxFwdFilterEntry brcdIp.1.2.1.5.1.1	None	An entry in the IPX Forward Filter Table.
snIpxFwdFilterId brcdIp.1.2.1.5.1.1.1 Syntax: Integer	Read only	The filter ID for a filter entry.

Name, OID, and Syntax	Access	Description
snIpxFwdFilterAction brcdIp.1.2.1.5.1.1.2 Syntax: Integer	Read-write	Shows what action to take if the IPX packet matches this filter: • deny(0) • permit(1)
snIpxFwdFilterSocket brcdIp.1.2.1.5.1.1.3 Syntax: Integer	Read-write	Indicates the IPX Forward Filter Socket Number.
snIpxFwdFilterSrcNet brcdIp.1.2.1.5.1.1.4 Syntax: NetNumber	Read-write	Indicates the source network number.
snIpxFwdFilterSrcNode brcdIp.1.2.1.5.1.1.5 Syntax: Physical address	Read-write	Indicates the source node number.
snIpxFwdFilterDestNet brcdIp.1.2.1.5.1.1.6 Syntax: NetNumber	Read-write	Indicates the destination network number.
snIpxFwdFilterDestNode brcdIp.1.2.1.5.1.1.7 Syntax: Physical address	Read-write	Indicates the destination node number.
snIpxFwdFilterRowStatus brcdIp.1.2.1.5.1.1.8 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IPX RIP filter table

The following table allows you to define filters that a router uses to block RIP routes being advertised to other parts of the network.

Name, OID, and Syntax	Access	Description
snIpxRipFilterTable brcdIp.1.2.1.6.1	None	IPX RIP Filter table.
snIpxRipFilterEntry brcdIp.1.2.1.6.1.1	None	An entry in the IPX RIP Filter table.
snIpxRipFilterId brcdIp.1.2.1.6.1.1.1 Syntax: Integer	Read only	The ID for an entry.
snIpxRipFilterAction brcdIp.1.2.1.6.1.1.2 Syntax: Integer	Read-write	Shows what action to take if the IPX packet matches this filter: • deny(0) • permit(1)

Name, OID, and Syntax	Access	Description
snIpxRipFilterNet brcdIp.1.2.1.6.1.1.3 Syntax: NetNumber	Read-write	Indicates the IPX RIP filter network number.
snIpxRipFilterMask brcdIp.1.2.1.6.1.1.4 Syntax: NetNumber	Read-write	Indicates the IPX RIP filter network/subnet mask.
snIpxRipFilterRowStatus brcdIp.1.2.1.6.1.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IPX SAP filter table

The following table allows you to define filters that a router uses to block SAP routes being advertised to other parts of the network.

Name, OID, and Syntax	Access	Description
snIpxSapFilterTable brcdIp.1.2.1.7.1	None	IPX SAP Filter Table.
snIpxSapFilterEntry brcdIp.1.2.1.7.1.1	None	An entry in the IPX SAP Filter Table.
snIpxSapFilterId brcdIp.1.2.1.7.1.1.1 Syntax: Integer	Read only	The filter ID for a filter entry.
snIpxSapFilterAction brcdIp.1.2.1.7.1.1.2 Syntax: Integer	Read-write	Determines what action to take if the IPX packet matches this filter: • deny(0) • permit(1)
snIpxSapFilterType brcdIp.1.2.1.7.1.1.3 Syntax: Integer	Read-write	Identifies the IPX SAP filter type to be matched.

Name, OID, and Syntax	Access	Description
snIpxSapFilterName brcdIp.1.2.1.7.1.1.4 Syntax: OctetString	Read-write	Identifies the IPX SAP filter Name. Valid values: Up to 47 octets.
snIpxSapFilterRowStatus brcdIp.1.2.1.7.1.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IPX IF forward access table

Name, OID, and Syntax	Access	Description
snIpxIfFwdAccessTable brcdIp.1.2.1.8.1	None	IPX Interface (IF) Forward Access Table
snIpxIfFwdAccessEntry brcdIp.1.2.1.8.1.1	None	An entry in the IPX (IF) Forward Access Table
snIpxIfFwdAccessPort brcdIp.1.2.1.8.1.1.1 Syntax: Integer	Read only	The IPX interface to which the Forward Filter applies.
snIpxIfFwdAccessDir brcdIp.1.2.1.8.1.1.2 Syntax: Integer	Read only	Shows the direction of packets: • in(1) • out(2)
snIpxIfFwdAccessFilterList brcdIp.1.2.1.8.1.1.3 Syntax: OctetString	Read-write	An IPX IF Forward Filter List. There can be up to 32 octets in this object.
snIpxIfFwdAccessRowStatus brcdIp.1.2.1.8.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IPX IF RIP access table

Name, OID, and Syntax	Access	Description
snIpxIfRipAccessTable brcdIp.1.2.1.9.1	None	IPX IF RIP Access Table
snIpxIfRipAccessEntry brcdIp.1.2.1.9.1.1	None	An entry in the IPX IF RIP Access Table
snIpxIfRipAccessPort brcdIp.1.2.1.9.1.1.1	Read only	The IPX interface to which the RIP Filter applies.
snIpxIfRipAccessDir brcdIp.1.2.1.9.1.1.2	Read only	Shows the direction of packets: • in(1) • out(2)
snIpxIfRipAccessFilterList brcdIp.1.2.1.9.1.1.3	Read-write	An IPX IF RIP Access Filter List.
snIpxIfRipAccessRowStatus brcdIp.1.2.1.9.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IPX IF SAP access table

Name, OID, and Syntax	Access	Description
snIpxIfSapAccessTable brcdIp.1.2.1.10.1	None	IPX IF SAP Access Table
snIpxIfSapAccessEntry brcdIp.1.2.1.10.1.1	None	An entry in the IPX IF SAP Access Table
snIpxIfSapAccessPort brcdIp.1.2.1.10.1.1.1 Syntax: Integer	Read only	The IPX interface to which the SAP Filter applies.
snIpxIfSapAccessDir brcdIp.1.2.1.10.1.1.2 Syntax: Integer	Read only	Shows the direction of packets: • in(1) • out(2)

Name, OID, and Syntax	Access	Description
snIpxIfSapAccessFilterList brcdIp.1.2.1.10.1.1.3 Syntax: OctetString	Read-write	An IPX IF SAP Access Filter List. There can be up to 32 octets in this object.
snIpxIfSapAccessRowStatus brcdIp.1.2.1.10.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

IPX port address table

Name, OID, and Syntax	Access	Description
snIpxPortAddrTable brcdIp.1.2.1.11.1	None	IPX Port Address Table
snIpxPortAddrEntry brcdIp.1.2.1.11.1.1	None	An entry in the IPX Port Address Table
snIpxPortAddrPort brcdIp.1.2.1.11.1.1.1 Syntax: PortIndex	Read only	The port index for port address entry.
snIpxPortAddrEncap brcdIp.1.2.1.11.1.1.2 Syntax: Integer	Read only	Shows the IPX frame encapsulation type. • Ethernet8022(1) • Ethernet8023(2) • EthernetII(3) • EthernetSnap(4) Each network number must be assigned a unique frame type; otherwise, an SNMP-SET error will be returned.
snIpxPortAddrNetNum brcdIp.1.2.1.11.1.1.3 Syntax: NetNumber	Read-write	An unique network number for the IPX interface port.

Name, OID, and Syntax	Access	Description
snIpxPortAddrRowStatus brcdIp.1.2.1.11.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snIpxPortAddrNetBiosFilterMode brcdIp.1.2.1.11.1.1.5 Syntax: Integer	Read-write	Shows the status of the NetBios filter mode for each port address. • disabled(0) • enabled(1)

IPX port counters tables

Name, OID, and Syntax	Access	Description
snIpxPortCountersTable brcdIp.1.2.1.12.1	None	IPX Port Counters Table
snIpxPortCountersEntry brcdIp.1.2.1.12.1.1	None	An entry in the IPX Port Counters Table
snIpxPortCountersPort brcdIp.1.2.1.12.1.1.1 Syntax: PortIndex	Read only	The port index for an entry in the table.
snIpxPortCountersRcvPktsCnt brcdIp.1.2.1.12.1.1.2 Syntax: Counter	Read only	IPX incoming packets counter for the interface.
snIpxPortCountersTxPktsCnt brcdIp.1.2.1.12.1.1.3 Syntax: Counter	Read only	IPX Outgoing packets counter for the interface.
snIpxPortCountersFwdPktsCnt brcdIp.1.2.1.12.1.1.4 Syntax: Counter	Read only	IPX forwarding packets counter for the interface.
snIpxPortCountersRcvDropPktsCnt brcdIp.1.2.1.12.1.1.5 Syntax: Counter	Read only	IPX receiving drop packets counter for the interface.
snIpxPortCountersTxDropPktsCnt brcdIp.1.2.1.12.1.1.6 Syntax: Counter	Read only	IPX transmitting drop packets counter for the interface.

Name, OID, and Syntax	Access	Description
snIpxPortCountersRcvFiltPktsCnt brcdIp.1.2.1.12.1.1.7 Syntax: Counter	Read only	IPX receiving filter packets counter for the interface.
snIpxPortCountersTxFiltPktsCnt brcdIp.1.2.1.12.1.1.8 Syntax: Counter	Read only	IPX transmitting filter packets counter for the interface.

Chapter

24

AppleTalk

NOTE
The objects in this chapter are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

AppleTalk general group

The AppleTalk feature is available in Layer 3 Switches. For details on AppleTalk support in Foundry devices, refer to the configuration guide for a product.

Note: Apple Talk MIBs are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- NetIron CES
- NetIron CER
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- Brocade MLXe
- ServerIron ADX

Name, OID, and Syntax	Access	Description
snRtATRoutingEnable brcdIp.1.2.10.1.1 Syntax: Integer	Read-write	Indicates if AppleTalk routing functions are enabled on this device: • disabled(0) • enabled(1)
snRtATClearArpCache brcdIp.1.2.10.1.2 Syntax: ClearStatus	Read-write	Indicates if the cache will be cleared: • normal(0) – Data in AppleTalk ARP cache table will not be cleared. • clear(1) – Data in AppleTalk ARP cache table will be cleared.
snRtATClearFwdCache brcdIp.1.2.10.1.3 Syntax: ClearStatus	Read-write	Indicates if all learned data from non-local networks that is currently in the AppleTalk forward cache table will be cleared: • normal(0) – Data will not be cleared. • clear(1) – Data will be cleared.
snRtATClearRoute brcdIp.1.2.10.1.4 Syntax: ClearStatus	Read-write	Indicates if all learned routes and zones (non-local routes and zones) that currently resident in the AppleTalk routing table and the AppleTalk route table will be cleared. • normal(0) – Data will not be cleared. • clear(1) – Data will be cleared.

Name, OID, and Syntax	Access	Description
snRtATClearTrafficCounters brcdIp.1.2.10.1.5 Syntax: ClearStatus	Read-write	Indicates if AppleTalk RTMP, ZIP, AEP, DDP, and AARP statistics counters will be cleared. • normal(0) – Counters will not be cleared. • clear(1) – Counters will be cleared.
snRtATArpRetransmitCount brcdIp.1.2.10.1.6 Syntax: Integer	Read-write	Indicates the maximum number of times that a packet will be sent out for ARP cache informational updates. The packet is sent out until the information is received or the maximum amount defined has been reached. Valid values: 1 – 10 Default: 2
snRtATArpRetransmitInterval brcdIp.1.2.10.1.7 Syntax: Integer	Read-write	The number of seconds the device waits for an AppleTalk ARP response before sending out the next ARP packet. Valid values: 1 – 120 seconds Default: 1 second
snRtATGleanPacketsEnable brcdIp.1.2.10.1.8 Syntax: Integer	Read-write	Indicates if the AppleTalk glean packets function is enabled on this device: • disabled(0) • enabled(1) If enabled, the device tries to learn the MAC address from the packet instead of sending out an ARP request. Default: disabled(0)
snRtATRtmpUpdateInterval brcdIp.1.2.10.1.9 Syntax: Integer	Read-write	Indicates how often the device sends RTMP updates on AppleTalk interfaces. Valid values: 1 – 3600 seconds. Default: 10 seconds.
snRtATZipQueryInterval brcdIp.1.2.10.1.10 Syntax: Integer	Read-write	Indicates how often the device transmits a ZIP query. Valid values: 1 – 1000 seconds Default: 10 seconds
snRtATInRtmpPkts brcdIp.1.2.10.1.11 Syntax: Counter	Read only	Shows the total number of RTMP packets received by this device.
snRtATOutRtmpPkts brcdIp.1.2.10.1.12 Syntax: Counter	Read only	Shows the total number of RTMP packets that were transmitted by this device.
snRtATFilteredRtmpPkts brcdIp.1.2.10.1.13 Syntax: Counter	Read only	Shows the total number of RTMP packets that were filtered by this device.
snRtATInZipPkts brcdIp.1.2.10.1.14 Syntax: Counter	Read only	Shows the total number of ZIP packets that were received by this device.
snRtATOutZipPkts brcdIp.1.2.10.1.15 Syntax: Counter	Read only	Shows the total number of ZIP packets that were transmitted by this device.
snRtATInZipGZLPkts brcdIp.1.2.10.1.16 Syntax: Counter	Read only	Shows the total number of ZIP get zone list packets that where received by this device.

Name, OID, and Syntax	Access	Description
snRtATOutZipGZLPkts brcdIp.1.2.10.1.17 Syntax: Counter	Read only	Shows the total number of ZIP get zone list packets that were transmitted by this device.
snRtATInZipNetInfoPkts brcdIp.1.2.10.1.18 Syntax: Counter	Read only	Shows the total number of ZIP network information packets that were received by this device.
snRtATOutZipNetInfoPkts brcdIp.1.2.10.1.19 Syntax: Counter	Read only	Shows the total number of ZIP network information packets that were transmitted by this device.
snRtATInDdpPkts brcdIp.1.2.10.1.20 Syntax: Counter	Read only	Shows the total number of DDP datagrams that were received by this device.
snRtATOutDdpPkts brcdIp.1.2.10.1.21 Syntax: Counter	Read only	Shows the total number of DDP datagrams that were transmitted by this device.
snRtATForwardedDdpPkts brcdIp.1.2.10.1.22 Syntax: Counter	Read only	Shows the number of input DDP datagrams whose DDP final destination was not this device. The device attempted to forward the datagrams to that final destination.
snRtATInDeliveredDdpPkts brcdIp.1.2.10.1.23 Syntax: Counter	Read only	Shows the total number of input DDP datagrams whose final DDP destination is this device.
snRtATDroppedNoRouteDdpPkts brcdIp.1.2.10.1.24 Syntax: Counter	Read only	Shows the total number of DDP datagrams dropped because this device could not find a route to their final destination.
snRtATDroppedBadHopCountsDdpPkts brcdIp.1.2.10.1.25 Syntax: Counter	Read only	Shows the total number of input DDP datagrams that were dropped because this device was not their final destination and their hop count exceeded 15.
snRtATDroppedOtherReasonsDdpPkts brcdIp.1.2.10.1.26 Syntax: Counter	Read only	Shows the total number of DDP datagrams dropped for various reasons. For example, the device ran out or resources so the datagrams were dropped.
snRtATInAarpPkts brcdIp.1.2.10.1.27 Syntax: Counter	Read only	Shows the total number of AppleTalk ARP packets received by this device.
snRtATOutAarpPkts brcdIp.1.2.10.1.28 Syntax: Counter	Read only	Shows the total number of AppleTalk ARP packets that were transmitted by this device.

AppleTalk socket priority table

The AppleTalk Socket Priority Table shows the priority level assigned to each QoS socket. By default, all AppleTalk sockets are in the best effort queue (Chassis devices) or the normal queue (Stackable devices).

Name, OID, and Syntax	Access	Description
snRtATSocketPriorityTable brcdIp.1.2.10.2	None	AppleTalk Socket Priority Table.
snRtATSocketPriorityEntry brcdIp.1.2.10.2.1	None	An entry in the AppleTalk Socket Priority Table.
snRtATSocketPrioritySocket brcdIp.1.2.10.2.1.1 Syntax: Integer	Read only	The socket number for an entry. There can be up to 254 entries.
snRtATSocketPriorityPriority brcdIp.1.2.10.2.1.2 Syntax: Integer	Read-write	Indicates the QoS priority for the socket. The priority level for a socket that applies to stackable devices are: • low(0) – Low priority • high(1) – High priority The priority level for a socket that applies to Chassis devices are: • level0(0) • level1(1) • level2(2) • level3(3), • level4(4) • level5(5) • level6(6) • level7(7)

AppleTalk port zone filter table

The AppleTalk Zone Filter Table shows if access to network zones is permitted or denied.

Name, OID, and Syntax	Access	Description
snRtATPortZoneFilterTable brcdIp.1.2.10.3	None	AppleTalk Port Zone Filter Table.
snRtATPortZoneFilterEntry brcdIp.1.2.10.3.1	None	An entry in the AppleTalk Port Zone Filter Table.
snRtATPortZoneFilterPortIndex brcdIp.1.2.10.3.1.1 Syntax: PortIndex	Read only	Shows the port index for a zone filter entry.
snRtATPortZoneFilterZone brcdIp.1.2.10.3.1.2 Syntax: DisplayString	Read only	Shows the zone name granted for this filter: • 0 to 32 octets of AppleTalk • ASCII if outside of AppleTalk

Name, OID, and Syntax	Access	Description
snRtATPortZoneFilterAction brcdIp.1.2.10.3.1.3 Syntax: Integer	Read-write	Indicates what the device will do with the AppleTalk packet to take if it matches this filter. • deny(0) • permit(1)
snRtATPortZoneFilterRtmpEnable brcdIp.1.2.10.3.1.4 Syntax: Integer	Read-write	Indicates if Routing Table Maintenance Protocol (RMTP) filtering is enabled on this device. RMTP filtering provides the zone filtering capability that allows devices to filter on a network. When this filter is enabled on an interface, the denied network numbers are removed from the RTMP packet before the packet is transmitted out of the interface. • disabled(0) • enabled(1)
snRtATPortZoneFilterRowStatus brcdIp.1.2.10.3.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

AppleTalk port table

The AppleTalk Port Table defines how long a MAC address learned by a port through ARP remains valid.

The device resets the timer to zero each time the ARP entry is refreshed and removes the entry if the timer reaches the ARP age.

ARP age is managed on an individual port basis. However, when you enter an ARP age value for a port and apply the change to the running-config file or save the change to the startup-config file, the change is saved as the global setting. If you try to set different values for different ports, the interface does not display an error message. Instead, the most recent value you enter before saving the configuration change becomes the global setting.

Name, OID, and Syntax	Access	Description
snRtATPortTable brcdIp.1.2.10.4	None	The AppleTalk Port Table
snRtATPortEntry brcdIp.1.2.10.4.1	None	An entry in the AppleTalk Port Table
snRtATPortIndex brcdIp.1.2.10.4.1.1 Syntax: PortIndex	Read only	The port index for port table entry.

Name, OID, and Syntax	Access	Description
snRtATPortArpAge brcdIp.1.2.10.4.1.2 Syntax: Integer	Read-write	Shows the number of minutes an ARP entry can be valid without relearning. This can be from 0 – 240 minutes. Default: 10 minutes. If this is set to 0, then the ARP entry will always relearn.
snRtATPortState brcdIp.1.2.10.4.1.3 Syntax: Integer	Read only	Shows the state of this port: • other(1) • down(2) • up(3)
snRtATPortSeedRouter brcdIp.1.2.10.4.1.4 Syntax: Integer	Read only	Shows if this port is a seed or non-seed router: • other(1) • seedRouter(2) • nonSeedRouter(3)
snRtATPortOperationMode brcdIp.1.2.10.4.1.5 Syntax: Integer	Read only	Shows the operational state of this port: • other(1) • seedRouter(2) • nonSeedRouter(3) • notOperational(4) • routingDisabled(5)

AppleTalk forwarding cache table

The AppleTalk Forwarding Cache Table contains data learned from non-local networks that is currently resident in the AppleTalk cache.

Name, OID, and Syntax	Access	Description
snRtATFwdCacheTable brcdIp.1.2.10.5	None	AppleTalk Forwarding Cache Table.
snRtATFwdCacheEntry brcdIp.1.2.10.5.1	None	An entry in the AppleTalk Forwarding Cache Table.
snRtATFwdCacheIndex brcdIp.1.2.10.5.1.1 Syntax: Integer	Read only	Shows the table index for a table entry.
snRtATFwdCacheNetAddr brcdIp.1.2.10.5.1.2 Syntax: OctetString	Read only	Shows the AppleTalk network address of a station.
snRtATFwdCacheMacAddr brcdIp.1.2.10.5.1.3 Syntax: OctetString	Read only	Shows the MAC address of an AppleTalk station. This object has six octets.
snRtATFwdCacheNextHop brcdIp.1.2.10.5.1.4 Syntax: Integer	Read only	Shows the network address of the router in the next hop.
snRtATFwdCacheOutgoingPort brcdIp.1.2.10.5.1.5 Syntax: Integer	Read only	Shows the outgoing port through which the packets will be forwarded. If set to zero, then no outgoing port has been defined.

Name, OID, and Syntax	Access	Description
snRtATFwdCacheType brcdIp.1.2.10.5.1.6 Syntax: Integer	Read only	Shows the type of AppleTalk forwarding cache type: • dynamic(1) • permanent(2)
snRtATFwdCacheAction brcdIp.1.2.10.5.1.7 Syntax: Integer	Read only	Determines what the device will do if a match if found: • other(1) • forward(2) • forUs(3) • waitForArp(4) • dropPacket(5)
snRtATFwdCacheVLanId brcdIp.1.2.10.5.1.8 Syntax: Integer	Read only	Shows the ID of the VLAN associated with this entry. If set to zero, then no VLAN is associated with this entry.

AppleTalk zone table

The AppleTalk Zone Table shows the network numbers and zones learned on the network.

Name, OID, and Syntax	Access	Description
snRtATZoneTable brcdIp.1.2.10.6	None	AppleTalk Zone Table
snRtATZoneEntry brcdIp.1.2.10.6.1	None	An entry in the AppleTalk Zone Table
snRtATZoneIndex brcdIp.1.2.10.6.1.1 Syntax: Integer	Read only	Shows the table index for an AppleTalk zone table entry.
snRtATZoneNetStart brcdIp.1.2.10.6.1.2 Syntax: ATNetworkNumber	Read only	Shows the first AppleTalk network address in the range under this zone name. (Refer to the "snRtATZoneName" object.)
snRtATZoneNetEnd brcdIp.1.2.10.6.1.3 Syntax: ATNetworkNumber	Read only	Shows the last AppleTalk network addresses in the range under this zone name.
snRtATZoneName brcdIp.1.2.10.6.1.4 Syntax: DisplayString	Read only	Shows the zone's name. There can be up – 32 characters in this object.

AppleTalk additional zone filter table

The AppleTalk Additional Zone Filter Table contains information about zones that do not match any zones defined in the “AppleTalk zone table” on page 461.

Name, OID, and Syntax	Access	Description
snRtATAddZoneFilterTable brcdIp.1.2.10.7	None	The AppleTalk Additional Zone Filter Table.
snRtATAddZoneFilterEntry brcdIp.1.2.10.7.1	None	An entry in the AppleTalk Additional Zone Filter Table.
snRtATAddZoneFilterPortIndex brcdIp.1.2.10.7.1.1 Syntax: PortIndex	Read only	Shows the port index for additional zone filter table entry.
snRtATAddZoneFilterAction brcdIp.1.2.10.7.1.2 Syntax: Integer	Read-write	Indicates what the device will do when a match is found: • deny(0) • permit(1)
snRtATAddZoneFilterRtmpEnable brcdIp.1.2.10.7.1.3 Syntax: Integer	Read-write	Indicates if RTMP filtering on additional zone is enabled on this device: • disabled(0) • enabled(1)

Chapter

Multiprotocol Label Switching 25

Pseudo wire MIB

This chapter presents SNMP MIB objects for the Multiprotocol Label Switching (MPLS) feature that is supported on the NetIron IMR 640 Router (software release 02.1.00 and later) and the Brocade MLXe, NetIron XMR, and NetIron MLX devices.

pwTable

This table contains the objects for configuring and monitoring VLL, VLL local, and VPLS services.

This table is supported in the NetIron software release 03.9.00 and later.

Support for the pwTable is listed below. For additional objects, see “VLL end point table” on page 478, “VPLS end point table” on page 479, and “IronWare VPLS Table” on page 481.

Object	Object Identifier	Support for VLL	Support for VLL-Local	Support for VPLS
pwIndex	brcdIp.3.1.2.1.2.1.1	VPLS specific coding	VPLS specific coding	VPLS specific coding
pwType	brcdIp.3.1.2.1.2.1.2	Tagged: ethernetTagged(4) Untagged: ethernet(5) See “Value of pwType for VLL Services” on page 467 for additional information	ethernet(5) for raw transport as PW acts as a switch	System supports raw mode only, no VLAN tagging. Returns ipLayer2Transport(11) if global command "vpls-vc-type-ethernet-vpls" is configured, otherwise Ethernet(5) [BID 84147] ethernetTagged(4) for tagged VPLS
pwOwner	brcdIp.3.1.2.1.2.1.3	pwIdFecSignaling(2)	other(5)	Always pwIdFecSignaling(2)
pwPsnType	brcdIp.3.1.2.1.2.1.4	mpls(1)	other(6)	Always mpls(1)
pwSetUpPriority	brcdIp.3.1.2.1.2.1.5	Always 0	Always 0	Always 0
pwHoldingPriority	brcdIp.3.1.2.1.2.1.6	Always 0	Always 0	Always 0
pwPeerAddrType	brcdIp.3.1.2.1.2.1.8	ipv4(1) only	unknown(0)	Always ipv4(1)
pwPeerAddr	brcdIp.3.1.2.1.2.1.9	supported	Always 0	Supported e.g., Peer IP 3.3.3.3 translates to string 0x03x03x03x03 (without commas)

Object	Object Identifier	Support for VLL	Support for VLL-Local	Support for VPLS
pwAttachedPwIndex	brcdIp.3.1.2.1.2.1.10	Always 0	Always 0	Always 0
pwIfIndex	brcdIp.3.1.2.1.2.1.11	Always 0	Always 0	Always 0
pwID	brcdIp.3.1.2.1.2.1.12	VC ID	VC ID (internal)	VC ID
pwLocalGroupID	brcdIp.3.1.2.1.2.1.13	Always 0	Always 0	Always 0
pwGroupAttachmentID	brcdIp.3.1.2.1.2.1.14	Always null	Always null	Always null
pwLocalAttachmentID	brcdIp.3.1.2.1.2.1.15	Always null	Always null	Always null
pwPeerAttachmentID	brcdIp.3.1.2.1.2.1.16	Always null	Always null	Always null
pwCwPreference	brcdIp.3.1.2.1.2.1.17	false(2)	false(2)	false(2)
pwLocalIfMtu	brcdIp.3.1.2.1.2.1.18	Supported	Not Supported	Supported
pwLocalIfString	brcdIp.3.1.2.1.2.1.19	false(2)	false(2)	false(2)
pwLocalCapabAdvert	brcdIp.3.1.2.1.2.1.20	Always null	Always null	Always null
pwRemoteGroupID	brcdIp.3.1.2.1.2.1.21	Always 0	Always 0	Always 0
pwCwStatus	brcdIp.3.1.2.1.2.1.22	cwNotPresent(6)	cwNotPresent(6)	cwNotPresent(6)
pwRemoteIfMtu	brcdIp.3.1.2.1.2.1.23	Supported	Always 0	Supported
pwRemoteIfString	brcdIp.3.1.2.1.2.1.24	Always null	Always null	Always null
pwRemoteCapabilities	brcdIp.3.1.2.1.2.1.25	Always null	Always null	Always null
pwFragmentCfgSize	brcdIp.3.1.2.1.2.1.26	Always 0	Always 0	Always 0
pwRmtFragCapability	brcdIp.3.1.2.1.2.1.27	Always null	Always null	Always null
pwFcsRetentionCfg	brcdIp.3.1.2.1.2.1.28	fcsRetentionDisable(1)	fcsRetentionDisable(1)	fcsRetentionDisable(1)
pwFcsRetentionStatus	brcdIp.3.1.2.1.2.1.29	return 0x10 (to set bit fcsRetentionDisabled(3))	return 0x10 (to set bit fcsRetentionDisabled(3))	return 0x10 (to set bit fcsRetentionDisabled (3))
pwOutboundLabel	brcdIp.3.1.2.1.2.1.30	Supported	Always 0	Supported
pwInboundLabel	brcdIp.3.1.2.1.2.1.31	Supported	Always 0	Supported
pwName **NOTE:** It is an extension added by the device and it is not part of the draft MIB.	brcdIp.3.1.2.1.2.1.32	Supported (VLL name)	Supported (VLL llocal name)	Supported (VPLS name)
pwDescr	brcdIp.3.1.2.1.2.1.33	Always null	Always null	Always null
pwCreateTime	brcdIp.3.1.2.1.2.1.34	Always 0	Always 0	Always 0
pwUpTime	brcdIp.3.1.2.1.2.1.35	Always 0	Always 0	Always 0
pwLastChange	brcdIp.3.1.2.1.2.1.36	Always 0	Always 0	Always 0
pwAdminStatus	brcdIp.3.1.2.1.2.1.37	Supported: up(1) down(2)	Supported: up(1) down(2)	Supported: up(1) down(2)

Object	Object Identifier	Support for VLL	Support for VLL-Local	Support for VPLS
pwOperStatus	brcdIp.3.1.2.1.2.1.38	up(1) = running down(2) = tunnel down dormant(4) = waiting for LDP to establish notPrsent(5) = incomplete configuration lowerLayerDown(6) - tunnel down	up(1) notPrsent(5) = incomplete configuration	up(1) = running down(2) = tunnel down dormant(4) = waiting for LDP to establish notPrsent(5) = incomplete configuration lowerLayerDown(6) - tunnel down
pwLocalStatus	brcdIp.3.1.2.1.2.1.39	If tunnel is down, returns 0x80, else returns 0x00	Supported	If tunnel is down, returns 0x80, else returns 0x00
pwRemoteStatusCapable	brcdIp.3.1.2.1.2.1.40	notApplicable(1)	notApplicable(1)	notApplicable(1)
pwRemoteStatus	brcdIp.3.1.2.1.2.1.41	Always null	Always null	Always null
pwTimeElapsed	brcdIp.3.1.2.1.2.1.42	Always 0	Always 0	Always 0
pwValidIntervals	brcdIp.3.1.2.1.2.1.43	Always 0	Always 0	Always 0
pwRowStatus	brcdIp.3.1.2.1.2.1.44	active(1)	active(1)	active(1)
pwStorageType	brcdIp.3.1.2.1.2.1.45	permanent(4)	permanent(4)	permanent(4)
pwOamEnable	brcdIp.3.1.2.1.2.1.46	false(2)	false(2)	false(2)

Draft-ietf-pwe3-pw-mib-11.txt

The following Pseudo Wire (PW) MIB objects, as defined in draft-ietf-pwe3-pw-mib-11.txt, are supported on the Multi-Service IronWare for the Brocade MLXe and NetIron Series devices.

Draft-ietf-pwe3-pw-mib-11.txt obsolete draft-ietf-pwe3-pw-mib-06.txt; however, some objects in draft-ietf-pwe3-pw-mib-06.txt are still supported on the Brocade MLXe and NetIron Series devices. (Refer to “Supported objects in draft-ietf-pwe3-pw-mib-06.txt” on page 468

Also, support for Draft-ietf-pwe3-pw-mib-11.txt has been extended to VLL, VLL-local, and VPLS on the Brocade MLXe and NetIron devices running release 03.9.00 and later. For additional objects, see “VLL end point table” on page 478, “VPLS end point table” on page 479, and “IronWare VPLS Table” on page 481.

NOTE
Support for the following objects in draft-ietf-pwe3-pw-mib-11.txt provide read-only access.

Object	Object Identifier	Support for VLL	Support for VLL-Local	Support for VPLS
pwindex	brcdIp.3.1.2.1.2.1.1	VLL specific encoding. One row per VLL instance	VLL-local specific encoding. Two rows per VLL-local instance, one for each E Ethernet end-point for each instance	VPLS specific encoding. One row per VPLS instance and peer combination
pwEnetPwInstance	brcdIp.3.1.4.1.1.1.1	Always 1	1 for first end-point, 2 for second	Always 1
pwEnetPwVlan	brcdIp.3.1.4.1.1.1.2	• VLAN ID • 4097 for pseudo wire in raw mode • Default VLAN ID for PW untagged frames See "Value of pwEnetPwVlan for VLL Services" on page 467 for additional information	Always 4096 for raw mode	VPLS works in raw mode. Always 4096 in raw mode. There is no VLAN tagging in outgoing packets.
pwEnetVlanMode	brcdIp.3.1.4.1.1.1.3	portBased(1) = no VLAN tag noChange(2)= retain same VLAN ID changeVlan(3)= change id addVlan(4) removeVlan(5) See "Value of pwEnetVlanMode for VLL Services" on page 467 for additional information	portBased(1) = no VLAN tag; both instances use default VLAN ID noChange(2)= retain same VLAN ID changeVlan(3)= change non-default VLAN IDs between two instances addVlan(4) = instance ID 1 has default VLAN, Instance ID 2 has non-default VLAN removeVlan(5) = instance ID 1 has default VLAN, Instance ID 2 has non-default VLAN	portBased(1) = no vlan tag
pwEnetPortVlan	brcdIp.3.1.4.1.1.1.4	Endpoint VLAN ID, which can be 4096 or an actual VLAN ID. See "Value of pwEnetPortVlan for VLL Services" on page 468 for additional information	Endpoint VLAN ID	Always 0. For end-point, use fdryVplsEndPointTable

Object	Object Identifier	Support for VLL	Support for VLL-Local	Support for VPLS
pwEnetPortIfIndex	brcdIp.3.1.4.1.1.1.5	Endpoint ifIndex	Endpoint ifIndex	Always 0. For end-point, use fdryVplsEndPointTable
pwEnetPwIfIndex	brcdIp.3.1.4.1.1.1.6	Tunnel ifIndex	Since no tunnel, value 0	Tunnel ifIndex
pwEnetRowStatus	brcdIp.3.1.4.1.1.1.7	Always active(1)	Always active(1)	Always active(1)
pwEnetStorageType	brcdIp.3.1.4.1.1.1.8	Always permanent(4)	Always permanent(4)	Always permanent(4)

Values that affect some VLL services

The following table shows how the value of pwType, pwEnetPwVlan, pwEnetVlanMode, and pwEnetPortVlan for VLL services is determined.

TABLE 19 Value of pwType for VLL Services

If Pseudo Wire Tag Mode is	And End Point Tag Mode is	Then Value of pwType is
raw (untagged)	untagged	ethernet(5)
raw (untagged)	tag	ethernet(5)
tagged	untagged	ethernetTagged(4)
tagged	tag	ethernetTagged(4)

The following table shows how the value of pwEnetPwVlan for VLL services is determined.

TABLE 20 Value of pwEnetPwVlan for VLL Services

If Pseudo Wire Tag Mode is	And End Point Tag Mode is	Then Value of pwEnetPwVlan is
raw (untagged)	untagged	4097
raw (untagged)	tag	4097
tagged	untagged	default VLAN ID
tagged	tag	VLAN ID of End Point

The following table shows how the value of pwEnetVlanMode for VLL services is determined.

TABLE 21 Value of pwEnetVlanMode for VLL Services

If Pseudo Wire Tag Mode is	And End Point Tag Mode is	Then Value of pwEnetVlanMode is
raw (untagged)	untagged	portBased(1) = no VLAN tag
raw (untagged)	tag	removeVlan(5)
tagged	untagged	addVlan(4)
tagged	tag	noChange(2)

The following table shows how the value of pwEnetPortVlan for VLL services is determined.

TABLE 22 Value of pwEnetPortVlan for VLL Services

If Pseudo Wire Tag Mode is	And End Point Tag Mode is	Then Value of pwEnetPortVlan is
raw (untagged)	untagged	4096
raw (untagged)	tag	VLAN ID of End Point VLAN
tagged	untagged	4096
tagged	tag	VLAN ID of End Point VLAN

Supported objects in draft-ietf-pwe3-pw-mib-06.txt

The following Pseudo Wire (PW) MIB objects are the only objects in draft-ietf-pwe3-pw-mib-06.txt that are supported on the Brocade MLXe, NetIron XMR, and NetIron MLX devices. They are used to support draft-ietf-pwe3-pw-mib-11. This release supports read-only access. These MIB objects are supported on the following software releases:

- Multi-Service IronWare release 03.7.00 and later for the NetIron XMR Series
- Multi-Service IronWare software release 03.7.00 and later for the NetIron MLX Series
- Brocade MLXe

TABLE 23 Comparision of Objects within drafts v.6 and v.11

Object	Object Identifier	Differences
pwPsnType	brcdIp.3.1.2.1.2.1.4	pwPsnType is now of type IANAPwPsnTypeTC. The changes are highlighted below. pwPsnType: • mpls (1) • l2tp (2) • ip (3) • mplsOverIp (4) • gre (5) • other (6) IANAPwPsnTypeTC • mpls (1) • l2tp (2) • udpOverIp (3) • mplsOverIp (4) • mplsOverGre (5) • other (6)
pwAttachedPwIndex	brcdIp.3.1.2.1.2.1.10	Type changed from PwIndexType to PwIndexOrZeroType.
pwFragmentCfgSize	brcdIp.3.1.2.1.2.1.26	Added UNIT "bytes".
pwFcsRetentioncfg	brcdIp.3.1.2.1.2.1.28	Name changed to pwFcsRetentionCfg.
pwOutboundVcLabel	brcdIp.3.1.2.1.2.1.30	Renamed to pwOutboundLabel.

TABLE 23 Comparision of Objects within drafts v.6 and v.11 (Continued)

Object	Object Identifier	Differences
pwInboundVcLabel	brcdIp.3.1.2.1.2.1.31	Renamed to pwInboundLabel.
pwStorageType	brcdIp.3.1.2.1.2.1.45	Added DEFVAL nonvolatile
pwOamEnable	brcdIp.3.1.2.1.2.1.46	Supported
pwIndexMappingEntry/pwIndexMappingVcType	brcdIp.3.1.2.1.7.1.1	Replaced by pwIndexMappingEntry/pwIndexMappingPwType Type has changed from PwTypeTC to IANAPwTypeTC
pwIndexMappingEntry/pwIndexMappingVcID	brcdIp.3.1.2.1.7.1.2	Replaced by pwIndexMappingEntry/pwIndexMappingPwID
pwIndexMappingEntry/pwIndexMappingVcIndex	brcdIp.3.1.2.1.7.1.5	Replaced by pwIndexMappingEntry/pwIndexMappingPwIndex
pwPeerMappingEntry/pwPeerMappingVcType	brcdIp.3.1.2.1.8.1.3	Replaced by pwPeerMappingEntry/pwPeerMappingPwType Type changed from PwTypeTC to IANAPwTypeTC
pwPeerMappingEntry/pwPeerMappingVcID	brcdIp.3.1.2.1.8.1.4	Replaced by pwPeerMappingEntry/pwPeerMappingPwID
pwPeerMappingEntry/pwPeerMappingVcIndex	brcdIp.3.1.2.1.8.1.5	Replaced by pwPeerMappingEntry/pwPeerMappingPwIndex

Proprietary Extension

Name	Access	Supported?
fdryPwServiceType brcdIp.3.1.2.1.20 Syntax: Integer	N/A	A L2VPN service type, used only for notification: • vll(1) • vllocal(2) • vpls(3)

MPLS or BGP L3 VPN MIB

MPLS or BGP L3 VPN MIB (draft-ietf-lwvpn-mpls-vpn-mib-07.txt) is supported on Multi-Service IronWare software release 03.0.00 and later for the NetIron IMR 64, NetIron XMR, and the NetIron MLX.It is also supported on the Brocade MLXe devices.

- Multi-Service IronWare software release 03.0.00 and later for the NetIron XMR Series routers
- Multi-Service IronWare software release 03.1.00 and later for the NetIron MLX Series routers
- Brocade MLXe

Note: The following objects are implemented as Read-only:

- mplsL3VpnIfConfTable
- mplsL3VpnVrfTable
- mplsL3VpnVrfRTTable

- mplsL3VpnVrfRteTable

The following objects from the IETF draft are supported on the NetIron IMR 640.

Object	Object Identifier	Supported?
mplsL3VpnConfiguredVrfs	brcdIp.3.2.1.1.1.1	Yes – Read-only
mplsL3VpnActiveVrfs	brcdIp.3.2.1.1.1.2	Yes – Read-only
mplsL3VpnConnectedInterfaces	brcdIp.3.2.1.1.1.3	Yes – Read-only
mplsL3VpnNotificationEnable	brcdIp.3.2.1.1.1.4	Yes – Read-Write
mplsL3VpnVrfConfMaxPossRts	brcdIp.3.2.1.1.1.5	Yes – Read-only
mplsL3VpnVrfConfRteMxThrshTime	brcdIp.3.2.1.1.1.6	No
mplsL3VpnIllLblRcvThrsh	brcdIp.3.2.1.1.1.7	No

VPN interface configuration table

Object	Object Identifier	Supported?
mplsL3VpnConf	brcdIp.3.2.1.1.2	Yes
mplsL3VpnIfConfTable	brcdIp.3.2.1.1.2.1	Yes - Read only
mplsL3VpnIfConfEntry	brcdIp.3.2.1.1.2.1.1	Yes
mplsL3VpnIfConfIndex	brcdIp.3.2.1.1.2.1.1.1	Yes
mplsL3VpnIfVpnClassification	brcdIp.3.2.1.1.2.1.1.2	Yes Only enterprise (2) supported
mplsL3VpnIfVpnRouteDistProtocol	brcdIp.3.2.1.1.2.1.1.3	Yes isis (4) not supported static (5) always true
mplsL3VpnIfConfStorageType	brcdIp.3.2.1.1.2.1.1.4	Yes

VRF configuration table

Object	Object Identifier	Supported?
mplsL3VpnVrfTable	brcdIp.3.2.1.1.2.2	Yes - Read only
mplsL3VpnVrfEntry	brcdIp.3.2.1.1.2.2.1	Yes
mplsL3VpnVrfName	brcdIp.3.2.1.1.2.2.1.1	Yes Supported in simple VRF textual name format. Not supported in format specified in RFC 2685
mplsL3VpnVrfVpnId	brcdIp.3.2.1.1.2.2.1.2	No- Returns null string
mplsL3VpnVrfDescription	brcdIp.3.2.1.1.2.2.1.3	No Returns null string
mplsL3VpnVrfRD	brcdIp.3.2.1.1.2.2.1.4	Read Only

Object	Object Identifier	Supported?
mplsL3VpnVrfCreationTime	brcdIp.3.2.1.1.2.2.1.5	No Returns 0
mplsL3VpnVrfOperStatus	brcdIp.3.2.1.1.2.2.1.6	No Always returns up(1)
mplsL3VpnVrfActiveInterfaces	brcdIp.3.2.1.1.2.2.1.7	Read only
mplsL3VpnVrfAssociatedInterfaces	brcdIp.3.2.1.1.2.2.1.8	Read only
mplsL3VpnVrfConfMidRteThresh	brcdIp.3.2.1.1.2.2.1.9	No Returns 0
mplsL3VpnVrfConfHightRteThresh	brcdIp.3.2.1.1.2.2.1.10	No Returns 0
mplsL3VpnVrfConfMaxRoutes	brcdIp.3.2.1.1.2.2.1.11	Read Only
mplsL3VpnVrfConfLastChanged	brcdIp.3.2.1.1.2.2.1.12	No Returns 0
mplsL3VpnVrfConfRowStatus	brcdIp.3.2.1.1.2.2.1.13	Yes
mplsL3VpnVrfConfAdminStatus	brcdIp.3.2.1.1.2.2.1.14	Only Up (1) supported
mplsL3VpnVrfConfStorageType	brcdIp.3.2.1.1.2.2.1.15	Read Only This object always returns permanent(4)

VRF route target table

Object	Object Identifier	Supported?
mplsL3VpnVrfRTTable	brcdIp.3.2.1.1.2.3	Yes - Read only
mplsL3VpnVrfRTEntry	brcdIp.3.2.1.1.2.3.1	Yes
mplsL3VpnVrfRTIndex	brcdIp.3.2.1.1.2.3.1.2	Yes
mplsL3VpnVrfRTType	brcdIp.3.2.1.1.2.3.1.3	Read Only
mplsL3VpnVrfRT	brcdIp.3.2.1.1.2.3.1.4	Read Only
mplsL3VpnVrfRTDescr	brcdIp.3.2.1.1.2.3.1.5	No Returns null string
mplsL3VpnVrfRTRowStatus	brcdIp.3.2.1.1.2.3.1.6	Read Only
mplsL3VpnVrfRTStorageType	brcdIp.3.2.1.1.2.3.1.7	Read Only This object always returns permanent(4)

VRF security table

Object	Object Identifier	Supported?
mplsL3VpnVrfSecTable	brcdIp.3.2.1.1.2.6	Yes
mplsL3VpnVrfSecEntry	brcdIp.3.2.1.1.2.6.1	Yes
mplsL3VpnVrfSecIllegalLblVltns	brcdIp.3.2.1.1.2.6.1.1	No Returns 0
mplsL3VpnVrfSecDiscontinuityTime	brcdIp.3.2.1.1.2.6.1.2	No Returns 0

VRF performance table

Object	Object Identifier	Supported?
mplsL3VpnPerf	brcdIp.3.2.1.1.3	Yes
mplsL3VpnVrfPerfTable	brcdIp.3.2.1.1.3.1	Yes
mplsL3VpnVrfPerfEntry	brcdIp.3.2.1.1.3.1.1	Yes
mplsL3VpnVrfPerfRoutesAdded	brcdIp.3.2.1.1.3.1.1.1	Read only
mplsL3VpnVrfPerfRoutesDeleted	brcdIp.3.2.1.1.3.1.1.2	Read only
mplsL3VpnVrfPerfCurrNumRoutes	brcdIp.3.2.1.1.3.1.1.3	Read only
mplsL3VpnVrfPerfRoutesDropped	brcdIp.3.2.1.1.3.1.1.4	No
mplsL3VpnVrfPerfDiscTime	brcdIp.3.2.1.1.3.1.1.5	No

VRF routing table

Object	Object Identifier	Supported?
mplsL3VpnRoute	brcdIp.3.2.1.1.4	Yes
mplsL3VpnVrfRteTable	brcdIp.3.2.1.1.4.1	Yes - Read only
mplsL3VpnVrfRteEntry	brcdIp.3.2.1.1.4.1.1.	Yes
mplsL3VpnVrfRteInetCidrDestType	brcdIp.3.2.1.1.4.1.1.1	IPv4 Value
mplsL3VpnVrfRteInetCidrDest	brcdIp.3.2.1.1.4.1.1.2	Yes
mplsL3VpnVrfRteInetCidrPfxLen	brcdIp.3.2.1.1.4.1.1.3	Yes
mplsL3VpnVrfRteInetCidrPolicy	brcdIp.3.2.1.1.4.1.1.4	Default The value {0 0} returned

Object	Object Identifier	Supported?
mplsL3VpnVrfRteInetCidrNHopType	brcdIp.3.2.1.1.4.1.1.5	Ipv4
mplsL3VpnVrfRteInetCidrNextHop	brcdIp.3.2.1.1.4.1.1.6	Yes
mplsL3VpnVrfRteInetCidrIfIndex	brcdIp.3.2.1.1.4.1.1.7	Read only
mplsL3VpnVrfRteInetCidrType	brcdIp.3.2.1.1.4.1.1.8	Read only
mplsL3VpnVrfRteInetCidrProto	brcdIp.3.2.1.1.4.1.1.9	Read only
mplsL3VpnVrfRteInetCidrAge	brcdIp.3.2.1.1.4.1.1.10	Read only
mplsL3VpnVrfRteInetCidrNextHopAS	brcdIp.3.2.1.1.4.1.1.11	No Returns 0
mplsL3VpnVrfRteInetCidrMetric1	brcdIp.3.2.1.1.4.1.1.12	Read Only
mplsL3VpnVrfRteInetCidrMetric2	brcdIp.3.2.1.1.4.1.1.13	No Returns 0
mplsL3VpnVrfRteInetCidrMetric3	brcdIp.3.2.1.1.4.1.1.14	No Returns 0
mplsL3VpnVrfRteInetCidrMetric4	brcdIp.3.2.1.1.4.1.1.15	No Returns 0
mplsL3VpnVrfRteInetCidrMetric5	brcdIp.3.2.1.1.4.1.1.16	No Returns 0
mplsL3VpnVrfRteXCPointer	brcdIp.3.2.1.1.4.1.1.17	No Returns null string
mplsL3VpnVrfRteInetCidrStatus	brcdIp.3.2.1.1.4.1.1.18	Read Only

VPLS-generic-draft-01

NetIron devices running software release 03.9.00 and later support the VPLS-Generic-Draft-01-Mib module of draft-ietf-l2vpn-vpls-mib-01. The following tables present the objects supported in the draft.

Tables and scalars in the draft that are not listed here are not supported.

Scalars

The following scalars are supported.

Name, OID, and Syntax	Access	Description
vplsConfigIndexNext brcdIp.3.4.1.1.1 Syntax: Unsigned 32	Read only	Unique index for the conceptual row identifying a VPLS service. However, in the current implementation, this index is always 0.
vplsStatusNotifEnable brcdIp.3.4.1.1.5 Syntax: TruthValue	Read-write	If this object is set to true(1), then it enables vplsStatusChanged notification to be generated. Change notification is determined by the use of the command **snmp-server enable trap mpls vpls** and **no snmp-server enable trap mpls vpls**.
vplsNotificationMaxRate brcdIp.3.4.1.1.6 Syntax: SnmpAdminString	Read-write	Always 0.

vplsConfigTable

The table below presents the objects supported in the vplsConfigTable. See “IronWare VPLS Table” on page 481 for objects that are not supported in this table. This table is supported on the NetIron software release 03.9.00 and later.

Name	Access	Supported?
vplsConfigIndex brcdIp.3.4.1.1.2.1.1 Syntax: Unsigned 32	Read-only	Yes
vplsConfigName brcdIp.3.4.1.1.2.1.2 Syntax: SnmpAdminString	Read-only	Yes
vplsConfigDescr brcdIp.3.4.1.1.2.1.3 Syntax: SnmpAdminString	Read-only	Always null string
vplsConfigAdminStatus brcdIp.3.4.1.1.2.1.4 Syntax: Integer	Read-only	Yes, Always up(1)
vplsConfigMacLearning brcdIp.3.4.1.1.2.1.6 Syntax: TruthValue	Read-only	Yes, Always true(1)
vplsConfigDiscardUnknownDest brcdIp.3.4.1.1.2.1.7 Syntax: TruthValue	Read-only	No, Always false(2)
vplsConfigMacAging brcdIp.3.4.1.1.2.1.8 Syntax: TruthValue	Read-only	Yes, Always true(1)
vplsConfigFwdFullHighWatermark brcdIp.3.4.1.1.2.1.10 Syntax: Unsigned 32	Read-only	Always 0

Name	Access	Supported?
vplsConfigFwdFullLowWatermark brcdIp.3.4.1.1.2.1.11 Syntax: Unsigned 32	Read-only	Always 0
vplsConfigRowStatus brcdIp.3.4.1.1.2.1.12 Syntax: RowStatus	Read-only	Yes, Always active (1)
vplsConfigMtu brcdIp.3.4.1.1.2.1.13 Syntax: Unsigned 32	Read-only	Yes
vplsConfigVpnId brcdIp.3.4.1.1.2.1.14 Syntax: Octet string (0...7)	Read-only	Always null
vplsConfigServiceType brcdIp.3.4.1.1.2.1.15 Syntax: Vlan(1) if part of VLAN, else Ehternet(2)	Read-only	Yes: • vlan(1) • ethernet(2) • ethernetTagged(4) for tagged VPLS
vplsConfigStorageType brcdIp.3.4.1.1.2.1.16 Syntax: StorageType	Read-only	Yes, Always permanent(4)

vplsStatusTable

Support for the vplsStatusTable is as follows.

Name	Access	Supported?
vplsStatusOperStatus brcdIp.3.4.1.1.3.1.1 Syntax: Integer	Read-only	Yes
vplsStatusPeerCount brcdIp.3.4.1.1.3.1.2 Syntax: Counter 32	Read-only	Yes

vplsPwBindTable

This vplsPwBindTable binds a given VPLS instance to various pseudo-wires. It provides transport service for a VPLS. Support for the vplsPwBindTable is as follows.

Name	Access	Supported?
vplsPwBindIndex brcdIp.3.4.1.1.4.1.1 Syntax: PWIndexType	Read-only	Yes PwIndex of corresponding PWTable. One VPLS may have multiple PWTable entries
vplsPwBindConfigType brcdIp.3.4.1.1.4.1.2 Syntax: Integer	Read-only	Yes, Always manual(1)

Name	Access	Supported?
vplsPwBindType brcdIp.3.4.1.1.4.1.3 Syntax: Integer	Read-only	Yes, Always mesh(1)
vplsPwBindRowStatus brcdIp.3.4.1.1.4.1.4 Syntax: RowStatus	Read-only	Yes: • active(1) - if PW state is operational • not-in-service(2) - if PW is not operational
vplsPwBindStorageType brcdIp.3.4.1.1.4.1.5 Syntax: StorageType	Read-only	Yes, Only permanent(4) is supported

General MPLS objects

The following are the general MPLS MIB objects.

Name, OID, and Syntax	Access	Description
mplsVersion brcdIp.1.2.15.1.1.1 Syntax: Unsigned32	Read only	MPLS version number.
mplsConfiguredLsps brcdIp.1.2.15.1.2.1 Syntax: Unsigned32	Read Only	Number of configured LSPs. This is calculated by adding the number of RSVPs and staticly configured Label-switched paths (LSPs).
mplsActiveLsps brcdIp.1.2.15.1.2.2 Syntax: Unsigned32	Read Only	Number of active LSPs. This is calculated by adding the number of RSVPs, LDPs, and staticly configured LSPs.

MPLS LSP table

The following table contains objects for the MPLS LSPs.

Name, OID, and Syntax	Access	Description
mplsLspTable brcdIp.1.2.15.1.2.3	N/A	The MPLS LSP Table
mplsLspEntry brcdIp.1.2.15.1.2.3.1	N/A	An entry in the MPLS LSP Tabel
mplsLspSignalingProto brcdIp.1.2.15.1.2.3.1.1 Syntax: Integer	N/A	MPLS signaling protocol used by this LSP: • ldp(1) • rsvp(2)
mplsLspIndex brcdIp.1.2.15.1.2.3.1.2 Syntax: Unsigned32	N/A	The unique index of the LSP in the system for a given signaling protocol.

Name, OID, and Syntax	Access	Description
mplsLspName brcdIp.1.2.15.1.2.3.1.3 Syntax: Displaystring	Read only	Name of the Label Switched Path.
mplsLspState brcdIp.1.2.15.1.2.3.1.4 Syntax: Integer	Read only	The operational state of the LSP: • unknown(1) • up(2) • down(3)
mplsLspPackets brcdIp.1.2.15.1.2.3.1.5 Syntax: Counter64	Read only	The number of packets that have been forwarded over the current LSP active path.
mplsLspAge brcdIp.1.2.15.1.2.3.1.6 Syntax: TimeStamp	Read only	The age, since creation of this LSP in 10-millisecond periods.
mplsLspTimeUp brcdIp.1.2.15.1.2.3.1.7 Syntax: TimeStamp	Read only	The total time in 10-millisecond units when this LSP has been operational. Calculate the percentage up time as follows: mplsLspTimeUp or mplsLspAge x 100%
mplsLspPrimaryTimeUp brcdIp.1.2.15.1.2.3.1.8 Syntax: TimeStamp	Read only	The total time in 10-millisecond units that this LSP's primary path has been operational. The percentage contribution of the primary path to the operational time is calculated using the following equation: mplsLspPrimaryTimeUp or mplsLspTimeUp x 100%
mplsLspTransitions brcdIp.1.2.15.1.2.3.1.9 Syntax: TimeStamp	Read only	The number of times this LSP 's state transitioned from up to down and down to up.
mplsLspLastTransition brcdIp.1.2.15.1.2.3.1.10 Syntax: IpAddress	Read only	The time in 10-millisecond units since the last transition occurred on this LSP.
mplsLspFrom brcdIp.1.2.15.1.2.3.1.11 Syntax: IpAddress	Read only	Source IP address of this LSP.
mplsLspTo brcdIp.1.2.15.1.2.3.1.12	Read only	Destination IP address of this LSP.
mplsLspPathName brcdIp.1.2.15.1.2.3.1.13 Syntax: DisplayString	Read only	The name of the active path for this LSP. If there is no name, this field should be empty and all the fields in this table do not apply.
mplsLspathType brcdIp.1.2.15.1.2.3.1.14 Syntax: Integer	Read only	The type of path that is active. This field is meaningless unless mplsLSPPathName contains a value. Paths can be: • other(1) • primary(2) • standby(3) • secondary(4)

VLL end point table

This table (fdryVllEndPointTable) contains objects for VLL and VLL local endpoints that are not available in the Pseudo Wire MIB. (See“Pseudo wire MIB” on page 463). This table is supported on the NetIron softwarwe release 03.9.00 and later.

Name, OID, and Syntax	Access	Description
fdryVllEndPointServiceType brcdIp.1.2.15.2.1.1.1.1 Syntax: Integer	N/A	Indicates the service type for the end point: • vll(1) • vllocal(2)
pwIndex brcdIp.3.1.2.1.1 Syntax: pwIndexType	N/A	pwIndex of pwTable and pwEnetTable (foreign index)
pwEnetPwInstance brcdIp.3.1.4.1.1.1.1 Syntax: Unsigned32	N/A	2nd Index of pwEnetTable (foreign index) to support VLL-local. • VLL = 1 • vllocal = 1 and 2
fdryVllEndPointVlanTagMode brcdIp.1.2.15.2.1.1.1.2 Syntax: Integer32	Read-only	Indicates the VLAN mode of this end point. Ports can have only the following modes: • tagged(1) • untagged(2)
fdryVllEndPointClassOfService brcdIp.1.2.15.2.1.1.1.3 Syntax: Unsigned32	Read-only	For VLL, this value is used to select the appropriate tunnel whose COS value is either the same as, or almost approaching this value. For VLL-local this value is applied to the inbound traffic of an endpoint. Value can be (0..7)
fdryVllEndPointInHCPkts brcdIp.1.2.15.2.1.1.1.4 Syntax: Counter64	Read-only	In NetIron software release 03.9.00 and later, this object returns a zero (0). Beginning with NetIron software release 03.9.01, this object indicates the number of packets ingressing into this endpoint. This is available in the output for **show mpls statistics vll**.
fdryVllEndPointOutHCPkts brcdIp.1.2.15.2.1.1.1.5 Syntax: Counter64	Read-only	In NetIron software release 03.9.00, this object returns a zero (0). In the NetIron software release 03.9.01 and later, for VLL, this object indicates the number of ingress packets from this endpoint as shown in the show **mpls statistics vll-local** output. For VLL-local, this value is the fdryVllEndPointInHCPkts of the other endpoint.
fdryVllEndPointAdminStatus brcdIp.1.2.15.2.1.1.1.6 Syntax: Integer32	Read-only	The desired administrative status of the end point. • up(1) • down(2)
fdryVllEndPointOperStatus brcdIp.1.2.15.2.1.1.1.7 Syntax: PwOperStatusTC	Read-only	Indicates the operational status of the end point: • up(1) • down(2)
fdryVllEndPointRowStatus brcdIp.1.2.15.2.1.1.1.8 Syntax: RowStatus	Read-only	Status will be active(1) if the end point is up; otherwise it will be not in service.

Name, OID, and Syntax	Access	Description
fdryVllEndPointInnerVlanId brcdIp.1.2.15.2.1.1.1.9 Syntax: PwVlanCfg	Read-only	This value indicates the inner VLAN ID for this endpoint. Default: 0 (not configured or not supported.)
fdryVllEndPointInHCOctets brcdIp.1.2.15.2.1.1.1.10 Syntax: Counter64	Read-only	This value indicates the number of octets into the endpoint from a Customer Edge device. This object is supported on the NetIron CES and CER running software release 04.1.00.
fdryVllEndPointOutHCOctets brcdIp.1.2.15.2.1.1.1.11 Syntax: Counter64	Read-only	This value indicates the number of octets egressing out from the endpoint towards the Customer Edge device. This object is supported on the NetIron CES and CER running software release 04.1.00.

VPLS end point table

The **fdryVplsEndPointTable** contains objects for the VPLS endpoints that are not available in the Pseudo Wire or Draft-ietf-pwe3-pw-mib-11.txt MIB. (See “Pseudo wire MIB” on page 463 and “Draft-ietf-pwe3-pw-mib-11.txt” on page 465.) This table is supported on the NetIron software release 03.9.00 and later.

This table is deprecated by the **fdryVplsEndPoint2Table** beginning with NetIron software release 04.1.00 and later because of the VPLS ISID mapping feature, which is introduced in the software release.

Name, OID, and Syntax	Access	Description
vplsConfigIndex brcdIp.3.4.1.1.2.1.1 Syntax: Unsigned32	N/A	This object is the index for this table.
fdryVplsEndPointPortVlan brcdIp.1.2.15.2.2.1.1.1 Syntax: PwVlanCfg	N/A	The VLAN ID of the endpoint.
fdryVplsEndPointIfIndex(brcdIp.1.2.15.2.2.1.1.2 Syntax: InterfaceIndex	N/A	The ifIndex value of the end point. For trunks, use the InterfaceIndex of the trunk.
fdryVplsEndPointVlanTagMode brcdIp.1.2.15.2.2.1.1.3 Syntax: Integer	Read-only	Indicates the VLAN mode of the end point per PPCR per VCID: • tagged(1) • untagged(2) Dual mode is not supported.
fdryVplsEndPointOutHCPkts brcdIp.1.2.15.2.2.1.1.4 Syntax: Counter64	Read-only	In NetIron software release 03.9.00, this object returns a zero (0). Beginning with XMR release 03.9.01, this object Indicates the number of packets egressing out from this endpoint towards the Customer Edge (CE). This value counts packets coming from multiple pseudo-wires towards the endpoint, as well as locally switched packets between other endpoints to this endpoint, all belonging to the same VPLS instance. In packet count is not supported since counter is per PPCR per VCID.

Name, OID, and Syntax	Access	Description
fdryVplsEndPointState brcdIp.1.2.15.2.2.1.1.5 Syntax: Integer	Read-only	The Layer 2 state of the end point: • disabled(1) • blocking(2) • forwarding(5)
fdryVplsEndPointAdminStatus brcdIp.1.2.15.2.2.1.1.6 Syntax: Integer32	Read-only	The desired administrative state of this end point: • up(1) • down(2)
fdryVplsEndPointOperStatus brcdIp.1.2.15.2.2.1.1.7 Syntax: PwOperStatusTC	Read-only	Indicates the operational status of this endpoint: • up(1) • down(2)
fdryVplsEndPointRowStatus brcdIp.1.2.15.2.2.1.1.8 Syntax: RowStatus	Read-only	Status is active(1) if the end point is up; otherwise, it will be not in service.

VPLS end point 2 table

This table supports VPLS ISID mapping that is configured in the inner VLAN at the endpoint level. It contains objects for the VPLS endpoints that are not available in the Pseudo Wire or Draft-ietf-pwe3-pw-mib-11.txt MIBIt is available on NetIron devices running software release 04.1.00 and later. It replaces the **fdryVplsEndPointTable**.

Name, OID, and Syntax	Access	Description
fdryVplsEndPoint2Table brcdIp.1.2.15.2.2.3	N/A	This table specifies information about the VPLS endpoints which are not available in the PW mib, or VPLS draft mib. This table deprecates fdryVplsEndPointTable, as inner vlan/isid has been added as index of this table.
fdryVplsEndPoint2Entry brcdIp.1.2.15.2.2.3.1	N/A	A row in this table represents a VPLS end point for a given VPLS instance. The VPLS instance is represented by vplsConfigTable and fdryVplsTable. For a given VPLS instance, there may be multiple instances of rows within this table. Each row describes one endpoint. For a given endpoint, there will be one VPLS instance. A given endpoint is represented by vplsConfigIndex (VPLS instance), VLAN ID, ifIndex, inner-id (either inner-vlan, or isid) of the physical port which is acting as an endpoint. This allows a tagged port to be associated with multiple VPLS instances. An untagged port can only be associated with one VPLS instance. Note that this table is kept independent of the PW tables to indicate that endpoints terminate on the VPLS instance. On the other side, a VPLS instance will have association with the PW MIB.
fdryVplsEndPoint2VlanId brcdIp.1.2.15.2.2.3.1.1 Syntax: PwVlanCfg	N/A	This value specifies the VLAN ID value of this endpoint.

Name, OID, and Syntax	Access	Description
fdryVplsEndPoint2InnerTagType brcdIp.1.2.15.2.2.3.1.2 Syntax: INTEGER	N/A	This value indicates the inner id for this endpoint: • (invalid(1) • innerVlan(2) • isid(3) If no inner tag is specified, the value invalid(1) is returned.
fdryVplsEndPoint2InnerTag brcdIp.1.2.15.2.2.3.1.3 Syntax: Unsigned32	N/A	This value indicates the inner id for this endpoint. If the index fdryVplsEndPoint2InnerTagType has the value isid(3), then this object will have the ISID value for that endpoint. Valid ISID value is between 256 (0x100) and 16777214 (0xFFFFFE).If no inner tag is specified, the value(0) is returned.
fdryVplsEndPoint2IfIndex brcdIp.1.2.15.2.2.3.1.4 Syntax: InterfaceIndex	N/A	This value specifies the ifIndex value of this endpoint.
fdryVplsEndPoint2VlanTagMode brcdIp.1.2.15.2.2.3.1.5 Syntax: VlanTagMode	Read-create	This value indicates the VLAN mode for this endpoint. The values dual(3) and other(4) are not used in this table.
fdryVplsEndPoint2InHCOctets brcdIp.1.2.15.2.2.3.1.6 Syntax: Counter64	Read-only	This counter indicates the number of octets ingressing into this endpoint from the Customer Edge device. This object is supported only in the NetIron CES and CER.
fdryVplsEndPoint2Layer2State brcdIp.1.2.15.2.2.3.1.7 Syntax: Layer2StateTC	Read-only	The Layer 2 state of this VPLS endpoint.
fdryVplsEndPoint2OperStatus brcdIp.1.2.15.2.2.3.1.8 Syntax: PwOperStatusTC	Read-only	This object indicates the operational status of this endpoint: • up(1) • down(2) No other values are used in this table
fdryVplsEndPoint2RowStatus brcdIp.1.2.15.2.2.3.1.9 Syntax: RowStatus	Read-create	This variable is used to create, modify, and delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except this object and the fdryVplsEndPointAdminStatus object.

IronWare VPLS Table

This table can be used to configure additional virtual circuit properties that are not supported in the vplsConfigTable. This table is supported on the NetIron software release 03.9.00 and later.

Name, OID, and Syntax	Access	Description
vplsConfigIndex brcdIp.3.4.1.1.2.1.1 Syntax: Unsigned32	N/A	This object is the index for this table.
fdryVplsClassOfService brcdIp.1.2.15.2.2.2.1.1 Syntax: Unsigned 32	Read write	Indicates the Class Of Service for this VPLS instance. This value is used to select the appropriate tunnel that has a COS value is less than or equal to this value.
fdryVplsMaxMacLearned brcdIp.1.2.15.2.2.2.1.2 Syntax: Unsigned 32	Read only	This value indicates the maximum number of MAC addresses that can be learned by this VPLS instance. No default value is specified as the system default can change.

Name, OID, and Syntax	Access	Description
fdryVplsClearMac brcdIp.1.2.15.2.2.2.1.3 Syntax: TruthValue	Read only	The Set value of TRUE tells the system to clear all the MAC addresses learned by this VPLS instance. Setting value of FALSE(2) returns an error. During read operations, FALSE(2) is returned at all times.
fdryVplsVcId brcdIp.1.2.15.2.2.2.1.4 Syntax: Unsigned 32	Read only	The VPLS Instance ID of a given VPLS session.

Chapter 26

Packet Over SONET for Brocade MLXe, NetIron XMR, and NetIron MLX

RFC 3592 SDH/SONET MIB

This chapter presents the MIB objects for Packet Over Sonet (POS), a feature supported on the following devices:

- NetIron XMR and NetIron MLX devices running software release 03.4.00 and later.
- Brocade MLXe devices.

The following MIB objects are related to the POS support on these devices:

- snSwIfInfoTable. The entire table is supported and new values have been added for snSwIfInfoSpeed and snSwIfInfoMediaType. See the “Switch port information group” on page 205
- ifTable. See “RFC 1213: Management Information Base (MIB-II)” on page 18.
- ifMIB. See “” on page 23.
- ifXTable. See “” on page 23.
- snIfIndexLookupTable. See “Interface index lookup table” on page 215.
- RFC 3592 SDH/SONET MIB. See “RFC 3592 SDH/SONET MIB” on page 483.
- POS MIB Info Table - See “POS MIB Info Table” on page 484.
- POS PPP Group - See “POS PPP Group” on page 486.
- POS cHDLC Group - See “POS cHDLC Group” on page 487.

The standard SDH/SONET MIB (RFC 3592) is supported with the following exceptions:

1. No VT related objects are supported.
   - SonetVTCurrentTable
   - SonetVTIntervalTable
   - SonetFarEndVTCurrentTable
   - SonetFarEndVTIntervalTable
2. The following MIB objects are read-write in the standard MIB, but are read-only in this release.
   - sonetMediumLineCoding - Always returns sonetMediumNRZ
   - sonetMediumLineType - Always returns sonetMultiMode
   - sonetMediumCircuitIdentifier - Always returns the physical address of the interface (same as ifPhysAddress)
   - sonetSESthresholdSet - Always returns other(1)

POS MIB Info Table

The POS Session Table presents information about the POS session.

Name, OID, and Syntax	Access	Description
snPOSInfo2Table brcdIp.1.2.14.1.2	None	This object describes the POS MIB Info Table.
snPOSInfo2Entry brcdIp.1.2.14.1.2.1	None	This object describes a POS MIB Info entry.
snPOSInfo2Clock brcdIp.1.2.14.1.2.1.1 Syntax: Integer	Read-write	This object describes the clock source for the POS Interface. • internal(1) - internal source. • line(2) - clocking is derived from the line. Default Value: internal(1)
snPOSInfo2ScrambleATM brcdIp.1.2.14.1.2.1.2 Syntax: POSStatus	Read-write	ATM style scrambling for the POS interface. • disabled(0) - scrambling is disabled. • enabled(1) - scrambling is enabled. Default Value: disabled(0)
snPOSInfo2CRC brcdIp.1.2.14.1.2.1.3 Syntax: Integer	Read-write	Length of Cyclic Redundancy Check (CRC) on the POS interface. • crc32bits(1)- 32 bits • crc16bits(2) - 16 buts Default Value: crc32bits(1)
snPOSInfo2KeepAlive brcdIp.1.2.14.1.2.1.4 Syntax: Unsigned32 (0...65535)	Read-write	This object describes the keepalive timer for the POS interface in seconds. Default: 10
snPOSInfo2FlagC2 brcdIp.1.2.14.1.2.1.5 Syntax: Unsigned32 (0...255)	Read-write	The C2 flag.

Name, OID, and Syntax	Access	Description
snPOSInfo2SSM brcdIp.1.2.14.1.2.1.6 Syntax: Integer	Read-write	The Synchronization Status Message (SSM) is sent over the SONET/SDH line to tell the other end about the quality of the clock being sent over the line: • t1 SonetPrimaryReferenceSource(1)- SONET Primary Reference Source • t1 SonetTraceabilityUnknown(2) - SONET Traceability Unknown • t1 SonetStratum2Traceable(3) - SONET Stratum 2 Traceable • t1 SonetTransitNodeClock(4) - SONET Transit Node Clock • t1 SonetStratum3eTraceable(5) - SONET Stratum 3e Traceable • t1 SonetStratum3Traceable(6) - SONET Stratum 3 Traceable • t1 SonetMinClockTraceable(7) - SONET Minimum Clock Traceable • t1 SonetDus(8)- SONET Do not Use for Synchronization • e1 SdhTraceabilityUnknown(9) - SDH Traceability Unknown • e1 SdhSsmTransitNodeClock-g812(10) - SDH Transit Node Clock G812 • e1 SdhDus(11) - SDH Do not Use for Synchronization • e1 SdhSsmPrimaryReferenceClock-g811(12) - SDH Primary Reference Clock G811 • e1 SdhSsmLocalG812(13) - SDH Local G812 • e1 SdhSsmSyncEquipmentTimingSource(14) - SDH Synchronization Equipment Timing Source Default: t1 sonettraceabilityunknown(2)
snPOSInfo2Encapsulation brcdIp.1.2.14.1.2.1.7 Syntax: Integer	Read-write	Layer 2 encapsulation on the POS interface. • ppp(1) - Point to Point Protocol (PPP.) Refer to “POS PPP Group” on page 486 for additional MIB objects. • chdlc(2) - Cisco High-level Data Link Control (cHDLC). Refer to “POS cHDLC Group” on page 487 for additional MIB objects.
snPOSInfo2AlarmMonitoring brcdIp.1.2.14.1.2.1.8 Syntax: Integer	Read-write	Alarm Monitoring on POS interface. • off(0) - Alarm Monitoring is off • on(1) - Alarm Monitoring is on Default: on(1)
snPOSInfo2OverheadJ0Expected Message brcdIp.1.2.14.1.2.1.9 Syntax: Octet String (Size (1))	Read-write	Overhead J0 Expected Message
snPOSInfo2OverheadJ0TransmitMessage brcdIp.1.2.14.1.2.1.10 Syntax: Octet String (Size (1))	Read-write	This object Overhead J0 Transmit Message.
snPOSInfo2OverheadJ1Expected Message brcdIp.1.2.14.1.2.1.11 Syntax: Octet String (Size (16...64))	Read-write	Overhead J1 Expected Message.

Name, OID, and Syntax	Access	Description
snPOSInfo2OverheadJ1MessageLength brcdIp.1.2.14.1.2.1.12 Syntax: Integer	Read-write	Overhead J1 Length of Message. • s16(16) - 16 bytes • s64(64) - 64 bytes Default Value: s64(64)
snPOSInfo2OverheadJ1TransmitMessage brcdIp.1.2.14.1.2.1.13 Syntax: Octet String (Size (16...64))	Read-write	Overhead J1 Transmit Message.

POS PPP Group

If the snPOSInfo2Encapsulation object is set to PPP, the POS PPP table provides information on the states of various control protocols.

Name, OID, and Syntax	Access	Description
snPOSPPPTable brcdIp.1.2.14.1.3	N/A	An entry in the snPOSPPPTable indicates the PPP control protocol status on a specified port.
snPOSPPP-LCP brcdIp.1.2.14.1.3.1 Syntax: DisplayString (0..32))	Read only	The PPP Link Control Protocol state.
snPOSPPP-IPCP brcdIp.1.2.14.1.3.2 Syntax: DisplayString (0..32))	Read only	The PPP IP Control Protocol state.
snPOSPPP-IPv6CP brcdIp.1.2.14.1.3.3 Syntax: DisplayString (0..32))	Read only	The PPP IPv6 Control Protocol state.
snPOSPPP-OSINLCP brcdIp.1.2.14.1.3.4 Syntax: DisplayString (0..32))	Read only	The PPP OSI Network Layer Control Protocol state.
snPOSPPP-MPLSCP brcdIp.1.2.14.1.3.5 Syntax: DisplayString (0..32))	Read only	The PPP MPLS Control Protocol state.

POS cHDLC Group

If the snPOSInfo2Encapsulation object is set to cHDLC, the following provides information on various cHDLC parameters.

Name, OID, and Syntax	Access	Description
snPOScHDLCTable brcdIp.1.2.14.1.4	N/A	An entry in snPOScHDLCEntry shows the cHDLC information on a specified port.
snPOScHDLCLineState brcdIp.1.2.14.1.4.1 Syntax: Integer	Read only	The of the cHDLC line: down (0) up (1) unknown (2)
snPOScHDLCInLoopback brcdIp.1.2.14.1.4.2 Syntax: Integer	Read only	Indicates if cHDLC in loopback is used: • no (0) • yes (1) • unknown (2)
snPOScHDLCMySeq brcdIp.1.2.14.1.4.3 Syntax: Unsigned32	Read only	The cHDLC my sequence number.
snPOScHDLCMySeqSeen brcdIp.1.2.14.1.4.4 Syntax: Unsigned32	Read only	The cHDLC my sequence number that is seen
snPOScHDLCPeerSeqSeen brcdIp.1.2.14.1.4.5 Syntax: Unsigned32	Read only	The cHDLC peer sequence number seen
snPOScHDLCUniqueSent brcdIp.1.2.14.1.4.6 Syntax: Unsigned32	Read only	The cHDLC unique sent
snPOScHDLCUniqueReceived brcdIp.1.2.14.1.4.7 Syntax: Unsigned32	Read only	The cHDLC unique received

Chapter

27

Bidirectional Forwarding

BFD scaler objects

This chapter presents the MIB objects for Bidirectional Forwarding (BFD) IETF draft mib version 3 (draft-ietf-bfd-mib-03.mib). Support for this MIB will change as the IETF draft version changes, until the MIB is finalized.

The BFD Session Mapping Table maps the complex indexing of the BFD sessions to the flat BFDIndex used in the BfdSessionTable.

Name, OID, and Syntax	Access	Description
bfdAdminStatus brcdIp.3.3.1.1.1.1 Syntax: Integer	Read only	The global administrative status of BFD in this router: • enabled(1) - BFD Process is active on at least one interface • disabled(2) - BFD is disabled on all interfaces Default: enabled(1)
bfdSessNotificationsEnable brcdIp.3.3.1.1.1.3 Syntax: Unsigned32	Read-only	The current version number of the BFD protocol. Default: 0
bfdSessNotificationsEnable brcdIp.3.3.1.1.1.4 Syntax: TruthValue	Read-write	Indicates if notification messages are sent when BFD sessions are up and when they are down • true(1) - Notification messages are sent. • false(2) - Notifications messages are not sent. Default: false(2)

BFD MIB session table

The BFD Session Table specifies information about the BFD session.

Name, OID, and Syntax	Access	Description
bfdSessTable brcdIp.3.3.1.1.2	None	Describes the BFD sessions.
bfdSessEntry brcdIp.3.3.1.1.2.1	None	Describes and entry for a BFD session.
bfdSessIndex brcdIp.3.3.1.1.2.1.1 Syntax: BfdSessIndexTC	None	Contains an index used to represent a unique BFD session on this device.
bfdSessApplicationId brcdIp.3.3.1.1.2.1.2 Syntax: Unsigned32	Read-only	Contains an index used to indicate a local application which owns or maintains this BFD session. For instance, the MPLS VPN process may maintain a subset of the total number of BFD sessions. This application ID provides a convenient way to segregate sessions by the applications which maintain them.

Name, OID, and Syntax	Access	Description
bfdSessDiscriminator brcdIp.3.3.1.1.2.1.3 Syntax: Unsigned32	Read-only	Specifies the local discriminator for this BFD session, used to uniquely identify it.
bfdSessRemoteDiscr brcdIp.3.3.1.1.2.1.4 Syntax: Unsigned32	Read-only	Specifies the session discriminator chosen by the remote system for this BFD session.
bfdSessUdpPort brcdIp.3.3.1.1.2.1.5 Syntax: InetPortNumber	Read-only	The UDP Port for BFD. Default: The well-known value for this port.
bfdSessState brcdIp.3.3.1.1.2.1.6 Syntax: Integer	Read-only	The perceived state of the BFD session. • adminDown(1) • down(2)- BFD session is down • init(3)- BFD session is initializing • up(4) - BFD session is up
bfdSessRemoteHeardFlag brcdIp.3.3.1.1.2.1.7 Syntax: TruthValue	Read-only	Status of BFD packet reception from the remote system. • true(1) - the local device is actively receiving BFD packets from the remote device • false(0) - either the local device has not received BFD packets recently (within the detection time) or the local device is attempting to tear down the BFD session
bfdSessDiag brcdIp.3.3.1.1.2.1.8 Syntax: Unsigned32	Accessible-for-notify	A diagnostic code specifying the local system's reason for the last transition of the session from up(1) to some other state. The following values are applicable in the implementation of this MIB object: • No Diagnostic (1) • Control Detection Time Expired (2) • Echo Failed (3) • Neighbor Signaled Session Down (4) • Forwarding Plan Reset (5) • Path Down (6) • Concatenated Path Down (7) • Admin Down (8) • Reverse Concatenated Path Down (9) Each notification uses one of the following varbinds: • BfdSessUp - high range value • bfdSessDown - low range value
bfdSessOperMode brcdIp.3.3.1.1.2.1.9 Syntax: Integer	Read-only	Specifies current operating mode of the BFD session. • asyncModeWEchoFun(1) • asynchModeWOEchoFun(2) • demandModeWEchoFunction(3) • demandModeWOEchoFunction(4)
bfdSessDemandModeDesiredFlag brcdIp.3.3.1.1.2.1.10 Syntax: TruthValue	Read-only	Indicates if the device will use Demand mode: • true(1)- the device will use Demand mode • false(0) - the device will use Demand mode
bfdSessEchoFuncModeDesiredFlag brcdIp.3.3.1.1.2.1.11 Syntax: TruthValue	Read-only	Indicates if the device uses Echo mode: • true(1)- the device will use Echo mode • false(0) - the device will use Echo mode

Name, OID, and Syntax	Access	Description
bfdSessControPlanIndepFlag brcdIp.3.3.1.1.2.1.12 Syntax: TruthValue	Read-only	Indicates if the device can continue to function when there is a disruption of the control plane: • true(1)- the local system BFD implementation is independent of the control plane • false(0) - the local system BFD implementation is dependent on the control plane
bfdSessAddrType brcdIp.3.3.1.1.2.1.13 Syntax: InetAddressType	Read-only	The IP address type of the interface associated with this BFD session: unknown(0) - Allowed only when the outgoing interface is of type point-to-point, or when the BFD session is not associated with a specific interface. ipv4(1) - IP address is IPv4 ipv6(2) - IP address is IPv4
bfdSessAddr brcdIp.3.3.1.1.2.1.14 Syntax: InetAddress	Read-only	The IP address of the interface associated with this BFD session. Also used to enable BFD on a specific interface. The value is set to zero when BFD session is not associated with a specific interface.
bfdSessDesiredMinTxInterval brcdIp.3.3.1.1.2.1.15 Syntax: Unsigned32	Read-only	Specifies the minimum interval, in microseconds, that the local system would like to use when transmitting BFD Control packets.
bfdSessReqMinRxInterval brcdIp.3.3.1.1.2.1.16 Syntax: Unsigned32	Read-only	Specifies the minimum interval, in microseconds, between received BFD Control packets the local system is capable of supporting.
bfdSessReqMinEchoRxInterval brcdIp.3.3.1.1.2.1.17 Syntax: BfdInterval	Read-only	Specifies the minimum interval, in microseconds, between received BFD Echo packets that this system is capable of supporting.
bfdSessDetectMult brcdIp.3.3.1.1.2.1.18 Syntax: Unsigned32	Read-only	Specifies the Detect time multiplier.
bfdSessStorType brcdIp.3.3.1.1.2.1.19 Syntax: StorageType	Read-only	Indicates the storage type for this object. Conceptual rows having the value "permanent" need not allow write-access to any columnar objects in the row.
bfdSessRowStatus brcdIp.3.3.1.1.2.1.20 Syntax: RowStatus	Read-only	Creates, modifies, or deletes a row in this table. When a row in this table has a row in the active(1) state, no objects in this row can be modified except the bfdSessRowStatus and bfdSessStorageType.
bfdSessAuthPressFlag brcdIp.3.3.1.1.2.1.21 Syntax: TruthValue	Read-only	Indicates if the device wants the BFD sessions to be authenticated: • true(1)- BFD sessions will be authenticated • false(0) - BFD sessions will not be authenticated
bfdSessAuthenticationType brcdIp.3.3.1.1.2.1.22 Syntax: Integer	Read-only	Indicates the authentication type used for this BFD session, if BFD sessions are authenticated: • simplePassword(1) • keyedMD5(2) • meticulousKeyedMD5(3) • keyedSHA1(4) • meticulousKeyedSHA1(5)

BFD MIB session performance table

This table specifies the performance counters for BFD sessions.

Name, OID, and Syntax	Access	Description
bfdSessPerfTable brcdIp.3.3.1.1.3	None	The BFD Session Performance Table
bfdSessPerfEntry brcdIp.3.3.1.1.3.1	None	An entry in this table is created by a BFD-enabled node for every BFD Session. bfdCounterDiscontinuityTime is used to indicate potential discontinuity for all counter objects in this table.
bfdSessPerfPktIn brcdIp.3.3.1.1.3.1.1 Syntax: Counter32	Read-only	The total number of BFD messages received for this BFD session.
bfdSessPerfPktOut brcdIp.3.3.1.1.3.1.2 Syntax: Counter32	Read-only	The total number of BFD messages sent for this BFD session.
bfdSessPerfUpTime brcdIp.3.3.1.1.3.1.3 Syntax: TimeStamp	Read-only	The value of sysUpTime on the most recent occasion at which the session came up. If no such up event exists this object contains a zero value.
bfdSessPerfLastSessDownTime brcdIp.3.3.1.1.3.1.4 Syntax: TimeStamp	Read-only	The value of sysUpTime on the most recent occasion at which the last time communication was lost with the neighbor. If no such down event exist this object contains a zero value.
bfdSessPerfLastCommLostDiag brcdIp.3.3.1.1.3.1.5 Syntax: BfdDiag	Read-only	The BFD diag code for the last time communication was lost with the neighbor. If no such down event exists this object contains a zero value.
bfdSessPerfSessUpCount brcdIp.3.3.1.1.3.1.6 Syntax: Counter32	Read-only	The number of times this session has gone into the Up state since the router last rebooted.
bfdSessPerfDiscTime brcdIp.3.3.1.1.3.1.7 Syntax: TimeStamp	Read-only	The value of sysUpTime on the most recent occasion at which any one or more of the session counters suffered a discontinuity. The relevant counters are the specific instances associated with this BFD session of any Counter32 object contained in the BfdSessPerfTable. If no such discontinuities have occurred since the last re-initialization of the local management subsystem, then this object contains a zero value.
bfdSessPerfPktInHC brcdIp.3.3.1.1.3.1.8 Syntax: Counter64	Read-only	This value represents the total number of BFD messages received for this BFD session. It MUST be equal to the least significant 32 bits of bfdSessPerfPktIn if bfdSessPerfPktInHC is supported according to the rules spelled out in RFC2863.
bfdSessPerfPktOutHC brcdIp.3.3.1.1.3.1.9 Syntax: Counter64	Read-only	This value represents the total number of total number of BFD messages transmitted for this BFD session. It MUST be equal to the least significant 32 bits of bfdSessPerfPktIn if bfdSessPerfPktOutHC is supported according to the rules spelled out in RFC2863.

BFD MIB session mapping table

The BFD Session Mapping Table maps the complex indexing of the BFD sessions to the flat BFDIndex used in the BfdSessionTable.

Name, OID, and Syntax	Access	Description
BfdSessMapTable brcdIp.3.3.1.1.4	None	The BFD Session Mapping Table **NOTE:** If the value of the bfdSessAddr (an OID) has more that 111 sub-identifiers, then OIDs of column instances in this table will have more than 128 sub-identifiers and cannot be accessed using SNMPv1, SNMPv2c, or SNMPv3.
BfdSessMapEntry brcdIp.3.3.1.1.4.1	None	The BFD Session Entry describes BFD session that is mapped to this index. **NOTE:** If the value of the mplsInSegmentMapLabelPtrIndex has more that 111 sub-identifiers, then OIDs of column instances in this table will have more than 128 sub-identifiers and cannot be accessed using SNMPv1, SNMPv2c, or SNMPv3.
bfdSessMapBfdIndex brcdIp.3.3.1.1.4.1.1 Syntax: Unsigned32	Read-only	Specifies the BfdIndex referred to by the indexes of this row. In essence, a mapping is provided between these indexes and the BfdSessTable.

BFD MIB session mapping table

Chapter

Monitoring and Logging 28

Usage notes on CPU utilization and system CPU utility table

There are 3 groups of CPU utilization MIB objects: Group A, B, and C

Group A consists of the following object and should not be used.

brcdIp.1.1.2.1.35	snAgGblCpuUtilData

The object in this group can display management module CPU utilization. The data it displays is from the last time that this object was read. If there is more than one management stations reading the object, conflict will occur because every read resets the CPU utilization until the next read. Thus, it is recommend customer that this object is not used.

Group B consists of the following objects.

brcdIp.1.1.2.1.50	snAgGblCpuUtil1SecAvg
brcdIp.1.1.2.1.51	snAgGblCpuUtil5SecAvg
brcdIp.1.1.2.1.52	snAgGblCpuUtil1MinAvg

Group B was created to resolve the multi-management stations issue of snAgGblCpuUtilData. These 3 objects are time based. However, they only work for the management CPU utilization.

NOTES: These objects have been obsoleted on the following devices:

- BigIron RX starting with software release 02.4.00
- NetIron XMR starting with software release 03.3.00
- NetIron MLX with software release 03.3.00

Use snAgentCpuUtilTable on these devices.

Also, if the snAgentCpuUtilTable is supported on a device, use that object instead of snAgGblCpuUtil1SecAvg, snAgGblCpuUtil5SecAvg, and snAgGblCpuUtil1MinAvg.

Group C consists of the snAgentCpu table.

brcdIp.1.1.2.11	snAgentCpu
brcdIp.1.1.2.11.1	snAgentCpuUtilTable
brcdIp.1.1.2.11.1.1	snAgentCpuUtilEntry
brcdIp.1.1.2.11.1.1.1	snAgentCpuUtilSlotNum
brcdIp.1.1.2.11.1.1.2	snAgentCpuUtilCpuId

brcdIp.1.1.2.11.1.1.3	snAgentCpuUtilInterval
brcdIp.1.1.2.11.1.1.4	snAgentCpuUtilValue **NOTE:** This object is deprecated for NetIron XMR and NetIron MLX devices running software release 03.9.00 and later, FGS release 04.3.01 and later, and FSX 04.3.00 and later. It is not supported on the Brocade MLXe devices. Use the "snAgentCpuUtilPercent" and "snAgentCpuUtil100thPercent" objects instead for these devices.
brcdIp.1.1.2.11.1.1.5	snAgentCpuUtilPercent **NOTE:** This is supported on NetIron XMR and NetIron MLX devices running software release 03.9.00 and later; FGS release 04.3.01 and later; FSX 04.3.00 and later; and Brocade MLXe devices.
brcdIp.1.1.2.11.1.1.6	snAgentCpuUtil100thPercent **NOTE:** This is supported on NetIron XMR and NetIron MLX devices running software release 03.9.00 and later; FGS release 04.3.01 and later; FSX 04.3.00 and later; and Brocade MLXe devices.

The snAgentCpu table was created because switch families evolved from a single-CPU system to a multi-CPU system and CPU utilization information for to non-management CPUs were required.

CPU utilization

The following objects monitor CPU utilization in all devices. Refer to the configuration guide for a product for additional information on this feature.

NOTE
Before attempting to read any CPU polling information, enable CPU polling by setting snAgGblCpuUtilCollect to 1 or issuing the **cpu-usage** on CLI command.

Name, OID, and Syntax	Access	Description
snAgGblCpuUtilData brcdIp.1.1.2.1.35 Syntax: Gauge	Read only	Shows the CPU utilization since the last time the same command was given.
snAgGblCpuUtilCollect brcdIp.1.1.2.1.36 Syntax: Integer	Read-write	Enables or disables the collection of CPU utilization statistics in a device. This can be one of the following: • Enable(1) • Disable(0)
snAgGblCpuUtil1SecAvg brcdIp.1.1.2.1.50 Syntax: Gauge32	Read only	Shows CPU utilization every one second. **NOTE:** These objects have been obsoleted on the following devices: • BigIron RX starting with software release 02.3.00 • NetIron XMR starting with software release 03.3.00 • NetIron MLX with software release 03.3.00 Use snAgentCpuUtilTable on these devices. Also, if the snAgentCpuUtilTable is supported on a device, use that object instead of this one.

Name, OID, and Syntax	Access	Description
snAgGblCpuUtil5SecAvg brcdIp.1.1.2.1.51 Syntax: Gauge32	Read only	Shows CPU utilization every 5 seconds. **NOTE:** These objects have been obsoleted on the following devices: • BigIron RX starting with software release 02.3.00 • NetIron XMR starting with software release 03.3.00 • NetIron MLX with software release 03.3.00 Use snAgentCpuUtilTable on these devices. Also, if the snAgentCpuUtilTable is supported on a device, use that object instead of this one.
snAgGblCpuUtil1MinAvg brcdIp.1.1.2.1.52 Syntax: Gauge32	Read only	Shows CPU utilization every one minute. **NOTE:** These objects have been obsoleted on the following devices: • BigIron RX starting with software release 02.3.00 • NetIron XMR starting with software release 03.3.00 • NetIron MLX with software release 03.3.00 Use snAgentCpuUtilTable on these devices. Also, if the snAgentCpuUtilTable is supported on a device, use that object instead of this one.

System CPU utility table

snAgentCpuUtilTable

The snAgentCpuUtilTable is available on all devices, except on ServerIron ADX products.

Name, OID, and Syntax	Access	Description
snAgentCpuUtilTable brcdIp.1.1.2.11.1	None	A table listing the utilization of all CPUs in a device.
snAgentCpuUtilEntry brcdIp.1.1.2.11.1.1	None	A row in the CPU utilization table.
snAgentCpuUtilSlotNum brcdIp.1.1.2.11.1.1.1 Syntax: Integer32	Read only	Shows the slot number of the module that contains that has at least CPU.
snAgentCpuUtilCpuId brcdIp.1.1.2.11.1.1.2 Syntax: Integer32	Read only	Shows the ID of the CPU: • 1 – Management CPU • 2 or greater – Slave CPU A non-VM1/WSM management module has one CPU. A VM1/WSM module has one management CPU and 3 slave CPUs. The management CPU could be turned off. POS and ATM modules have no management CPU but have two slave CPUs. One devices running Enterprise software, this object is available in software Release 07.2.x and later.

Name, OID, and Syntax	Access	Description
snAgentCpuUtilInterval brcdIp.1.1.2.11.1.1.3 Syntax: Integer32	Read only	Shows the CPU utilization in seconds. CPU utilization of a primary module is displayed in 1, 5, 60, and 300 second intervals. CPU utilization of a secondary module is displayed in 1, 5, 60, and 300 second intervals. This object can return an additional 300 sec CPU utilization. One devices running Enterprise software, this object is available in software Release 07.2.x and later.
snAgentCpuUtilValue brcdIp.1.1.2.11.1.1.4 Syntax: Gauge32 **NOTE:** This object is deprecated for NetIron XMR and NetIron MLX devices running software release 03.9.00 and later, FGS release 04.3.01 and later, and FSX 04.3.00 and later. It is not supported on Brocade MLXe devices. Use the "snAgentCpuUtilPercent" and "snAgentCpuUtil100thPercent" objects instead.	Read only	Shows the CPU utilization in one-hundredths of a percent. This object is indexed by snAgentCpuUtilSlotNum, snAgentCpuUtilCpuId, and snAgentCpuUtilInterval. For example, a BigIron 4000 has a management module in slot 1. The module is not a VM1 module and it has only one CPU. When an snmpget is issued to snAgentCpuUtilValue.1.1.300, which translates to slot 1, CPU 1, and 300 seconds, the result is 100. Each unit of the result equals to 0.01% CPU utilization and 100 equals to 1% CPU utilization. This object should return the same value as snAgGblCpuUtil1SecAvg, snAgGblCpuUtil5SecAvg, or snAgGblCpuUtil1MinAvg if you query the managment CPU. One devices running Enterprise software, this object is available in software Release 07.2.x and later.

Name, OID, and Syntax	Access	Description
snAgentCpuUtilPercent brcdIp.1.1.2.11.1.1.5 Syntax: Gauge32 **NOTE:** This is supported on NetIron XMR and NetIron MLX devices running software release 03.9.00 and later; FGS release 04.3.01 and later; FSXdevices running 04.3.00 and later; and Brocade MLXe devices.	Read only	The statistical CPU utilization in units of a percent.
snAgentCpuUtil100thPercent brcdIp.1.1.2.11.1.1.6 Syntax: Gauge32 **NOTE:** This is supported on NetIron XMR and NetIron MLX devices running software release 03.9.00 and later; FGS release 04.3.01 and later; FSXdevices running 04.3.00 and later; and Brocade MLXe devices.	Read only	The statistical CPU utilization in units of one-hundredth of a percent.

brcdAdxCpuUtilTable

Use the brcdAdxCpuUtilTable for ServerIron ADX products.

Dynamic memory utilization

The following objects manage dynamic memory utilization in all devices, except for stackable ServerIron and ServerIron XL. There are no objects for memory utilization in the stackable ServerIron. Refer to the configuration guide for a product for additional information on this feature.

Name, OID, and Syntax	Access	Description
snAgGblDynMemUtil brcdIp.1.1.2.1.53 Syntax: Gauge32	Read only	Shows the dynamic memory utilization of the device in percentage units. **NOTE:** In Service Provider Release 09.1.02 and Enterprise IronWare release 07.8.00, this object was replaced by "snAgSystemDRAMUtil".
snAgGblDynMemTotal brcdIp.1.1.2.1.54 Syntax: Integer32	Read only	Shows the total amount of dynamic memory in a device in number of bytes. **NOTE:** In Service Provider Release 09.1.02 and Enterprise IronWare release 07.8.00, this object was replaced by "snAgSystemDRAMTotal". On NetIron devices, this was deprecated in Release 03.2.00 and replaced by "snAgentBrdMemoryTotal"
snAgGblDynMemFree brcdIp.1.1.2.1.55 Syntax: Gauge32	Read only	Shows the amount of system dynamic memory that is currently available in number of bytes. **NOTE:** In Service Provider Release 09.1.02 and Enterprise IronWare release 07.8.00, this object was replaced by "snAgSystemDRAMFree". On NetIron devices, this was deprecated in Release 03.2.00 and replaced by "snAgentBrdMemoryAvailable".

System DRAM information group

This group displays memory utilization statistics for protocols that use dynamic memory allocation. It shows the same information that a **show memory** command displays.

This group of objects was introduced in Service Provider Release 09.1.02 and Enterprise IronWare Release 07.8.00.

Name, Identifier, and Syntax	Access	Description
snAgSystemDRAM brcdIp.1.1.2.12.4	NA	The System DRAM Information Group
snAgSystemDRAMUtil brcdIp.1.1.2.12.4.1 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	The amount of system dynamic memory that is currently utilized, in percent. This object replaces "snAgGblDynMemUtil" in Service Provider Release 09.1.02 and Enterprise IronWare release 07.8.00.

Name, Identifier, and Syntax	Access	Description
snAgSystemDRAMTotal brcdIp.1.1.2.12.4.2 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	The total amount of system dynamic memory, in bytes. This object replaces "snAgGblDynMemTotal" in Service Provider Release 09.1.02 and Enterprise IronWare release 07.8.00.
snAgSystemDRAMFree brcdIp.1.1.2.12.4.3 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	The amount of free system dynamic memory, in bytes. This object replaces "snAgGblDynMemFree" in Service Provider Release 09.1.02 and Enterprise IronWare release 07.8.00.
snAgSystemDRAMForBGP brcdIp.1.1.2.12.4.4 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	The amount of dynamic memory in bytes, used by BGP.
snAgSystemDRAMForOSPF brcdIp.1.1.2.12.4.5 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	The amount of dynamic memory in bytes, used by OSPF.

ARP tables

The following tables are available to manage ARP using SNMP:

- "RARP table" on page 502
- "Static ARP table" on page 502

- “Global ARP statistics” on page 504

Refer to the configuration guide for a product for additional information on this feature.

RARP table

The Reverse Address Resolution Protocol (RARP) provides a simple mechanism for directly-attached IP hosts to boot over the network. RARP allows an IP host that does not have a means of storing its IP address across power cycles or software reloads to query a directly-attached router for an IP address.

RARP is enabled by default. However, there must be a static RARP entry for each host that will use the Layer 3 Switch for booting. The following table contains the object that define each RARP entry. They are available in all devices, except ServerIron products.

NOTE
This table is supported on Brocade MLXe, NetIron XMR, and NetIron MLX devices.

Name, OID, and Syntax	Access	Description
snRtIpRarpTable brcdIp.1.2.2.4	None	IP RARP Table.
snRtIpRarpEntry brcdIp.1.2.2.4.1	None	An entry in the IP RARP Table.
snRtIpRarpIndex brcdIp.1.2.2.4.1.1 Syntax: Integer	Read only	An index for an entry in the RARP Table. There can be up to 16 entries.
snRtIpRarpMac brcdIp.1.2.2.4.1.2 Syntax: OctetString	Read-write	Shows the MAC address of the RARP client.
snRtIpRarpIp brcdIp.1.2.2.4.1.3 Syntax: IpAddress	Read-write	Shows the IP address for a RARP client.
snRtIpRarpRowStatus brcdIp.1.2.2.4.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Static ARP table

Address Resolution Protocol (ARP) is a standard IP protocol that enables an IP Layer 3 Switch to obtain the MAC address of another device’s interface when the Layer 3 Switch knows the IP address of the interface. ARP is enabled by default and cannot be disabled.

The Static ARP Table in a Layer 3 Switch contains entries that are useful in cases where you want to pre-configure an entry for a device that is not connected to the Layer 3 Switch, or you want to prevent a particular entry from aging out. The software removes a dynamic entry from the ARP cache if the ARP aging interval expires before the entry is refreshed. Static entries do not age out, regardless of whether or not the device receives an ARP request from the device that has the entry's address.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
snRtStaticArpTable brcdIp.1.2.2.5	None	IP static ARP Table.
snRtStaticArpEntry brcdIp.1.2.2.5.1	None	An entry in the IP static ARP Table.
snRtStaticArpIndex brcdIp.1.2.2.5.1.1 Syntax: Integer	Read only	An index for a static ARP entry. There can be up to 16 entries.
snRtStaticArpIp brcdIp.1.2.2.5.1.2 Syntax: IpAddress	Read-write	Shows the IP address of a static ARP entry.
snRtStatkicArpMac brcdIp.1.2.2.5.1.3 Syntax: OctetString	Read-write	Specifies the MAC address of a static ARP entry.
snRtStaticArpPort brcdIp.1.2.2.5.1.4 Syntax: PortIndex	Read-write	Specifies the port number attached to the device that has the MAC address of the entry: • For FastIron or NetIron products, the value of this object is from 1 – 42 • For BigIron products, the value of this object is an encoded number: Bit 0 to bit 7 – Port number. Bit 8 to bit 11 – Slot number. Beginning with software release 07.2.00, the following values have been added: Bit 16, set to 1 – Virtual router interface Bit 17, set to 1 – Loopback interface

Name, OID, and Syntax	Access	Description
snRtStaticArpRowStatus brcdIp.1.2.2.5.1.5 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snRtStaticArpIfIndex brcdIp.1.2.2.5.1.6 Syntax: InterfaceIndex	Read-write	The interface index for this entry.

Global ARP statistics

The following are the MIB objects display statistics for ARP. These objects were introduced in Service Provider Release 09.1.02 and Enterprise IronWare Release 07.8.00.

NOTE
The objects in this section not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, Identifier, and Syntax	Access	Description
snArpStatsTotalReceived brcdIp.1.1.3.22.1.1 Syntax: Counter32	Read only	The total number of ARP packets received from the interfaces, including those received in error.
snArpStatsRequestReceived brcdIp.1.1.3.22.1.2 Syntax: Counter32	Read only	The total number of input ARP request packets received from the interfaces.
snArpStatsRequestSent brcdIp.1.1.3.22.1.3 Syntax: Counter32	Read only	The total number of output ARP request packets sent from the interfaces.
snArpStatsRepliesSent brcdIp.1.1.3.22.1.4 Syntax: Counter32	Read only	The total number of output ARP reply packets sent from the interfaces.
snArpStatsPendingDrop brcdIp.1.1.3.22.1.5 Syntax: Counter32	Read only	The total number of ARP pending packets discarded.
snArpStatsInvalidSource brcdIp.1.1.3.22.1.6 Syntax: Counter32	Read only	The total number of ARP packets received with invalid sender protocol address.
snArpStatsInvalidDestination brcdIp.1.1.3.22.1.7 Syntax: Counter32	Read only	The total number of ARP packets received with invalid destination protocol address.

sFlow

This section presents the sFlow objects that are proprietary to products. Refer to the section "RFC 3176: InMon corporation's sFlow: A method for monitoring traffic in switched and routed networks" on page 39 to determine which standard objects can be used to manage sFlow.

This section presents the following objects:

- "sFlow source" on page 505
- "sFlow collector" on page 505

Refer to the configuration guide for a product for details on sFlow.

sFlow source

The following object supports the sFlow feature, which is available on certain modules.

Name, OID, and Syntax	Access	Description
snAgSFlowSourceInterface brcdIp.1.1.2.1.59 Syntax: InterfaceIndex	Read-write	Identifies the source interface for sFlow packets sent by the device that is running sFlow Export. Use the ifIndex value for this object to specify the source interface to be used. The interface should have an IP address configured for sFlow. A value of 0 indicates that source interface has not been configured for sFlow. Port 65534 is used to specify a null port.

sFlow collector

Currently, RFC 3176 allows only one sFlow destination to be configured. To configure two or more destinations, use the following table.

Name, OID, and Syntax	Access	Description
snSflowCollectorTable brcdIp.1.1.3.19.2	None	Table of sFlow collectors, beginning with the second collector. Configure the first sFlow collector using the sFlowCollectorAddress and sFlowCollectorPort objects in the RFC 3176 sFlowTable.
snSflowCollectorEntry brcdIp.1.1.3.19.2.1	None	A row in the sflow collector table
snSflowCollectorIndex brcdIp.1.1.3.19.2.1.1 Syntax: Integer32	Read only	The index to the sFlow collector table
snSflowCollectorIP brcdIp.1.1.3.19.2.1.2 Syntax: IpAddress	Read-write	The IP address of the sFlow collector

Name, OID, and Syntax	Access	Description
snSflowCollectorUDPPort brcdIp.1.1.3.19.2.1.3 Syntax: Integer32	Read-write	The number of the UDP port used by the sFlow collector
snSflowCollectorRowStatus brcdIp.1.1.3.19. 2.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • other(1) – Some other case • valid(2) – Row exists and is valid

sFlow collector table

Currently, RFC 3176 allows only one sFlow destination to be configured. Beginning with IronWare software release 07.6.01, you can configure two or more sFlow destinations, using the sFlow Collector Table.

Name, OID, and Syntax	Access	Description
snsFlowCollectorTable brcdIp.1.1.3.19.2	None	Table of sFlow collectors, beginning with the second collector. Configure the first sFlow collector using the sFlowCollectorAddress and sFlowCollectorPort objects in the RFC 3176 sFlowTable.
snSflowCollectorEntry brcdIp.1.1.3.19.2.1	None	A row in the sflow collector table
snSflowCollectorIndex brcdIp.1.1.3.19.2.1.1 Syntax: Integer	Read only	Shows the index to the sFlow collector table
snSflowCollectorIP brcdIp.1.1.3.19.2.1.2 Syntax: IpAddress	Read-write	Indicates the IP address of the sFlow collector

Name, OID, and Syntax	Access	Description
snSflowCollectorUDPPort brcdIp.1.1.3.19.2.1.3 Syntax: Integer	Read-write	Indicates the number of the UDP port used by the sFlow collector
snSflowCollectorRowStatus brcdIp.1.1.3.19. 2.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: delete(3) – Delete the row create(4) – Create a new row modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are deleted immediately. The following values can be returned on reads: noSuch(0) – No such row other(1) – Some other case valid(2) – Row exists and is valid

NetFlow Export

The following objects provide configuration information on the NetFlow Export feature. They apply to all devices except the ServerIron products.

NetFlow Export collects information about the traffic that chassis devices receive, then forwards and exports that information to a third-party collector. Third-party applications can then use the information to create reports, bill customers for network usage and so on. For detailed information on the NetFlow Export feature, refer to the configuration guide for a product.

The following sections present the objects available to manage NetFlow using SNMP:

- "Global NetFlow objects" on page 507
- "NetFlow Export collector table" on page 508
- "NetFlow Export aggregation table" on page 509
- "NetFlow Export interface table" on page 510

Global NetFlow objects

Name, OID, and Syntax	Access	Description
snNetFlowGblEnable brcdIp.1.1.3.18.1.1 Syntax: Integer	Read-write	Determines if NetFlow Export is enabled: • disabled(0) • enabled(1) Default: disabled(0)
snNetFlowGblVersion brcdIp.1.1.3.18.1.2 Syntax: Integer	Read-write	Shows the NetFlow Export version. Default: Version 5

Name, OID, and Syntax	Access	Description
snNetFlowGblProtocolIDisable brcdIp.1.1.3.18.1.3 Syntax: Integer32	Read-write	Indicates if TCP or UDP protocols are disabled: • Bit 0 – Disables the export of all protocol except UDP and TCP • Bit 1 – Disables the export of TCP protocol • Bit 2 – Disables the export of UDP protocol Default: 0
snNetFlowGblActiveTimeout brcdIp.1.1.3.18.1.4 Syntax: Integer32	Read-write	Specifies the maximum number of minutes that an active flow can be in the NetFlow Export cache. Valid values: 1 – 60 minutes Default: 60 minutes
snNetFlowGblInactiveTimeout brcdIp.1.1.3.18.1.5 Syntax: Integer32	Read-write	Specifies the maximum number of seconds that an inactive flow can be in the NetFlow Export cache. Valid values: 1 – 600 seconds Default: 60 seconds

NetFlow Export collector table

The following table provides information about the NetFlow Export collector. They apply to all devices except the ServerIron products.

Collectors are where expired UPD packets from devices are sent. Refer to the configuration guide for a product for details on this feature.

Name, OID, and Syntax	Access	Description
snNetFlowCollectorTable brcdIp.1.1.3.18.2	None	A table of each NetFlow Export collector information.
snNetFlowCollectorEntry brcdIp.1.1.3.18.2.1	None	A row in the NetFlow Export Collector Table.
snNetFlowCollectorIndex brcdIp.1.1.3.18.2.1.1 Syntax: Integer	Read only	The index to the NetFlow Export Collector Table. Valid values:1 – 10.
snNetFlowCollectorIp brcdIp.1.1.3.18.2.1.2 Syntax: IpAddress	Read-write	Shows the IP address of the collector.
snNetFlowCollectorUdpPort brcdIp.1.1.3.18.2.1.3 Syntax: Integer32	Read-write	Shows the UDP port number of the collector.
snNetFlowCollectorSourceInterface brcdIp.1.1.3.18.2.1.4 Syntax: Integer	Read-write	Shows the source port for the NetFlow Export packets. Packets will be exported through this port: • A valid port number – The port configured to be the source port. • 0 – No source port specified. The port connected to the collector to the collector is the source port.
snNetFlowCollectorRowStatus brcdIp.1.1.3.18.2.1.5 Syntax: Integer	Read-write	Creates or deletes a NetFlow Export Collector Table entry: • other(1) • valid(2) • delete(3) • create(4)

NetFlow Export aggregation table

The following table provides information on the NetFlow Export aggregation schemes. They apply to all devices except the ServerIron products.

By default, NetFlow Export exports a separate flow for each unique set of flow information. To streamline data export, you can consolidate flows by creating aggregate caches that contain individual flows based on specific information in the flow. Refer to the configuration guide for a product for details on the NetFlow Export aggregation.

Name, OID, and Syntax	Access	Description
snNetFlowAggregationTable brcdIp.1.1.3.18.3	None	The NetFlow Export Aggregation Table
snNetFlowAggregationEntry brcdIp.1.1.3.18.3.1	None	An entry in the NetFlow Export Aggregation Table.
snNetFlowAggregationIndex brcdIp.1.1.3.18.3.1.1 Syntax: Integer	Read only	Specifies what information will be used to aggregate the flow: • as(1) – Autonomous system scheme uses the input and output interfaces and the source and destination BGP4 AS. • protocolPort(2) – IP protocol and application port source and destination IP protocol, and source and destination TCP or UDP port numbers. • destPrefix(3) – Destination prefix scheme uses output interface, destination network mask and prefix, and destination BGP4 AS. • sourcePrefix(4) – Source prefix scheme uses the input interface, source network mask and prefix, and source BGP4 AS. • prefix(5) – Source and destination prefix scheme use the input and output interfaces, source and destination network masks and prefixes, and source and destination BGP4 AS.
snNetFlowAggregationIp brcdIp.1.1.3.18.3.1.2 Syntax: IpAddress	Read-write	The IP address of the NetFlow Export aggregation collector.
snNetFlowAggregationUdpPort brcdIp.1.1.3.18.3.1.3 Syntax: Integer	Read-write	The UDP port of the NetFlow Export aggregation collector.
snNetFlowAggregationSourceInterface brcdIp.1.1.3.18.3.1.4 Syntax: Integer	Read-write	Shows the source port to export the NetFlow Export aggregation packets: • A valid port number – The port configured to be the source port. • 0 – No source port specified. The port connected to the collector to the collector is the source port.
snNetFlowAggregationNumberOfCache Entries brcdIp.1.1.3.18.3.1.5 Syntax: Integer32	Read-write	Shows the maximum number of aggregated flows that the aggregation cache can contain.

Name, OID, and Syntax	Access	Description
snNetFlowAggregationActiveTimeout brcdIp.1.1.3.18.3.1.6 Syntax: Integer32	Read-write	Shows the maximum time in minutes that an active flow can remain in the NetFlow Export aggregation cache. Valid values: 1 – 60 minutes. Default: 30 minutes
snNetFlowAggregationInactiveTimeout brcdIp.1.1.3.18.3.1.7 Syntax: Integer32	Read-write	Shows the maximum time in seconds that an inactive flow can remain in the NetFlow Export aggregation cache. The object can have a value from 10 – 600 seconds. Default: 15 seconds
snNetFlowAggregationEnable brcdIp.1.1.3.18.3.1.8 Syntax: Integer	Read-write	Indicates if NetFlow Export aggregation for this aggregation scheme is enabled: • disabled(0) • enabled(1) Default: disabled(0)
snNetFlowAggregationRowStatus brcdIp.1.1.3.18.3.1.9 Syntax: Integer	Read-write	Creates or deletes a NetFlow Export Aggregation table entry: • other(1) • valid(2) • delete(3) • create(4)

NetFlow Export interface table

The following table contains information about the switching type in every NetFlow Export interface. They apply to all devices except the ServerIron products.

Name, OID, and Syntax	Access	Description
snNetFlowIfTable brcdIp.1.1.3.18.4	None	Shows a list of interface entries. The number of entries is given by the value of ifNumber.
snNetFlowIfEntry brcdIp.1.1.3.18.4.1	None	Entry containing the type of switching performed on that interface.
snNetFlowIfIndex brcdIp.1.1.3.18.4.1.1 Syntax: Integer	Read only	Shows a unique value, greater than zero, for each interface. Valid values: 1 – 65536. It is recommended that values are assigned contiguously starting with 1. The value for each interface sub-layer must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization.
snNetFlowIfFlowSwitching brcdIp.1.1.3.18.4.1.2 Syntax: Integer	Read-write	Indicates if flow switching in a particular interface is enabled: • disable(0) • enable(1)

System logging

The objects in this section manage system logging functions (Syslog) using SNMP. The objects are grouped in the following sections:

- "Global objects" on page 511
- "Dynamic system logging buffer table" on page 512
- "Static system logging buffer table" on page 513

Refer to the configuration guide for a product for additional information on Syslog.

Global objects

The objects below are for global system logging processes for all devices.

Name, OID, and Syntax	Access	Description
snAgSysLogGblEnable brcdIp.1.1.2.6.1.1 Syntax: Integer	Read-write	Enables or disables system logging. Set this object to one of the following values: • Disable(0) • Enable(1) Default: enable(1)
snAgSysLogGblBufferSize brcdIp.1.1.2.6.1.2 Syntax: Integer32	Read-write	Sets the number of dynamic system logging entries. Valid values: Up to 100 entries. Default: 50 entries
snAgSysLogGblClear brcdIp.1.1.2.6.1.3 Syntax: Integer	Read-write	Clears the dynamic and static system log buffers. Set this object to one of the following values: • normal(0) – System logs will not be cleared • clearAll(1) – Clears both dynamic and static system log buffers • clearDynamic(2) – Clears only the dynamic system log • clearStatic(3) – Clears only the static system log
snAgSysLogGblCriticalLevel brcdIp.1.1.2.6.1.4 Syntax: Integer32	Read-write	Filters and identifies the events that will be logged in the logging buffer. This object consists of 32 bits. The following shows the meaning of each bit: **Bit Meaning** 8 to 31reserved 7 Warning (warning conditions) 6 Notification (normal but significant conditions) 5 Informational (informational messages) 4 Error (error conditions) 2 Debugging (debugging messages) 1 Critical (critical conditions). Setting this bit to 1 tells the logging buffer to accept the corresponding event. 0 Alert (immediate action needed). Setting this bit to 0 makes the logging buffer reject the corresponding event. Default: 255
snAgSysLogGblLoggedCount brcdIp.1.1.2.6.1.5 Syntax: Counter32	Read only	Shows the number events logged in the system logging buffer.
snAgSysLogGblDroppedCount brcdIp.1.1.2.6.1.6 Syntax: Counter32	Read only	Shows the number of events dropped from the system logging buffer.
snAgSysLogGblFlushedCount brcdIp.1.1.2.6.1.7 Syntax: Counter32	Read only	Shows the number of times that the system logging buffer was cleared.

Name, OID, and Syntax	Access	Description
snAgSysLogGblOverrunCount brcdIp.1.1.2.6.1.8 Syntax: Counter32	Read only	Shows the number of times that the system logging buffer has wrapped around.
snAgSysLogGblFacility brcdIp.1.1.2.6.1.10 Syntax: Integer	Read-write	Shows the facility code: • kern(1) • user(2) • mail(3) • daemon(4) • auth(5) • syslog(6) • lpr(7) • news(8) • uucp(9) • sys9(10) • sys10(11) • sys11(12) • sys12(13) • sys13(14) • sys14(15) • cron(16) • local0(17) • local1(18) • local2(19) • local3(20) • local4(21) • local5(22) • local6(23) • local7(24) Default: user(2)

Dynamic system logging buffer table

The following table applies to all devices. It contains the events logged in the Dynamic System Log. Events that are not logged in the Static System Log are logged in the Dynamic System Log.

Name, OID, and Syntax	Access	Description
snAgSysLogBufferTable brcdIp.1.1.2.6.2	None	Dynamic system logging buffer table.
snAgSysLogBufferEntry brcdIp.1.1.2.6.2.1	None	A row in the dynamic system logging buffer table.
snAgSysLogBufferIndex brcdIp.1.1.2.6.2.1.1 Syntax: Integer32	Read only	Shows the index to the dynamic system logging buffer table.
snAgSysLogBufferTimeStamp brcdIp.1.1.2.6.2.1.2 Syntax: Time ticks	Read only	Shows the time stamp for when the event is logged.

Name, OID, and Syntax	Access	Description
snAgSysLogBufferCriticalLevel brcdIp.1.1.2.6.2.1.3 Syntax: Integer	Read only	Show how critical this event is: • other(1) • alert(2) • critical(3) • debugging(4) • emergency(5) • error(6) • informational(7) • notification(8) • warning(9)
snAgSysLogBufferMessage brcdIp.1.1.2.6.2.1.4 Syntax: DisplayString	Read only	Displays the system logging message.
snAgSysLogBufferCalTimeStamp brcdIp.1.1.2.6.2.1.5 Syntax: DisplayString	Read only	Shows the time stamp when the event is logged. This object is used only if an external time source, such as an SNTP server, is configured. Otherwise, the value of this object is 0. This object returns a NULL terminated time stamp string if the system calendar time was set. It returns a blank if the system calendar time was not set.

Static system logging buffer table

The following table applies to all devices. It contains the events logged in the Static System Log. The Static System Log receives power failures, fan failures, temperature warnings, or shutdown messages.

Name, OID, and Syntax	Access	Description
snAgStaticSysLogBufferTable brcdIp.1.1.2.6.3	None	Static system logging buffer table.
snAgStaticSysLogBufferEntry brcdIp.1.1.2.6.3.1	None	A row in the static system logging buffer table.
snAgStaticSysLogBufferIndex brcdIp.1.1.2.6.3.1.1 Syntax: Integer	Read only	The index to the static system logging buffer table.
snAgStaticSysLogBufferTimeStamp brcdIp.1.1.2.6.3.1.2 Syntax: Time ticks	Read only	A time stamp, in number of time ticks, when the event is logged.
snAgStaticSysLogBufferCriticalLevel brcdIp.1.1.2.6.3.1.3 Syntax: Integer	Read only	The critical level of this event: • alert(2) • critical(3) • debugging(4) • emergency(5) • error(6) • informational(7) • notification(8) • warning(9)

Name, OID, and Syntax	Access	Description
snAgStaticSysLogBufferMessage brcdIp.1.1.2.6.3.1.4 Syntax: DisplayString	Read only	The system logging message.
snAgStaticSysLogBufferCalTimeStamp brcdIp.1.1.2.6.3.1.5 Syntax: DisplayString	Read only	A time stamp when the event is logged. This object is used only if an external time source, such as an SNTP server, is configured. Otherwise, the value of this object is 0. If an SNTP server is used to maintain time, then this object adds the value of the object "snAgStaticSysLogBufferTimeStamp" to the SNTP base to calculate the absolute time. This object returns a NULL terminated time stamp string if the system calendar time was set. It returns a blank if the system calendar time was not set.

System log server table

The System Log (Syslog) Server Table shows which servers will receive Syslog messages. Every server in this table will receive all Syslog messages.

Name, OID, and Syntax	Access	Description
snAgSysLogServerTable brcdIp.1.1.2.6.4	None	System Log Server Table
snAgSysLogServerEntry brcdIp.1.1.2.6.4.1	None	A row in the System Log Server Table
snAgSysLogServerIP brcdIp.1.1.2.6.4.1.1 Syntax: IpAddress	Read-write	IP address of System Log server
snAgSysLogServerUDPPort brcdIp.1.1.2.6.4.1.2 Syntax: Integer	Read-write	UDP port number of the Syslog server. Valid values: 0 – 65535
snAgSysLogServerRowStatus brcdIp.1.1.2.6.4.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • other(1) – Other • valid(2) – Row exists and is valid

CAM statistics

The following tables present statistics for the CAM:

- "System log server table"
- "IP CAM statistics table" on page 515

These tables were introduced in Service Provider Release 09.1.02 and Enterprise IronWare Release 07.8.00.

IP CAM statistics table

This table lists the CAM statistics for Layer 3. It is the output for the **dm cam-stat ip** CLI command.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, Identifier, and Syntax	Access	Description
snCAMIpStatTable brcdIp.1.1.2.12.2	NA	IP CAM Statistics Table
snCAMIpStatEntry brcdIp.1.1.2.12.2.1	NA	An entry in the IP CAM Statistics Table. Each row shows statistics for one interface and level.
snCAMIpStatIfIndex brcdIp.1.1.2.12.2.1.1 Syntax: Unsigned32	Read only	The ifIndex value of the local interface.
snCAMIpStatLevel brcdIp.1.1.2.12.2.1.2 Syntax: Unsigned32	Read only	Level of CAM entry for that interface.
snCAMIpStatFreeEntries brcdIp.1.1.2.12.2.1.3 Syntax: Unsigned32	Read only	Free entries in the IP CAM for that interface and level.
snCAMIpStatTotalEntries brcdIp.1.1.2.12.2.1.4 Syntax: Unsigned32	Read only	Total entries in the IP CAM for that interface and level.

The output provides the following information:

- L3 L3 1 - 2047 (0x00001 - 0x007ff), free 2047 (0x007ff)
- L3 L2 2048 - 4095 (0x00800 - 0x00fff), free 2048 (0x00800)
- L3 4096 - 32767 (0x01000 - 0x07fff), free 28662 (0x06ff6)

Values are shared across the DMA. Also, if IP activity across DMAs are not different, some fields may show the same values.

CAM statistics table

This table shows CAM statistics for all master DMAs. It is equivalent to the **dm cam stat <dma master num>** CLI command.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, Identifier, and Syntax	Access	Description
snCAMStatTable brcdIp.1.1.2.12.3	NA	CAM Statistics Table
snCAMStatEntry brcdIp.1.1.2.12.3.1	NA	A row representing CAM statistics for a given DMA ID number.
snCamStatDMAIdNumber brcdIp.1.1.2.12.3.1.1 Syntax: Unsigned32	Read only	DMA ID number.
snCamStatDMAMasterNumber brcdIp.1.1.2.12.3.1.2 Syntax: Unsigned32	Read only	DMA master for the DMA ID number.
snCamStatFreePool0Entries brcdIp.1.1.2.12.3.1.3 Syntax: Unsigned32	Read only	CAM free pool0 entries.
snCamStatFreePool1Entries brcdIp.1.1.2.12.3.1.4 Syntax: Unsigned32	Read only	CAM free pool1 entries.
snCamStatFreePool2Entries brcdIp.1.1.2.12.3.1.5 Syntax: Unsigned32	Read only	CAM free pool2 entries.
snCamStatFreePool3Entries brcdIp.1.1.2.12.3.1.6 Syntax: Unsigned32	Read only	CAM free pool3 entries.
snCamStatFreeL2Entries brcdIp.1.1.2.12.3.1.7 Syntax: Unsigned32	Read only	CAM Free L2 entries
snCamStatFreeL2LowestSection brcdIp.1.1.2.12.3.1.8 Syntax: Unsigned32	Read only	CAM Free L2 lowest section entries.
snCamStatHostLookupCount brcdIp.1.1.2.12.3.1.9 Syntax: Unsigned32	Read only	CAM host lookup count for router.
snCamStatRouteLookupCount brcdIp.1.1.2.12.3.1.10 Syntax: Unsigned32	Read only	CAM route lookup count for router.
snCamStatLevel1 brcdIp.1.1.2.12.3.1.11 Syntax: Unsigned32	Read only	CAM stat level1 entries for router.

Name, Identifier, and Syntax	Access	Description
snCamStatLevel2 brcdIp.1.1.2.12.3.1.12 Syntax: Unsigned32	Read only	CAM stat level2 entries for router.
snCamStatLevel3 brcdIp.1.1.2.12.3.1.13 Syntax: Unsigned32	Read only	CAM stat level3 entries for router.
snCamStatMacFailCount brcdIp.1.1.2.12.3.1.14 Syntax: Unsigned32	Read only	CAM MAC fail count.
snCamStatIPRouteFailCount brcdIp.1.1.2.12.3.1.15 Syntax: Counter	Read only	CAM IP route fail count.
snCamStatIPSessionFailCount brcdIp.1.1.2.12.3.1.16 Syntax: Counter	Read only	CAM IP session fail count.
snCamStatIPMCastFailCount brcdIp.1.1.2.12.3.1.17 Syntax: Counter	Read only	CAM IP multicast fail count.
snCamStatL2SessionFailCount brcdIp.1.1.2.12.3.1.18 Syntax: Counter	Read only	CAM L2 session fail count.
snCamStatAddMACCount brcdIp.1.1.2.12.3.1.19 Syntax: Counter	Read only	CAM add MAC count.
snCamStatAddVLANCount brcdIp.1.1.2.12.3.1.20 Syntax: Counter	Read only	CAM add VLAN count.
snCamStatAddIPHostCount brcdIp.1.1.2.12.3.1.21 Syntax: Counter	Read only	CAM add IP host count.
snCamStatAddIPRouteCount brcdIp.1.1.2.12.3.1.22 Syntax: Counter	Read only	CAM add IP route count.
snCamStatAddIPSessionCount brcdIp.1.1.2.12.3.1.23 Syntax: Counter	Read only	CAM add IP session count.
snCamStatAddIPMCastCount brcdIp.1.1.2.12.3.1.24 Syntax: Counter	Read only	CAM add IP multicast count.
snCamStatAddL2SessionCount brcdIp.1.1.2.12.3.1.25 Syntax: Counter	Read only	CAM add L2 session count.

Name, Identifier, and Syntax	Access	Description
snCamStatAddIPXCount brcdIp.1.1.2.12.3.1.26 Syntax: Counter	Read only	CAM add IPX count.
snCamStatDeleteDMACamCount brcdIp.1.1.2.12.3.1.27 Syntax: Counter	Read only	CAM delete DMA CAM count.

CAM usage tables

The CAM Usage Tables allow customers to poll the interface modules for CAM usage information. Information is available for the following:

- Available CAM size per partition
- Amount of free CAM
- Amount of used CAM in percent

The CAM usage tables are equivalent to the **show cam-partition** CLI command. CAM partition profile is configured by the **cam-partition profile** CLI command

CAM usage data is stored in the interface processors and are obtained by the management processor.

This section contains the following:

- "CAM profile" on page 518
- "CAM usage for layer 3 traffic" on page 519
- "CAM usage for layer 2 traffic" on page 520
- "CAM usage session table" on page 521
- "CAM usage other table" on page 522

CAM profile

This object identifies CAM partition profiles. Each profile adjusts the partitions to optimize the device for corresponding applications.

NOTE
This object is supported on devices running the NetIron Multi-Service IronWare software release 05.0.00 and later.

Name, Identifier, and Syntax	Access	Description
snCamProfile brcdIp.1.14.1.1.1.1 Syntax: Integer	Read only	Displays one of the following: • default(1), • ipv4(2), • ipv4Ipv6(3), • ipv4Ipv62(4), • ipv4Vpls(5), • ipv4Vpn(6), • ipv6(7), • l2Metro(8), • l2Metro2(9), • mplsL3vpn(10), • mplsL3vpn2(11), • mplsVpls(12), • mplsVpls2(13), • mplsVpnVpls(14), • multiService(15), • multiService2(16), • multiService3(17), • multiService4(18)

CAM usage for layer 3 traffic

The following table contains information about the CAM usage on the device by Layer 3 traffic.

NOTE
This object is supported in the NetIron Multi-Service IronWare software release 03.8.00 and later.

Name, Identifier, and Syntax	Access	Description
snCamUsageL3Table brcdIp.1.14.1.1.2.1	NA	The CAM Usage table for Layer 3 Traffic.
snCamUsageL3Entry brcdIp.1.14.1.1.2.1.1	NA	An entry in the snCamUsageL3Table.
snCamUsageL3Slot brcdIp.1.14.1.1.2.1.1.1 Syntax: Unsigned32	Not accessible	A number which uniquely identifies an interface module on the device
snCamUsageL3Processor brcdIp.1.14.1.1.2.1.1.2 Syntax: Unsigned32	Not accessible	A number which uniquely identifies the network processor of the interface module identified by the "snCamUsageL3Slot" object.

Name, Identifier, and Syntax	Access	Description
snCamUsageL3Type brcdIp.1.14.1.1.2.1.1.3 Syntax: Integer	Not accessible	Identifies the type of Layer 3 traffic passing through the network processor: • ipv4(1) • ipv6(2) • ipv4vpn(3) • ipv6vpn(4). Available in NetIron Multi-Service IronWare software release 04.1.00 and later.
snCamUsageL3Supernet brcdIp.1.14.1.1.2.1.1.4 Syntax: Unsigned32	Not accessible	Identifies the Supernet for the Layer 3 type traffic. It provides information for longest match lookup. For example: • 0 (zero) - all the bits of an IP address will be matched • 1 - all but the lowest bit in an IP address will be matched. Valid Values: • IPv4 and IPv4VPN: 0 - 32, where a value of 32 indicates the entry is the total of other Supernets indexed by [0..31]. • IPv6: 0..10, where a value of 10 indicates the entry is the total of other Supernets indexed by [0..9].
snCamUsageL3Size brcdIp.1.14.1.1.2.1.1.5 Syntax: Unsigned32	Read only	The effective CAM size by the Layer 3 traffic: • iPv4 traffic: Each unit is 4 bytes. • IPv4vpn traffic: Each unit is 8 bytes. • IPv6 traffic: Each unit is 16 bytes.
snCamUsageL3Free brcdIp.1.14.1.1.2.1.1.6 Syntax: Gauge32	Read only	The amount of CAM currently available by the Layer 3 traffic entry: • IPv4 traffic: each unit is 4 bytes. • IPv4vpn traffic: each unit is 8 bytes. • IPv6 traffic: each unit is 16 bytes.
snCamUsageL3UsedPercent brcdIp.1.14.1.1.2.1.1.7 Syntax: Percent	Read only	The percentage of CAM currently being used by the Layer 3 traffic.

CAM usage for layer 2 traffic

The following table contains information about the CAM usage on the device by Layer 2 traffic.

NOTE
This object is supported in the NetIron Multi-Service IronWare software release 03.8.00 and later.

Name, Identifier, and Syntax	Access	Description
snCamUsageL2Table brcdIp.1.14.1.1.2.2	NA	The CAM usage table for Layer 2 traffic.
snCamUsageL2Entry brcdIp.1.14.1.1.2.2.1	NA	An entry in the snCamUsageL2Table.
snCamUsageL2Slot brcdIp.1.14.1.1.2.2.1.1 Syntax: Unsigned32	Not accessible	A number which uniquely identifies an interface module on the device
snCamUsageL2Processor brcdIp.1.14.1.1.2.2.1.2 Syntax: Unsigned32	Not accessible	A number which uniquely identifies the network processor of the interface module identified by the "snCamUsageL2Slot" object.

Name, Identifier, and Syntax	Access	Description
snCamUsageL2Type brcdIp.1.14.1.1.2.2.1.3 Syntax: Integer	Not accessible	Identifies the type of layer 2 traffic passing through the network processor: • forwarding(1) • protocol(2) • flooding(3) • total(4)
snCamUsageL2Size brcdIp.1.14.1.1.2.2.1.4 Syntax: Unsigned32	Not accessible	Indicates the effective CAM size for this layer 2 traffic entry. Each unit is 8 bytes.
snCamUsageL2Free brcdIp.1.14.1.1.2.2.1.5 Syntax: Gauge32	Read only	Shows the amount of CAM currently available for this Layer 2 traffic. Each unit is 8 bytes."
snCamUsageL2UsedPercent brcdIp.1.14.1.1.2.2.1.6 Syntax: Percent	Read only	Shows the percentage of CAM currently being used for this Layer 2 traffic.

CAM usage session table

The following table contains information about the CAM usage on the device by sessions traffic.

NOTE
This object is supported in the NetIron Multi-Service IronWare software release 03.8.00 and later.

Name, Identifier, and Syntax	Access	Description
snCamUsageSessionTable brcdIp.1.14.1.1.2.3	NA	The CAM Usage table for Layer 3 Traffic.
snCamUsageSessionEntry brcdIp.1.14.1.1.2.3.1	NA	An entry in the snCamUsageSessionTable.
snCamUsageSessionSlot brcdIp.1.14.1.1.2.3.1.1 Syntax: Unsigned32	Not accessible	A number that uniquely identifies an interface module on the device.
snCamUsageSessionProcessor brcdIp.1.14.1.1.2.3.1.2 Syntax: Unsigned32	Not accessible	A number which uniquely identifies the network processor on the interface module identified by the "snCamUsageSessionSlot" object.

Name, Identifier, and Syntax	Access	Description
snCamUsageSessionType brcdIp.1.14.1.1.2.3.1.3 Syntax: Integer	Not accessible	Identifies the type of session: • ipv4Multicast(1) • ipv4andMacReceiveAcl(2) • ipv4andMacRuleAcl(3) • ipv4andMacTotal(4) • ipv4andMacOut(5) • ipv6Multicast(6) • ipv6ReceiveAcl(7) • ipv6RuleAcl(8) • ipv6Total(9) • ipv6Out(10) • labelOut(11) • ipv4SrcGuardDenial(12) • ipv4SrcGuardPermit(13) • internalForwardingLookup(14)
snCamUsageSessionSize brcdIp.1.14.1.1.2.3.1.4 Syntax: Unsigned32	Read only	Identifies the effective CAM size for this session traffic entry: • IPv4 sessions: each unit is 16 bytes • IPv6 sessions: each unit is 64 bytes
snCamUsageSessionFree brcdIp.1.14.1.1.2.3.1.5 Syntax: Gauge32	Read only	The amount of CAM currently available for this session: • IPv4 sessions: each unit is 16 bytes • IPv6 sessions: each unit is 64 bytes
snCamUsageSessionUsedPercent brcdIp.1.14.1.1.2.3.1.6 Syntax: Percent	Read only	The percentage of CAM currently being used by this session.

CAM usage other table

The following table contains information about the CAM usage on the device by traffic other than Layer 3, Layer 2, and Sessions.

NOTE
This object is supported in the NetIron Multi-Service IronWare software release 03.8.00 and later.

Name, Identifier, and Syntax	Access	Description
snCamUsageOtherTable brcdIp.1.14.1.1.2.4	NA	CAM Usage table for traffic types other than Layer 3, Layer 2, and Sessions traffic.
snCamUsageOtherEntry brcdIp.1.14.1.1.2.4.1	NA	An entry in the snCamUsageOtherTable.
snCamUsageOtherSlot brcdIp.1.14.1.1.2.4.1.1 Syntax: Unsigned32	Not accessible	A number that uniquely identifies an interface module on the device
snCamUsageOtherProcessor brcdIp.1.14.1.1.2.4.1.2 Syntax: Unsigned32	Not accessible	A number which uniquely identifies the network processor on the interface module identified by the "snCamUsageOtherSlot" object.
snCamUsageOtherType brcdIp.1.14.1.1.2.4.1.3 Syntax: Integer	Not accessible	Identifies the traffic type: • gre(1) • multicastVpls(2)

Name, Identifier, and Syntax	Access	Description
snCamUsageOtherSize brcdIp.1.14.1.1.2.4.1.4 Syntax: Unsigned32	Read only	Indicates the effective CAM size for this Other traffic type: • GRE: each unit is 8 bytes • Multicast VPLS: each unit is 16 bytes
snCamUsageOtherFree brcdIp.1.14.1.1.2.4.1.5 Syntax: Gauge32	Read only	Indicates the amount of CAM currently available to this traffic type: • GRE: each unit is 8 bytes • Multicast VPLS: each unit is 16 bytes
snCamUsageOtherUsedPercent brcdIp.1.14.1.1.2.4.1.6 Syntax: Percent	Read only	Indicates the percentage of CAM currently being used for this traffic type.

System process utilization table

This table lists CPU utilization and statistics for all CPU processes on the device. It is equivalent to the **show process cpu** CLI command, which displays routing statistics for major protocols.

This table was introduced in Service Provider Release 09.1.02 and Enterprise IronWare Release 07.8.00.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, Identifier, and Syntax	Access	Description
snCpuProcessTable brcdIp.1.1.2.11.2	NA	System Process Utilization Table
snCpuProcessEntry brcdIp.1.1.2.11.2.1	NA	A row in the System Process Utilization Table.
snCpuProcessName brcdIp.1.1.2.11.2.1.1 Syntax: DisplayString	Read only	Name of the process.
snCpuProcess5SecUtil brcdIp.1.1.2.11.2.1.2 Syntax: Gauge	Read only	Statistics collected during the last 5 seconds of process utilization. Divide this number by 100 to get the percentage utilization.
snCpuProcess1MinUtil brcdIp.1.1.2.11.2.1.3 Syntax: Gauge	Read only	Statistics collected during the last 1 minute of process utilization. Divide this number by 100 to get the percentage utilization.
snCpuProcess5MinUtil brcdIp.1.1.2.11.2.1.4 Syntax: Gauge	Read only	Statistics collected during the last 5 minutes of process utilization. Divide this number by 100 to get the percentage utilization.

Name, Identifier, and Syntax	Access	Description
snCpuProcess15MinUtil brcdIp.1.1.2.11.2.1.5 Syntax: Gauge	Read only	Statistics collected during the last 15 minutes of process utilization. Divide this number by 100 to get the percentage utilization.
snCpuProcessRuntime brcdIp.1.1.2.11.2.1.6 Syntax: Counter	Read only	Process runtime in milliseconds.

Objects for debugging

The following objects are for debugging. They are equivalent to the **debug** CLI command.

These objects were introduced in Service Provider Release 09.1.02 and Enterprise IronWare Release 07.8.00.

Name, Identifier, and Syntax	Access	Description
snAgSystemDebug brcdIp.1.1.2.12.5 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	NA	The System Debug group
snAgSystemDebugTotalIn brcdIp.1.1.2.12.5.1 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Total incoming packet count. Sum of Buffer Manager and CPU read count.
snAgSystemDebugTotalOut brcdIp.1.1.2.12.5.2 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Total outgoing packet count.

Name, Identifier, and Syntax	Access	Description
snAgSystemDebugCpuQueueRead brcdIp.1.1.2.12.5.3 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	CPU Queue read count.
snAgSystemDebugDRAMBuffer brcdIp.1.1.2.12.5.4 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	DRAM buffer count.
snAgSystemDebugBMBuffer brcdIp.1.1.2.12.5.5 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	BM buffer count.
snAgSystemDebugBMFreeBuffer brcdIp.1.1.2.12.5.6 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Free BM buffer count.

Name, Identifier, and Syntax	Access	Description
snAgSystemDebugBMFreeBufferMgmt brcdIp.1.1.2.12.5.7 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	Free BM buffer management count.
snAgSystemDebugIpcGigLock brcdIp.1.1.2.12.5.8 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	IPC GIG lock count.
snAgSystemDebugDRAMGetError brcdIp.1.1.2.12.5.9 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	DRAM get error count.
snAgSystemDebugDRAMToBMCopyFail brcdIp.1.1.2.12.5.10 Syntax: Unsigned32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	Read only	DRAM to Buffer Manager copy fail count.

Support for optical monitoring

The following objects are for support is POS and Ethernet optical monitoring. They are equivalent to the **show optics** CLI command.

These objects were introduced in XMR/MLX 03.5.00 IronWare Release.

Name, Identifier, and Syntax	Access	Description
snIfOpticalMonitoringInfoTable brcdIp.1.1.3.3.6	None	This table lists the instrumented parameters of all optical interfaces.
snIfOpticalMonitoringInfoEntry brcdIp.1.1.3.3.6.1 Syntax: Unsigned32	None	The snIfOpticalMonitoringInfoEntry specifies the optical parameters of the specified interface.Only the ifIndices of optical interfaces whose parameters need to be monitored will be used to index this table.
snIfOpticalMonitoringTemperature brcdIp.1.1.3.3.6.1.1 Syntax: DisplayString	Read-only	This object holds the value of the transmitter laser diode temperature for the interface. This object indicates the health of the transmitter. The format is xxx.yyyy (Celsius), followed by whether the measured value is normal, high/low alarm or high/low warning.
snIfOpticalMonitoringTxPower brcdIp.1.1.3.3.6.1.2 Syntax: DisplayString	Read-only	This object holds the value of the transmitter optical signal power for the interface, measured in dBm, followed by whether this is a normal value, or high/low warning or alarm.
snIfOpticalMonitoringRxPower brcdIp.1.1.3.3.6.1.3 Syntax: DisplayString	Read-only	This object holds the value of the receiver optical signal power for the interface, measured in dBm, followed by whether this is a normal value, or high/low warning or alarm.
snIfOpticalMonitoringTxBiasCurrent brcdIp.1.1.3.3.6.1.4 Syntax: DisplayString	Read-only	Tx Bias Current. It is measured in mA, and is followed by whether this is a normal value, or high/low warning or alarm.

Chapter

29

Objects for Stacking

NOTE
The object in this chapter are not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, NetIron CER, FastIron SuperX, FastIron SX, ServerIron, and ServerIron ADX devices.

Global objects for stacking

This chapter presents the MIB objects for Stacking. They apply to the Stacking devices, such as FGS-STK and FLS-STK devices.

Name, OID, and Syntax	Access	Description
snStackingGlobalConfigState brcdIp.1.1.3.31.1.1 Syntax: Integer	Read-write	Shows the state of the stacking feature: • none(0): neutral • enabled(1): Stacking is enabled and can send and receive packets • disabled(2): Stacking is disabled and cannot send or receive packets.
snStackingGlobalMacAddress brcdIp.1.1.3.31.1.2 Syntax: MAC address	Read-write	Management MAC address of the stacking system. This is available so you can change the management MAC address of stack for administrative purpose; however, it is strongly recommended that this command should be used with extreme caution to prevent duplicate MAC addresses. You must reboot the system before the new MAC address takes effect. This object is mutually exclusive from enabling the persistent MAC timer. Enter zero MAC address to remove the configured MAC address.
snStackingGlobalPersistentMacTimerState brcdIp.1.1.3.31.1.3 Syntax: Integer	Read-write	The configure persistent MAC timer state for the stacking feature: • enabled(0): The persistent MAC timer is active and configured. The persistent MAC timer is set as the default timer (60 minutes) • disabled(1): Deactivate the persistent MAC timer. It will stop the use of persistent MAC address and use new active stack unit's base MAC address

Name, OID, and Syntax	Access	Description
snStackingGlobalPersistentMacTimer brcdIp.1.1.3.31.1.4 Syntax: Integer32	Read-write	Persistent MAC timer in minutes for the stacking system. This timer shows the number of minutes to retain the original active stack unit's base MAC address in case the active unit crashes or is removed. This timer is triggered when a new active unit is elected. When the timer expires, the new active unit will change the stacking MAC to its own base MAC address and advertise its own base MAC address to management VLAN to update the ARP table of members. If you decide to use the new active unit's MAC address, you must enter this timer again to reactivate the persistent MAC. Valid values are: • 0 - keep it forever • 5 to 3600 minutes The default is 60 minutes.
snStackingGlobalTopology brcdIp.1.1.3.31.1.5 Syntax: Integer	Read only	The topology of the stacking system: • other(1) • chain(2) • ring(3) • standalone(4)

Stacking configuration unit table

Use this table to display and configured stacking information for each unit.

Name, OID, and Syntax	Access	Description
snStackingConfigUnitTable brcdIp.1.1.3.31.2.1	N/A	An entry in the Stacking Configuration Table.
snStackingGlobalConfigState brcdIp.1.1.3.31.2.1.1.1 Syntax: Integer	N/A	The ID of the unit in a stack
snStackingConfigUnitPriority brcdIp.1.1.3.31.2.1.1.2 Syntax: Integer32	Read-write	The priority in Active/backup election. Value can be from 0 to 255.
snStackingConfigUnitConfigStackPort brcdIp.1.1.3.31.2.1.1.3 Syntax: InterfaceIndex	Read-write	The IfIndex for the configured stacking port. If no stacking port is configured, this object displays zero and the first two 10Gigabit ports as the default stacking ports. Enter zero to remove the configured stacking port.
snStackingConfigUnitRowStatus brcdIp.1.1.3.31.2.1.1.4 Syntax: Integer	Read-write	This object is used to delete a row in the table and control if they are used. The values that can be written for SET are: • delete(3): Deletes the row. Deleted rows are deleted immediately. The following values can be returned on reads: • noSuchName...no such row • other(1): some other cases • valid(2): the row exists and is valid

Name, OID, and Syntax	Access	Description
snStackingConfigUnitType brcdIp.1.1.3.31.2.1.1.5 Syntax: DisplayString	Read only	A description of the configured or active system type for each unit.
snStackingConfigUnitState brcdIp.1.1.3.31.2.1.1.6 Syntax: Integer	Read only	The state of the unit: • local(1) • remote(2) • reserved(3) • empty(4)
snStackingConfigUnitStackPort1 brcdIp.1.1.3.31.2.1.1.7 Syntax: InterfaceIndex	Read-only	First stack port for each unit. It returns 0 if the stack port does not exist.
snStackingConfigUnitStackPort2 brcdIp.1.1.3.31.2.1.1.8 Syntax: InterfaceIndex or zero	Read only	Second stack port for each unit. It returns 0 if the stack port does not exist.

Stacking operation unit table

Use this table to display information about the role and status of a unit in a stack.

Name, OID, and Syntax	Access	Description
snStackingOperUnitTable brcdIp.1.1.3.31.2.2	N/A	Stacking operation unit table.
snStackingOperUnitEntry brcdIp.1.1.3.31.2.2.1	N/A	An entry in the stacking operation table."
snStackingOperUnitIndex brcdIp.1.1.3.31.2.2.1.1 Syntax: Integer	N/A	ID of the unit in the stack.
snStackingOperUnitRole brcdIp.1.1.3.31.2.2.1.2 Syntax: Integer	Read only	The role of the unit: • other(1) • active(2) • standby(3) • member(4) • standalone(5)
snStackingOperUnitMac brcdIp.1.1.3.31.2.2.1.3 Syntax: MAC address	Read only	The unit's MAC address.
snStackingOperUnitPriority brcdIp.1.1.3.31.2.2.1.4 Syntax: Integer32	Read-only	The priority in Active/backup election. Values can be 0 to 255.

Name, OID, and Syntax	Access	Description
snStackingOperUnitState brcdIp.1.1.3.31.2.2.1.5 Syntax: Integer	Read only	The state of the unit • local(1) • remote(2) • reserved(3) • empty(4)
snStackingOperUnitDescription brcdIp.1.1.3.31.2.2.1.6 Syntax: DisplayString	Read only	Describes the stacking state of the unit. This object can display up to 128 characters.
snStackingOperUnitStackPort1 brcdIp.1.1.3.31.2.2.1.7 Syntax: InterfaceIndex or zero	Read only	First stack port for the unit. It returns 0 if the stack port does not exist.
snStackingOperUnitStackPort1State brcdIp.1.1.3.31.2.2.1.8 Syntax: Integer	Read only	The state of the first stack port state of a unit: • other(1) • up(2) • down(3)
snStackingOperUnitStackPort2 brcdIp.1.1.3.31.2.2.1.9 Syntax: InterfaceIndex or zero	Read only	Second stack port of a unit. It returns 0 if stack port does not exist.
snStackingOperUnitStackPort2State brcdIp.1.1.3.31.2.2.1.10 Syntax: Integer	Read only	The state of the second stack port state of a unit: • other(1) • up(2) • down(3)
snStackingOperUnitNeighbor1 brcdIp.1.1.3.31.2.2.1.11 Syntax: Integer32	Read only	The first stacking neighbor unit (left) number. If there is no neighbor unit, then it returns 0.
snStackingOperUnitNeighbor2 brcdIp.1.1.3.31.2.2.1.12 Syntax: Integer32	Read only	The second stacking neighbor unit (right) number. If there is no neighbor unit, then it returns 0.
snStackingOperUnitImgVer brcdIp.1.1.3.31.2.2.1.13 Syntax: DisplayString	Read only	The version of the software image running on the unit. This object can have up to 32 characters.
snStackingOperUnitBuildlVer brcdIp.1.1.3.31.2.2.1.14 Syntax: DisplayString	Read only	The version of the software build running on the unit. This object can have up to 32 characters.

Agent board table for stacking

The snAgentBrd2Table provides information on boards in a stacking device.

Name, OID, and Syntax	Access	Description
snAgentBrd2Table brcdIp.1.1.2.2.2	N/A	A table of each physical board information for each unit.
snAgentBrd2Entry brcdIp.1.1.2.2.2.1	N/A	A row in the Agent Board table.
snAgentBrd2Unit brcdIp.1.1.2.2.2.1.1 Syntax: Integer	Read only	The index to the Agent module Table.
snAgentBrd2Slot brcdIp.1.1.2.2.2.1.2 Syntax: Integer	Read only	The index to the Agent module Table.
snAgentBrd2MainBrdDescription brcdIp.1.1.2.2.2.1.3 Syntax: DisplayString	Read only	The main board description string.(SIZE(0..128))
snAgentBrd2MainBrdId brcdIp.1.1.2.2.2.1.4 Syntax: OctetString	Read only	The main board identifier, which can uniquely identify a board type. It is an encoded octet string. The octets in the string provide the following information: **Octet 0** – Identifies the format of this object's octet string. If the format version has a value of 2, the octets after the version octet have the following meaning: **Octet 1** – Product type: • BI_WG – 0x57 • BI_BB – 0x42 • BI_NI – 0x4E • NI_M4 – 0x4D • BI_SLB – 0x53

Name, OID, and Syntax	Access	Description
		Octet 2 – Module type: • MASTER_FIBER_8G – 0x0 • MASTER_FIBER_4G – 0x1 • MASTER_COPPER_16 – 0x2 • SLAVE_FIBER_4G – 0x3 • FI_MASTER_FIBER_2G – 0x4 • FI_MASTER_FIBER_4G – 0x5 • MASTER_COPPER_8G – 0x6 • FI_MASTER_FIBER_8G – 0x7 • SLAVE_FIBER_8G – 0x8 • MASTER_COPPER_12_2 – 0x9 • SLAVE_COPPER_24 – 0xA • FI_SLAVE_COPPER_24 – 0xB • SLAVE_100FX_16 – 0xC • SLAVE_100FX_8 – 0xD • SLAVE_COPPER_8G – 0xE • SLAVE_COPPER_16_2 – 0xF • STACK_FIBER_8G – 0x10 • STACK_COPPER_8G – 0x11 • MASTER_FIBER_2G – 0x12 • SLAVE_100FX_24 – 0x13 • MASTER_FIBER_0G – 0x14 • POS_622M – 0x15 • POS_155M – 0x16 • SLAVE_FIBER_2G – 0x17 • SLAVE_COPPER_2G – 0x18 • FI_SLAVE_FIBER_2G – 0x19 • FI_SLAVE_FIBER_4G – 0x1A • FI_SLAVE_FIBER_8G – 0x1B • FI_SLAVE_COPPER_8G – 0x1C • FI_MASTER_COPPER_8G – 0x1D • POS_155M2P – 0x1E • FI_MASTER_COPPER_4G – 0x1F • FI_MASTER_COPPER_2G – 0x20 • MASTER_COPPER_4G – 0x21

Name, OID, and Syntax	Access	Description
		Octet 2 – Module type (continued): • MASTER_COPPER_2G – 0x22 • MASTER_M4_8G – 0x23 • MASTER_M4_4G – 0x24 • MASTER_M4_2G – 0x25 • MASTER_M4_0G – 0x26 • MASTER_M5_0G – 0x27 • POS_2488M – 0x28 • SLAVE_M5_0G – 0x29 • POS_N2488M – 0x2A • STACK_IPC_48_2 – 0x2B • SLAVE_NPA_FIBER_4G – 0x2C • ATM_2PORT – 0x2D • ATM_4PORT – 0x2E • SLAVE_FIBER_10G – 0x2F • SLAVE_JC_48E – 0xC3 • SLAVE_JC_48T – 0xC4 • MASTER_JC_M4_8G – 0xC5 • SLAVE_JC_8G – 0xC6 • SLAVE_JC_B16GF – 0xC8 • MASTER_JC_B2404 – 0xC9 • SLAVE_JC_B16GC – 0xCA • SLAVE_JC_B24FX – 0xCE **Octet 3** – Processor type: • PVR_M603 – 3 • PVR_M604 – 4 • PVR_M603E – 6 • PVR_M603EV – 7 • PVR_M750 – 8 • PVR_M604E – 9 **Octet 4 to Octet 5** – Processor speed in MHz

Name, OID, and Syntax	Access	Description
		Octet 6 – MAC type: • MAC_None – 0 • MAC_SEEQ_10_100 – 1 • MAC_DEC_10_100 – 2 • MAC_3COM_10_100 – 3 • MAC_X10GMAC_10000 – 4 • MAC_SEEQ_1000 – 5 • MAC_GMAC_1000 – 6 • MAC_VLSI_1000 – 7 • PHY_LEVEL24 – 8 **Octet 7** – PHY type: • PHY_NONE – 0 • PHY_QSI – 1 • PHY_BROADCOM – 2 • PHY_ICS – 3 • PHY_NATIONAL – 4 • PHY_LEVEL1 – 6 • PHY_LEVEL16 – 7 • PHY_LEVEL24 – 8 • PHY_BROADCOM_10000 – 9 **Octet 8** – Port type: • COPPER – 0 • FIBER – 1 **Octet 9** – Fiber port type: • NONFIBER – 0 • SX_FIBER – 1 • LX_FIBER – 2 • LHX_FIBER – 3 **Octet 10 to Octet 13** – Size of DRAM in KBytes **Octet 14 to Octet 17** – Size of boot flash in KBytes **Octet 18 to Octet 21** – Size of code flash in KBytes **Octet 22 to Octet 27** – Serial number
		Octet 28 – Chassis backplane type. • chassis4000 – 0x00 • chassis8000 – 0x04 • chassis15000 – 0x05 • Turbo8 – 0x07 (stack2) • FastIron2 – 0x06 (stack1)
snAgentBrd2MainPortTotal brcdIp.1.1.2.2.2.1.5 Syntax: Integer	Read only	The total number of ports for the main board. 1..100)

Name, OID, and Syntax	Access	Description
snAgentBrd2ModuleStatus brcdIp.1.1.2.2.2.1.6 Syntax: Integer	Read only	Show the status of the module. By default, this mode is set to notActivated(0): • moduleEmpty(0): The slot of the chassis is empty. • moduleGoingDown(2): The module is going down. • moduleRejected(3): The module is being rejected due to wrong configuration. • moduleBad(4): The module Hardware is bad. • moduleConfigured(8): The module is configured (stacking) • moduleComingUp(9): The module is in power-up cycle. • moduleRunning(10): The module is running."
snAgentBrd2RedundantStatus brcdIp.1.1.2.2.2.1.7 Syntax: Integer	Read only	The status of a redundant module. Non-management modules always return other(1). Management modules return the other states: • other(1) • active(2) • standby(3) • crashed(4) • comingUp(5)

Configuration module table for stacking

The snAgentConfigModule2Table contains information about modules in a stacking device.

Name, OID, and Syntax	Access	Description
snAgentConfigModule2Table brcdIp.1.1.2.8.2	N/A	A table of each configured stacking module information.
snAgentConfigModule2Entry brcdIp.1.1.2.8.2.1	N/A	A row in the Agent Configured Stacking Module table."
snAgentConfigModule2Unit brcdIp.1.1.2.8.2.1.1 Syntax: Integer	Read only	The index to the Agent Configured Module Table. Value can be 1 - 8
snAgentConfigModule2Slot brcdIp.1.1.2.8.2.1.2 Syntax: Integer	Read only	The index to the Agent Configured Module Table. Value can be 1 - 4

Name, OID, and Syntax	Access	Description
snAgentConfigModule2Type brcdIp.1.1.2.8.2.1.3 Syntax: Integer	Read only	The module type that has been configured for the device: • bi8PortGigManagementModule(0) • bi4PortGigManagementModule(1) • bi16PortCopperManagementModule(2) • bi4PortGigModule(3) • fi2PortGigManagementModule(4) • fi4PortGigManagementModule(5) • bi8PortGigCopperManagementModule(6) • fi8PortGigManagementModule(7) • bi8PortGigModule(8) • bi12PortGigCopper2PortGigFiberManagement(9) • bi24PortCopperModule(10) • fi24PortCopperModule(11) • bi16Port100FXModule(12) • bi8Port100FXModule(13) • bi8PortGigCopperModule(14) • bi12PortGigCopper2PortGigFiber(15) • bi2PortGigManagementModule(18) • bi24Port100FXModule(19) • bi0PortManagementModule(20) • pos622MbsModule(21) • pos155MbsModule(22) • bi2PortGigModule(23) • bi2PortGigCopperModule(24) • fi2PortGigModule(25) • fi4PortGigModule(26) • fi8PortGigModule(27) • fi8PortGigCopperModule(28) • fi8PortGigCopperManagementModule(29) • pos155Mbs2PModule(30)

Name, OID, and Syntax	Access	Description
		• fi4PortGigCopperManagementModule(31) • fi2PortGigCopperManagementModule(32) • bi4PortGigCopperManagementModule(33) • bi2PortGigCopperManagementModule(34) • bi8PortGigM4ManagementModule(35) • bi4PortGigM4ManagementModule(36) • bi2PortGigM4ManagementModule(37) • bi0PortGigM4ManagementModule(38) • bi0PortWSMManagementModule(39) • biPos2Port2488MbsModule(40) • bi0PortWSMModule(41) • niPos2Port2488MbsModule(42) • ni4802(43) • bi4PortGigNPAModule(44) • biAtm2Port155MbsModule(45) • biAtm4Port155MbsModule(46) • bi1Port10GigModule(47) • fes4802Module(48) • fes2402Module(49) • fes9604Module(50) • fes12GigCopperAndGigFiberModule(51) • fesx24GigModule(52) • fesx24Gig2TenGigModule(53) • fesx24Gig1TenGigModule(54) • fesx48GigModule(55) • fesx48Gig2TenGigModule(56) • fesx48Gig1TenGigModule(57) • superx12ComboPortManagementModule(64) • superx2PortTenGigModule(65) • superx24PortGigCopperModule(66) • superx24PortGigFiberModule(67) • superx2PortTenGigLanWanModule(68) • superx24Port100tx1PortGigFiberModule(69) • superx12ComboPortManagement2Module(74) • superxR2PortTenGigManagementModule(80) • superxRManagementModule(81)
		• fesx24GigFiberGigCopperModule(112) • fesx24GigFiber2TenGigModule(113) • fesx24GigFiber1TenGigModule(114) • biFiJc48ePort100fxIpcModule(195) • biFiJc48tPort100fxIpcModule(196) • biFiJc8PortGigM4ManagementModule(197) • biFiJc8PortGigIgcModule(198) • biFiJc16PortGigIgcModule(200) • biJc24PortCopperIpc4GigIgcModule(201) • biJc16PortGigCopperIgcModule(202) • biFiJc24Port100fxIpcModule(206) • bi2Port10GigModule(207) • biJc48tPortRJ210mpModule(208) • biJc48ePortRJ450mpModule(209) • biJc24PortIpcRJ45PoeModule(212) • biJc2PortGigIgcM4ManagementModule(214)

Name, OID, and Syntax	Access	Description
snAgentConfigModule2RowStatus brcdIp.1.1.2.8.2.1.4 Syntax: Integer	Read-write	To create or delete a configured module table entry: • other(1) • valid(2) • delete(3) • create(4)
snAgentConfigModule2Description brcdIp.1.1.2.8.2.1.5 Syntax: Integer	Read only	A description of the configured module.
snAgentConfigModule2OperStatus brcdIp.1.1.2.8.2.1.6 Syntax: Integer	Read only	Module operational status. Zero length string indicates that physical module has not been inserted to the chassis.
snAgentConfigModule2SerialNumber brcdIp.1.1.2.8.2.1.7 Syntax: DisplayString	Read only	Module serial number. Zero length string indicates that module serial number EEPROM has not been programmed or the module does not support serial number EEPROM.
snAgentConfigModule2NumberOfPorts brcdIp.1.1.2.8.2.1.8 Syntax: Integer	Read only	The number of ports on a module
snAgentConfigModule2MgmtModuleType brcdIp.1.1.2.8.2.1.9 Syntax: Integer	Read only	Management module type. • other(1) • nonManagementModule(2) • unknownManagementModule(3) • m1ManagementModule(4) • m2ManagementModule(5) • m3ManagementModule(6) • m4ManagementModule(7) • m5ManagementModule(8) • jetcoreStackManagementModule(9) • muchoManagementModule(10) • rottWeilerManagementModule(11) • fesXStackManagementModule(12) • fgsStackManagementModule(13)
snAgentConfigModule2NumberOfCpus brcdIp.1.1.2.8.2.1.10 Syntax: Integer	Read only	The number of CPUs on the module.

Stacking power supply table

The snChasPwrSupply2Table shows the status of a power supply in a Stacking devices.

Name, OID, and Syntax	Access	Description
snChasPwrSupply2Table brcdIp.1.1.1.2.2	N/A	A table of each power supply information for each unit. Only installed power supply appears in a table row.
snChasPwrSupply2Entry brcdIp.1.1.1.2.2.1	N/A	A row in the power supply table.
snChasPwrSupply2Unit brcdIp.1.1.1.2.2.1.1 Syntax: Integer	Read only	The index to power supply table.
snChasPwrSupply2Index brcdIp.1.1.1.2.2.1.2 Syntax: Integer	Read only	The index to power supply table that identifies the power supply unit.
snChasPwrSupply2Description brcdIp.1.1.1.2.2.1.3 Syntax: DisplayString	Read only	The power supply description string. This description can have up to 128 characters.
snChasPwrSupply2OperStatus brcdIp.1.1.1.2.2.1.4 Syntax: Integer	Read only	The power supply operation status: • other(1) • normal(2) • failure(3)

Stacking fan table

The snChasFan2Table shows fan status for a Stacking device.

Name, OID, and Syntax	Access	Description
snChasFan2Table brcdIp.1.1.1.3.2	N/A	A table of each fan information for each unit. Only installed fan appears in a table row.
snChasFan2Entry brcdIp.1.1.1.3.2.1	N/A	A row in the fan table.
snChasFan2Unit brcdIp.1.1.1.3.2.1.1 Syntax: Integer	Read only	The index to fan table.
snChasFan2Index brcdIp.1.1.1.3.2.1.2 Syntax: Integer	Read only	The index to fan table.
snChasFan2Description brcdIp.1.1.1.3.2.1.3 Syntax: DisplayString	Read only	The fan description string. This description can have up to 128 characters.
snChasFan2OperStatus brcdIp.1.1.1.3.2.1.4 Syntax: Integer	Read only	The fan operation status: • other(1) • normal(2) • failure(3)

Agent temperature table for stacking

The Agent Temperature Table shows temperature information for a module's temperature sensor in the Stacking devices.

Name, OID, and Syntax	Access	Description
snAgentTemp2Table brcdIp.1.1.2.13.2	N/A	This table lists the temperatures of the modules in each unit. This table is applicable only to modules with temperature sensors.
snAgentTemp2Entry brcdIp.1.1.2.13.2.1	N/A	A row in the module temperature table.
snAgentTemp2UnitNum brcdIp.1.1.2.13.2.1.1 Syntax: Integer	N/A	The unit number of module which contains the temperature sensor represented by this row.
snAgentTemp2SlotNum brcdIp.1.1.2.13.2.1.2 Syntax: Integer	N/A	The slot number of module which contains the temperature sensor represented by this row.
snAgentTemp2SensorId brcdIp.1.1.2.13.2.1.3 Syntax: Integer	N/A	The temperature sensor ID of the member module that is represented by this row: • sensor#1: Intake Side Temperature • sensor# 2: Exhaust Side Temperature.
snAgentTemp2SensorDescr brcdIp.1.1.2.13.2.1.4 Syntax: DisplayString	Read only	Description of the temperature sensor. This is the same as snAgentTempSensorId, which is numeric format. It is used to traverse the temperature sensor table. The description provides the meaning and purpose of this sensor. There can be up to 128 characters in the description
snAgentTemp2Value brcdIp.1.1.2.13.2.1.5 Syntax: Integer	Read only	Temperature of the sensor represented by this row. Each unit is 0.5 degrees Celsius. The value can be from -110 to 250 Celsius.

Interface ID2 to ifIndex lookup table

Given an interface ID2, this table returns the ifIndex value.

This table does not behave like most SNMP tables. It does not support GetNext. If you try to walk the table using GetNext, no rows will be returned. The contents of the table can only be accessed using Get operations. The table is useful for mapping a known interface to the corresponding ifIndex value.

Name, OID, and Syntax	Access	Description
snInterfaceLookup2Table brcdIp.1.1.3.3.7	N/A	The interface lookup table that supports stacking devices.
snInterfaceLookup2Entry brcdIp.1.1.3.3.7.1	N/A	An entry in the snInterfaceLookup2Table.

Name, OID, and Syntax	Access	Description
snInterfaceLookup2InterfaceId brcdIp.1.1.3.3.7.1.1 Syntax: InterfaceId2	N/A	ID of the interface
snInterfaceLookup2IfIndex brcdIp.1.1.3.3.7.1.2 Syntax: Integer	Read only	ifIndex for the interface

Interface ID2 lookup table

Given an ifIndex, this table returns the interface ID2 value.

Name, OID, and Syntax	Access	Description
snIfIndexLookup2Table brcdIp.1.1.3.3.8	N/A	The Interface ID2 Lookup Table.
snIfIndexLookup2Entry brcdIp.1.1.3.3.8.1	N/A	An entry in the Interface ID2 Lookup Table.
snIfIndexLookup2IfIndex brcdIp.1.1.3.3.8.1.1 Syntax: Integer	N/A	IfIndex of the entry
snIfIndexLookup2InterfaceId brcdIp.1.1.3.3.8.1.2 Syntax: InterfaceId2	Read only	ID of the interface.

Interface ID2 lookup table

Chapter

Layer 4 Switch Group

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NOTE
The objects in this chapter are supported on ServerIron (JetCore) and ServerIron ADX devices only.

For trap objects and object to enable traps specific to ServerIron (JetCore) and ServerIron ADX devices, refer to the following sections:

- "Traps and Objects to Enable Traps" on page 627
- "Layer 4 traps" on page 663

Refer to the ServerIron manuals for details on the features discussed in this section. Go to the Support and Services page of the Brocade Web site to find the link to the latest ServerIron (JetCore) and ServerIron ADX manuals.

Barrel processor hardware statistics table

brcdAdxBPStatTable (ServerIron ADX release 12.2.00 and later)

The brcdAdxBPStatTable displays BP hardware buffer allocation, management and performance statistics on ServerIron ADX platforms. For statistics on barrel processors on ServerIron (JetCore) devices, refer to the "snAgentHwBPStatTable (ServerIron (JetCore))" on page 550..

Name, OID, and Syntax	Access	Description
brcdAdxBPStatTable brcdIp.1.1.2.1	N/A	Barrel Processor Hardware Statistics table for ServerIron ADX.
brcdAdxBPStatEntry brcdIp.1.1.2.13.1	N/A	An entry in the table.
brcdAdxBPStatAsmNumber brcdIp.1.1.2.12.13.1.1 Syntax: Integer	N/A	ADX Barrel processor slot number.
brcdAdxBPStatBpNumber brcdIp.1.1.2.12.13.1.2 Syntax: Integer	N/A	ADX Barrel processor (CPU) BP number.
brcdAdxBPTotalRxQueues brcdIp.1.1.2.12.13.1.3 Syntax: Counter	Read-only	The size of the hardware receive-queues are in BP
brcdAdxBPRxQueuesInUse brcdIp.1.1.2.12.13.1.4 Syntax: Counter	Read-only	The number of the hardware receive-queues are in use in BP

Name, OID, and Syntax	Access	Description
brcdAdxBPRxQueuesAwaiting brcdIp.1.1.2.12.13.1.5 Syntax: Counter	Read-only	The number of the hardware receive-queues are awaiting for CPU in BP
brcdAdxBPTotalTxQueues brcdIp.1.1.2.12.13.1.6 Syntax: Counter	Read-only	The size of the hardware transmit-queues are in BP
brcdAdxBPTxQueuesInUse brcdIp.1.1.2.12.13.1.7 Syntax: Counter	Read-only	The number of the hardware transmit-queues are in use in BP
brcdAdxBPTxQueuesAwaiting brcdIp.1.1.2.12.13.1.8 Syntax: Counter	Read-only	The number of the hardware transmit-queues are awaiting to transmit in BP
brcdAdxBPTotalFreeQueues brcdIp.1.1.2.12.13.1.9 Syntax: Counter	Read-only	The size of the hardware free-queues are in BP
brcdAdxBPFreeQueuesInUse brcdIp.1.1.2.12.13.1.10 Syntax: Counter	Read-only	The number of the hardware free-queues are in use in BP
brcdAdxBPAxpRxFromBackplaneRegularPkts brcdIp.1.1.2.12.13.1.11 Syntax: Counter	Read-only	The number of the regular packets are received by the Application-Acceleration-Processor (AXP) from the backplane.
brcdAdxBPAxpRxFromBackplaneIpcPkts brcdIp.1.1.2.12.13.1.12 Syntax: Counter	Read-only	The number of the IPC packets are received by the Application-Acceleration-Processor(AXP) from the backplane.
brcdAdxBPAxpTxToBpRegularPkts brcdIp.1.1.2.12.13.1.13 Syntax: Counter	Read-only	The number of the regular packets are transmitted by the Application-Acceleration-Processor (AXP) to the BP.
brcdAdxBPAxpTxToBpIpcPkts brcdIp.1.1.2.12.13.1.14 Syntax: Counter	Read-only	The number of the IPC packets are transmitted by the Application-Acceleration-Processor (AXP) to the BP.
brcdAdxBPBpRxFromAxpRegularPkts brcdIp.1.1.2.12.13.1.15 Syntax: Counter	Read-only	The number of the regular packets are received by the BP from the Application-Acceleration-Processor (AXP).
brcdAdxBPBpRxFromAxpIpcPkts brcdIp.1.1.2.12.13.1.16 Syntax: Counter	Read-only	The number of the IPC packets are received by the BP from the Application-Acceleration-Processor (AXP).
brcdAdxBPBpTxToAxpRegularPkts brcdIp.1.1.2.12.13.1.17 Syntax: Counter	Read-only	The number of the regular packets are transmitted by the BP to the Application-Acceleration-Processor (AXP).
brcdAdxBPBpTxToAxpIpcPkts brcdIp.1.1.2.12.13.1.18 Syntax: Counter	Read-only	The number of the IPC packets are transmitted by the BP to the Application-Acceleration-Processor (AXP).

Name, OID, and Syntax	Access	Description
brcdAdxBPAxpRxFromBpRegularPkts brcdIp.1.1.2.12.13.1.19 Syntax: Counter	Read-only	The number of the regular packets are received by the Application-Acceleration-Processor (AXP) from the BP.
brcdAdxBPAxpRxFromBpIpcPkts brcdIp.1.1.2.12.13.1.20 Syntax: Counter	Read-only	The number of the IPC packets are received by the Application-Acceleration-Processor (AXP) from the BP.
brcdAdxBPAxpTxToBackplaneRegular Pkts brcdIp.1.1.2.12.13.1.21 Syntax: Counter	Read-only	The number of the regular packets are transmitted by the Application-Acceleration-Processor (AXP) to the Backplane.
brcdAdxBPAxpTxToBackplaneIpcPkts brcdIp.1.1.2.12.13.1.22 Syntax: Counter	Read-only	The number of the IPC packets are transmitted by the Application-Acceleration-Processor (AXP) to the Backplane.
brcdAdxBPAxpRxPktsDrop brcdIp.1.1.2.12.13.1.23 Syntax: Counter	Read-only	The number of the received packets are dropped by the Application-Acceleration-Processor (AXP).
brcdAdxBPAxpRxBufferOverflow brcdIp.1.1.2.12.13.1.24 Syntax: Counter	Read-only	The number of the AXP receive-buffers overflow.
brcdAdxBPAxpTxPktsDrop brcdIp.1.1.2.12.13.1.25 Syntax: Counter	Read-only	The number of the transmit-packets are dropped by the Application-Acceleration-Processor (AXP).
brcdAdxBPAxpTxBadPktsDrop brcdIp.1.1.2.12.13.1.26 Syntax: Counter	Read-only	The number of the bad transmit-packets are dropped by the Application-Acceleration-Processor (AXP).

snAgentHwAdxBPStatTable (ServerIron ADX prior to release 12.2.00)

The snAgentHwAdxBPStatTable table has been deprecated starting in ServerIron ADX software release 12.2.00. It has been replaced by “brcdAdxBPStatTable (ServerIron ADX release 12.2.00 and later)” on page 545.

Name, OID, and Syntax	Access	Description
snAgentHwAdxBPStatTable brcdIp.1.1.2.12.9	None	ServerIron ADX Barrel Processor Hardware Statistics table
snAgentHwAdxBPStatEntry brcdIp.1.1.2.12.9.1	None	An entry in ADX Barrel Processor Hardware Statistics table. This is indexed by the snAgentHwAdxBPStatSlotNumber and snAgentHwAdxBPStatBpNumber objects.
snAgentHwAdxBPStatSlotNumber brcdIp.1.1.2.12.9.1.1 Syntax: Integer	None	ADX Barrel processor slot number.
snAgentHwAdxBPStatBpNumber brcdIp.1.1.2.12.9.1.2 Syntax: Integer	None	ADX Barrel processor (CPU) BP number.

Name, OID, and Syntax	Access	Description
snAgentHwAdxBPTotalRxQueues brcdIp.1.1.2.12.9.1.3 Syntax: Counter	Read only	The size of the hardware receive-queues that are in the BP.
snAgentHwAdxBPRxQueuesInUse brcdIp.1.1.2.12.9.1.4 Syntax: Counter	Read only	The number of the hardware receive-queues that are in use in the BP.
snAgentHwAdxBPRxQueuesAwaiting brcdIp.1.1.2.12.9.1.5 Syntax: Counter	Read only	The number of the hardware receive-queues that are awaiting for the CPU in the BP.
snAgentHwAdxBPTotalTxQueues brcdIp.1.1.2.12.9.1.6 Syntax: Counter	Read only	The size of the hardware transmit-queues that are in the BP.
snAgentHwAdxBPTxQueuesInUse brcdIp.1.1.2.12.9.1.7 Syntax: Counter	Read only	The number of the hardware transmit-queues that are in use in the BP.
snAgentHwAdxBPTxQueuesAwaiting brcdIp.1.1.2.12.9.1.8 Syntax: Counter	Read only	The number of the hardware transmit-queues that are awaiting to transmit in the BP.
snAgentHwAdxBPTotalFreeQueues brcdIp.1.1.2.12.9.1.9 Syntax: Counter	Read only	The size of the hardware free-queues that are in the BP.
snAgentHwAdxBPFreeQueuesInUse brcdIp.1.1.2.12.9.1.10 Syntax: Counter	Read only	The number of the hardware free-queues that are in use in the BP
snAgentHwAdxBPAxpRxFromBackplaneRegularPkts brcdIp.1.1.2.12.9.1.11 Syntax: Counter	Read only	The number of the regular packets that are received by the Application-Acceleration-Processor (AXP) from the backplane.
snAgentHwAdxBPAxpRxFromBackplaneIpcPkts brcdIp.1.1.2.12.9.1.12 Syntax: Counter	Read only	The number of the IPC packets that are received by the Application-Acceleration-Processor(AXP) from the backplane.
snAgentHwAdxBPAxpTxToBpRegularPkts brcdIp.1.1.2.12.9.1.13 Syntax: Counter	Read only	The number of the regular packets that were transmitted by the Application-Acceleration-Processor(AXP) to the BP.
snAgentHwAdxBPAxpTxToBpIpcPkts brcdIp.1.1.2.12.9.1.14 Syntax: Counter	Read only	The number of the IPC packets that were transmitted by the Application-Acceleration-Processor(AXP) to the BP.
snAgentHwAdxBPBpRxFromAxpRegularPkts brcdIp.1.1.2.12.9.1.15 Syntax: Counter	Read only	The number of the regular packets that are received by the BP from the Application-Acceleration-Processor(AXP).
snAgentHwAdxBPBpRxFromAxpIpcPkts brcdIp.1.1.2.12.9.1.16 Syntax: Counter	Read only	The number of the IPC packets that are received by the BP from the Application-Acceleration-Processor(AXP).

Name, OID, and Syntax	Access	Description
snAgentHwAdxBPBpTxToAxpRegularPkts brcdIp.1.1.2.12.9.1.17 Syntax: Counter	Read only	The number of the regular packets that were transmitted by the BP to the Application-Acceleration-Processor(AXP).
snAgentHwAdxBPBpTxToAxpIpcPkts brcdIp.1.1.2.12.9.1.18 Syntax: Counter	Read only	The number of the IPC packets that were transmitted by the BP to the Application-Acceleration-Processor(AXP).
snAgentHwAdxBPAxpRxFromBpRegularPkts brcdIp.1.1.2.12.9.1.19 Syntax: Counter	Read only	The number of the regular packets that are received by the Application-Acceleration-Processor(AXP) from the BP.
snAgentHwAdxBPAxpRxFromBpIpcPkts brcdIp.1.1.2.12.9.1.20 Syntax: Counter	Read only	The number of the IPC packets that are received by the Application-Acceleration-Processor(AXP) from the BP.
snAgentHwAdxBPAxpTxToBackplaneRegularPkts brcdIp.1.1.2.12.9.1.21 Syntax: Counter	Read only	The number of the regular packets that were transmitted by the Application-Acceleration-Processor(AXP) to the Backplane.
snAgentHwAdxBPAxpTxToBackplaneIpcPkts brcdIp.1.1.2.12.9.1.22 Syntax: Counter	Read only	The number of the IPC packets that were transmitted by the Application-Acceleration-Processor(AXP) to the Backplane.
snAgentHwAdxBPAxpRxPktsDrop brcdIp.1.1.2.12.9.1.23 Syntax: Counter	Read only	The number of the received packets that are dropped by the Application-Acceleration-Processor(AXP).
snAgentHwAdxBPAxpRxBufferOverflow brcdIp.1.1.2.12.9.1.24 Syntax: Counter	Read only	The number of the AXP receive-buffers overflow.
snAgentHwAdxBPAxpTxPktsDrop brcdIp.1.1.2.12.9.1.25 Syntax: Counter	Read only	The number of the transmit-packets that are dropped by the Application-Acceleration-Processor(AXP).
snAgentHwAdxBPAxpTxBadPktsDrop brcdIp.1.1.2.12.9.1.26 Syntax: Counter	Read only	The number of the bad transmit-packets that are dropped by the Application-Acceleration-Processor(AXP).

snAgentHwBPStatTable (ServerIron (JetCore))

The snAgentHwBPStatTable table displays detailed information about BP hardware buffer allocation, management and performance statistics on ServerIron (JetCore) platforms. Refer to “brcdAdxBPStatTable (ServerIron ADX release 12.2.00 and later)” on page 545 for objects for ServerIron ADX devices.

Name, OID, and Syntax	Access	Description
snAgentHwBPStatTable brcdIp.1.1.2.12.7	None	The Barrel Processor Hardware Statistics table.
snAgentHwBPStatEntry brcdIp.1.1.2.12.7.1	None	An entry in the Barrel Processor Hardware Statistics table.
snAgentHwBPStatSlotNumber brcdIp.1.1.2.12.7.1.1 Syntax: Integer	Read only	Indicates Barrel processor slot number.
snAgentHwBPStatBpNumber brcdIp.1.1.2.12.7.1.2 Syntax: Integer	Read-only	Indicates the Barrel processor (CPU) BP number.
snAgentHwBPTotalRxQueues brcdIp.1.1.2.12.7.1.3 Syntax: Integer	Read-only	Indicates the maximum hardware receive-queues in the BP.
snAgentHwBPAvailableRxQueues brcdIp.1.1.2.12.7.1.4 Syntax: Integer	Read-only	Indicates the available hardware receive-queues in the BP.
snAgentHwBPRxQueueEmptyStatus brcdIp.1.1.2.12.7.1.5 Syntax: Integer	Read-only	Indicates if the hardware receive-queue is empty. • false(0) • true(1)
snAgentHwBPFpgaRxSmc0Pkts brcdIp.1.1.2.12.7.1.6 Syntax: Counter	Read-only	Indicates the number of packets received through SMC0 in BP FPGA.
snAgentHwBPFpgaRxSmc1Pkts brcdIp.1.1.2.12.7.1.7 Syntax: Counter	Read-only	Indicates the number of packets received through SMC1 in BP FPGA.
snAgentHwBPFpgaRxTotalPkts brcdIp.1.1.2.12.7.1.8 Syntax: Counter	Read-only	Indicates the total number of packets received in the BP FPGA.
snAgentHwBPFpgaTxSmc0Pkts brcdIp.1.1.2.12.7.1.9 Syntax: Counter	Read-only	Indicates the number of packets transmitted to SMC0 from the BP FPGA.
snAgentHwBPFpgaTxSmc1Pkts brcdIp.1.1.2.12.7.1.10 Syntax: Counter	Read-only	Indicates the number of packets transmitted to SMC1 from the BP FPGA.
snAgentHwBPFpgaTxTotalPkts brcdIp.1.1.2.12.7.1.11 Syntax: Counter	Read-only	Indicates the total number of packets transmitted from the BP FPGA.

Name, OID, and Syntax	Access	Description
snAgentHwBPFpgaWrQueDropSmc0 brcdIp.1.1.2.12.7.1.12 Syntax: Counter	Read-only	Indicates the number of packets dropped between the SMC0 and the write-queue of the BP FPGA
snAgentHwBPFpgaWrQueDropSmc1 brcdIp.1.1.2.12.7.1.13 Syntax: Counter	Read-only	Indicates the number of packets dropped between the SMC1 and the write-queue of the BP FPGA.
snAgentHwBPFpgaWrQueDropTotal brcdIp.1.1.2.12.7.1.14 Syntax: Counter	Read-only	Indicates the total number of packets dropped in the write-queue of the BP FPGA.
snAgentHwBPSwRxSmc0Pkts brcdIp.1.1.2.12.7.1.15 Syntax: Counter	Read-only	Indicates the number of packets received by the switch from the SMC0.
snAgentHwBPSwRxSmc1Pkts brcdIp.1.1.2.12.7.1.16 Syntax: Counter	Read-only	Indicates the number of packets received by the switch from the SMC1.
snAgentHwBPSwRxTotalPkts brcdIp.1.1.2.12.7.1.17 Syntax: Counter	Read-only	Indicates the total number of packets received by the switch.
snAgentHwBPSwTxSmc0Pkts brcdIp.1.1.2.12.7.1.18 Syntax: Counter	Read-only	Indicates the number of packets transmitted from the switch to the SMC0.
snAgentHwBPSwTxSmc1Pkts brcdIp.1.1.2.12.7.1.19 Syntax: Counter	Read-only	Indicates the number of packets transmitted from the switch to the SMC1.
snAgentHwBPSwTxTotalPkts brcdIp.1.1.2.12.7.1.20 Syntax: Counter	Read-only	Indicates the total number of packets transmitted from the switch.
snAgentHwBPWrQueSmallPktsDrop brcdIp.1.1.2.12.7.1.21 Syntax: Counter	Read-only	Indicates the number of small-sized packets dropped in the Write-queue.
snAgentHwBPWrQueueFull brcdIp.1.1.2.12.7.1.22 Syntax: Counter	Read-only	Indicates the number of packets dropped because the Write-queue is full.
snAgentHwBPWrQueueHighDepth brcdIp.1.1.2.12.7.1.23 Syntax: Counter	Read-only	Indicates the value of Write-queue Status High register.
snAgentHwBPWrQueueLowDepth brcdIp.1.1.2.12.7.1.24 Syntax: Counter	Read-only	Indicates the value of Write-queue Status Low register.
snAgentHwBPRdQueueDepth brcdIp.1.1.2.12.7.1.25 Syntax: Counter	Read-only	Indicates the depth of the read-queue.
snAgentHwBPSwRxCount brcdIp.1.1.2.12.7.1.26 Syntax: Counter	Read-only	Indicates the number of packets received by the switch.

Name, OID, and Syntax	Access	Description
snAgentHwBPSwFwdCount brcdIp.1.1.2.12.7.1.27 Syntax: Counter	Read-only	Indicates the number of packets forwarded by the switch.
snAgentHwBPSwDropCount brcdIp.1.1.2.12.7.1.28 Syntax: Counter	Read-only	Indicates the number of packets dropped by the switch.
snAgentHwBPSwBufAlloc brcdIp.1.1.2.12.7.1.29 Syntax: Counter	Read-only	Indicates the number of buffers allocated by the switch.
snAgentHwBPSwBufSend brcdIp.1.1.2.12.7.1.30 Syntax: Counter	Read-only	Indicates the number of buffers used for transmission by the switch.
snAgentHwBPSwBufFree brcdIp.1.1.2.12.7.1.31 Syntax: Counter	Read-only	Indicates the number of buffers freed by the switch.
snAgentHwBPSwBufAllocFail brcdIp.1.1.2.12.7.1.32 Syntax: Counter	Read-only	Indicates the number of buffers that the switch failed to allocate.

ADX queue statistics table (ServerIron ADX)

The following Queue Statistics Table applies to the ServerIron ADX devices. This table is not used by ServerIron (JetCore) devices.

Name, OID, and Syntax	Access	Description
brcdAdxQueueStatTable brcdIp.1.1.2.12.14	None	ADX Queue Statistics table."
brcdAdxQueueStatEntry brcdIp.1.1.2.12.14.1	None	An entry in ADX Queue Statistics table.
brcdAdxQueueStatSlotNumber brcdIp.1.1.2.12.14.1.1 Syntax: Integer	None	ADX Barrel processor slot number.
brcdAdxQueueStatBpNumber brcdIp.1.1.2.12.14.1.2 Syntax: Integer	None	ADX Barrel processor (CPU) BP number.
brcdAdxQueueNumInvalidReadKeysValidated brcdIp.1.1.2.12.14.1.3 Syntax: Counter	Read only	The number of the invalid read-keys that have been validated
brcdAdxQueueNumInvalidSslMonDmaKeyValidated brcdIp.1.1.2.12.14.1. 4 Syntax: Counter	Read only	The number of the invalid DMA read-keys that have been validated in SSL-mon.

Name, OID, and Syntax	Access	Description
brcdAdxQueueNumInvalidDpramToSdram2DmaKeyValidated brcdIp.1.1.2.12.14.1.5 Syntax: Counter	Read only	The number of the invalid DMA read-keys from DPRAM to SDRAM2 that have been validated.
brcdAdxQueueNumInvalidSdram2ToSdram2DmaKeyValidated brcdIp.1.1.2.12.14.1.6 Syntax: Counter	Read only	The number of the invalid DMA read-keys from SDPRAM2 to SDRAM2 that have been validated.
brcdAdxQueueNumInvalidHwBuffersDuringGetBuffer brcdIp.1.1.2.12.14.1. 7 Syntax: Counter	Read only	The number of the invalid hardware buffers that have been validated during the event of get-buffer.
brcdAdxQueueNumInvalidHwBuffersDuringReadKey brcdIp.1.1.2.12.14.1. 8 Syntax: Counter	Read only	The number of the invalid hardware buffers that have been validated during the event of read-key.
brcdAdxQueueNumOverSizePackets brcdIp.1.1.2.12.14.1. 9 Syntax: Counter	Read only	The number of the over size packets.
brcdAdxQueueNumZeroSizePackets brcdIp.1.1.2.12.14.1.10 Syntax: Counter	Read only	The number of the zero size packets.
brcdAdxQueueSmallPacketsError brcdIp.1.1.2.12.14.1.11 Syntax: Counter	Read only	The number of the small packets errors.
brcdAdxQueueBigPacketsError brcdIp.1.1.2.12.14.1.12 Syntax: Counter	Read only	The number of the big packets errors.

ADX DMA statistics table (ServerIron ADX)

This table is not used by ServerIron (JetCore) devices.

Name, OID, and Syntax	Access	Description
brcdAdxDmaStatTable brcdIp.1.1.2.12.15	None	ADX DMA Statistics table.
brcdAdxDmaStatEntry brcdIp.1.1.2.12.15.1	None	An entry in DMA Statistics table. Entries are indexed by the brcdAdxDmaStatSlotNumber and brcdAdxDmaStatBpNumber objects.
brcdAdxDmaStatNumber brcdIp.1.1.2.12.15.1.1 Syntax: Integer	None	ADX Barrel processor slot number.
brcdAdxDmaStatBpNumber brcdIp.1.1.2.12.15.1.2 Syntax: Integer	None	ADX Barrel processor (CPU) BP number.

Name, OID, and Syntax	Access	Description
brcdAdxDmaChannelNum brcdIp.1.1.2.12.15.1.3 Syntax: Integer	Read only	ADX Barrel processor DMA channel number.
brcdAdxDmaCoreId brcdIp.1.1.2.12.15.1.4 Syntax: Integer	Read only	ADX Barrel processor (CPU) Core ID.
brcdAdxDmaStatus brcdIp.1.1.2.12.15.1.5 Syntax: Integer	Read only	A bit array that contains the value of the DMA status. This is a packed bit string. The status of each DMA is encoded into one bit. Bit 0 - FALSE Bit 1 = TRUE The following shows the meaning of each bit: (bit 0 is the least significant bit). Bit 8-31 = reserved Bit 7= Tx error Bit 6 = Don't care Bit 5 = Channel Busy Bit 4 = Programming error Bit 0-3 = reserved
brcdAdxDmaExtendedAddressRequired brcdIp.1.1.2.12.15.1.6 Syntax: Integer	Read only	Determines if the extended address is required: • true(1) - extended address is required • false(2) - extended address is not required
brcdAdxDmaTotalCount brcdIp.1.1.2.12.15.1.7 Syntax: Counter	Read only	The total packets in the DMA.
brcdAdxDmaDesciptorAllocFailures brcdIp.1.1.2.12.15.1.8 Syntax: Counter	Read only	The total number of descriptor allocated failures in the DMA.
brcdAdxDmaCurDescRegisterOutOfRange brcdIp.1.1.2.12.15.1.9 Syntax: Counter	Read only	The total number out of range cases in the current descriptive register in the DMA.
brcdAdxDmaTimeoutOnWaiting brcdIp.1.1.2.12.15.1.10 Syntax: Counter	Read only	The total number of out of range cases in the current descriptive register in the DMA.
brcdAdxDmaScatterFailures brcdIp.1.1.2.12.15.1.11 Syntax: Counter	Read only	The total number of scattered failures in the DMA.

Barrel processor session statistics table (ServerIron JetCore)

Name, OID, and Syntax	Access	Description
snL4BPSessionStatisticsTable brcdIp.1.1.4.29.1	N/A	Barrel Processor Session Statistics table
snL4BPSessionEntry brcdIp.1.1.4.29.1.1	N/A	An entry in Barrel Processor Session Statistics table
snL4BPSessionSlotNumber brcdIp.1.1.4.29.1.1.1 Syntax: Integer	Read-only	Barrel processor slot number.
snL4BPSessionCPUNumber brcdIp.1.1.4.29.1.1.2 Syntax: Integer	Read-only	Barrel processor (CPU) number.
snL4BPSessionAvailableSessions brcdIp.1.1.4.29.1.1.3 Syntax: Gauge	Read-only	Available sessions for the specified CPU
snL4BPSessionTotalSessions brcdIp.1.1.4.29.1.1.4 Syntax: Integer	Read-only	Total sessions for the specified CPU.
snL4BPSessionCurrentUsedSessions brcdIp.1.1.4.29.1.1.5 Syntax: Integer	Read-only	Current used sessions for the specified Barrel Processor

Barrel processor inter-process communication statistics

The barrel processor (BP) Inter-Process Communication table contains BP statistics detail information. There are two types of tables for this set of statistics: one for ServerIron JetCore devices and one for ServerIron ADX devices. Use the appropriate table for your device.

snAgentHwBPIpcStatTable (ServerIron JetCore)

Use this table is for ServerIron JetCore devices.

Name, OID, and Syntax	Access	Description
snAgentHwBPIpcStatTable brcdIp.1.1.2.12.8.1	None	The BP Inter-process communication (IPC) Statistics table.
snAgentHwBPIpcStatEntry brcdIp.1.1.2.12.8.1.1	None	An entry in BP IPC Statistics table.
snAgentHwBPIpcStatSlotNumber brcdIp.1.1.2.12.8.1.1.1 Syntax: Integer	Read only	Indicates BP slot number.
snAgentHwBPIpcStatBpNumber brcdIp.1.1.2.12.8.1.1.2 Syntax: Integer	Read-only	Indicates the BP (CPU) number.

Name, OID, and Syntax	Access	Description
snAgentHwBPIpcRxPkts brcdIp.1.1.2.12.8.1.1.3 Syntax: Counter	Read-only	Indicates the number of the IPC data packets received by the BP from the MP.
snAgentHwBPIpcTxPkts brcdIp.1.1.2.12.8.1.1.4 Syntax: Counter	Read-only	Indicates the number of the IPC data packets transmitted by the BP to the MP.
snAgentHwBPIpcRxMsgs brcdIp.1.1.2.12.8.1.1.5 Syntax: Counter	Read-only	Indicates the number of the IPC messages received by the BP from the MP.
snAgentHwBPIpcTxMsgs brcdIp.1.1.2.12.8.1.1.6 Syntax: Counter	Read-only	Indicates the number of the IPC messages transmitted by the BP to the MP.
snAgentHwBPIpcRxFragPkts brcdIp.1.1.2.12.8.1.1.7 Syntax: Counter	Read-only	Indicates the number of the IPC fragmented data packets received by the BP from the MP.
snAgentHwBPIpcTxFragPkts brcdIp.1.1.2.12.8.1.1.8 Syntax: Counter	Read-only	Indicates the number of the IPC fragmented data packets transmitted by the BP to the MP.
snAgentHwBPIpcDropPkts brcdIp.1.1.2.12.8.1.1.9 Syntax: Counter	Read-only	Indicates the number of dropped IPC data packets.
snAgentHwBPIpcDropMsgs brcdIp.1.1.2.12.8.1.1.10 Syntax: Counter	Read-only	Indicates the number of dropped IPC messages.
snAgentHwBPIpcTxPktsError brcdIp.1.1.2.12.8.1.1.11 Syntax: Counter	Read-only	Indicates the number of transmitted IPC data packets that have errors.
snAgentHwBPIpcTxMsgsError brcdIp.1.1.2.12.8.1.1.12 Syntax: Counter	Read-only	Indicates the number of transmitted IPC messages that have errors.
snAgentHwBPIpcTxQueuesFull brcdIp.1.1.2.12.8.1.1.13 Syntax: Counter	Read-only	Indicates the total number of transmit-queues that are full.
snAgentHwBPIpcPktsBounceBack brcdIp.1.1.2.12.8.1.1.14 Syntax: Counter	Read-only	Indicates the number of IPC messages that are bounced back.
snAgentHwBPIpcMsgsOutOfRange brcdIp.1.1.2.12.8.1.1.15 Syntax: Counter	Read-only	Indicates the number of IPC messages that exceed the specified size.
snAgentHwBPIpcMsgsNoCallBack brcdIp.1.1.2.12.8.1.1.16 Syntax: Counter	Read-only	Indicates the number of IPC messages that have no callback functions.
snAgentHwBPIpcMsgsWrongContent brcdIp.1.1.2.12.8.1.1.17 Syntax: Counter	Read-only	Indicates the number of IPC messages that have the wrong content.

Name, OID, and Syntax	Access	Description
snAgentHwBPIpcMsgsBadPortNum brcdIp.1.1.2.12.8.1.1.18 Syntax: Counter	Read-only	Indicates the number of IPC messages that have a bad port number.
snAgentHwBPIpcPktsCheckSumError brcdIp.1.1.2.12.8.1.1.19 Syntax: Counter	Read-only	Indicates the number of IPC messages that have checksum errors.
snAgentHwBPIpcPktsTooLarge brcdIp.1.1.2.12.8.1.1.20 Syntax: Counter	Read-only	Indicates the number of IPC messages that are too large.
snAgentHwBPIpcPktsFragOutOfSync brcdIp.1.1.2.12.8.1.1.21 Syntax: Counter	Read-only	Indicates the number of IPC fragmented packets that are out of sync.
snAgentHwBPIpcPktsFragExceedMax Conn brcdIp.1.1.2.12.8.1.1.22 Syntax: Counter	Read-only	Indicates the number of IPC fragmented packets that exceed the maximum number of connections.
snAgentHwBPIpcPktsFragMallocFailu re brcdIp.1.1.2.12.8.1.1.23 Syntax: Counter	Read-only	Indicates the number of IPC fragmented packets that have malloc failure.
snAgentHwBPIpcPktsFragAgedOut brcdIp.1.1.2.12.8.1.1.24 Syntax: Counter	Read-only	Indicates the number of IPC fragmented packets that are aging out.
snAgentHwBPIpcBuffersAllocFailure brcdIp.1.1.2.12.8.1.1.25 Syntax: Counter	Read-only	Indicates the number of buffers with alloc failures.
snAgentHwBPIpcTotalBuffersAlloc brcdIp.1.1.2.12.8.1.1.26 Syntax: Counter	Read-only	Indicates the total number of allocated buffers.
snAgentHwBPIpcTotalBuffersFree brcdIp.1.1.2.12.8.1.1.27 Syntax: Counter	Read-only	Indicates the total number of free buffers.

brcdAdxBPIpcStatTable (ServerIron ADX)

Use the brcdAdxBPIpcStatTable for ServerIron ADX devices, running software release 12.2.00 and later. The brcdAdxBPIpcStatEntry object identifies an entry in the brcdAdxBPIpcStatTable table.

brcdAdxBPIpcStatTable brcdIp.1.1.2.12.12	N/A	Barrel Processor Inter-process communication(IPC) Statistics table for ServerIron ADX.
brcdAdxBPIpcStatEntry brcdIp.1.1.2.12.12.1	N/A	An entry in the table.
brcdAdxBPIpcStatAsmNumber brcdIp.1.1.2.12.12.1.1 Syntax: Integer	N/A	Barrel processor slot number.

brcdAdxBPIpcStatBpNumber brcdIp.1.1.2.12.12.1.2 Syntax: Integer	N/A	Barrel processor (CPU) BP number.
brcdAdxBPIpcRxPkts brcdIp.1.1.2.12.12.1.3 Syntax: Counter	Read-only	The number of the IPC data packets that were received by the BP from the MP.
brcdAdxBPIpcTxPkts brcdIp.1.1.2.12.12.1.4 Syntax: Counter	Read-only	The number of the IPC data packets that were transmitted by the BP to the MP.
brcdAdxBPIpcRxMsgs rcdAdxBPIpcStatEntry 5 Syntax: Counter	Read-only	The number of the IPC messages that were received by the BP from the MP.
brcdAdxBPIpcTxMsgs brcdIp.1.1.2.12.12.1.6 Syntax: Counter	Read-only	The number of the IPC messages that were transmitted by the BP to the MP.
brcdAdxBPIpcRxFragPkts brcdIp.1.1.2.12.12.1.7 Syntax: Counter	Read-only	The number of the IPC fragmented data packets were received by the BP from the MP.
brcdAdxBPIpcTxFragPkts brcdIp.1.1.2.12.12.1.8 Syntax: Counter	Read-only	The number of the IPC fragmented data packets that were transmitted by BP to MP.
brcdAdxBPIpcDropPkts brcdIp.1.1.2.12.12.1.9 Syntax: Counter	Read-only	The number of the IPC data packets are dropped.
brcdAdxBPIpcDropMsgs brcdIp.1.1.2.12.12.1.10 Syntax: Counter	Read-only	The number of the IPC messages are dropped."
brcdAdxBPIpcTxPktsError brcdIp.1.1.2.12.12.1.11 Syntax: Counter	Read-only	The number of transmitted IPC data packets that have errors are counted.
brcdAdxBPIpcTxMsgsError brcdIp.1.1.2.12.12.1.12 Syntax: Counter	Read-only	The number of transmitted IPC messages that have errors are counted.
brcdAdxBPIpcTxQueuesFull brcdIp.1.1.2.12.12.1.13 Syntax: Counter	Read-only	The total number of transmit-queues which are full, are counted.
brcdAdxBPIpcPktsBounceBack brcdIp.1.1.2.12.12.1.14 Syntax: Counter	Read-only	The number of IPC messages that are bounced back, are counted.
brcdAdxBPIpcMsgsOutOfRange brcdIp.1.1.2.12.12.1.15 Syntax: Counter	Read-only	The number of IPC messages that exceed the specified size are counted.
brcdAdxBPIpcMsgsNoCallBack brcdIp.1.1.2.12.12.1.16 Syntax: Counter	Read-only	The number of IPC messages that have no callback functions are counted.

brcdAdxBPIpcMsgsWrongContent brcdIp.1.1.2.12.12.1.17 Syntax: Counter	Read-only	The number of IPC messages that have wrong contents are counted.
brcdAdxBPIpcMsgsBadPortNum brcdIp.1.1.2.12.12.1.18 Syntax: Counter	Read-only	The number of IPC messages that have bad port number, are counted.
brcdAdxBPIpcPktsCheckSumError brcdIp.1.1.2.12.12.1.19 Syntax: Counter	Read-only	The number of IPC messages that have checksum errors are counted.
brcdAdxBPIpcPktsTooLarge brcdIp.1.1.2.12.12.1.20 Syntax: Counter	Read-only	The number of IPC messages that are too large, are counted."
brcdAdxBPIpcPktsFragOutOfSync brcdIp.1.1.2.12.12.1.21 Syntax: Counter	Read-only	The number of IPC fragmented packets that are out of sync, are counted.
brcdAdxBPIpcPktsFragExceedMaxCon n brcdIp.1.1.2.12.12.1.22 Syntax: Counter	Read-only	The number of IPC fragmented packets that exceed the max. connections, are counted.
brcdAdxBPIpcPktsFragMallocFailure brcdIp.1.1.2.12.12.1.23 Syntax: Counter	Read-only	The number of IPC fragmented packets that have malloc failure, are counted.
brcdAdxBPIpcPktsFragAgedOut brcdIp.1.1.2.12.12.1.24 Syntax: Counter	Read-only	The number of IPC fragmented packets that are aging out, are counted.
brcdAdxBPIpcBuffersAllocFailure brcdIp.1.1.2.12.12.1.25 Syntax: Counter	Read-only	The number of buffers alloc failures are counted.
brcdAdxBPIpcTotalBuffersAlloc brcdIp.1.1.2.12.12.1.26 Syntax: Counter	Read-only	The total number of allocated buffers are counted.
brcdAdxBPIpcTotalBuffersFree brcdIp.1.1.2.12.12.1.27 Syntax: Counter	Read-only	The total number of free buffers are counted.

Hardware Integrated Central Buffer Manager Counter Table (ServerIron JetCore)

The snAgentHwICBMCounterTable provides information for the Integrated Central Buffer Manager (ICBM). This table is only for ServerIron JetCore devices.

snAgentHwICBMCounterSlot brcdIp.1.1.2.12.1.1.1 Syntax: Unsigned32	Read-only	The slot number where ICBM resides.
snAgentHwICBMCounterDMA brcdIp.1.1.2.12.1.1.2 Syntax: Unsigned32	Read-only	DMA ID within a slot where the ICBM resides. This object is valid only for Jetcore modules. For non-Jetcore modules, this index is ignored by the agent. In this case, value 0 will be returned by the agent.
snAgentHwICBMCounterFreeDepth brcdIp.1.1.2.12.1.1.3 Syntax: Counter	Read-only	Current depth of the free queue for this ICBM.
snAgentHwICBMCounterWriteDrop brcdIp.1.1.2.12.1.1.4 Syntax: Counter	Read-only	Write sequencer drop count for this ICBM.
snAgentHwICBMCounterWriteInput brcdIp.1.1.2.12.1.1.5 Syntax: Counter	Read-only	Write sequencer input counter for this ICBM.
snAgentHwICBMCounterWriteOutput brcdIp.1.1.2.12.1.1.6 Syntax: Counter	Read-only	Write sequencer output counter for this ICBM.
snAgentHwICBMCounterReadInput brcdIp.1.1.2.12.1.1.7 Syntax: Counter	Read-only	Read sequencer input counter for this ICBM.
snAgentHwICBMCounterReadOutput brcdIp.1.1.2.12.1.1.8 Syntax: Counter	Read-only	Read sequencer output counter for this ICBM.

SMC Counter Statistics table (ServerIron JetCore)

The snAgentHwSmcStatisticTable provides information about the SMC in the ServerIron JetCore device.

snAgentHwSmcStatisticSlotNumber brcdIp.1.1.2.12.6.1.1 Syntax: Integer	Read-only	The slot number of the device. This value is the index for the table.
snAgentHwSmcStatisticSmcNumber brcdIp.1.1.2.12.6.1.2 Syntax: Integer	Read-only	The SMC number of the ASIC in the device. The table is also indexed by this value.

snAgentHwSmcStatisticRxFreeQueueAdd brcdIp.1.1.2.12.6.1.3 Syntax: Counter	Read-only	The SMC receive free queue counter.
snAgentHwSmcStatisticTxFreeQueueAdd brcdIp.1.1.2.12.6.1.4 Syntax: Counter	Read-only	The SMC transmit free queue counter.
snAgentHwSmcStatisticRxDoneMsg brcdIp.1.1.2.12.6.1.5 Syntax: Counter	Read-only	The counter for messages that the SMC received successfully.
snAgentHwSmcStatisticTxDoneMsg brcdIp.1.1.2.12.6.1.6 Syntax: Counter	Read-only	The counter for messages that the SMC transmitted successfully.
snAgentHwSmcStatisticDmaRxDrop brcdIp.1.1.2.12.6.1.7 Syntax: Counter	Read-only	The counter for messages that the SMC DMA received, then dropped.
snAgentHwSmcStatisticBackplaneRxDrop brcdIp.1.1.2.12.6.1.8 Syntax: Counter	Read-only	The counter for messages that the SMC backplane received, then dropped.

CPU utilization table

Use the appropriate table to obtain statistics on CPU utilization:

- "brcdAdxCpuUtilModuleType (ServerIron ADX)" for ServerIron ADX devices.
- "snAgentCpuUtilTable (ServerIron JetCore)" for ServerIron JetCore devices.

brcdAdxCpuUtilModuleType (ServerIron ADX)

The Brocade ADX System CPU Utilization Table contains information about the CPU utilization on a ServerIron ADX. The table below describes the objects in the table.

Refer to the section "Configured module table" on page 99 for SNMP objects for CPU utilization on ServerIron JetCore devices.

brcdAdxCpuUtilTable brcdIp.1.1.2.11.2.	N/A	This table lists utilization for all CPUs in the ServerIron ADX device.
brcdAdxCpuUtilEntry brcdIp.1.1.2.11.2.	N/A	A row in the brcdAdxCpuUtilTable.
brcdAdxCpuUtilModuleType brcdIp.1.1.2.11.2.1.1 Syntax: Integer	N/A	The type of module installed in the device, which contains the cpu: • mp(1) = Management Processor • asm(2) = Application Switch Module

brcdAdxCpuUtilModuleNum brcdIp.1.1.2.11.2.1.2 Syntax: Integer	N/A	The module number which identifies the particular module- ype in the system.
brcdAdxCpuUtilCpuId brcdIp.1.1.2.11.2.1.3 Syntax: Integer	N/A	The CPU ID. For management module (MP), there is one CPU. For the ASM module, there are a number of CPUs."
brcdAdxCpuUtilInterval brcdIp.1.1.2.11.2.1.4 Syntax: Integer	N/A	The value, in seconds, for this utilization. For both management and slave CPU, utilization is displayed for 1 sec, 5 sec, 60 sec and 300 sec interval.
brcdAdxCpuUtilValue brcdIp.1.1.2.11.2.1.5 Syntax: Gauge32	Read-only	The statistical CPU utilization in units of one-hundredth of a percent.

snAgentCpuUtilTable (ServerIron JetCore)

snAgentCpuUtilTable brcdIp.1.1.2.11.1	N/A	Table to list utilization for all CPUs in a ServerIron JetCore device.
snAgentCpuUtilEntry brcdIp.1.1.2.11.1.1	N/A	A row in the CPU utilization table.
snAgentCpuUtilSlotNum brcdIp.1.1.2.11.1.1.1 Syntax: Integer	Read-only	The slot number of module that contains the CPU.
snAgentCpuUtilCpuId brcdIp.1.1.2.11.1.1.2 Syntax: Intege	Read-only	The ID of the CPU: For non-VM1/WSM management module, there is one CPU. For VM1/WSM there's one management CPU and three slave CPUs. The management CPU could be turned off. For POS and ATM there is no management CPU but two slave CPUs. The ID for management CPU is 1. A value of 2 and greater identifies the slave CPUs.
snAgentCpuUtilInterval brcdIp.1.1.2.11.1.1.3 Syntax: Intege	Read-only	The value, in seconds, for this utilization. For both management and slave CPU, we display utilization for 1 sec, 5 sec, 60 sec and 300 sec interval.
snAgentCpuUtilValue brcdIp.1.1.2.11.1.1.4 Syntax: Intege	Read-only	The statistical CPU utilization in units of one-hundredth of a percent.

Session

The following objects define TCP and UDP sessions in a ServerIron.

Name, OID, and Syntax	Access	Description
snL4MaxSessionLimit brcdIp.1.1.4.1.1 Syntax: Integer	Read-write	Specifies the maximum number of active sessions the ServerIron allows. An active session is an entry in the ServerIron session table. A UDP or TCP session that has become idle but has not yet timed out (according to the UDP or TCP age timer) is an active session in the table. Valid values: 0 - 1,000,000 Default: Depends on the target system configuration
snL4TcpSynLimit brcdIp.1.1.4.1.2 Syntax: Integer	Read-write	Shows the maximum number of TCP SYN requests per second per real server that the ServerIron is allowed to send. A TCP SYN request is a packet that a client sends to request a TCP connection to the server. Limiting the number of TCP SYN requests that can be sent to the server each second protects the ServerIron from TCP SYN attacks. Valid values: 1 – 65535 Default: 65535
snL4slbGlobalSDAType brcdIp.1.1.4.1.3 Syntax: Integer	Read-write	Shows the method the ServerIron uses to select a real server for client request: • leastconnection(1) – The ServerIron sends the request to the real server that currently has the fewest number of active connections with clients. • roundrobin(2) – The ServerIron sends the request to each server in rotation, regardless of how many connections each server has. • weighted(3) – The ServerIron uses the weights you assign to the real servers to select a real server. The weights are based on the number of entries the ServerIron has for each server in the sessions table. Default: leastconnection(1)
snL4slbTotalConnections brcdIp.1.1.4.1.4 Syntax: Counter	Read only	Shows the total number of client connections on the ServerIron since its last reboot. A connection consists of two sessions: client-to-server session and server-to-client session.
snL4slbLimitExceeds brcdIp.1.1.4.1.5 Syntax: Integer	Read only	Shows the number of times the TCP SYN requests from clients exceeded the configured "snL4TcpSynLimit" value.
snL4FreeSessionCount brcdIp.1.1.4.1.13 Syntax: Integer	Read only	Shows the number of sessions that are still available for use. This number is the maximum number of sessions configured, minus the number of active sessions.

Name, OID, and Syntax	Access	Description
snL4TcpAge brcdIp.1.1.4.1.28 Syntax: Integer	Read-write	Specifies how many minutes a TCP server connection can remain inactive before the session times out and the ServerIron disconnects the session. Changing the value of this object affects only the new TCP sessions that are opened after the change is made. Current sessions will use the maximum age that was specified before the change occurred. This object globally sets the age for all TCP ports. To override this value for a port, specify the age locally on the individual port using the device's CLI. Valid values: 2 – 60 minutes Default value: 30 minutes
snL4UdpAge brcdIp.1.1.4.1.29 Syntax: Integer	Read-write	Specifies how many minutes a UDP server connection can remain inactive before the session times out and the ServerIron closes the session. Changing the value of this object affects only the new UDP sessions that are opened after the change is made. Current sessions will use the maximum age that was specified before the change occurred. This object globally sets the age for all UDP ports. To override this value for a port, specify the age locally on the individual port using the device's CLI. Valid values: 2 – 60 minutes Default: 5 minutes

Server load balancing traffic information

Server Load Balancing (SLB) is based on associations between real servers and virtual servers. The real servers are your application servers. The virtual servers have one or more virtual IP addresses (VIPs). You associate a real server with a virtual server by binding TCP/UDP ports on the real servers with TCP/UDP ports on the virtual server. When a client sends a TCP/UDP request for a port on the virtual server, the ServerIron sends the client's request to the real server.

The following objects provide information on the SLB traffic packets that were transmitted between the server and the clients.

Name, OID, and Syntax	Access	Description
snL4slbForwardTraffic brcdIp.1.1.4.1.6 Syntax: Counter	Read only	Shows the number of packets sent by clients to the server.
snL4slbReverseTraffic brcdIp.1.1.4.1.7 Syntax: Counter	Read only	Shows the number of packets sent by servers to clients. Generally, this value is 0 unless the client is using FTP or another application that causes the server to initiate connections.
snL4slbDrops brcdIp.1.1.4.1.8 Syntax: Integer	Read only	Shows the total number of packets dropped by the ServerIron. This statistic includes the following: • TCP Resets – Resets sent by the ServerIron • Forward Resets – Resets from the client • Unsuccessful requests – Requests sent to a TCP or UDP port that is not bound to the request's destination VIP.

Name, OID, and Syntax	Access	Description
snL4slbDangling brcdIp.1.1.4.1.9 Syntax: Integer	Read only	Shows the number of old types of connections. For use by Foundry technical support.
snL4slbDisableCount brcdIp.1.1.4.1.10 Syntax: Integer	Read only	Shows the number of packets the ServerIron dropped because they were sent by a client to a VIP port that is bound to a disabled real server port.
snL4slbAged brcdIp.1.1.4.1.11 Syntax: Integer	Read only	Shows the total number of TCP and UDP sessions that have been aged out and closed. A session ages out when the age timer configured on the ServerIron expires.
snL4slbFinished brcdIp.1.1.4.1.12 Syntax: Integer	Read only	The total number of TCP connections that are either in the FIN or RST state.
snL4unsuccessfulConn brcdIp.1.1.4.1.25 Syntax: Integer	Read only	Shows the number of packets that were dropped due to one of the following reasons: • A deny filter configured on the switch matched the packet, causing the switch to drop the packet. • A client requested a TCP or UDP port that is not bound on the VI.

Hot standby

Hot standby redundancy is a backup feature that allows a ServerIron to serve as an automatic backup for another ServerIron. Each hot-standby pair consists of two ServerIrons. One ServerIron serves as the primary or active ServerIron, and the other serves as the secondary or standby ServerIron. The standby ServerIron becomes active only if the primary ServerIron fails due to loss of power or loss of data path. The active and standby ServerIrons must have the same SLB or TCS configuration and share the same virtual MAC address. The shared MAC address can be selected from the available pool on either the active ServerIron or the standby ServerIron.

For more information on the Hot standby feature, refer to the *Foundry ServerIron Firewall Load Balancing Guide*.

The following objects apply to the Hot standby redundancy feature.

Name, OID, and Syntax	Access	Description
snL4BackupInterface brcdIp.1.1.4.1.14 Syntax: Integer	Read-write	Identifies which port is the hot standby port. This is the port that serves as a private link between the active and the redundant ServerIrons. The ServerIrons use this port to monitor any failover and to communicate those events to the standby. Valid values: 0 – 26
snL4BackupMacAddr brcdIp.1.1.4.1.15 Syntax: Physical address	Read-write	Identifies the associated MAC address for the backup monitoring port. The active and backup ServerIron must have the same MAC address.
snL4Active brcdIp.1.1.4.1.16 Syntax: L4flag	Read only	The "snL4Redundancy" object and this object are the same. Indicates if this ServerIron has been configured as redundant or hot standby: • false(0) – This ServerIron is the active one. • true(1) – This ServerIron is the standby.

Name, OID, and Syntax	Access	Description
snL4Redundancy brcdIp.1.1.4.1.17 Syntax: Integer	Read only	The "snL4Active" object and this object are the same. Indicates if this ServerIron has been configured as redundant or hot standby: • false(0) – This ServerIron is the active one. • true(1) – This ServerIron is the standby.
snL4Backup brcdIp.1.1.4.1.18 Syntax: L4flag	Read only	Indicates if the ServerIron is the backup (standby) ServerIron: • false(0) – This ServerIron is the active one. • true(1) – This ServerIron is the standby.
snL4BecomeActive brcdIp.1.1.4.1.19 Syntax: Integer	Read only	Shows the number of times this ServerIron has changed from standby to active.
snL4BecomeStandBy brcdIp.1.1.4.1.20 Syntax: Integer	Read only	Shows the number of times this ServerIron has changed from active to standby.
snL4BackupState brcdIp.1.1.4.1.21 Syntax: Integer	Read only	Shows the state of the backup or redundancy link of the active or standby ServerIron: • slbSyncComplete(0) – Synchronization is complete. • slbSyncReqMap(1) – Port map has been synchronized. • slbSyncreqMac(2) – MAC addresses have been synchronized. • slbSyncreqServers(3) – Server information has been synchronized. • slbSyncReqL4(4) – L4 packets have been synchronized.
snL4NoPDUSent brcdIp.1.1.4.1.22 Syntax: Integer	Read only	This object has been deprecated and is not supported.
snL4NoPDUCount brcdIp.1.1.4.1.23 Syntax: Integer	Read only	The number of missed Layer 4 or MAC-layer PDUs.
snL4NoPortMap brcdIp.1.1.4.1.24 Syntax: Integer	Read only	Shows the number of missed port map PDUs, which are PDUs used by ServerIron to discover information about the maps on the other ServerIron.

Layer 4 policies

This section presents the objects associated with Layer 4 policies. It contains the following tables:

- "Layer 4 policy table" on page 567
- "Layer 4 policy port access table" on page 568

Layer 4 policy table

The Layer 4 Policy table allows you to configure Layer 4 policies and specify the ports to which they will be applied.

Name, OID, and Syntax	Access	Description
snL4PolicyTable brcdIp.1.1.4.11.1	None	The Layer 4 Policy Table.
snL4PolicyEntry brcdIp.1.1.4.11.1.1	None	An entry in the Layer 4 Policy Table.
snL4PolicyId brcdIp.1.1.4.11.1.1.1 Syntax: Integer	Read only	Specifies the ID of the policy. Valid values: 1 – 64
snL4PolicyPriority brcdIp.1.1.4.11.1.1.2 Syntax: Integer	Read-write	Shows the priority of the policy in the ServerIron: Standalone stackable ServerIrons have the following priorities: • normal(0) – normal priority • high(1) – high priority • cache(2) – priority for cache • transparent(3) – priority for transparent Non-stackable ServerIron Layer 4 priority values are: • level0(0) • level1(1) • level2(2) • level3(3) • level4(4) • level5(5) • level6(6) • level7(7)
snL4PolicyScope brcdIp.1.1.4.11.1.1.3 Syntax: Integer	Read-write	Indicates if the policy applies to one or all ports: • global(0) – Applies to all ports. • local(1) – Applies to one port.
snL4PolicyProtocol brcdIp.1.1.4.11.1.1.4 Syntax: Integer	Read-write	Indicates if the policy is for a UDP or TCP protocol: • udp(0) • tcp(1)
snL4PolicyPort brcdIp.1.1.4.11.1.1.5 Syntax: Integer	Read-write	Indicates the TCP or UDP port number to which this policy will be applied. Valid values: 0 – 65535
snL4PolicyRowStatus brcdIp.1.1.4.11.1.1.6 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Layer 4 policy port access table

The Layer 4 Policy Port Access table lists all access policy entries. These access policies are applied to IP interfaces (ports) that have Layer 4 IP policies configured on them. IP policies are described in the "snL4PolicyTable".

Name, OID, and Syntax	Access	Description
snL4PolicyPortAccessTable brcdIp.1.1.4.12.1	None	The IP Layer 4 Policy Interface (Port) Access Table.
snL4PolicyPortAccessEntry brcdIp.1.1.4.12.1.1	None	An entry in the table.
snL4PolicyPortAccessPort brcdIp.1.1.4.12.1.1.1 Syntax: Integer	Read only	The IP interface (port) to which the Layer 4 policy applies.
snL4PolicyPortAccessList brcdIp.1.1.4.12.1.1.2 Syntax: OctetString	Read-write	This list consists of the policies configured in "snL4PolicyTable". Each octet in the list contains a valid ID number ("snL4PolicyId") that identifies a policy in the snL4PolicyTable. That policy must have been created prior to the using this object. Valid values: 1 – 64 octets
snL4PolicyPortAccessRowStatus brcdIp.1.1.4.12.1.1.3 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Health checks

The following are objects to check on the health of a server. The ServerIron automatically uses a Layer 3 ping to check a server's health. Ping is enabled by default and cannot be disabled.

snL4PingInterval brcdIp.1.1.4.1.26 Syntax: Integer	Read-write	Shows how often the ServerIron sends a Layer 3 IP ping to test the basic health and reachability of the real servers. This object allows you to change the interval between the ping packets. Valid values: 1 – 10 seconds Default: 2 seconds
snL4PingRetry brcdIp.1.1.4.1.27 Syntax: Integer	Read-write	Shows the number of times the ServerIron resends a ping to a real server that is not responding before the server fails the health check. Valid values: 2 – 10 tries Default: 4 tries

Web cache server objects

Transparent Cache Switching (TCS) allows a ServerIron or Foundry backbone switch to detect and switch Web traffic to a local cache server within the network. Cache servers process Web queries faster and more efficiently by temporarily storing details about repetitive Web queries locally, reducing the number of external inquiries required to process a Web query. By limiting the number of queries sent to remote Web servers, the overall WAN access capacity required is lessened as is the overall operating cost for WAN access.

A single ServerIron (or hot standby pair) can provide transparent cache switching for up to 1024 Web cache servers. (A Web cache server must be a real server.) Foundry switches increase the reliability of transparent caching within a network by supporting redundant Web cache server configurations known as Web cache server groups, as well as supporting redundant paths to those server groups with the server backup option.

This section contains the following objects that are associated with Web cache servers:

- "Server cache groups" on page 569
- "Web cache group table" on page 570
- "Web cache table" on page 571
- "Web cache real server port table" on page 572
- "Web cache traffic statistics table" on page 573
- "Web uncached traffic statistics table" on page 575

Server cache groups

All cache servers must belong to a cache group. The ServerIron uses a hashing algorithm to distribute HTTP requests among the servers in the cache group. In addition, cache groups provide automatic recovery from a failed or otherwise out-of-service Web cache server. If a Web cache server failure occurs, the ServerIron detects the failure and directs subsequent requests to the next available cache server or forwards the request directly to the WAN link. Up to four server cache groups can be assigned to a ServerIron.

Name, OID, and Syntax	Access	Description
snL4MaxNumWebCacheGroup brcdIp.1.1.4.1.40 Syntax: Integer	Read only	Shows the maximum number of Web cache groups that can be configured on this ServerIron.
snL4MaxNumWebCachePerGroup brcdIp.1.1.4.1.41 Syntax: Integer	Read only	Shows the maximum number of Web cache servers that a Web cache group can have.
snL4WebCacheStateful brcdIp.1.1.4.1.42 Syntax: L4Status	Read-write	This object has been deprecated and is no longer supported.
snL4slbRouterInterfacePortMask brcdIp.1.1.4.1.39 Syntax: Integer	Read only	Shows the router interface port mask. This object is not used or supported.
snL4slbRouterInterfacePortList brcdIp.1.1.4.1.51 Syntax: OctetString	Read-write	Shows Router interface port list. Each port index is a 16-bit integer in big endian order. The first 8-bit is the slot number, the other 8-bit is the port number.

Web cache group table

Web Cache Group table lists the configured group of Web cache servers on the ServerIron. The ServerIron uses a hashing algorithm to distribute the incoming HTTP requests among the servers in the cache group. In addition, cache groups provide automatic recovery from a failed or out-of-service Web cache server. If a Web cache server failure occurs, the ServerIron detects the failure and directs subsequent requests to the next available Web cache server or forwards the request directly to the WAN link. The "snL4MaxNumWebCachePerGroup" object defines the maximum number of Web cache servers that can be configured in a group. The "snL4MaxNumWebCacheGroup" defines the maximum number of cache groups that can be configured on a Web cache server.

Name, OID, and Syntax	Access	Description
snL4WebCacheGroupTable brcdIp.1.1.4.15.1	None	Web Cache Group table.
snL4WebCacheGroupEntry brcdIp.1.1.4.15.1.1	None	An entry in the Web Cache Group table.
snL4WebCacheGroupId brcdIp.1.1.4.15.1.1.1 Syntax: Integer	Read only	Shows the ID of an entry in the Web cache group entry. Valid values: 1 – value of the "snL4MaxNumWebCacheGroup" object.
snL4WebCacheGroupName brcdIp.1.1.4.15.1.1.2 Syntax: L4ServerName	Read-write	Shows the name of the Web cache group. This name must be unique among the Web cache group names. Valid values: 1 – 32 octets.
snL4WebCacheGroupWebCacheIpList brcdIp.1.1.4.15.1.1.3 Syntax: OctetString	Read-write	Contains a list of IP addresses of the Web cache servers in the group. Valid values: The maximum of IP addresses that a group can contain is equal to the value of the "snL4MaxNumWebCachePerGroup" object. Each IP address contains up to four octets.
snL4WebCacheGroupDestMask brcdIp.1.1.4.15.1.1.4 Syntax: IpAddress	Read-write	Shows the destination hash-mask for the Web cache group. The ServerIron uses the destination hash-mask (this object) and the source hash-mask ("snL4WebCacheGroupSrcMask") to forward the requests to the Web cache servers. This method ensures that a particular Web site is always cached on the same Web cache server to minimizes duplication of content on the Web cache servers. Default: 255.255.255.0
snL4WebCacheGroupSrcMask brcdIp.1.1.4.15.1.1.5 Syntax: IpAddress	Read-write	Specifies the source hash-mask for the Web cache group The ServerIron uses the destination hash-mask (this object) and the source hash-mask ("snL4WebCacheGroupSrcMask") to forward the requests to the Web cache servers. This method ensures that a particular Web site is always cached on the same Web cache server to minimizes duplication of content on the Web cache servers. Default: 0.0.0.0

Name, OID, and Syntax	Access	Description
snL4WebCacheGroupAdminStatus brcdIp.1.1.4.15.1.1.6 Syntax: Integer	Read-write	Indicates if the Web cache group feature is enabled. • disabled(0) • enabled(1)
snL4WebCacheGroupRowStatus brcdIp.1.1.4.15.1.1.7 Syntax: L4RowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

Web cache table

A Web cache server is an application server which is load-balanced by the Server Load Balancing (SLB) switch. The following table contains the configuration of the Web cache servers in the network.

Name, OID, and Syntax	Access	Description
snL4WebCacheTable brcdIp.1.1.4.14.1	None	The Web Cache Table.
snL4WebCacheEntry brcdIp.1.1.4.14.1.1	None	An entry in the Web Cache Table.
snL4WebCacheIP brcdIp.1.1.4.14.1.1.1 Syntax: IpAddress	Read only	Indicates the IP address of the real server that is serving as the Web cache server.
snL4WebCacheName brcdIp.1.1.4.14.1.1.2 Syntax: L4ServerName	Read-write	Name of the real server that is serving as the Web cache server. This name must be unique among other Web cache server names. Valid values: 1 – 32 octets
snL4WebCacheAdminStatus brcdIp.1.1.4.14.1.1.3 Syntax: L4Status	Read-write	Indicates if the TCS feature is enabled in the real server that is serving as the Web cache server: • disabled(0) • enabled(1) – When TCS is enabled, the feature detects HTTP traffic addressed for output to the Internet and redirects the traffic to the CPU. The CPU processes the traffic and forwards it to the cache servers instead. **NOTE:** You cannot enable TCS on both a global (switch) and local (interface) basis.

Name, OID, and Syntax	Access	Description
snL4WebCacheMaxConnections brcdIp.1.1.4.14.1.1.4 Syntax: Integer	Read-write	The maximum number of connections the ServerIron can maintain in its session table for a Web cache server. When a Web cache server reaches this threshold, an SNMP trap is sent. When all the real servers in a server pool reach this threshold, additional TCP or UDP packets are dropped, and an ICMP destination unreachable message is sent. Valid values: 0 – 1000000 Default: 1000000
snL4WebCacheWeight brcdIp.1.1.4.14.1.1.5 Syntax: Integer	Read-write	Shows the Web cache server's least-connections weight. This parameter specifies the server's weight relative to other Web cache servers in terms of the number of connections on the server. This weight is based on the number of session table entries the ServerIron has for TCP or UDP sessions with the real server. However, if a weight based on the server response time is desired, this must be disabled (set to 0). Valid values: 1 – 65535 Default: 1
snL4WebCacheRowStatus brcdIp.1.1.4.14.1.1.6 Syntax: L4Status	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snL4WebCacheDeleteState brcdIp.1.1.4.14.1.1.7 Syntax: L4DeleteState	Read only	Shows the state of the port being deleted: • done(0) – The port is deleted • waitunbind(1) – The port is in an unbind state • waitdelete(2) – The port is in a delete state

Web cache real server port table

The Web Cache Real Server Port Table consists of all the ports configured for the real server. Most attributes are configured globally for the port. Some additional and overriding local attributes can be configured in this table.

Name, OID, and Syntax	Access	Description
snL4WebCachePortTable brcdIp.1.1.4.18.1	None	Web Cache Server Port Table.
snL4WebCachePortEntry brcdIp.1.1.4.18.1.1	None	An entry in the Real Server Port table.
snL4WebCachePortServerIp brcdIp.1.1.4.18.1.1.1 Syntax: IpAddress	Read only	Shows the IP address of the Web cache server.

Name, OID, and Syntax	Access	Description
snL4WebCachePortPort brcdIp.1.1.4.18.1.1.2 Syntax: Integer	Read only	Shows the port that the Web cache server uses to listen for connections: Valid values: 0 – 65535
snL4WebCachePortAdminStatus brcdIp.1.1.4.18.1.1.3 Syntax: L4Status	Read-write	Indicates if the Web cache server port is enabled: • disabled(0) • enabled(1)
snL4WebCachePortRowStatus brcdIp.1.1.4.18.1.1.4 Syntax: L4RowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snL4WebCachePortDeleteState brcdIp.1.1.4.18.1.1.5 Syntax: L4DeleteState	Read only	Shows the state of the port being deleted: • done(0) – The port is deleted. • waitunbind(1) – The port is in an unbind state • waitdelete(2) – The port is in a delete state

Web cache traffic statistics table

The Web Cache Traffic Statistics table contains traffic statistics for the client requests that go to the Web cache server.

Name, OID, and Syntax	Access	Description
snL4WebCacheTrafficStats Table brcdIp.1.1.4.16.1	None	Web Cache Traffic Statistics Table.
snL4WebCacheTrafficStats Entry brcdIp.1.1.4.16.1.1	None	An entry in the Web Cache Traffic Statistics Table.
snL4WebCacheTrafficIp brcdIp.1.1.4.16.1.1.1 Syntax: IpAddress	Read only	Shows the IP address of the Web cache server.
snL4WebCacheTrafficPort brcdIp.1.1.4.16.1.1.2 Syntax: Integer	Read only	Shows the port that the Web cache server uses to listen for connections. Valid values: 0 – 65535
snL4WebCacheCurrConnections brcdIp.1.1.4.16.1.1.3 Syntax: Integer	Read only	Shows the number of the active connections between the clients and the Web cache server.

Name, OID, and Syntax	Access	Description
snL4WebCacheTotalConnections brcdIp.1.1.4.16.1.1.4 Syntax: Integer	Read only	Shows the total number of connections between clients and the Web cache server.
snL4WebCacheTxPkts brcdIp.1.1.4.16.1.1.5 Syntax: Counter	Read only	Shows the number of packets that was sent from the client or the Web server to the Web cache server.
snL4WebCacheRxPkts brcdIp.1.1.4.16.1.1.6 Syntax: Counter	Read only	Shows the number of packets that was sent from the Web cache server to the client or Web server.
snL4WebCacheTxOctets brcdIp.1.1.4.16.1.1.7 Syntax: Counter	Read only	Shows the number of octets that was sent from the client or Web server to the Web cache server.
snL4WebCacheRxOctets brcdIp.1.1.4.16.1.1.8 Syntax: Counter	Read only	Shows the number of octets that was sent from the Web cache server to the client or Web server.
snL4WebCachePortState brcdIp.1.1.4.16.1.1.9 Syntax: WebCacheState	Read only	Shows the operational state of the server port: • disabled(0) – This state has been deprecated. • enabled(1) – The server is ready. There is no physical link to the Web cache server. The Web cache server is configured on the ServerIron but is not physically connected to the ServerIron. • failed(2) – The server failed. The Web cache server has failed to respond to repeated Layer 3 health checks (IP pings) Typically, a real server changes from the suspect(4) state to the failed(2) state. • testing(3) – The Web cache server is in testing mode. It is still reachable at Layer 3, but at least one of its application ports has failed to respond to its health checks. If the application port is not a TCP or UDP port known to the ServerIron, or if the Layer 7 health check for the port is disabled, only the Layer 4 health check is used. If the service is a TCP or UDP port known to the ServerIron and the Layer 7 health check is enabled, then the application must pass both health checks to avoid entering the testing(3) state. The ServerIron continues to try to the reach the application indefinitely. Thus, if the server continues to be reachable at Layer 3, the state will remain in the testing(3) state as long as the ServerIron cannot reach the application that is failing its health check. • suspect(4) – The Web cache server is responding slowly. The ServerIron associates a time stamp with each packet sent to and received from the Web cache servers. If the time gap between the last packet received from the server and the last packet sent to the server increases to three or four seconds, the ServerIron sends a ping (Layer 3 health check) to the server. If the server does not respond within the ping interval (configured in the "snL4PingInterval" object), the ServerIron changes the state to suspect(4) and resends the ping. The ping will be sent up to the number of retries specified by the ping retries parameter (configured in the "snL4PingRetry" object). If the server still does not respond after all the retries, the state changes to failed(2). If the server does respond, the state changes to active(6). • shutdown(5) – The Web cache server has been forced to shutdown. This option is used to gracefully shut down the Web cache server. • active(6) – The Web cache server responded to the Layer 3 health check (IP ping), and all the services on the real server have passed their Layer 4, and if applicable, Layer 7) health checks.

Web uncached traffic statistics table

The Web Uncached Traffic Statistics table contains traffic statistics for the client requests that go directly to the Web server. Client requests are directed to the Web server when the Web cache server is not available.

Name, OID, and Syntax	Access	Description
snL4WebUncachedTrafficStatsTable brcdIp.1.1.4.17.1	None	Web Uncached Traffic Statistics Table.
snL4WebUncachedTrafficStatsEntry brcdIp.1.1.4.17.1.1	None	An entry in the Web Uncached Traffic Statistics Table.
snL4WebServerPort brcdIp.1.1.4.17.1.1.1 Syntax: Integer	Read only	Identifies the ServerIron port that is attached to the Web servers. This port is typically the port attached to the Border Access Point (BAP) router that goes to the rest of the network or to the Internet.
snL4WebClientPort brcdIp.1.1.4.17.1.1.2 Syntax: Integer	Read only	Identifies the SLB switch port or Web client port, which connects the client to the ServerIron.
snL4WebUncachedTxPkts brcdIp.1.1.4.17.1.1.3 Syntax: Counter	Read only	Shows the number of uncached packets that was sent from the client port to the Web server.
snL4WebUncachedRxPkts brcdIp.1.1.4.17.1.1.4 Syntax: Counter	Read only	Shows the number of uncached packets that was sent from the Web server to the client port.
snL4WebUncachedTxOctets brcdIp.1.1.4.17.1.1.5 Syntax: Counter	Read only	Shows the number of uncached octets that was sent from the client port to the Web server.
snL4WebUncachedRxOctets brcdIp.1.1.4.17.1.1.6 Syntax: Counter	Read only	Shows the number of uncached octets that was sent from the Web server to the client port.
snL4WebServerPortName brcdIp.1.1.4.17.1.1.7 Syntax: DisplayString	Read only	Shows the name of the Web server port. Valid values: Up to 16 characters.
snL4WebClientPortName brcdIp.1.1.4.17.1.1.8 Syntax: DisplayString	Read only	Shows the name of the Web client port. Valid values: Up to 16 characters.

Real server objects

A real server is an application server which is load-balanced by the Server Load Balancing (SLB) switch.

NOTES: The following tables have been replaced:

- The Real Server Table (snL4RealServerTable) has been deprecated and replaced by the Real Server Configuration Table (snL4RealServerCfg).
- Real Server Port Table (snL4RealServerPortTable) has been replaced by the Real Server Port Configuration Table (snL4RealServerPortCfg).

- Real Server Status Table (snL4RealServerStatusTable) has been replaced by the Real Server Statistics Table (snL4RealServerStatistic).
- The Real Server Port Status Table (snL4RealServerPortStatusTable) has been replaced by the Real Server Statistics Table (snL4RealServerPortStatisticTable).

This section presents the following tables:

- "Real server configuration table" on page 576
- "Real server port configuration table" on page 577
- "Real server statistics table" on page 578
- "Real server port statistic table" on page 580

Additional tables for real servers are included in the section "Monitor groups" on page 596. Those tables provide historical information on data samples for real servers and real server ports.

Real server configuration table

The Real Server Configuration table shows the configuration of real servers. A real server is an application server which is load-balanced by the SLB switch.

Name, OID, and Syntax	Access	Description
snL4RealServerCfgTable brcdIp.1.1.4.19.1	None	Real Server Configuration Table.
snL4RealServerCfgEntry brcdIp.1.1.4.19.1.1	None	An entry in the Real Server Configuration Table.
snL4RealServerCfgIP brcdIp.1.1.4.19.1.1.1 Syntax: IpAddress	Read only	Shows the IP address of the real server.
snL4RealServerCfgName brcdIp.1.1.4.19.1.1.2 Syntax: L4ServerName	Read-write	Shows the name of the real server. This name must be unique among the real server names. Valid values: 1– 32 octets
snL4RealServerCfgAdminStatus brcdIp.1.1.4.19.1.1.3 Syntax: L4Status	Read-write	Enables or disables the real server: • disabled(0) • enabled(1)
snL4RealServerCfgMaxConnections brcdIp.1.1.4.19.1.1.4 Syntax: Integer	Read-write	Specifies the maximum number of connections the ServerIron can maintain in its session table for a real server. When a real server reaches this threshold, an SNMP trap is sent. When all the real servers in a server pool reach this threshold, additional TCP or UDP packets are dropped, and an ICMP destination unreachable message is sent. Valid values: 0 – 1000000 Default: 1000000
snL4RealServerCfgWeight brcdIp.1.1.4.19.1.1.5 Syntax: Integer	Read-write	Specifies the server's weight relative to other real servers. This weight is based on the number of session table entries the ServerIron has for TCP or UDP sessions with the real server. Set this object to 0 to disable it if a weight based on the server response time is desired. Valid values: 0 – 65000. Setting this object to 0 disables it. Default: 1

Name, OID, and Syntax	Access	Description
snL4RealServerCfgRowStatus brcdIp.1.1.4.19.1.1.6 Syntax: L4RowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snL4RealServerCfgDeleteState brcdIp.1.1.4.19.1.1.7 Syntax: L4DeleteState	Read only	Shows the state of the port being deleted: • done(0) – The port is deleted. • waitunbind(1) – The port is in an unbind state • waitdelete(2) – The port is in a delete state
snL4RealServerCfgSrcNat brcdIp.1.1.4.19.1.1.8 Syntax: DisplayString (SIZE (1..10))	Read-only	Returns the string “src-nat” if source NAT for the real server if source NAT is configured; otherwise, the display is empty if source NAT is not configured.

Real server port configuration table

Real Server Port table contains all the ports that have been configured for the real server. Beginning with IronWare TrafficWorks Switch software release 09.0.00S and later, this table also shows information for remote servers.

Most attributes are configured globally for the server’s port. This table allows you to change individual port attributes and override global settings.

Name, OID, and Syntax	Access	Description
snL4RealServerPortCfgTable brcdIp.1.1.4.20.1	None	Real Server Port table.
snL4RealServerPortCfgEntry brcdIp.1.1.4.20.1.1	None	An entry in the Real Server Port Configuration table.
snL4RealServerPortCfgIP brcdIp.1.1.4.20.1.1.1 Syntax: IpAddress	Read only	Specifies the IP address for the server.
snL4RealServerPortCfgServerName brcdIp.1.1.4.20.1.1.2 Syntax: L4ServerName	Read only	Specifies the name of the server. This name must be unique among the other servers. Valid values: 1 – 32 octets
snL4RealServerPortCfgPort brcdIp.1.1.4.20.1.1.3 Syntax: Integer	Read only	Specifies the port that the server port uses to listen for connections Valid values: 0 – 65535
snL4RealServerPortCfgAdminStatus brcdIp.1.1.4.20.1.1.4 Syntax: L4Status	Read-write	Enables or disable the application port on the server: • disabled(0) • enabled(1)

Name, OID, and Syntax	Access	Description
snL4RealServerPortCfgRowStatus brcdIp.1.1.4.20.1.1.5 Syntax: L4RowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snL4RealServerPortCfgDeleteState brcdIp.1.1.4.20.1.1.6 Syntax: L4DeleteState	Read only	Shows the state of the port being deleted: • done(0) – The port is deleted. • waitunbind(1) – The port is in an unbind state • waitdelete(2) – The port is in a delete state
snL4RealServerPortCfgMaxConnections brcdIp.1.1.4.20.1.1.7 Syntax: Integer	Read-write	Defines the maximum number of connections allowed per port. Enter a value up to 1000000.

Real server statistics table

Real Server Statistics table contains statistics for all real servers configured as SLB switches on the ServerIron

Name, OID, and Syntax	Access	Description
snL4RealServerStatisticTable brcdIp.1.1.4.23.1	None	The Real Server Statistic Table.
snL4RealServerStatisticEntry brcdIp.1.1.4.23.1.1	None	An entry in the Real Server Statistic Table.
snL4RealServerStatisticRealIP brcdIp.1.1.4.23.1.1.1 Syntax: IpAddress	Read only	Shows the IP address of the real server.
snL4RealServerStatisticName brcdIp.1.1.4.23.1.1.2 Syntax: L4ServerName	Read only	Shows the name of the real server.
snL4RealServerStatisticReceivePkts brcdIp.1.1.4.23.1.1.3 Syntax: Counter	Read only	Shows the number of packets the ServerIron has received from the real server.
snL4RealServerStatisticTransmitPkts brcdIp.1.1.4.23.1.1.4 Syntax: Counter	Read only	Shows the number of packets the ServerIron has sent to the real server.
snL4RealServerStatisticCurConnections brcdIp.1.1.4.23.1.1.5 Syntax: Integer	Read only	Shows the number of client connections currently on the real server. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Name, OID, and Syntax	Access	Description
snL4RealServerStatisticTotalConnections brcdIp.1.1.4.23.1.1.6 Syntax: Counter	Read only	Shows the number of client connections on the real server since the last time the ServerIron was rebooted. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4RealServerStatisticAge brcdIp.1.1.4.23.1.1.7 Syntax: Integer	Read only	Shows the total number of TCP and UDP sessions that the ServerIron closed because the connection aged out. A session ages out when the age timer configured on the ServerIron expires.
snL4RealServerStatisticState brcdIp.1.1.4.23.1.1.8 Syntax: Integer	Read only	Shows the operational state of the real server when the statistics were obtained: • disabled(0) – This value has been deprecated and is not used. • enabled(1) – There is no link to the real server. The real server is configured on the ServerIron but is not physically connected to the ServerIron. • failed(2) – The server has failed to respond to repeated Layer 3 health checks (IP pings). Typically, a real server changes to the failed(2) state from the suspect(4) state. • testing(3) – The real server is still reachable at Layer 3, but at least one of the application ports on the real server has failed to respond to its health checks. If the application port is not a TCP or UDP port known to the ServerIron, or if the Layer 7 health check for the port is disabled, only the Layer 4 health check is used. If the service is a TCP or UDP port known to the ServerIron and the Layer 7 health check is enabled, then the application must pass both health checks to avoid entering the testing(3) state. The ServerIron continues to try to reach the application indefinitely. If the server continues to be reachable at Layer 3, the state will remain testing(3) as long as the ServerIron cannot reach the application that is failing its health check. • suspect(4) – The ServerIron associates a time stamp with each packet sent to and received from the real servers. If the time gap between the last packet received from the real server and the last packet sent to the real server increases to three or four seconds, the ServerIron sends a Layer 3 health check (ping) to the real server. If the real server does not respond within the ping interval (configured in the "snL4PingInterval" object), the ServerIron changes the state to suspect(4) and resends the ping, up to the number of retries specified by the "snL4PingRetry" object. If the server still doesn't respond after all the retries, the state changes to failed(2). If the server does respond, the state changes to active(6). • shutdown(5) – The forced-shutdown option has been used to gracefully shut down the real server. • active(6) – The real server has responded to the Layer 3 health check (IP ping) and all the services on the real server have passed their Layer 4, and if applicable, Layer 7) health checks.

Name, OID, and Syntax	Access	Description
snL4RealServerStatisticReassignments brcdIp.1.1.4.23.1.1.9 Syntax: Integer	Read only	Shows the number of times the ServerIron has reassigned the connection to another real server in the rotation because the real server that is in use has not responded to two TCP SYNs from the client.
snL4RealServerStatisticReassignmentLimit brcdIp.1.1.4.23.1.1.10 Syntax: Integer	Read only	Shows the number of missed connection requests (TCP SYN) the ServerIron accepts before moving the connection to another ServerIron.
snL4RealServerStatisticFailedPortExists brcdIp.1.1.4.23.1.1.11 Syntax: Integer	Read only	Shows the number of times a client request could not be fulfilled because the client requested a port that is not configured on the real server.
snL4RealServerStatisticFailTime brcdIp.1.1.4.23.1.1.12 Syntax: Integer	Read only	Show the number of seconds from the last retry attempt to connect to the real server. The object value is valid only if the real server's state is failed(2).
snL4RealServerStatisticPeakConnections brcdIp.1.1.4.23.1.1.13 Syntax: Integer	Read only	Shows the highest number of simultaneous client connections on the real server since the last time the ServerIron was rebooted. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4RealServerStatisticTotalReverseConnections brcdIp.1.1.4.23.1.1.14 Syntax: Integer	Read only	Shows the total number of connections to the client that was initiated by the real server.
snL4RealServerStatisticCurrentSessions brcdIp.1.1.4.23.1.1.15 Syntax: Integer	Read only	Shows the total number of open sessions on the ServerIron. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Real server port statistic table

Real Server Port Statistics contains statistics for all the ports configured for all the real servers. Beginning with IronWare TrafficWorks Switch software release 09.0.00S and later and 09.1.01R and later, this table also shows information for remote servers.

Name, OID, and Syntax	Access	Description
snL4RealServerPortStatisticTable brcdIp.1.1.4.24.1	None	Real Server Port Statistic table.
snL4RealServerPortStatisticEntry brcdIp.1.1.4.24.1.1	None	An entry in the Real Server Port Statistic table.
snL4RealServerPortStatisticIP brcdIp.1.1.4.24.1.1.1 Syntax: IpAddress	Read only	Shows the IP address of the server where the port is located.

Name, OID, and Syntax	Access	Description
snL4RealServerPortStatisticPort brcdIp.1.1.4.24.1.1.2 Syntax: Integer	Read only	The port number that the server uses to listen for connections.
snL4RealServerPortStatisticServerName brcdIp.1.1.4.24.1.1.3 Syntax: L4ServerName	Read only	Shows the name of the server.
snL4RealServerPortStatisticReassignCount brcdIp.1.1.4.24.1.1.4 Syntax: Integer	Read only	Shows the number of times the ServerIron has reassigned the connection to another server in the rotation because the server that is in use has not responded to two TCP SYNs from the client.

Name, OID, and Syntax	Access	Description
snL4RealServerPortStatisticState brcdIp.1.1.4.24.1.1.5 Syntax: Integer	Read only	Shows the operational state of the server when the statistics were obtained: • disabled(0) – This value has been deprecated and is not used. • enabled(1) – There is no link to the server. The server is configured on the ServerIron but is not physically connected to the ServerIron. • failed(2) – The server has failed to respond to repeated Layer 3 health checks (IP pings). Typically, a server changes to the failed(2) state from the suspect(4) state. • testing(3) – The server is still reachable at Layer 3, but at least one of the application ports on the server has failed to respond to its health checks. If the application port is not a TCP or UDP port known to the ServerIron or if the Layer 7 health check for the port is disabled, only the Layer 4 health check is used. If the service is a TCP or UDP port known to the ServerIron and the Layer 7 health check is enabled, then the application must pass both health checks to avoid entering the testing(3) state. The ServerIron continues to try to reach the application indefinitely. If the server continues to be reachable at Layer 3, the state will remain testing(3) as long as the ServerIron cannot reach the application that is failing its health check. • suspect(4) – The ServerIron associates a time stamp with each packet sent to and received from the servers. If the time gap between the last packet received from the server and the last packet sent to the server increases to three or four seconds, the ServerIron sends a Layer 3 health check (ping) to the server. If the server does not respond within the ping interval (configured in the "snL4PingInterval" object) the ServerIron changes the state to suspect(4) and resends the ping, up to the number of retries specified by the "snL4PingRetry" object. If the server still doesn't respond after all the retries, the state changes to failed(2). If the server does respond, the state changes to active(6). • shutdown(5) – The forced-shutdown option has been used to gracefully shut down the server. • active(6) – The server has responded to the Layer 3 health check (IP ping), and all the services on the server have passed their Layer 4, and if applicable, Layer 7) health checks. • unbound(7) – The unbind action is complete. • awaitUnbind(8) – The unbind action has been issued and is waiting for completion. • awaitDelete(9) – The delete action has been issued and is waiting for completion. Await actions occur because ServerIron sends a command from MP to all BPs and needs to wait for all BPs to have gracefully synced with other BPs that, for example, are deleting real servers, etc.
snL4RealServerPortStatisticFailTime brcdIp.1.1.4.24.1.1.6 Syntax: Integer	Read only	This object applies only ports whose operational state is failed(2). Shows the number of seconds that has elapsed since the last time the port tried to re-establish connection with the server.
snL4RealServerPortStatisticCurrentConnection brcdIp.1.1.4.24.1.1.7 Syntax: Integer	Read only	Shows the number of client connections currently on the this port of the server. A connection consists of two sessions, the client-to-server session and the server-to-client session.

Name, OID, and Syntax	Access	Description
snL4RealServerPortStatisticTotalConnection brcdIp.1.1.4.24.1.1.8 Syntax: Counter	Read only	Shows the number of client connections on the server since the last time the ServerIron rebooted. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4RealServerPortStatisticRxPkts brcdIp.1.1.4.24.1.1.9 Syntax: Counter	Read only	Shows the number of packets that the ServerIron has received from the server.
snL4RealServerPortStatisticTxPkts brcdIp.1.1.4.24.1.1.10 Syntax: Counter	Read only	Shows the number of packets the ServerIron has sent to the server.
snL4RealServerPortStatisticRxBytes brcdIp.1.1.4.24.1.1.11 Syntax: Counter	Read only	Shows the number of bytes the ServerIron has received from the server.
snL4RealServerPortStatisticTxBytes brcdIp.1.1.4.24.1.1.12 Syntax: Counter	Read only	Shows the number of bytes the ServerIron has sent to the server.
snL4RealServerPortStatisticPeakConnection brcdIp.1.1.4.24.1.1.13 Syntax: Integer	Read only	Shows the highest number of simultaneous client connections on the server since the last time the ServerIron was rebooted. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Virtual server objects

The SLB switch serves as the front-end for real servers and load balances the real servers. To allow the SLB switches to perform this function, virtual servers should be configured on the ServerIron and must be bound to their related real servers. The virtual servers are visible to the clients while real servers are hidden by the virtual servers

This section presents the following tables for virtual servers:

- “Virtual server configuration table” on page 584
- “Virtual server port configuration table” on page 585
- “Virtual server statistic table” on page 587
- “Virtual server port statistics table” on page 589

NOTES: The following tables have been replaced:

- The Virtual Server Table (snL4VirtualServerTable) has been replaced by the Virtual Server Configuration Table (snL4VirtualServerCfg).
- The Virtual Server Port Table (snL4VirtualServerPortTable) has been replaced by the Virtual Server Port Configuration Table (snL4VirtualServerPortCfg).
- The Virtual Server Status Table (snL4VirtualServerStatusTable) has been replaced by the Virtual Server Statistics Table (snL4VirtualServerStatistic).

- The Virtual Server Port Status Table (snL4VirtualServerPortStatusTable) has been replaced by the Virtual Server Port Statistics Table (snL4VirtualServerPortStatisticTable).

Additional tables for virtual servers are included in the section “Monitor groups” on page 596. Those tables provide historical information on data samples for virtual servers and virtual server ports.

Virtual server configuration table

The Virtual Server Configuration table allows you to configure virtual servers on the ServerIron.

Name, OID, and Syntax	Access	Description
snL4VirtualServerCfgTable brcdIp.1.1.4.21.1	None	The Virtual Server Configuration table.
snL4VirtualServerCfgEntry brcdIp.1.1.4.21.1.1	None	An entry in the Virtual Server Configuration table.
snL4VirtualServerCfgVirtualIP brcdIp.1.1.4.21.1.1.1 Syntax: IpAddress	Read only	Specifies the virtual server IP Address.
snL4VirtualServerCfgName brcdIp.1.1.4.21.1.1.2 Syntax: L4ServerName	Read-write	Specifies the name of the virtual server. This name must be unique among the other virtual servers. Valid values: 1 – 32 octets
snL4VirtualServerCfgAdminStatus brcdIp.1.1.4.21.1.1.3 Syntax: L4Status	Read-write	Indicates if the virtual server feature is enabled on the ServerIron: • disabled(0) • enabled(1) Default: enabled(1)
snL4VirtualServerCfgSDAType brcdIp.1.1.4.21.1.1.4 Syntax: Integer	Read-write	Specifies the load-balancing or Session Distribution Algorithm method that the ServerIron uses to select a real server for a client request. The following methods are supported: • default(0) – The ServerIron uses the global SDAType configured (snL4SlbGlobalSDAType) • leastconnection(1) – The ServerIron sends the request to the real server that currently has the fewest active connections with clients. • roundrobin(2) – The ServerIron sends the request to each real server in rotation, regardless of how many connections or sessions each real server has. • weighted(3) – The ServerIron uses the weights you assign to the real servers to select a real servers. The weights are based on the number of session table entries the switch has for each server. Default: default(0)

Name, OID, and Syntax	Access	Description
snL4VirtualServerCfgRowStatus brcdIp.1.1.4.21.1.1.5 Syntax: L4RowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snL4VirtualServerCfgDeleteState brcdIp.1.1.4.21.1.1.6 Syntax: L4DeleteState	Read only	Shows the state of the port being deleted: • done(0) – The port is deleted. • waitunbind(1) – The port is in an unbind state. • waitdelete(2) – The port is in a delete state.
snL4VirtualServerCfgSymPriority brcdIp.1.1.4.21.1.1.7 Syntax: Integer	Read-write	When a pair of SLB switches are configured to provide redundancy for individual virtual IP addresses (VIPs), an symmetric SLB priority must be specified on each switch for each of the VIPs. The switch with the higher priority for a given VIP is the default active switch for that VIP. The other switch is the default standby for the VIP. It is recommended that you use a priority of 2 (instead of 1) as a low priority or 254 (instead of 255) as a high priority. This method would make it easy to force a failover of the high priority switch to a low priority switch by simply changing the priority on one of the switches. For example, we can force a failover by changing the priority on the high priority switch from 254 to 1. Since the priority on the low priority switch is 2, the low priority switch takes over for the VIP. Likewise, we can force the low priority switch to take over by changing its priority to 255, since the priority on the high priority switch is only 254. Valid values: 0 – 255 Default: 0

Virtual server port configuration table

The Virtual Server Port Configuration Table contains all the ports configured for the virtual server. This table allows you to configure attributes for individual ports and override global attributes for those ports.

Name, OID, and Syntax	Access	Description
snL4VirtualServerPortCfgTable brcdIp.1.1.4.22.1	None	Virtual Server Port Configuration table.
snL4VirtualServerPortCfgEntry brcdIp.1.1.4.22.1.1	None	An entry in the Virtual Server Port Configuration table.
snL4VirtualServerPortCfgIP brcdIp.1.1.4.22.1.1.1 Syntax: IpAddress	Read only	Indicates the IP address of the virtual server where the port is located.

Name, OID, and Syntax	Access	Description
snL4VirtualServerPortCfgPort brcdIp.1.1.4.22.1.1.2 Syntax: Integer	Read only	Specifies the port that the virtual server (SLB switch) uses to listen for connections from clients. Valid values: 0 – 65535
snL4VirtualServerPortCfgServerName brcdIp.1.1.4.22.1.1.3 Syntax: L4ServerName	Read only	Specifies the name of the virtual server. This name must be different from the names of other virtual servers. Valid values: 1 – 32 octets
snL4VirtualServerPortCfgAdminStatus brcdIp.1.1.4.22.1.1.4 Syntax: L4Status	Read-write	Enables or disables the port on the virtual server for accepting client requests and load balancing those request among the real servers. • disable(0) • enable(1) Default: enable(1)
snL4VirtualServerPortCfgSticky brcdIp.1.1.4.22.1.1.5 Syntax: Integer	Read-write	Enables or disables the “sticky” feature. If enabled, the ServerIron sends all requests from the same client to this application and to the same real server during the current session. By default, the ServerIron sends a client request to the next available real server, based on the load balancing method. This is true regardless of whether the client has already sent a request for the same application. If the switch has to send all of a client requests for a given application to the same real server during a client session with the server, set this object to enable(1) for the application port. Set this object and the “snL4VirtualServerPortCfgConcurrent” object to enable(1), on ServerIron FTP ports that use passive FTP: • disable(0) • enable(1) Default: disable(0)
snL4VirtualServerPortCfgConcurrent brcdIp.1.1.4.22.1.1.6 Syntax: Integer	Read-write	Enables or disables the port for concurrent connections. A port that allows concurrent connections can have more than one connection open to the same client at the same time. The concurrent feature allows a client to have sessions on different application ports on the same real server at the same time. When an application port is enabled to be concurrent, the real server can open additional concurrent TCP or UDP sessions with the client using arbitrary TCP or UDP port numbers. Set this object and the “snL4VirtualServerPortCfgSticky” object to enable(1) on ServerIron FTP ports that use passive FTP: • disable(0) • enable(1) Default: disable(0)

Name, OID, and Syntax	Access	Description
snL4VirtualServerPortCfgRowStatus brcdIp.1.1.4.22.1.1.7 Syntax: L4RowStatus	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid
snL4VirtualServerPortCfgDeleteState brcdIp.1.1.4.22.1.1.8 Syntax: L4DeleteState	Read only	Shows the state of the port being deleted: • done(0) – The port is deleted. • waitunbind(1) – The port is in an unbind state. • waitdelete(2) – The port is in a delete state.

Virtual server statistic table

Virtual Server Statistics table contains statistics for all the virtual servers configured in the ServerIron.

Name, OID, and Syntax	Access	Description
snL4VirtualServerStatisticTable brcdIp.1.1.4.25.1	None	The Virtual Server Statistic Table.
snL4VirtualServerStatisticEntry brcdIp.1.1.4.25.1.1	None	An entry in the Virtual Server Statistic Table.
snL4VirtualServerStatisticIP brcdIp.1.1.4.25.1.1.1 Syntax: IpAddress	Read only	Shows the IP address of the virtual server.
snL4VirtualServerStatisticName brcdIp.1.1.4.25.1.1.2 Syntax: L4ServerName	Read only	Shows the name of the virtual server.
snL4VirtualServerStatisticReceivePkts brcdIp.1.1.4.25.1.1.3 Syntax: Counter	Read only	Shows the number of packets the ServerIron has received from the real server.
snL4VirtualServerStatisticTransmitPkts brcdIp.1.1.4.25.1.1.4 Syntax: Counter	Read only	Shows the number of packets the ServerIron has sent to the real server.
snL4VirtualServerStatisticTotalConnections brcdIp.1.1.4.25.1.1.5 Syntax: Counter	Read only	Shows the number of client connections on the virtual server since the last time the ServerIron was booted. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Name, OID, and Syntax	Access	Description
snL4VirtualServerStatisticReceiveBytes brcdIp.1.1.4.25.1.1.6 Syntax: Counter64	Read only	The number of bytes the switch has received from the real server.
snL4VirtualServerStatisticTransmitBytes brcdIp.1.1.4.25.1.1.7 Syntax: Counter64	Read only	The number of bytes the switch has sent to the real server
snL4VirtualServerStatisticSymmetricState brcdIp.1.1.4.25.1.1.8 Syntax: Integer	Read only	Shows which ServerIron is the active one: • other(3) – Not the active ServerIron • active(5) – Active ServerIron
snL4VirtualServerStatisticSymmetricPriority brcdIp.1.1.4.25.1.1.9 Syntax: Integer	Read only	Shows the Symmetric SLB priority configured on the ServerIron.
snL4VirtualServerStatisticSymmetricKeep brcdIp.1.1.4.25.1.1.10 Syntax: Integer	Read only	This object is applicable only to the active ServerIrons. Shows the number of times an SSLB backup has failed to communicate with the active ServerIron. By default, the counter is incremented by 1 every 400 milliseconds, if the backup switch is responding slowly to the active switch's keepalive message. The counter is reset to 0 each time the backup switch replies to a keepalive message. If the counter exceeds the maximum number allowed (20 by default, thus 8 seconds), the standby switch takes over as the new active switch. Normally, this field almost always contains 0.
snL4VirtualServerStatisticSymmetricActivates brcdIp.1.1.4.25.1.1.11 Syntax: Counter	Read only	The number of times this ServerIron has become the active switch.
snL4VirtualServerStatisticSymmetricInactives brcdIp.1.1.4.25.1.1.12 Syntax: Counter	Read only	Shows the number of times this ServerIron has changed from being the active switch to the backup switch.
snL4VirtualServerStatisticSymmetricBestStandbyMacAddr brcdIp.1.1.4.25.1.1.13 Syntax: Physical address	Read only	Shows the MAC address of the backup ServerIron with the second-highest priority. This ServerIron will become the active switch if a failover occurs.
snL4VirtualServerStatisticSymmetricActiveMacAddr brcdIp.1.1.4.25.1.1.14 Syntax: Physical address	Read only	Shows the MAC address of the active ServerIron with the highest priority. This ServerIron will become the backup switch if a failover occurs.

Name, OID, and Syntax	Access	Description
snL4VirtualServerStatisticTrackPortList brcdIp.1.1.4.25.1.1.15 Syntax: DisplayString (SIZE (1..72))	Read-only	Virtual port track group port list.
snL4VirtualServerStatisticTrackPortState brcdIp.1.1.4. 25.1.1.16 Syntax: Integer	Read-only	Shows the port track-group state. Valid values: • none(0) - the track-group port list is empty • up(1) • suspect(2)

Virtual server port statistics table

Virtual Server Port Statistics table contains statistics for all the ports configured for all the virtual servers.

Name, OID, and Syntax	Access	Description
snL4VirtualServerPortStatisticTable brcdIp.1.1.4.26.1	None	The Virtual Server Port Statistic table.
snL4VirtualServerPortStatisticEntry brcdIp.1.1.4.26.1.1	None	An entry in the Virtual Server Port Statistic table.
snL4VirtualServerPortStatisticIP brcdIp.1.1.4.26.1.1.1 Syntax: IpAddress	Read only	The IP address of the virtual server that the port is located.
snL4VirtualServerPortStatisticPort brcdIp.1.1.4.26.1.1.2 Syntax: Integer	Read only	Shows the ID of the port that the virtual server (SLB switch) uses to listen for connections.
snL4VirtualServerPortStatisticServerName brcdIp.1.1.4.26.1.1.3 Syntax: L4ServerName	Read only	Shows the name of the virtual server.
snL4VirtualServerPortStatisticCurrentConnection brcdIp.1.1.4.26.1.1.4 Syntax: Integer	Read only	Shows the number of client connections currently on the virtual server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4VirtualServerPortStatisticTotalConnection brcdIp.1.1.4.26.1.1.5 Syntax: Counter	Read only	The number of client connections on the virtual server since the last time the ServerIron was rebooted. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4VirtualServerPortStatisticPeakConnection brcdIp.1.1.4.26.1.1.6 Syntax: Integer	Read only	The highest number of connections the VIP has had at any time.

Bind table

Virtual servers must be bound to real servers. The Bind table contains information about the bindings between the virtual servers (external or front-end servers visible to clients) and real or application servers (servers that serve the client requests).

L4 bind table

NOTE
This table has been deprecated. Use the snL4VirtualServerBindTable instead.

Name, OID, and Syntax	Access	Description
snL4BindTable brcdIp.1.1.4.6.1	None	The Bind table.
snL4BindEntry brcdIp.1.1.4.6.1.1	None	An entry in the Bind table.
snL4BindIndex brcdIp.1.1.4.6.1.1.1 Syntax: Integer	Read only	The index for this entry. This must be unique and care must be taken to assign an unused index when creating an entry.
snL4BindVirtualServerName brcdIp.1.1.4.6.1.1.2 Syntax: L4ServerName	Read-write	Indicates the name of the virtual server. Valid values: 1 – 32 octets
snL4BindVirtualPortNumber brcdIp.1.1.4.6.1.1.3 Syntax: Integer	Read-write	Specifies the TCP or UDP port number on the virtual server that will be bound to the real server. Valid values: 0 – 65535
snL4BindRealServerName brcdIp.1.1.4.6.1.1.4 Syntax: L4ServerName	Read-write	Indicates the name of the real server that has been configured on the ServerIron. Valid values: 1 – 32 octets
snL4BindRealPortNumber brcdIp.1.1.4.6.1.1.5 Syntax: Integer	Read-write	Specifies the TCP or UDP port number of the real server to which the virtual port is bound. Valid values: 0 – 65535
snL4BindRowStatus brcdIp.1.1.4.6.1.1.6 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • delete(3) – Delete the row • create(4) – Create a new row • modify(5) – Modify an existing row If the row exists, then a SET with a value of create(4) returns a "bad value" error. Deleted rows are removed from the table immediately. The following values can be returned on reads: • noSuch(0) – No such row • invalid(1) – Row is inoperative • valid(2) – Row exists and is valid

L4 virtual server bind table

This table replaces the snL4BindTable.

Name, OID, and Syntax	Access	Description
snL4VirtualServerBindTable brcdIp.1.1.4.6.2	N/A	The Virtual Server Bind Table.
snL4VirtualServerBindEntry brcdIp.1.1.4.6.2.1	N/A	An entry in the snL4VirtualServerBindTable.
snL4BindingRealServerIP brcdIp.1.1.4.6.2.1.1 Syntax: IpAddress	Read only	The IP address of the real server that will be bound to the virtual server.
snL4BindingRealServerPort brcdIp.1.1.4.6.2.1.2 Syntax: Integer	Read only	The port on the real server that will be bound to the virtual server.
snL4BindingRealServerName brcdIp.1.1.4.6.2.1.3 Syntax: L4ServerName	Read-write	The name of the real server.
snL4BindingVirtualServerIP brcdIp.1.1.4.6.2.1.4 Syntax: IpAddress	Read-write	The IP address of the virtual server to which the real server will be bound.
snL4BindingVirtualServerPort brcdIp.1.1.4.6.2.1.5 Syntax: Integer	Read-write	The port on the virtual server to which the real server will be bound.
snL4BindingVirtualServerName brcdIp.1.1.4.6.2.1.6 Syntax: L4ServerName	Read only	The name of the virtual server.
snL4BindingRowStatus brcdIp.1.1.4.6.2.1.7 Syntax: Integer	Read-write	Creates or delete a bind entry: • valid(1) • waiting-for-delete(2) • delete(3) • create(4)
snL4BindingRealServerPortState brcdIp.1.1.4.6.2.1.8 Syntax: Integer	Read-only	The state of the real server port after binding: • disabled(0) • enabled(1) • failed(2) • testing(3) • suspect(4) • shutdown(5) • active(6)

GSLB site remote ServerIron configuration table

Global Server Load Balancing (GSLB) enables a ServerIron to add intelligence to authoritative Domain Name Servers (DNSs) by serving as a proxy to the servers. As a DNS proxy, the GSLB ServerIron evaluates the server IP addresses in the replies from the DNS for which the ServerIron is a proxy. Based on the results of the evaluation, the GSLB ServerIron can change the order of the addresses in the reply so that the “best” host address for the client is first on the list.

The GSLB Site Remote ServerIron Configuration table contains the configuration of ServerIrons that act as DNS proxies to the clients. They also intercept the IP addresses replied by the DNS authoritative servers to select the best address for the requesting client.

Name, OID, and Syntax	Access	Description
snL4GslbSiteRemoteServerIronTable brcdIp.1.1.4.27.1	None	The GSLB Remote ServerIron Configuration Table.
snL4GslbSiteRemoteServerIronEntry brcdIp.1.1.4.27.1.1	None	An entry in the GSLB Remote ServerIron Configuration table.

Name, OID, and Syntax	Access	Description
snL4GslbSiteRemoteServerIronIP brcdIp.1.1.4.27.1.1.1 Syntax: IpAddress	Read only	Specifies the management IP address of the remote ServerIron in a site. This address must not be any of the configured VIPs.
snL4GslbSiteRemoteServerIronPreference brcdIp.1.1.4.27.1.1.2 Syntax: Integer	Read-write	Specifies the preference of a remote ServerIron. This metric is a numeric preference value, that is assigned to each site ServerIron. It is used to select that ServerIron if the previous metrics do not select a best site. The GSLB policy prefers the site ServerIron with the highest administrative preference. The preference allows to do the following. • Temporarily change the preference of a ServerIron site to accommodate changing network conditions. For example, if sites are offering proxy content service, the link between a site proxy server farm and the content origin may be highly congested, making that site less desirable. This factor is not visible to the ServerIrons and thus cannot be reflected in the other GSLB metrics. • Temporarily disqualify a site ServerIron from being selected, without otherwise changing the site configuration or the GSLB ServerIron configuration. For example, maintenance can be performed on the site ServerIron without making network changes. In this case, set the preference to 0. • A GSLB ServerIron can be biased, that is, it can be configured as a site ServerIron (for locally configured VIPs) to always favor itself as the best site. In this case, assign a preference of 255 to the site for the GSLB ServerIron itself, and assign a lower preference to the other site ServerIrons, or use the default (128) for those sites. The administrative preference is disabled by default, which means it is not included as one of the GSLB metrics. When this metric is enabled, the default administrative preference for sites is applied. It can be changed on an individual site basis." Valid values: 0 – 255 Default: 128

GSLB DNS zone information table

The GSLB DNS zone information table contains **show gslb dns zone** and **show gslb dns detail** information.

Name, OID, and Syntax	Access	Description
snL4GslbDnsZonesInfoTable brcdIp.1.1.4.30.1	None	The GSLB DNS Zone Information Table.
snL4GslbDnsZonesEntry brcdIp.1.1.4.30.1.1	None	An entry in the GSLB DNS Zone Information Table.
snL4GslbDnsZoneName brcdIp.1.1.4.30.1.1.1 Syntax: DisplayString	Read only	Specifies the GSLB DNS zone name. Value values 1 - 64.

Name, OID, and Syntax	Access	Description
snL4GslbDnsZoneHostName brcdIp.1.1.4.30.1.1.2 Syntax: DisplayString	Read-only	Specifies one of the hosts in the GSLB DNS zone. Valid values: 1 – 64
snL4GslbDnsZoneHostIpAddr brcdIp.1.1.4.30.1.1.3 Syntax: IpAddress	Read-only	Specifies the prefix IP address.
snL4GslbDnsZoneHostAlias brcdIp.1.1.4.30.1.1.4 Syntax: DisplayString	Read-only	Specifies the GSLB DNS zone host Alias; one of the hosts in the GSLB DNS zone.
snL4GslbDnsZoneHostSvrIpSouce brcdIp.1.1.4.30.1.1.5 Syntax: Integer	Read-only	Indicates how the ServerIron learned the address. • cfg(1) • fromDns(2) • cfgNfromDns(3)
snL4GslbDnsZoneHostSvrIpType brcdIp.1.1.4.30.1.1.6 Syntax: Integer	Read-only	Indicates what type of IP address; virtual IP or Real IP. • vip(1) • realip(2)
snL4GslbDnsZoneHostSvrState brcdIp.1.1.4.30.1.1.7 Syntax: Integer	Read-only	Indicates the state of the server. • down(0) • active(1)
snL4GslbDnsZoneHostSvrLocation brcdIp.1.1.4.30.1.1.8 Syntax: Integer	Read-only	Indicates the geographic location of the server. • asia(1) • europe(2) • northAm(3) • southAm(4)
snL4GslbDnsZoneHostSvrTcpRtt brcdIp.1.1.4.30.1.1.9 Syntax: Integer	Read-only	Indicates the round-trip time of the Layer 4 health check to the TCP port. This FlashBack value is in multiple of a 100us.
snL4GslbDnsZoneHostSvrAppRtt brcdIp.1.1.4.30.1.1.10 Syntax: Integer	Read-only	Indicates the round-trip time of the Layer 7 (application layer) health check. This FlashBack value is in multiple of a 100us.
snL4GslbDnsZoneHostSvrRespCnt brcdIp.1.1.4.30.1.1.11 Syntax: Counter64	Read-only	Indicates the number of times the GSLB ServerIron has selected this server as the best server and thus placed the server's IP address at the top of the list in the DNS replies.
snL4GslbDnsZoneHostSvrRespPcent brcdIp.1.1.4.30.1.1.12 Syntax: DisplayString	Read-only	Indicates the percentage of times the GSLB ServerIron has selected this server as the best server and thus placed the server's IP address at the top of the list in the DNS replies.
snL4GslbDnsZoneIpWeight brcdIp.1.1.4.30.1.1.14 Syntax: Integer	Read-only	Indicates the weight for the IP Address.
snL4GslbDnsZoneSlSiteName brcdIp.1.1.4.30.1.1.14 Syntax: DisplayString	Read-only	Indicates the site name of the ServerIron.

Name, OID, and Syntax	Access	Description
snL4GslbDnsZoneSIName brcdIp.1.1.4.30.1.1.15 Syntax: DisplayString	Read-only	Indicates the site ServerIron name.
ssnL4GslbDnsZoneSIMgmtIpAddr brcdIp.1.1.4.30.1.1.16 Syntax: IpAddress	Read-only	Indicates the site ServerIron management IP address.
snL4GslbDnsZoneSiteWeight brcdIp.1.1.4.30.1.1.17 Syntax: Integer	Read-only	Indicates the weight of the site.
snL4GslbDnsZoneSessionUtil brcdIp.1.1.4.30.1.1.18 Syntax: Integer	Read-only	Indicates the percentage of the ServerIron session capacity that is in use.
snL4GslbDnsZoneAvailSessions brcdIp.1.1.4.30.1.1.19 Syntax: Counter	Read-only	Indicates the number of unused sessions in the ServerIron session table.
snL4GslbDnsZonePreference brcdIp.1.1.4.30.1.1.20 Syntax: Integer	Read-only	Indicates the numeric preference value for this site ServerIron. The preference can be used by the GSLB policy to select a site.
snL4GslbDnsZoneActiveBindings brcdIp.1.1.4.30.1.1.21 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the number of active bindings in the ServerIron. If there are no bindings, this object returns zero.
snL4GslbDnsZoneMetricHealthCheck brcdIp.1.1.4.30.1.1.22 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the health check metric counter. If there are no bindings, this object returns zero.
snL4GslbDnsZoneMetricWeightedSite brcdIp.1.1.4.30.1.1.23 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the weighted site metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricWeightedIp brcdIp.1.1.4.30.1.1.24 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, ithen this object indicates the weighted IP metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricCapacity brcdIp.1.1.4.30.1.1.25 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the capacity metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricRtt brcdIp.1.1.4.30.1.1.26 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the RTT metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricGeographic brcdIp.1.1.4.30.1.1.27 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the geographic metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricConnectionLoad brcdIp.1.1.4.30.1.1.28 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the connection Load metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricSession brcdIp.1.1.4.30.1.1.29 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the session metric counter; otherwise, it returns zero.

Name, OID, and Syntax	Access	Description
snL4GslbDnsZoneMetricActiveBindings brcdIp.1.1.4.30.1.1.30 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the active bindings metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricFlashBack brcdIp.1.1.4.30.1.1.31 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the flash back metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricPreference brcdIp.1.1.4.30.1.1.32 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the preference metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricRoundRobin brcdIp.1.1.4.30.1.1.33 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the round robin metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricLeastResponse brcdIp.1.1.4.30.1.1.34 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the least response metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricAffinity brcdIp.1.1.4.30.1.1.35 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the affinity metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricStickySession brcdIp.1.1.4.30.1.1.36 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the sticky session metric counter; otherwise, it returns zero.
snL4GslbDnsZoneMetricPersistHash brcdIp.1.1.4.30.1.1.37 Syntax: Counter	Read-only	If the site ServerIon belongs to a virtual IP binding, then this object indicates the perist hash metric counter; otherwise, it returns zero.

Monitor groups

The monitor groups includes tables that control the periodic statistical sampling of data. Data is collected for real servers, virtual servers, real server ports, and virtual server ports. The data is then placed in the appropriate tables. Each entry in any of the tables is equal to one data sample. An entry identifies the sample's data source, polling period, and other information.

If the probe keeps track of the time of day when collecting data samples, it should take the first sample when the next hour begins.

The probe is encouraged to add two entries per monitored interface upon initialization. One entry should describe a short term polling period, the other, a long term polling period. Suggested intervals for the entries are 30 seconds for the short term polling period and 30 minutes for the long term period.

The monitor groups are presented in the following sections:

- "Real server history control table" on page 597
- "Real server history group" on page 598
- "Real server port history control group" on page 600

- "Real server port history group" on page 602
- "Virtual server history control group" on page 603
- "Virtual server history table" on page 604
- "Virtual server port history control table" on page 606
- "Virtual server port history table" on page 608

Real server history control table

Real Server History Control Table contains objects that control the collection of data samples for real servers.

Name, OID, and Syntax	Access	Description
snL4RealServerHistoryControlTable brcdIp.1.1.4.28.1	None	The Real Server History Control Table
snL4RealServerHistoryControlEntry brcdIp.1.1.4.28.1.1	None	An entry in the Real Server History Control Table.
snL4RealServerHistoryControlIndex brcdIp.1.1.4.28.1.1.1 Syntax: Integer	Read only	An index that uniquely identifies an entry in this table. Each entry defines a set of samples at a particular interval for a real server on the ServerIron. Valid values: Up to 65535 entries.
snL4RealServerHistoryControlDataSource brcdIp.1.1.4.28.1.1.2 Syntax: Object Identifier	Read-write	This object identifies the source of the historical data that was collected for this entry. The source can be any real server on this ServerIron. It identifies a particular instance defined in the "snL4RealServerStatisticTable". It may not be modified if the value of the "snL4RealServerHistoryControlStatus" object for this entry source is equal to valid(1).
snL4RealServerHistoryControlBucketsRequested brcdIp.1.1.4.28.1.1.3 Syntax: Integer	Read-write	The requested number of data samples that will be saved for this entry. The number of samples saved in the object "snL4RealServerHistoryControlBucketsGranted" should be close to the value of this object. If the value of this object is modified, then the value of the "snL4RealServerHistoryControlBucketsGranted" object will be adjusted according to the new value of this object. Valid values: 1 – 65535 Default: 50

Name, OID, and Syntax	Access	Description
snL4RealServerHistoryControlBucketsGranted brcdIp.1.1.4.28.1.1.4 Syntax: Integer	Read only	The number of data samples that was actually saved for this entry. If the value of the "snL4RealServerHistoryControlBucketsRequested" object is modified, then the actual number of samples saved by this object will be adjusted accordingly. If all the requested buckets are filled, a new bucket will be added to the table, and the oldest bucket for the entry will be deleted. If the value of this object changes to a value less than the current value, enough of the oldest entries will be deleted so that the number of buckets does not exceed the new value of this object. If the value of this object changes to a value greater than the current value, the number of buckets will increase but not exceed the new value of this object.
snL4RealServerHistoryControlInterval brcdIp.1.1.4.28.1.1.5 Syntax: Integer	Read-write	Shows the interval, in seconds, over which the data is sampled for each bucket. **NOTE:** A counter for a bucket may overflow without any indication; therefore, be sure to account for the overflow in all the counters you configure. Consider the minimum time it takes for a counter to overflow and set this object (snL4RealServerHistoryControlInterval) to a value less than the overflow interval. This is especially important for the "octets" counter in any data-source table. You cannot modify the value of this object if the value of this entry's "snL4RealServerHistoryControlStatus" object is equal to valid(1). Valid values: 1 – 3600 seconds Default: 1800 seconds
snL4RealServerHistoryControlOwner brcdIp.1.1.4.28.1.1.6 Syntax: DisplayString	Read-write	The administrator who owns or configured this entry.
snL4RealServerHistoryControlStatus brcdIp.1.1.4.28.1.1.7 Syntax: Integer	Read-write	The state of this entry: • valid(1) • createRequest(2) • underCreation(3) • invalid(4) – When the entry is set to this state, it will be deleted from the table.

Real server history group

The Real Server History Group table contains historical data samples that were collected for real servers.

Each counter in this table counts the same event as the counters used by the "snL4RealServerStatisticEntry"; however, the value of the counters in this table represents a cumulative sum of a sampling period.

Name, OID, and Syntax	Access	Description
snL4RealServerHistoryTable brcdIp.1.1.4.28.2	None	The Real Server History Group table.
snL4RealServerHistoryEntry brcdIp.1.1.4.28.2.1	None	An entry in the Real Server History Group table. An entry is a historical sample of statistics on a particular real server. This sample is associated with the "snL4RealServerHistoryControlEntry" object, which sets up the parameters for a regular collection of these samples.
snL4RealServerHistoryIndex brcdIp.1.1.4.28.2.1.1 Syntax: Integer	Read only	Shows the index entry as identified by the "snL4RealServerHistoryControlIndex".
snL4RealServerHistorySampleIndex brcdIp.1.1.4.28.2.1.2 Syntax: Integer	Read only	An index that uniquely identifies this particular sample among all samples associated with the same entry. This index starts at 1 and increases by one as each new sample is taken. There can be up to 214,748,3647 samples.
snL4RealServerHistoryIntervalStart brcdIp.1.1.4.28.2.1.3 Syntax: Time ticks	Read only	The value of sysUpTime at the start of the interval used to measure data samples. If the probe keeps track of the time of day, set the data sampling to start at the beginning of the next hour. **NOTE:** Following this rule may require the probe to delay the collection of the first sample for an entry, since each sample must be of the same interval. Also, data for the sample that is currently being collected is not accessible in this table until the end of its interval.
snL4RealServerHistoryReceivePkts brcdIp.1.1.4.28.2.1.4 Syntax: Counter	Read only	Shows the number of packets the ServerIron has received from the real server.
snL4RealServerHistoryTransmitPkts brcdIp.1.1.4.28.2.1.5 Syntax: Counter	Read only	Shows the number of packets the ServerIron has sent to the real server.
snL4RealServerHistoryTotalConnections brcdIp.1.1.4.28.2.1.6 Syntax: Counter	Read only	Shows the total number of client connections on the real server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4RealServerHistoryCurConnections brcdIp.1.1.4.28.2.1.7 Syntax: Integer	Read only	Shows the number of client connections currently on the real server. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Name, OID, and Syntax	Access	Description
snL4RealServerHistoryPeakConnections brcdIp.1.1.4.28.2.1.8 Syntax: Integer	Read only	Shows the highest number of client connections on the real server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4RealServerHistoryReassignments brcdIp.1.1.4.28.2.1.9 Syntax: Integer	Read only	Shows the number of times the ServerIron has reassigned the connection to another real server in the rotation because the real server that is in use has not responded to two TCP SYNs from the client.

Real server port history control group

Real Server Port History Control Table lists all the controls for collecting data samples for a real server port.

Name, OID, and Syntax	Access	Description
snL4RealServerPortHistoryControlTable brcdIp.1.1.4.28.3	None	Real Server Port History Control Table
snL4RealServerPortHistoryControlEntry brcdIp.1.1.4.28.3.1	None	An entry in the Real Server Port History Control Table.
snL4RealServerPortHistoryControlIndex brcdIp.1.1.4.28.3.1.1 Syntax: Integer	Read only	An index that uniquely identifies an entry in this table. Each entry defines a set of samples at a particular interval for a real server port on the ServerIron. Valid values: Up to 65535 entries.
snL4RealServerPortHistoryControlDataSource brcdIp.1.1.4.28.3.1.2 Syntax: Object Identifier	Read-write	This object identifies the source of the historical data that was collected for this entry. The source can be any real server port on this ServerIron. It identifies a particular instance defined in the "snL4RealServerStatisticTable". It may not be modified if the value of the "snL4VirtualServerPortHistoryControlStatus" object for this entry source is equal to valid(1).
snL4RealServerPortHistoryControlBucketsRequested brcdIp.1.1.4.28.3.1.3 Syntax: Integer	Read-write	The requested number of data samples that will be saved for this entry. The number of actual samples saved in the "snL4RealServerPortHistoryControlBucketsGranted" object should be close to the value of this object. If the value of this object is modified, then the value of the "snL4RealServerPortHistoryControlBucketsGranted" object will be adjusted according to the new value of this object. Valid values: 1 – 65535 Default: 50

Name, OID, and Syntax	Access	Description
snL4RealServerPortHistoryControlBucketsGranted brcdIp.1.1.4.28.3.1.4 Syntax: Integer	Read only	The number of data samples that was actually saved for this entry. If the value of the "snL4RealServerPortHistoryControlBucketsRequested" object is modified, then the actual number of samples saved by this object will be adjusted accordingly. If all the requested buckets are filled, a new bucket will be added to the table, and the oldest bucket for the entry will be deleted. If the value of this object changes to a value less than the current value, enough of the oldest entries will be deleted so that the number of buckets does not exceed the new value of this object. If the value of this object changes to a value greater than the current value, the number of buckets will increase but will not exceed the new value of this object.
snL4RealServerPortHistoryControlInterval brcdIp.1.1.4.28.3.1.5 Syntax: Integer	Read-write	Shows the interval, in seconds, over which the data is sampled for each bucket. **NOTE:** A counter for a bucket may overflow without any indication; therefore, be sure to account for the overflow in all the counters you configure. Consider the minimum time it takes for a counter to overflow and set this object (snL4RealServerPortHistoryControlInterval) to a value less than the overflow interval. This is especially important for the "octets" counter in any data-source table. You cannot modify the value of this object if the value of this entry's "snL4RealServerPortHistoryControlStatus" object is equal to valid(1). Valid values: 1 – 3600 seconds Default: 1800 seconds
snL4RealServerPortHistoryControlOwner brcdIp.1.1.4.28.3.1.6 Syntax: DisplayString	Read-write	The administrator who owns or configured this entry.
snL4RealServerPortHistoryControlStatus brcdIp.1.1.4.28.3.1.7 Syntax: Integer	Read-write	The state of this entry: • valid(1) • createRequest(2) • underCreation(3) • invalid(4) – This entry will be deleted from the table if it is set to this state.

Real server port history group

The Real Server Port History Group contains history data samples for each port on the real server.

Name, OID, and Syntax	Access	Description
snL4RealServerPortHistoryTable brcdIp.1.1.4.28.4	None	The Real Server Port History Group table.
snL4RealServerPortHistoryEntry brcdIp.1.1.4.28.4.1	None	An entry in the Real Server Port History Group table. An entry is a historical sample of statistics on a particular real server port. This sample is associated with the "snL4RealServerPortHistoryControlEntry" object, which sets up the parameters for the regular collection of these samples.
snL4RealServerPortHistoryIndex brcdIp.1.1.4.28.4.1.1 Syntax: Integer	Read only	Shows the index entry as identified by the "snL4RealServerPortHistoryControlIndex".
snL4RealServerPortHistorySampleIndex brcdIp.1.1.4.28.4.1.2 Syntax: Integer	Read only	An index that uniquely identifies this particular sample among all samples associated with the same entry. This index starts at 1 and increases by one as each new sample is taken. There can be up to 214,748,3647 samples.
snL4RealServerPortHistoryIntervalStart brcdIp.1.1.4.28.4.1.3 Syntax: Time ticks	Read only	The value of sysUpTime at the start of the interval used to measure data samples. If the probe keeps track of the time of day, set the data sampling to start at the beginning of the next hour. **NOTE:** Following this rule may require the probe to delay the collection of the first sample for an entry, since each sample must be of the same interval. Also, data for the sample that is currently being collected is not accessible in this table until the end of its interval.
snL4RealServerPortHistoryReceivePkts brcdIp.1.1.4.28.4.1.4 Syntax: Counter	Read only	Shows the number of packets the ServerIron has received from the real server.
snL4RealServerPortHistoryTransmitPkts brcdIp.1.1.4.28.4.1.5 Syntax: Counter	Read only	Shows the number of packets the ServerIron sent to the real server.
snL4RealServerPortHistoryTotalConnections brcdIp.1.1.4.28.4.1.6 Syntax: Counter	Read only	Shows the total number of client connections on the real server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4RealServerPortHistoryCurConnections brcdIp.1.1.4.28.4.1.7 Syntax: Integer	Read only	Shows the number of client connections currently on the real server. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Name, OID, and Syntax	Access	Description
snL4RealServerPortHistoryPeakConnections brcdIp.1.1.4.28.4.1.8 Syntax: Integer	Read only	Shows the highest number of client connections on the real server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4RealServerPortHistoryResponseTime brcdIp.1.1.4.28.4.1.9 Syntax: Integer	Read only	Shows the round trip time for a response from a real server on this port.

Virtual server history control group

The Real Server History Control Table contains objects that control the collection of data samples for virtual servers.

Name, OID, and Syntax	Access	Description
snL4VirtualServerHistoryControlTable brcdIp.1.1.4.28.5	None	The Virtual Server History Control Group Table.
snL4VirtualServerHistoryControlEntry brcdIp.1.1.4.28.5.1	None	An entry in the Virtual Server History Control Table.
snL4VirtualServerHistoryControlIndex brcdIp.1.1.4.28.5.1.1 Syntax: Integer	Read only	An index that uniquely identifies an entry in this table. Each entry defines a set of samples at a particular interval for a virtual server on the ServerIron. This object can have up to 65535 entries.
snL4VirtualServerHistoryControlDataSource brcdIp.1.1.4.28.5.1.2	Read-write	This object identifies the source of the historical data that was collected for this entry. The source can be any virtual server on this ServerIron. It identifies a particular instance defined in the "snL4VirtualServerStatisticTable". It may not be modified if the value of the "snL4VirtualServerHistoryControlStatus" object for this entry source is equal to valid(1).
snL4VirtualServerHistoryControlBucketsRequested brcdIp.1.1.4.28.5.1.3 Syntax: Integer	Read-write	Indicates the requested number of data samples that will be saved for this entry. The number of samples saved in the object "snL4VirtualServerHistoryControlBucketsGranted" should be close to the value of this object. If the value of this object is modified, then the value of the "snL4VirtualServerHistoryControlBucketsGranted" object will be adjusted according to the new value of this object. Valid values: 1 – 65535 Default: 50

Name, OID, and Syntax	Access	Description
snL4VirtualServerHistoryControlBucketsGranted brcdIp.1.1.4.28.5.1.4 Syntax: Integer	Read only	The number of data samples that was actually saved for this entry. If the value of the "snL4VirtualServerHistoryControlBucketsRequested" object is modified, then the actual number of samples saved by this object will be adjusted accordingly. If all the requested buckets are filled, a new bucket will be added to the table, and the oldest bucket for the entry will be deleted. If the value of this object changes to a value less than the current value, enough of the oldest entries will be deleted so that the number of buckets does not exceed the new value of this object. If the value of this object changes to a value greater than the current value, the number of buckets will increase but not exceed the new value of this object.
snL4VirtualServerHistoryControlInterval brcdIp.1.1.4.28.5.1.5 Syntax: Integer	Read-write	Shows the interval, in seconds, over which the data is sampled for each bucket. **NOTE:** A counter for a bucket may overflow without any indication; therefore, be sure to account for the overflow in all the counters you configure. Consider the minimum time it takes for a counter to overflow and set this object (snL4VirtualServerHistoryControlInterval) to a value less than the overflow interval. This is especially important for the "octets" counter in any data-source table. You cannot modify the value of this object if the value of this entry's "snL4VirtualServerHistoryControlStatus" object is equal to valid(1). Valid values: 1 – 3600 seconds Default: 1800 seconds
snL4VirtualServerHistoryControlOwner brcdIp.1.1.4.28.5.1.6 Syntax: DisplayString	Read-write	The administrator who owns or configured this entry.
snL4VirtualServerHistoryControlStatus brcdIp.1.1.4.28.5.1.7 Syntax: Integer	Read-write	The state of this entry: • valid(1) • createRequest(2) • underCreation(3) • invalid(4) – This entry will be deleted from the table if it is changed to this state.

Virtual server history table

The Virtual Server History Group table contains historical data samples that were collected for virtual servers.

Each counter in this table identifies the same event as the counters used by the "snL4VirtualServerStatisticEntry"; however, the value of the counters in this table represents a cumulative sum of a sampling period.

Name, OID, and Syntax	Access	Description
snL4VirtualServerHistoryTable brcdIp.1.1.4.28.6	None	The Virtual Server History Table.
snL4VirtualServerHistoryEntry brcdIp.1.1.4.28.6.1	None	An entry in the Virtual Server History Group table. An entry is a historical sample of statistics on a particular virtual server. This sample is associated with the "snL4VirtualServerHistoryControlEntry" object, which sets up the parameters for a regular collection of these samples.
snL4VirtualServerHistoryIndex brcdIp.1.1.4.28.6.1.1 Syntax: Integer	Read only	Shows the index entry as identified by the "snL4VirtualServerHistoryControlIndex".
snL4VirtualServerHistorySampleIndex brcdIp.1.1.4.28.6.1.2 Syntax: Integer	Read only	An index that uniquely identifies this particular sample among all samples associated with the same entry. This index starts at 1 and increases by one as each new sample is taken. There can be up to 214,748,3647 samples.
snL4VirtualServerHistoryIntervalStart brcdIp.1.1.4.28.6.1.3 Syntax: Time ticks	Read only	The value of sysUpTime at the start of the interval used to measure data samples. If the probe keeps track of the time of day, set the data sampling to start at the beginning of the next hour. **NOTE:** Following this rule may require the probe to delay the collection of the first sample for an entry, since each sample must be of the same interval. Also, data for the sample that is currently being collected is not accessible in this table until the end of its interval.
snL4VirtualServerHistoryReceivePkts brcdIp.1.1.4.28.6.1.4 Syntax: Counter	Read only	Shows the number of packets the ServerIron has received from the virtual server.
snL4VirtualServerHistoryTransmitPkts brcdIp.1.1.4.28.6.1.5 Syntax: Counter	Read only	Shows the number of packets the ServerIron sent to the virtual server.
snL4VirtualServerHistoryTotalConnections brcdIp.1.1.4.28.6.1.6 Syntax: Counter	Read only	Shows the total number of client connections on the virtual server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4VirtualServerHistoryCurConnections brcdIp.1.1.4.28.6.1.7 Syntax: Integer	Read only	Shows the number of client connections currently on the virtual server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4VirtualServerHistoryPeakConnections brcdIp.1.1.4.28.6.1.8 Syntax: Integer	Read only	Shows the highest number of client connections on the virtual server. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Virtual server port history control table

The Virtual Server Port History Control Table lists all the controls for collecting data samples for a virtual server port.

Name, OID, and Syntax	Access	Description
snL4VirtualServerPortHistoryControlTable brcdIp.1.1.4.28.7	None	The Virtual Server Port History Control Table
snL4VirtualServerPortHistoryControlEntry brcdIp.1.1.4.28.7.1	None	An entry in the Virtual Server Port History Control Table.
snL4VirtualServerPortHistoryControlIndex brcdIp.1.1.4.28.7.1.1 Syntax: Integer	Read only	An index that uniquely identifies an entry in this table. Each entry defines a set of samples at a particular interval for a virtual server port on the ServerIron. This object can have up to 65535 entries.
snL4VirtualServerPortHistoryControlDataSource brcdIp.1.1.4.28.7.1.2 Syntax: Object Identifier	Read-write	This object identifies the source of the historical data that was collected for this entry. The source can be any virtual server port on this ServerIron. It identifies a particular instance defined in the "snL4VirtualServerStatisticTable". It may not be modified if the value of the "snL4VirtualServerPortHistoryControlStatus" object for this entry source is equal to valid(1).
snL4VirtualServerPortHistoryControlBucketsRequested brcdIp.1.1.4.28.7.1.3 Syntax: Integer	Read-write	The requested number of data samples that will be saved for this entry. The number of actual samples saved in the "snL4VirtualServerPortHistoryControlBucketsGranted" object should be close to the value of this object. If the value of this object is modified, then the value of the "snL4VirtualServerPortHistoryControlBucketsGranted" object will be adjusted according to the new value of this object. Valid values: 1 – 65535 Default: 50
snL4VirtualServerPortHistoryControlBucketsGranted brcdIp.1.1.4.28.7.1.4 Syntax: Integer	Read only	The number of data samples that was actually saved for this entry. If the value of the "snL4VirtualServerPortHistoryControlBucketsRequested" object is modified, then the actual number of samples saved by this object will be adjusted accordingly. If all the requested buckets are filled, a new bucket will be added to the table, and the oldest bucket for the entry will be deleted. If the value of this object changes to a value less than the current value, enough of the oldest entries will be deleted so that the number of buckets does not exceed the new value of this object. If the value of this object changes to a value greater than the current value, the number of buckets will increase but will not exceed the new value of this object.

Name, OID, and Syntax	Access	Description
snL4VirtualServerPortHistoryControlInterval brcdIp.1.1.4.28.7.1.5 Syntax: Integer	Read-write	Shows the interval, in seconds, over which the data is sampled for each bucket. **NOTE:** A counter for a bucket may overflow without any indication; therefore, be sure to account for the overflow in all the counters you configure. Consider the minimum time it takes for a counter to overflow and set this object (snL4VirtualServerPortHistoryControlInterval) to a value less than the overflow interval. This is especially important for the "octets" counter in any data-source table. You cannot modify the value of this object if the value of this entry's "snL4VirtualServerPortHistoryControlStatus" object is equal to valid(1). Valid values: 1 – 3600 seconds Default: 1800 seconds
snL4VirtualServerPortHistoryControlOwner brcdIp.1.1.4.28.7.1.6 Syntax: DisplayString	Read-write	The administrator who owns or configured this entry.
snL4VirtualServerPortHistoryControlStatus brcdIp.1.1.4.28.7.1.7 Syntax: Integer	Read-write	The state of this entry: • valid(1) • createRequest(2) • underCreation(3) • invalid(4) – This entry will be deleted from the table if its state changes to this state.

Virtual server port history table

The Virtual Server Port History Group contains history data samples for each port on the virtual server.

Name, OID, and Syntax	Access	Description
snL4VirtualServerPortHistoryTable brcdIp.1.1.4.28.8	None	The Virtual Server Port History Table.
snL4VirtualServerPortHistoryEntry brcdIp.1.1.4.28.8.1	None	An entry in the Virtual Server Port History Group table. An entry is a historical sample of statistics on a particular virtual server port. This sample is associated with the "snL4VirtualServerPortHistoryControlEntry" object, which sets up the parameters for a regular collection of these samples.
snL4VirtualServerPortHistoryIndex brcdIp.1.1.4.28.8.1.1 Syntax: Integer	Read only	Shows the index entry as identified by the "snL4VirtualServerPortHistoryControlIndex".
snL4VirtualServerPortHistorySampleIndex brcdIp.1.1.4.28.8.1.2 Syntax: Integer	Read only	An index that uniquely identifies this particular sample among all samples associated with the same entry. This index starts at 1 and increases by one as each new sample is taken. There can be up to 214,748,3647 samples.
snL4VirtualServerPortHistoryIntervalStart brcdIp.1.1.4.28.8.1.3 Syntax: Time ticks	Read only	The value of sysUpTime at the start of the interval used to measure data samples. If the probe keeps track of the time of day, set the data sampling to start at the beginning of the next hour. **NOTE:** Following this rule may require the probe to delay the collection of the first sample for an entry, since each sample must be of the same interval. Also, data for the sample that is currently being collected is not accessible in this table until the end of its interval.
snL4VirtualServerPortHistoryReceivePkts brcdIp.1.1.4.28.8.1.4 Syntax: Counter	Read only	Shows the number of packets the ServerIron has received from the virtual server port.
snL4VirtualServerPortHistoryTransmitPkts brcdIp.1.1.4.28.8.1.5 Syntax: Counter	Read only	Shows the number of packets the ServerIron sent to the virtual server.
snL4VirtualServerPortHistoryTotalConnections brcdIp.1.1.4.28.8.1.6 Syntax: Counter	Read only	Shows the total number of client connections on the virtual server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4VirtualServerPortHistoryCurConnections brcdIp.1.1.4.28.8.1.7 Syntax: Integer	Read only	Shows the number of client connections currently on the virtual server. A connection consists of two sessions: the client-to-server session and the server-to-client session.
snL4VirtualServerPortHistoryPeakConnections brcdIp.1.1.4.28.8.1.8 Syntax: Integer	Read only	Shows the highest number of client connections on the virtual server. A connection consists of two sessions: the client-to-server session and the server-to-client session.

Chapter

SecureIron MIB Objects

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NOTE
The objects in this section are not supported on SecureIron devices only.

DOS protection statistics group

This chapter describes management information base (MIB) objects are specific to the SecureIron series switches.

NOTE
SecureIron MIBs are supported only on SecureIron devices.

This chapter describes the MIB objects in the DOS protection statistics group.

Name, OID, and Syntax	Access	Description
SnSciDosFilterStatistics brcdIp.1.1.6.1	None	DOS attack protection statistics group
SnSciDosFilterStatisticsTable brcdIp.1.1.6.1.1 INDEX: snSciDosFilterName snSciDosFilterType	None	DOS attack protection filter statistics table
SnSciDosFilterEntry brcdIp.1.1.6.1.1.1	None	A row in the DOS attack protection filter statistics table
snSciDosFilterName brcdIp.1.1.6.1.1.1.1 Syntax: Octet String	Read only	Show DOS attack filter name

Name, OID, and Syntax	Access	Description
snSciDosFilterType brcdIp.1.1.6.1.1.1.2 Syntax: Integer	Read only	Show the DOS attack filter type: 1 - address-sweep 2 - deny-all-fragments 3 -- fin-with-no-ack 4 -- generic 5 -- icmp-fragment 6 -- icmp-type 7 -- ip-options 8 -- land-attack 9 -- large-icmp 10 -- ping-of-death 11-- port-scan 12 -- syn-and-fin-set 13 -- syn-fragments 14 -- tcp-no-flag 15 -- unknown-ip-protocol 16 -- xmas-tree 17 -- filter-dns 18 -- filter-sip
snSciDosFilterPktsLogCount brcdIp.1.1.6.1.1.1.3 Syntax: Counter32	Read only	Show the statistics of logged packet count.
snSciDosFilterPktsDropCount brcdIp.1.1.6.1.1.1.4 Syntax: Counter32	Read only	Show the statistics of logged packet count

DOS protection cumulative statistics group

This section describes the MIB objects in the DOS protection cumulative statistics group.

Name, OID, and Syntax	Access	Description
snSciCumulative brcdIp.1.1.6.2	None	DOS protection cumulative statistics group
snSciCumulativeStatisticsTable brcdIp.1.1.6.2.1 INDEX: snSciCumFilterType	None	DOS protection cumulative statistics table
snSciCumulativeStatEntry brcdIp.1.1.6.2.1.1	None	A row DOS protection cumulative statistics table

Name, OID, and Syntax	Access	Description
snSciCumFilterType brcdIp.1.1.6.2.1.1.1 Syntax: Integer	Read only	Meaning of integer value: 1 - address-sweep 2 - deny-all-fragments 3 -- fin-with-no-ack 4 -- generic 5 -- icmp-fragment 6 -- icmp-type 7 -- ip-options 8 -- land-attack 9 -- large-icmp 10 -- ping-of-death 11-- port-scan 12 -- syn-and-fin-set 13 -- syn-fragments 14 -- tcp-no-flag 15 -- unknown-ip-protocol 16 -- xmas-tree 17 -- filter-dns 18 -- filter-sip
snSciCumPktsLogCount brcdIp.1.1.6.2.1.1.2 Syntax: Counter64	Read only	Show the cumulative count of logged packets on each DOS filter type
snSciCumPktsDropCount brcdIp.1.1.6.2.1.1.3 Syntax: Counter64	Read only	Read-onlyShow the cumulative count of dropped packets on each DOS filter type

SIP filtering statistics group

This chapter describes the MIB objects in the SIP filtering statistics group.

Name, OID, and Syntax	Access	Description
snSciSipFiltej brcdIp.1.1.6.3	None	SIP filtering group
snSciSipFilterStatisticsTable brcdIp.1.1.6.3.1	None	SIP filtering statistics table
snSciSipFilterEntry brcdIp.1.1.6.3.1.1	None	A row in SIP filtering statistics table
snSciSipPolicyName brcdIp.1.1.6.3.1.1.1 Syntax: Octet String	Read only	Show the SIP filter name
snSciSipFilterInterfaceStr brcdIp.1.1.6.3.1.1.2 Syntax: Octet String	Read only	Show the list of interfaces which are bound by the filter
snSciSipBadSyntaxLogCnt brcdIp.1.1.6.3.1.1.3 Syntax: Counter32	Read only	Show the logged count of bad syntax packets

Name, OID, and Syntax	Access	Description
snSciSipUndefinedMethodLogCnt brcdIp.1.1.6.3.1.1.4 Syntax: Counter32	Read only	Show the logged count of undefined method packets
snSciSipBadSyntaxDropCnt brcdIp.1.1.6.3.1.1.5 Syntax: Counter32	Read only	Show the drop count of bad syntax packets
snSciSipUndefinedMethodDropCnt brcdIp.1.1.6.3.1.1.6 Syntax: Counter32	Read only	Show the drop count of undefined method packets

MAC filtering statistics group

This chapter describes the MIB objects in the MAC filtering statistics group.

Name, OID, and Syntax	Access	Description
snSciMacFilter brcdIp.1.1.6.4	None	MAC filtering statistics group
snSciMacFilterStatisticTable brcdIp.1.1.6.4.1 INDEX: snSciMacFilterFilterNum	None	MAC filtering statistics table
snSciMacFilterEntry brcdIp.1.1.6.4.1.1	None	An entry in MAC filtering statistics table
snSciMacFilterFilterNum brcdIp.1.1.6.4.1.1.1 Syntax: Integer	Read-only	Show the user defined MAC filter number
snSciMacFilterSrcAddr brcdIp.1.1.6.4.1.1.2 Syntax: MacAddress	Read-only	Show the filter source MAC address
snSciMacFilterSrcMask brcdIp.1.1.6.4.1.1.3	Read-only	Show the filter source MAC address mask
snSciMacFilterDestAddr brcdIp.1.1.6.4.1.1.4 Syntax: MacAddress	Read-only	Show the filter destination MAC address
snSciMacFilterDestMask brcdIp.1.1.6.4.1.1.5 Syntax: MacAddress	Read-only	Show the filter destination MAC address mask
snSciMacFilterAction brcdIp.1.1.6.4.1.1.6 Syntax: Integer	Read-only	Show the action taken when packets are matched. deny(0) - deny the packet permit(1) - permit the packet to flow
snSciMacFilterHitCounter brcdIp.1.1.6.4.1.1.7 Syntax: Counter32	Read-only	Firewall statistics on each Layer 4 port

Firewall server statistics group

This chapter describes the MIB objects in the Firewall server statistics group.

Name, OID, and Syntax	Access	Description
snSciFireWallServer brcdIp.1.1.6.5	None	Firewall server statistics group
snSciFireWallServerStatisticsTable brcdIp.1.1.6.5.1 INDEX: snSciFireWallName	None	Firewall server statistics table
snSciFireWallServerEntry brcdIp.1.1.6.5.1.1	None	An entry in Firewall server statistics table
snSciFireWallName brcdIp.1.1.6.5.1.1.1 Syntax: Octet string	Read-only	Show the firewall server name
snSciFireWallServerIP brcdIp.1.1.6.5.1.1.2 Syntax: IpAddress	Read-only	Show the firewall server IP address
snSciFireWallServerState brcdIp.1.1.6.5.1.1.3 Syntax: Integer	Read-only	Show the firewall server state: disabled(0) enabled(1) failed(2) test(3) suspect(4) to-be-deleted(5) active(6)
snSciFireWallCurrentConns brcdIp.1.1.6.5.1.1.4	Read-only	Show the count of current connections
snSciFireWallTotalConns brcdIp.1.1.6.5.1.1.5 Syntax: Counter32	Read-only	Show the total number of connections
snSciFireWallHost2FwPkts brcdIp.1.1.6.5.1.1.6 Syntax: Integer	Read-only	Show the count of packets that flows from host to firewall
snSciFireWallHost2FwOctets brcdIp.1.1.6.5.1.1.7 Syntax: Counter32	Read-only	Show the count of octets that flows from host to firewall
snSciFireWallFw2HostPkts brcdIp.1.1.6.5.1.1.8 Syntax: Integer	Read-only	Show the count of packets that flows from firewall to host
snSciFireWallFw2HostOctets brcdIp.1.1.6.5.1.1.9 Syntax: Counter32	Read-only	Show the count of octets that flows from firewall to host

Firewall statistics for each layer 4 port group

This chapter describes the MIB objects in the Firewall statistics on each Layer 4 port group.

Name, OID, and Syntax	Access	Description
snSciFWL4Port brcdIp.1.1.6.6	None	Firewall statistics on each Layer 4 port group
snSciFWL4PortStatisticsTable brcdIp.1.1.6.6.1 INDEX: 1. snSciFWL4ServerName 2. snSciFWL4PortNum 3. snSciFWL4TrafficDir	None	Firewall statistics Layer 4 port table
snSciFWL4PortEntry brcdIp.1.1.6.6.1.1	None	An entry in Firewall statistics Layer 4 port table
snSciFWL4ServerName brcdIp.1.1.6.6.1.1.1 Syntax: Octet string	Read-only	Show the firewall server name
snSciFWL4PortNum brcdIp.1.1.6.6.1.1.2 Syntax: Integer	Read-only	Show Layer 4 port number: ftp(21) telnet(23) smtp(25) dns(53) tftp(69) http(80) pop2(109) pop3(110) nntp(119) ntp(123) map4(143) snmp(161) dap(389) ssl(443) ssh(22) tsp(554) daps(636) mms(1755) radius(1812) radius-old(1645) port3389(3389) sip(5060) sips(5061) pnm(7070) default(65535)
snSciFWL4TrafficDir brcdIp.1.1.6.6.1.1.3 Syntax: Integer	Read-only	Show firewall traffic direction: out-firewall(1) in-firewall(2)

Name, OID, and Syntax	Access	Description
snSciFWL4ServerState brcdIp.1.1.6.6.1.1.4 Syntax: Integer	Read-only	Show the firewall server state: disabled(0) enabled(1) failed(2) test(3) suspect(4) to-be-deleted(5) active(6)
snSciFWL4CurrentConns brcdIp.1.1.6.6.1.1.5 Syntax: Counter32	Read-only	Show the count of current connections
snSciFWL4TotalConns brcdIp.1.1.6.6.1.1.6 Syntax: Counter32	Read-only	Show the total number of connections
snSciFWL4Host2FwPkts brcdIp.1.1.6.6.1.1.7 Syntax: Integer	Read-only	Show the count of packets that flows from host to firewall
snSciFWL4Host2FwOctets brcdIp.1.1.6.6.1.1.8 Syntax: Counter32	Read-only	Show the count of octets that flows from host to firewall
snSciFWL4Fw2HostPkts brcdIp.1.1.6.6.1.1.9 Syntax: Integer	Read-only	Show the count of packets that flows from firewall to host

Firewall server path information group

This chapter describes the MIB objects in the Firewall server path information group objects:

Name, OID, and Syntax	Access	Description
snSciFireWallServerPath brcdIp.1.1.6.7	None	Firewall server path information group
snSciFireWallServerPathTable brcdIp.1.1.6.7.1 INDEX: snSciFireWallPathNum	None	Firewall server path table
snSciFireWallServerPathEntry brcdIp.1.1.6.7.1.1	None	A row in the firewall server path table
snSciFireWallPathNum brcdIp.1.1.6.7.1.1.1 Syntax: Integer	Read only	Show the firewall server path number
snSciFireWallTargetIP brcdIp.1.1.6.7.1.1.2 Syntax: IpAddress	Read only	Show firewall server target IP address
snSciFireWallNextHopIP brcdIp.1.1.6.7.1.1.3 Syntax: IpAddress	Read only	Show firewall server next hop IP address

Name, OID, and Syntax	Access	Description
snSciFireWallifIndex brcdIp.1.1.6.7.1.1.4 Syntax: Integer	Read only	Show firewall server interface index
snSciFireWallPathStatus brcdIp.1.1.6.7.1.1.5 Syntax: Integer	Read only	Show the firewall server path status: • path-up (1) • path-down (2)
snSciFireWallPathSentStatus brcdIp.1.1.6.7.1.1.6 Syntax: Integer	Read only	Show the firewall server path sending status: • sent-failed (0), • sent-successful (1)
snSciFireWallPathRecvStatus brcdIp.1.1.6.7.1.1.7 Syntax: Integer	Read only	Show the firewall server path receiving status: • receive-failed (0) • receive-successful (1)
snSciFireWallPathState brcdIp.1.1.6.7.1.1.8 Syntax: Integer	Read only	Show the firewall server path state: • disabled (0) • enabled (1) • failed (2) • test (3) • suspect (4)
snSciFireWallZone brcdIp.1.1.6.7.1.1.9 Syntax: Integer	Read only	Show the firewall server zone number

Concurrent connection limiting statistics group

This chapter describes the MIB objects in the concurrent connection limiting statistics group.

Name, OID, and Syntax	Access	Description
snSciConcurrConnLimit brcdIp.1.1.6.8	None	Concurrent connection limiting statistics group
snSciConcurrConnLimitStatsTable brcdIp.1.1.6.8.1 INDEX: snSciConcurrConnIfIndex	None	Concurrent connection limiting statistics table
SnL4SciConcurrConnEntry brcdIp.1.1.6.8.1.1	None	A row in the Concurrent connection limiting statistics table
snSciConcurrConnIfIndex brcdIp.1.1.6.8.1.1.1 Syntax: Integer	Read-only	Show the interface number that the concurrent connection limit is applied to.
snSciConcurrConnifDescr brcdIp.1.1.6.8.1.1.2 Syntax: Octet String	Read-only	Show the brief interface description
snSciConcurrConnPolicyName brcdIp.1.1.6.8.1.1.3 Syntax: Octet string	Read-only	Show concurrent connection limiting policy name

Name, OID, and Syntax	Access	Description
snSciConcurrConnHitCount brcdIp.1.1.6.8.1.1.4 Syntax: Counter32	Read-only	Show the hit count of the concurrent connection limiting policy
snSciConcurrConnDenyCount brcdIp.1.1.6.8.1.1.5 Syntax: Counter32	Read-only	Show the deny count of the concurrent connection limiting policy

Transaction rate limiting statistics group

This chapter describes the MIB objects in the transaction rate limiting statistics group.

Name, OID, and Syntax	Access	Description
snSciTransRateLimit brcdIp.1.1.6.9	None	Transaction rate limiting statistics group
snSciTransRateLimitStatsTable brcdIp.1.1.6.9.1 INDEX: 1. snSciTransRateifIndex 2. snSciTransRateL4PortType	None	Transaction rate limiting statistics table
snSciTransRateEntry brcdIp.1.1.6.9.1.1	Read-only	A row in Transaction rate limiting statistics table
snSciTransRateifIndex brcdIp.1.1.6.9.1.1.1 Syntax: Integer		Show the interface number
snSciTransRateL4PortType brcdIp.1.1.6.9.1.1.2 Syntax: Integer	Read-only	Show the Layer 4 port type: • tcp (1) • udp (2)
snSciTransRateifDescr brcdIp.1.1.6.9.1.1.3 Syntax: Octet String	Read-only	Show the brief interface description
snSciTransRatePolicyName brcdIp.1.1.6.9.1.1.4 Syntax: Octet string	Read-only	Show the transaction rate limiting policy name
snSciTransRateHitCount brcdIp.1.1.6.9.1.1.5 Syntax: Counter32	Read-only	Show the transaction rate policy hit count
snSciTransRateDenyCount brcdIp.1.1.6.9.1.1.6 Syntax: Counter32	Read-only	Show the transaction rate policy deny count

Maximum connection to destination statistics group

This chapter describes the MIB objects in the maximum connection to destination statistics group.

Name, OID, and Syntax	Access	Description
snSciDestConnRateLimit brcdIp.1.1.6.10	None	Maximum connection to destination statistics group
snSciDestConnRateLimitStatsTable brcdIp.1.1.6.10.1 INDEX: snSciDestConnIfIndex	None	Maximum connection to destination rate limiting table
snSciDestConnEntry brcdIp.1.1.6.10.1.1	None	An entry in maximum connection to destination rate limiting table.
snSciDestConnIfIndex brcdIp.1.1.6.10.1.1.1 Syntax: Integer	Read-only	Show the interface number
snSciDestConnifDescr brcdIp.1.1.6.10.1.1.2 Syntax: Octet String	Read-only	Show the brief interface description
snSciDestConnPolicyName dry.1.1.6.10.1.1.	Read-only	Show the maximum connection to destination rate limiting policy name
snSciDestConnHitCount brcdIp.1.1.6.10.1.1.4 Syntax: Counter32	Read-only	Show the maximum connection to destination rate limiting policy hit count
snSciDestConnDenyCount brcdIp.1.1.6.10.1.1.5 Syntax: Counter32	Read-only	Show the maximum connection to destination rate limiting policy deny count

Deep packet scan statistics group

This chapter describes the MIB objects in the deep packet scan Statistics group.

Name, OID, and Syntax	Access	Description
snSciDeepPacketScan brcdIp.1.1.6.11	None	Deep packet scan statistics group
snSciDeepPacketScanTable brcdIp.1.1.6.11.1 INDEX: 1.snSciDeepPktScanPolicyName 2. snSciDeepPktScanRuleIndex	None	Deep packet scan statistics table
snSciDeepPacketScanEntry brcdIp.1.1.6.11.1.1	None	An entry in deep packet scan statistics table.
snSciDeepPktScanPolicyName brcdIp.1.1.6.11.1.1.1 Syntax: Integer	Read-only	Show the deep packet scan policy name

Name, OID, and Syntax	Access	Description
snSciDeepPktScanRuleIndex brcdIp.1.1.6.11.1.1.2 Syntax: Octet String	Read-only	Show the deep packet scan rule number
snSciDeepPktScanAction brcdIp.1.1.6.11.1.1.3 Syntax: Integer	Read-only	Show the deep packet scan rule action
snSciDeepPktScanRuleName brcdIp.1.1.6.11.1.1.4 Syntax: Octet string	Read-only	Show the deep packet scan rule name
snSciDeepPktScanRuleHitCnt brcdIp.1.1.6.11.1.1.5 Syntax: Counter32	Read-only	Show the deep packet scan rule hit count
snSciDeepPktScanActionHitCnt brcdIp.1.1.6.11.1.1.6Syntax: Counter32	Read-only	Show the deep packet scan action hit count

Deep packet scan statistics group

Chapter

32

Wireless Features

General MIB objects

The wgGroup (OID: brcdIp.1.1.3.23.1) contains MIB objects for wireless LAN features. The group is available on IronPoint–FESes. The following sections present the objects in the MIB group.

NOTES: Wireless MIB objects are not supported on the following products:

- BigIron RX
- NetIron XMR
- NetIron MLX
- BigIron MG8
- NetIron 40G
- NetIron IMR 640 Router
- NetIron CES
- NetIron CER
- Brocade MLXe
- ServerIron (JetCore)
- ServerIron ADX
- TurboIron 24X

The following table list the general MIB objects for the wireless feature support.

Name, Identifier, and Syntax	Access	Description
wgMobilityId brcdIp.1.1.3.23.1.1 Syntax: Integer	Read-write	Specifies the wireless mobility domain to which this IronPoint–FES belongs. Valid value: 1 - 65535. Enter 0 to remove the IronPoint–FES from a wireless mobility domain.
wgVpnPTDeletePolicy brcdIp.1.1.3.23.1.2 Syntax: Integer	Read-write	Deletes a VPN passthrough policy from the IronPoint–FES. enter a valid VPN passthrough policy ID to remove the policy.

WiFi interface table

The WiFi Interface Table controls the wireless feature support on an IronPoint–FES.

Name, Identifier, and Syntax	Access	Description
wgIfTable brcdIp.1.1.3.23.2	N/A	WiFi Interface Table
wgIfEntry brcdIp.1.1.3.23.2.1	N/A	An entry of the WiFi Interface Table.
wgIfIndex brcdIp.1.1.3.23.2.1.1 Syntax: Integer	Read-only	The ifIndex value of the switch interface.
wgIfWirelessEnable brcdIp.1.1.3.23.2.1.2 Syntax: Integer	Read-write	Enables or disables the wireless feature support on an interface: • other(1) • enable(2) • disable(3) The default is disable(3).
wgIfPnPLearnNewAP brcdIp.1.1.3.23.2.1.3 Syntax: Integer	Read-write	Enables or disables the ability of an interface to learn new access points. This object is used by the ADC feature: • other(1) • enable(2) • disable(3)
wgIfAutoPortDisable brcdIp.1.1.3.23.2.1.4 Syntax: Integer	Read-write	This object is for the Automatic Port Deactivation feature. If set to enable, the interface is automatically disabled if the link status of the interface changes: • other(1) • enable(2) • disable(3)
wgIfVpnPTPolicyId brcdIp.1.1.3.23.2.1.5 Syntax: Integer	Read-write	This object binds a VPN Passthrough policy to the interface. To bind an interface to a VPN passthrough policy, enter it's policy ID. It must be a valid policy number that is larger than zero. To unbind an interface to a VPN passthrough policy enter zero for the policy ID.
wgIfFullCompRoamingEnable brcdIp.1.1.3.23.2.1.5 Syntax: Integer	Read-write	Indicates if full compatibility tunneling mode is enabled on the interface: • other(1) – Other • enable(2) – Full compatibility tunneling is enabled. • disable(3) – Full compatibility tunneling is disabled. High performance tunneling is used.

Roaming peer table

The Roaming Peer Table shows information about the IronPoint–FES peers in a Wireless Mobility configuration.

Name, Identifier, and Syntax	Access	Description
wgRoamingPeerTable brcdIp.1.1.3.23.3	N/A	The Roaming Peer Table.
wgRoamingPeerEntry brcdIp.1.1.3.23.3.1	N/a	An entry of the Roaming Peer Table.
wgRoamingPeerIpAddress brcdIp.1.1.3.23.3.1.1 Syntax: IpAddress	Read-only	The IP Address of a peer.
wgRoamingPeerConnection Status brcdIp.1.1.3.23.3.1.2 Syntax: Integer	Read-only	Shows the state of the connection; • other(1) • configured(2) • established(3)
wgRoamingPeerRowStatus brcdIp.1.1.3.23.3.1.3 Syntax: Integer	Read-write	Shows the state of the row in the PeerRow Table: • other(1) • valid(2) • delete(3) • create(4)

Access point automatic discovery and configuration table

The Access Point (AP) Automatic Discovery and Configuration (ADC) Table defines the IP address, subnet mask, and default gateway of the access point that will be assigned to an access point with the specified MAC address. This information can be pre-configured on an IronPoint–FES interface. When the access point that has the matching MAC address is attached to the interface, the pre-configured IP address, subnet mask, and default gateway are assigned to that access point.

Name, Identifier, and Syntax	Access	Description
wgPnPTable brcdIp.1.1.3.23.4	N/A	AP ADC Table.
wgPnPEntry brcdIp.1.1.3.23.4.1 Syntax: WgPnPEntry	N/A	An entry in the AP ADC Table.
wgPnPIfIndex brcdIp.1.1.3.23.4.1.1 Syntax: Integer	Read-only	The ifIndex value of the switch interface.
wgPnPMacAddress brcdIp.1.1.3.23.4.1.2 Syntax: MacAddress	Read-only	MAC address of the attached AP.

Name, Identifier, and Syntax	Access	Description
wgPnPIpAddress brcdIp.1.1.3.23.4.1.3 Syntax: IpAddress	Read-write	IP address of the attached AP.
wgPnPIpMask brcdIp.1.1.3.23.4.1.4 Syntax: IpAddress	Read-write	Subnet mask of the attached AP.
wgPnPIpDefaultGw brcdIp.1.1.3.23.4.1.5 Syntax: IpAddress	Read-write	Default gateway of the attached AP.
wgPnPStatus brcdIp.1.1.3.23.4.1.6 Syntax: Integer	Read-only	The state of the access point that is defined for the interface: • other(1) • discovered(2) – IronPoint–FES discovered a new access point that has not been configured. • configured(3) – The access point's IP address, subnet mask, and default gateway have been defined on the interface, but the access point with the matching MAC address is not attached to the interface. • operational(4) – The access point's IP address, subnet mask, and default gateway have been defined on the interface and the access point with the matching MAC address is attached to the interface and is operational.
wgPnPRowStatus brcdIp.1.1.3.23.4.1.7 Syntax: Integer	Read-write	Creates, deletes or modifies a row in the AP ADC Table: • other(1) • valid(2) • delete(3) • create(4) • modify(5)

VPN passthrough server table

The VPN Passthrough Server Table contains the VPN policies that have been configured on the IronPoint–FES.

Name, Identifier, and Syntax	Access	Description
wgVpnPTServerTable brcdIp.1.1.3.23.5	N/A	The VPN Passthrough Server Table.
wgVpnPTServerEntry brcdIp.1.1.3.23.5.1	N/A	An entry in the VPN Passthrough Server Table.
wgVpnPTServerPolicyId brcdIp.1.1.3.23.5.1.1 Syntax: Integer	Read-only	The ID of a VPN passthrough policy. The value of this object must be greater than zero.

Name, Identifier, and Syntax	Access	Description
wgVpnPTServerIpAddress brcdIp.1.1.3.23.5.1.2 Syntax: IpAddress	Read-only	The IP address of the VPN server that will be used to terminate VPN traffic that goes through this switch.
wgVpnPTServerRowStatus brcdIp.1.1.3.23.5.1.3 Syntax: Integer	Read-write	Creates or deletes a row in the VPN Passthrough Server Table: • other(1) • valid(2) • delete(3) • create(4)

VPN passthrough filter table

The VPN Passthrough Filter Table shows the VPN passthrough policies and the action the policy takes when it encounters VPN traffic that matches the policy.

Name, Identifier, and Syntax	Access	Description
wgVpnPTFilterTable brcdIp.1.1.3.23.6	N/A	The VPN Passthrough Filter Table
wgVpnPTFilterEntry brcdIp.1.1.3.23.6.1	N/A	An entry in the VPN Passthrough Filter Table.
wgVpnPTFilterPolicyId brcdIp.1.1.3.23.6.1.1 Syntax: Integer	Read-only	The ID of the VPN passthrough policy. This is a number greater than zero.
wgVpnPTFilterProtocol brcdIp.1.1.3.23.6.1.2 Syntax: Integer	Read-only	Specifies which protocol will be allowed to passthough: • other(1) • udp(2) • tcp(3)
wgVpnPTFilterPort brcdIp.1.1.3.23.6.1.4 Syntax: Integer	Read-only	Specifies which protocol interface (number) will be allowed to passthrough.
wgVpnPTFilterRowStatus brcdIp.1.1.3.23.6.1.4 Syntax: Integer	Read-write	Creates or deletes a row of VPN Passthrough Filter Table: • other(1) • valid(2) • delete(3) • create(4)

VPN passthrough policy table

The VPN Passthrough Policy Table shows to which interfaces a VPN policy is bound.

Name, Identifier, and Syntax	Access	Description
wgVpnPTPolicyTable brcdIp.1.1.3.23.7	N/A	VPN Passthrough Policy Table
wgVpnPTPolicyEntry brcdIp.1.1.3.23.7.1	N/A	An entry in the VPN Passthrough Policy Table.
wgVpnPTPolicyId brcdIp.1.1.3.23.7.1.1 Syntax: Integer	Read-only	The ID of the VPN policy. The value of this object must be greater than zero.
wgVpnPTPolicyPortList brcdIp.1.1.3.23.7.1.2 Syntax: IfIndexList	Read-only	Shows a list of ports to which this VPN policy is bound.

Chapter

Traps and Objects to Enable Traps 33

Objects to enable or disable standard traps

NOTE
By default, all traps are enabled.

The following objects from RFC 1213 are the standard objects supported in the IronWare MIB. They are used to set SNMP traps.

Name, OID, and Syntax	Access	Description
snmpInTraps 1.3.6.1.2.1.11.19	Read only	Shows the total number of SNMP trap PDUs that have been accepted and processed by the SNMP protocol.
snmpOutTraps 1.3.6.1.2.1.11.29	Read only	Shows the total number of SNMP trap PDUs that have been generated by the SNMP protocol.
snmpEnableAuthenTraps 1.3.6.1.2.1.11.30	Read-write	Indicates if the SNMP agent process is permitted to generate authentication failure traps. The value of this object overrides any configuration information. This objects provides a way to disable all authentication failure traps. **NOTE:** It is strongly recommended that this object be stored in the non-volatile memory so that it remains constant between re-initializations of the network management system.
lldpRemTablesChange 1.0.8802.1.1.2.1.4.1	None	An lldpRemTablesChange notification is sent when the value of lldpStatsRemTableLastChangeTime changes. It can be used by an NMS to trigger LLDP remote systems table maintenance polls. **NOTE:** Transmission of lldpRemTablesChange notifications are throttled by the agent, as specified by the “lldpNotificationInterval” object.
lldpXMedTopologyChangeDetected 1.0.8802.1.1.2.1.5.4795.0.1	None	Allows a device to transfer information related to topology changes to management applications in an asynchronous manner. Specifically, this enables notification of the fact that a new remote device was connected to the local port of an LLDP-MED network connectivity device, or that a remote device was removed from the local port. The purpose of this notification is efficient, near-real-time transmission of information regarding moves and changes to the management applications. Information carried by the list of objects (varbind) contained in the notification allows the receiving management application to uniquely identify the local port where the topology change occurred, as well as the device capability of the remote endpoint device that was attached to or removed from the port.

Objects for IronWare traps

This section present the objects available to enable or disable traps.

Trap information

The following objects provide general information on traps.

Name, OID, and Syntax	Access	Description
snAgTrpRcvrCurEntry brcdIp.1.1.2.1.16 Syntax: Integer	Read only	Shows the total number of entries that are currently in the Trap Receiver Table. There can be up to 255 entries.
snAgGblTrapMessage brcdIp.1.1.2.1.44 Syntax: DisplayString	Read only	Shows a generic trap message.

Trap receiver table (IPv4)

This table allows you to configure trap receivers on IPv4 devices.

NOTE
For FastIron IPv6 devices running software release FSX 04.1.00 or later, refer to “Trap receiver table (FastIron X series IPv6 devices)” on page 629.

Name, OID, and Syntax	Access	Description
snAgTrpRcvrTable brcdIp.1.1.2.3.1	None	The Trap Receiver Table
snAgTrpRcvrEntry brcdIp.1.1.2.3.1.1	None	A row in the Trap Receiver Table. The column “snAgTrpRcvrStatus”is used to create and delete rows in the table. Creation requires a SET PDU with objects snAgTrpRcvrIndex, snAgTrpRcvrIpAddr, snAgTrpRcvrCommunityOrSecurityName and snAgTrpRcvrStatus.
snAgTrpRcvrIndex brcdIp.1.1.2.3.1.1.1 Syntax: Integer32	Read only	Shows the index in the Trap Receiver Table. Valid values: 1 – 10
snAgTrpRcvrIpAddr brcdIp.1.1.2.3.1.1.2 Syntax: IpAddress	Read-write	Indicates the IP address of the SNMP manager that will receive the trap.
snAgTrpRcvrCommunityOrSecurityName brcdIp.1.1.2.3.1.1.3 Syntax: OctetString	Read-write	Indicates the community string to use to access the trap receiver. This object can have up to 32 octets.
snAgTrpRcvrStatus brcdIp.1.1.2.3.1.1.4 Syntax: Integer	Read-write	Controls the management of the table rows. The values that can be written are: • ignore(5) – Do not send traps to this entry at this time • delete(3) – Delete the row. (See note below regarding deleting a trap receiver.) • create(4) – Create a new row If the row exists, then a SET with a value of create(5) returns error "badValue". Deleted rows are deleted immediately. The following values can be returned on reads: • other(1) – Some other case • valid(2) – Row exists and is valid • ignore(5) – Do not send traps to this entry at this time

Name, OID, and Syntax	Access	Description
snAgTrpRcvrUDPPort brcdIp.1.1.2.3.1.1.5 Syntax: Integer	Read-write	Indicates the UDP port number of the trap receiver. Valid values: 0 – 65535 Default: 162
snAgTrpRcvrSecurity Model brcdIp.1.1.2.3.1.1.6 Syntax: Integer	read-write	Allows configuration of security model (v1, v2c or 3).
snAgTrpRcvrSecurityLevel brcdIp.1.1.2.3.1.7 Syntax: Integer	read-write	Allows configuration of the security level (noauth, auth or auth+priv).

NOTE
To delete a trap receiver, the agent needs the following varbinds in the setRequest PDU: snAgTrpRcvrIpAddr, snAgTrpRcvrCommunityOrSecurityName, and snAgTrpRcvrStatus. The snAgTrpRcvrStatus object must be set to delete(3).

Trap receiver table (FastIron X series IPv6 devices)

This table allows you to configure trap receivers on FastIron X Series IPv6 devices running software release FSX 04.1.00 or later.

NOTE
Releases prior to FSX 04.1.00 use the “Trap receiver table (IPv4)” on page 628.

NOTE
This table is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.

Name, OID, and Syntax	Access	Description
fdryTrapReceiverTable brcdIp.1.1.10.1.1.1	None	The Trap Receiver Table.
fdryTrapReceiverEntry brcdIp.1.1.10.1.1.1.1	None	An entry in the Trap Receiver Table. This table uses a running index as the index to the table.
fdryTrapReceiverIndex brcdIp.1.1.10.1.1.1.1.1 Syntax: Unsigned32	None	The index to the Trap Receiver Table.
fdryTrapReceiverAddrType brcdIp.1.1.10.1.1.1.1.2 Syntax: InetAddressType	Read-create	The IP address type. Supported address types are: • ipv4(1) • ipv6(2) Default: ipv4
fdryTrapReceiverAddr brcdIp.1.1.10.1.1.1.1.3 Syntax: InetAddress	Read-create	The IP address of the SNMP manager that will receive the trap.

Name, OID, and Syntax	Access	Description
fdryTrapReceiverCommunityOrSecurityName brcdIp.1.1.10.1.1.1.1.4 Syntax: OctetString (size(0..32))	Read-create	The community string to use to access the trap receiver. This object can have up to 32 octets. In the case of USM (SNMPv3) security model, this object is used to provide the security name.
fdryTrapReceiverUDPPort brcdIp.1.1.10.1.1.1.1.5 Syntax: Integer32 (0..65535)	Read-create	The UPD port number of the trap receiver. Valid value: 0 – 65535 Default: 162
fdryTrapReceiverSecurityModel brcdIp.1.1.10.1.1.1.1.6 Syntax: SecurityModel	Read-create	The version of trap format to be used. Default: v1
fdryTrapReceiverSecurityLevel brcdIp.1.1.10.1.1.1.1.7 Syntax: SecurityLevel	Read-create	Used for USM (SNMPv3) security model to specify the level of security. The security name is provided by fdryTrapReceiverCommunityOrSecurityName. Default: noAuth
fdryTrapReceiverRowStatus brcdIp.1.1.10.1.1.1.1.8 Syntax: RowStatus	Read-create	This variable is used to create, modify, or delete a row in this table. When a row in this table is in active(1) state, no objects in that row can be modified except this object.

General chassis and agent traps

The following objects enable or disable traps related to the device's power supply, fan, and interface links.

Name, OID, and Syntax	Access	Description
snChasEnablePwrSupplyTrap brcdIp.1.1.1.1.12 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate power supply failure traps: • disabled(0) • enabled(1) Default: enabled(1)
snChasEnableFanTrap brcdIp.1.1.1.1.16 Syntax: Integer	Read-write	For chassis devices only. Indicates if the SNMP agent process has been enabled to generate fan failure traps: • disabled(0) • enabled(1) Default: enabled(1)
snAgGblEnableColdStartTrap brcdIp.1.1.2.1.21 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate cold start traps: • disabled(0) • enabled(1) Default: enabled(1)
snAgGblEnableLinkUpTrap brcdIp.1.1.2.1.22 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate link up traps: • disabled(0) • enabled(1) Default: enabled(1)

Name, OID, and Syntax	Access	Description
snAgGblEnableLinkDownTrap brcdIp.1.1.2.1.23 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate link down traps: • disabled(0) • enabled(1) Default: enabled(1)
snAgGblEnableModuleInsertedTrap brcdIp.1.1.2.1.42 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate traps for hardware modules that have been inserted in the chassis: • disabled(0) • enabled(1) Default: enabled(1)
snAgGblEnableModuleRemovedTrap brcdIp.1.1.2.1.43 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate traps for hardware modules that have been removed from the chassis: • disabled(0) • enabled(1) Default: enabled(1)
snChasEnableTempWarnTrap brcdIp.1.1.1.1.21 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate temperature warning traps: • disabled(0) • enabled(1) Default: enabled(1)
snAgentEnableMgmtModRedunStateChangeTrap brcdIp.1.1.2.10.1.4 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate management module redundancy state change traps: • disabled(0) • enabled(1) Default: enabled(1)
snAgTrapHoldTime brcdIp.1.1.2.1.58 Syntax: Integer	Read-write	The number of seconds that traps will be held during device initialization. Traps are buffered while the device initialized; they are sent once the device is back online. Valid value: 1 - 600

Enable VRRP traps

Name, OID, and Syntax	Access	Description
snVrrpIfStateChangeTrap brcdIp.1.2.12.1.2 Syntax: Integer **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, NetIron CER devices.	Read-write	Indicates if the SNMP agent process has been enabled to generate VRRP interface state change traps: • disabled(0) • enabled(1) Default: enabled(1) **NOTE:** The standard MIB “vrrpNotificationCntl” will work exactly the same as the IronWare Proprietary MIB "snVrrpIfStateChangeTrap”.

Enable FSRP traps

Name, OID, and Syntax	Access	Description
snFsrpIfStateChangeTrap brcdIp.1.2.7.1.2 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate FSRP interface state change traps: • disabled(0) • enabled(1) Default: enabled(1)

Enable VSRP traps

Name, OID, and Syntax	Access	Description
snVsrpIfStateChangeTrap brcdIp.1.1.3.21.1.2 Syntax: Integer	Read-write	Indicates if the SNMP agent will generate a trap when an interface state change occur: • disabled(0) – No trap will be generated. • enabled(1) – The TRAP_VRRP_IF_STATE_CHANGE will be generated. Since only one of the virtual router protocols (VRRP, VRRPE, or VSRP) can be enabled at any one time, they all generate the same trap. Default is enabled(1).

Enable OSPF trap objects

The following are support objects for the OSPF traps.

Name, OID, and Syntax	Access	Description
snOspfSetTrap brcdIp.1.2.1.14.16.1.1 Syntax: OctetString	Read-write	Indicates if specific OSPF traps are enabled. This object contains four octets, serving as a bit map for the trap events defined by the OSPF traps. A value of 1 in the bit field indicates that the trap is enabled. The right-most bit (least significant) represents Trap 0.
snOspfConfigErrorType brcdIp.1.2.4.15.2 Syntax: Integer	Read only	Indicates the potential types of configuration conflicts used by the ospfConfigError and ospfConfigVirtError traps. • badVersion(1) • areaMismatch(2) • unknownNbmaNbr(3) – Router is eligible • unknownVirtualNbr(4) • authTypeMismatch(5) • authFailure(6) • netMaskMismatch(7) • helloIntervalMismatch(8) • deadIntervalMismatch(9) • optionMismatch(10)}
snOspfPacketType brcdIp.1.2.4.15.3 Syntax: Integer	Read only	Indicates the OSPF packet type in the trap. • hello(1) • dbDescript(2) • lsReq(3) • lsUpdate(4) • lsAck(5)}

Name, OID, and Syntax	Access	Description
snOspfPacketSrc brcdIp.1.2.4.15.4 Syntax: IpAddress	Read only	Shows the IP address of an inbound packet that cannot be identified by a neighbor instance.
snOspfTrapsGenerationMode brcdIp.1.2.4.15.5 Syntax: RtrStatus	Read-write	Indicates if this router has been enabled to generate OSPF traps. • disabled(0) – OSPF traps cannot be generated by this router, even if the object "snOspfSetTrap" is set to generate traps. • enabled(1) – OSPF traps can be generated by the router. This object provides global control on the generation of traps.

Enable switch group traps

Name, OID, and Syntax	Access	Description
snSwEnableBridgeNewRootTrap brcdIp.1.1.3.1.25 Syntax: Integer	Read-write	Indicates If the SNMP agent process is enabled to generate bridge new root traps. • disabled(0) • enabled(1) Default: enabled(1)
snSwEnableBridgeTopoChangeTrap brcdIp.1.1.3.1.26 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate bridge topology change traps: • disabled(0) • enabled(1) Default: enabled(1)
snSwEnableLockedAddrViolationTrap brcdIp.1.1.3.1.27 Syntax: Integer	Read-write	Indicates if the SNMP agent process has been enabled to generate locked address violation traps: • disabled(0) • enabled(1) Default: enabled(1)

Objects to enable layer 4 traps

The following objects enable or disable traps for Layer 4 functionalities.

Name, OID, and Syntax	Access	Description
snL4EnableMaxSessionLimitReachedTrap brcdIp.1.1.4.1.30 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps if the maximum number of connections has been reached: • disabled(0) • enabled(1)
snL4EnableTcpSynLimitReachedTrap brcdIp.1.1.4.1.31 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps if the maximum number of TCP SYN has been reached: • disabled(0) • enabled(1)
snL4EnableRealServerUpTrap brcdIp.1.1.4.1.32 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the real server is up: • disabled(0) • enabled(1)

Name, OID, and Syntax	Access	Description
snL4EnableRealServerDownTrap brcdIp.1.1.4.1.33 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the real server is down: • disabled(0) • enabled(1)
snL4EnableRealServerPortUpTrap brcdIp.1.1.4.1.34 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the real server TCP port is up: • disabled(0) • enabled(1)
snL4EnableRealServerPortDownTrap brcdIp.1.1.4.1.35 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the real server TCP port is down: • disabled(0) • enabled(1)
snL4EnableRealServerMaxConnLimitReachedTrap brcdIp.1.1.4.1.36 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the real server reaches its maximum number of connections: • disabled(0) • enabled(1)
snL4EnableBecomeStandbyTrap brcdIp.1.1.4.1.37 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the Server Load Balancing switch changes its state from active to standby: • disabled(0) • enabled(1)
snL4EnableBecomeActiveTrap brcdIp.1.1.4.1.38 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the Server Load Balancing switch changes its state from standby to active: • disabled(0) • enabled(1)
snL4EnableGslbHealthCheckIpUpTrap brcdIp.1.1.4.1.43 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when an application port in a domain on the site IP address passes its Layer 4 TCP or UDP health check, resulting in a status change to UP: • disabled(0) • enabled(1)
snL4EnableGslbHealthCheckIpDownTrap brcdIp.1.1.4.1.44 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps whenever the GSLB determines that the IP address belonging to a domain name for which the ServerIron is providing GSLB is DOWN: • disabled(0) • enabled(1)
snL4EnableGslbHealthCheckIpPortUpTrap brcdIp.1.1.4.1.45 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when an application port in a domain on the site IP address passes its Layer 4 TCP or UDP health check, resulting in a status change to UP: • disabled(0) • enabled(1)
snL4EnableGslbHealthCheckIpPortDownTrap brcdIp.1.1.4.1.46 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when an application port in a domain on the site IP address fails its Layer 4 TCP or UDP health check, resulting in a status change to DOWN: • disabled(0) • enabled(1)

Name, OID, and Syntax	Access	Description
snL4EnableGslbRemoteGslbSiDownTrap brcdIp.1.1.4.1.47 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the connection from this site to the remote GSLB ServerIron is DOWN: • disabled(0) • enabled(1)
snL4EnableGslbRemoteGslbSiUpTrap brcdIp.1.1.4.1.48 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the connection from this site to the remote GSLB ServerIron is UP: • disabled(0) • enabled(1)
snL4EnableGslbRemoteSiDownTrap brcdIp.1.1.4.1.49 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the GSLB connection from this GSLB to the remote ServerIron is DOWN: • disabled(0) • enabled(1)
snL4EnableGslbRemoteSiUpTrap brcdIp.1.1.4.1.50 Syntax: Integer	Read-write	Indicates if this device has been enabled to generate traps when the GSLB connection from this GSLB to remote the ServerIron is UP: • disabled(0) • enabled(1)

Standard traps

This section present the standard traps supported on devices.

System status traps

Foundry supports the following traps from RFC 1215:

Trap Name and Number	Varbind	Description
coldStart 1.3.6.1.6.3.1.1.5.1	(None)	Indicates that the sending protocol entity is reinitializing itself: the agent's configuration or the protocol entity implementation may be altered.
warmStart 1.3.6.1.6.3.1.1.5.2	(None)	Indicates that the sending protocol entity is reinitializing itself; however, the agent configuration nor the protocol entity implementation is not altered.
linkDown 1.3.6.1.6.3.1.1.5.3	ifIndex(1) ifDescr(2)	A failure in one of the communication links. For example, Interface <port-name> <port-num>, state down
linkUp 1.3.6.1.6.3.1.1.5.4	ifIndex(1) ifDescr(2)	The communication link is up. For example, Interface <port-name> <port-num>, state up

Trap Name and Number	Varbind	Description
NOTE: Regarding linkUp and linkDown traps: • Release 07.1.x. supports a maximum of 32 ports per module; therefore the ifIndex for this release ranges from 1 – 32 for Slot 1, 33 – 64 for Slot 2 and so on. • Release 07.2.x supports a maximum of 64 ports per module; therefore, the ifIndex for the release ranges from 1 – 64 for Slot 1, 65 – 128 for Slot2 and so on. Thus for Slot 2/Port 1, the value of the ifIndex of the port in Release 07.1.x is 33; whereas, in Release 07.2.x, it is 65.		
authenticationFailure 1.3.6.1.6.3.1.1.5.5	(none)	Indicates that the sending protocol entity is the addressee of a protocol message that is not properly authenticated. While implementations of the SNMP must be capable of generating this trap, they must also be capable of suppressing the emission of such traps through an implementation-specific mechanism. **NOTE:** On Terathon devices, this trap is supported is software release 01.1.01.

Traps for spanning tree protocol

Foundry supports for the following traps for Spanning Tree Protocol from RFC 1493.

Trap Name and Number	Description
newRoot 1.3.6.1.2.1.17.0.1 **NOTE:** On Terathon devices, this trap is supported is software release 01.1.01.	Indicates that the sending agent has become the new root of the Spanning Tree. The trap is sent by a bridge soon after its election as the new root, for example, upon expiration of the Topology Change Timer immediately subsequent to its election.
topologyChange 1.3.6.1.2.1.17.0.2 **NOTE:** On Terathon devices, this trap is supported is software release 01.1.01.	Is sent by a bridge when any of its configured ports transitions from the Learning state to the Forwarding state, or from the Forwarding state to the Blocking state. The trap is not sent if a newRoot trap is sent for the same transition.

Traps for alarms

The IronWare software supports the following traps for alarms from RFC 1757:

NOTE
On NetIron XMR and NetIron MLX devices running software release 04.0.01 and later, this RFC 1757 has been obsoleted by RFC 2819. It is not supported on Brocade MLXe devices.

Name, OID, and Syntax	Description
alarmRisingThreshold 1.3.6.1.2.1.16.3.1.1.7 Syntax: Integer32	A threshold for the sampled statistic. This object generates an event when the current sampled value is greater than or equal to this threshold, and the value at the last sampling interval was less than this threshold. This object also generates an event if the first sample after this entry becomes valid is greater than or equal to this threshold and the associated alarmStartupAlarm is equal to risingAlarm(1) or risingOrFallingAlarm(3). After a rising event is generated, another such event will not be generated until the sampled value falls below this threshold and reaches the alarmFallingThreshold.
alarmFallingThreshold 1.3.6.1.2.1.16.3.1.1.8 Syntax: Integer32	A threshold for the sampled statistic. This object generates an event when the current sampled value is less than or equal to this threshold, and the value at the last sampling interval was greater than this threshold. This object also generates an event if the first sample after this entry becomes valid is less than or equal to this threshold and the associated alarmStartupAlarm is equal to fallingAlarm(2) or risingOrFallingAlarm(3). After a falling event is generated, another such event will not be generated until the sampled value rises above this threshold and reaches the alarmRisingThreshold.

PW traps

The following are the PW traps. These traps are supported in the following devices:

- Multi-Service IronWare software release 03.0.00 and later for NetIron IMR 640
- Multi-Service IronWare software release 03.0.00 and later for NetIron XMR Series
- Multi-Service IronWare software release 03.1.00 and later for NetIron MLX series
- Brocade MLXe

Additional MPLS related traps are listed in the section “MPLS notifications” on page 671, and “MPLS LSP notification” on page 671.

Trap Name	Supported	Varbind	Description and Trap Message
pwUp brcdIp.3.1.2.0 .2	Yes	pwOperStatus (for start of range) pwOperStatus (for end of range) fdryPWServiceType	This notification is generated when the pwOperStatus object for one or more contiguous entries in pwTable are about to enter the up(1) state from some other state. Beginning with the 03.9.00 release of the NetIron software, support for this object is available for VPLS, VLL, and VLL local services.

Trap Name	Supported	Varbind	Description and Trap Message
pwDown brcdIp.3.1.2.0 .1	Yes	pwOperStatus (for start of range) pwOperStatus (for end of range) fdryPWServiceType	This notification is generated when the pwOperStatus object for one or more contiguous entries in pwTable are about to enter the down(2) state from some other state. The included values of pwOperStatus MUST all be set equal to this down(2) state. Beginning with the 03.9.00 release of the NetIron software, support for this object is available for VPLS, VLL, and VLL local services.
pwDeleted brcdIp.3.1.2.0 .3	Yes	pwID pwPeerAddrType pwPeerAddr fdryPWServiceType pwName	This notification is generated when the PW has been deleted. **NOTE:** The varbind pwname is an extension added by Foundry; it is not a part of the Draft PW MIB Version 11. Beginning with the NetIron software release 03.9.00, support for this object is available for VPLS, VLL, and VLL local services.

MPLS L3VPN traps

The following table lists the MPLS L3 VPN traps.

Trap Name	Supported	Varbind	Description
mplsL3VpnVrfUp 1.3.6.1.2.1.10.166.11.0.1	Yes	mplsL3VpnIfConfRowStatus, mplsL3VpnVrfOperStatus	Generated when ifOperStatus of any interface within the VRF changes to up state
mplsL3VpnVrfDown 1.3.6.1.2.1.10.166.11.0.2	Yes	mplsL3VpnIfConfRowStatus, mplsL3VpnVrfOperStatus	Generated when ifOperStatus of any interface within the VRF changes to down state.
mplsL3VpnVrfRouteMidThreshExceeded 1.3.6.1.2.1.10.166.11.0.3	No	mplsL3VpnVrfPerfCurrNumRoutes , mplsL3VpnVrfConfMidRteThresh	This notification is generated when the number of routes contained by the specified VRF exceeds the value indicated by mplsL3VpnVrfMidRouteThreshold. A single notification MUST be generated when this threshold is exceeded, and no other notifications of this type should be issued until the value of mplsL3VpnVrfPerfCurrNumRoutes has fallen below that of mplsL3VpnVrfConfMidRteThresh

Trap Name	Supported	Varbind	Description
mplsL3VpnVrfNumVrfRouteMaxThreshExceeded 1.3.6.1.2.1.10.166.11.0.4	No	mplsL3VpnVrfPerfCurrNumRoutes , mplsL3VpnVrfConfHighRteThresh	This notification is generated when the number of routes contained by the specified VRF exceeds or attempts to exceed the maximum allowed value as indicated by mplsL3VpnVrfMaxRouteThreshold. In cases where mplsL3VpnVrfConfHighRteThresh is set to the same value as mplsL3VpnVrfConfMaxRoutes, mplsL3VpnVrfConfHighRteThresh need not be exceeded; rather, just reached for this notification to be issued. Note that the mplsL3VpnVrfConfRteMxThrshTime object denotes the interval at which the this notification will be reissued after the maximum value has been exceeded (or reached if mplsL3VpnVrfConfMaxRoutes and mplsL3VpnVrfConfHighRteThresh are equal) and the initial notification has been issued. This value is intended to prevent continuous generation of notifications by an agent in the event that routes are continually added to a VRF after it has reached its maximum value. The default value is 0 minutes. If this value is set to 0, the agent should only issue a single notification at the time that the maximum threshold has been reached, and should not issue any more notifications until the value of routes has fallen below the configured threshold value."

Trap Name	Supported	Varbind	Description
mplsL3VpnNumVrfSecIllglLblThrshExcd 1.3.6.1.2.1.10.166.11.0.5	No	mplsL3VpnVrfSecIllegalLblVltns	This notification is generated when the number of illegal label violations on a VRF as indicated by mplsL3VpnVrfSecIllegalLblVltns has exceeded mplsL3VpnIllLblRcvThrsh. The threshold is not included in the varbind here because the value of mplsL3VpnVrfSecIllegalLblVltns should be one greater than the threshold at the time this notification is issued.

Trap Name	Supported	Varbind	Description
mplsL3VpnNumVrfRouteMaxThreshCleared 1.3.6.1.2.1.10.166.11.0.6	No	mplsL3VpnVrfPerfCurrNumRoutes , mplsL3VpnVrfConfHighRteThresh	This notification is generated only after the number of routes contained by the specified VRF exceeds or attempts to exceed the maximum allowed value as indicated by mplsVrfMaxRouteThreshold, and then falls below this value. The emission of this notification informs the operator that the error condition has been cleared without the operator having to query the device. Note that the mplsL3VpnVrfConfRteMxThrshTime object denotes the interval at which the mplsNumVrfRouteMaxThreshExceeded notification will be reissued after the maximum value has been exceeded (or reached if mplsL3VpnVrfConfMaxRoutes and mplsL3VpnVrfConfHighRteThresh are equal) and the initial notification has been issued. Therefore, the generation of this notification should also be emitted with this same frequency (assuming that the error condition is cleared). Specifically, if the error condition is reached and cleared several times during the period of time specified in mplsL3VpnVrfConfRteMxThrshTime, only a single notification will be issued to indicate the first instance of the error condition as well as the first time the error condition is cleared. This behavior is intended to prevent continuous generation of notifications by an agent in the event that routes are. This notification is generated only after the number of routes contained by the specified VRF exceeds or attempts to exceed the maximum allowed value as indicated by mplsVrfMaxRouteThreshold, and then falls below this value. The emission of this notification informs the operator that the error condition has been cleared without the operator having to query the device.continually added and removed to/from a VRF after it has reached its maximum value. The default value is 0. If this value is set to 0, the agent should issue a notification whenever the maximum threshold has been cleared."

IronWare traps

This section presents the IronWare traps supported on devices running IronWare software.

NOTE
The Traps in the IronWare MIBs include the following lines in their description:

```
--#TYPE "Brocade Trap: Power Supply Failure"
--#SUMMARY "Power supply fails, error status %d."
--#ARGUMENTS { 0 }
--#SEVERITY MINOR
--#STATE OPERATIONAL
```

These lines are used by the HP OpenView network management system.

General traps

The table below lists the general traps generated by devices. Refer to the previous sections in this chapter to determine if traps for a feature need to be enabled (for example, OSPF traps need to be enabled.)

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapChasPwrSupply brcdIp.0.1 **NOTE:** This has been replaced by "snTrapChasPwrSupplyFailed" on page 644 and "snTrapChasFanFailed" on page 644 **NOTE:** This object has been deprecated in NetIron XMR and NetIron MLX software release 03.6.00 and the BigIron RX 02.5.00 software release. It has been replaced by the "Power supply table" on page 114. Also, this object is not supported on the Brocade MLXe.	snChasPwrSupplyStatus	Minor	The power supply failed or is not operating normally. The value is a packed bit string; the power supply statuses are encoded into four bits (a nibble). The following shows the meaning of each bit: (bit 0 is the least significant bit). **Bit position and Meaning** 4 to 31= Reserved 3 = Power Supply 2 DC (0=bad, 1=good). 2 = Power Supply 1 DC (0=bad, 1=good). 1 = Power Supply 2 present status (0=present, 1=not-present). 0 Power Supply 1 present status (0=present, 1=not-present). **Sample Trap Message:** `Power supply fails, error status <snChasPwrSupplyStatus>`
snTrapLockedAddressViolation brcdIp.0.2 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snSwViolatorPortNumber snSwViolatorMacAddress	Minor	The number of source MAC addresses received from a port is greater than the maximum number of addresses configured for that port. **Sample Trap Message:** `Lock address violation on Port <snSwViolatorPortNumber> with MAC Address <snSwViolatorMacAddress>`
snTrapLockedAddressViolation2 brcdIp.0.32 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Minor	The number of source MAC addresses received from a port is greater than the maximum number of addresses configured for that port. **Sample Trap Message:** `Locked address violation at interface Ethernet <port>, address <mac>`
snTrapModuleInserted brcdIp.0.28 **NOTE:** On Terathon devices, this trap is supported is software release 01.1.01.	snAgentBrdIndex	Informational	A module was inserted into the chassis while the system is running. This trap is supported on the **Sample Trap Message:** `Module <snAgentBrdIndex> was inserted to the chassis during system running`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapModuleRemoved brcdIp.0.29 **NOTE:** On Terathon devices, this trap is supported is software release 01.1.01.	snAgentBrdIndex	Informational	A module was removed from the chassis while the system is running. **Sample Trap Message:** `Module <snAgentBrdIndex> was removed from the chassis during system running`
snTrapChasPwrSupplyFailed brcdIp.0.30	snChasPwrSupplyIndex snChasPwrSupplyDescription	Minor	A power supply in the device failed. **Sample Trap Message:** `Power supply <snChasPwrSupplyIndex> <snChasPwrSupplyDescription>)failed`
snTrapChasFanFailed brcdIp.0.31	snChasFanIndex snChasFanDescription	Minor	A fan in the device failed. **Sample Trap Message:** `Fan <snChasFanIndex> (<snChasFanDescription>) failed`
snTrapChasFanNormal brcdIp.0.49 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snChasFanIndex snChasFanDescription	Minor	The status of a fan has changed from fail to normal. `Fan <snChasFanIndex> (<snChasFanDescription>) ok`
snTrapMgmtModuleRedunStateChange brcdIp.0.35 **NOTE:** On Terathon devices, this trap is supported is software release 01.1.01.	snAgGblTrapMessage	Warning	The management module changed its redundancy state. **Sample Trap Message:** `Management module at slot <slot-num> state changed from <old-state> to <new-state>`
snTrapTemperatureWarning brcdIp.0.36 **NOTE:** On Terathon devices, this trap is supported is software release 01.1.01.	snAgGblTrapMessage	Critical	The actual temperature reading is above the warning temperature threshold. **Sample Trap Message:** `Temperature <actual-temp> C degrees, warning level <warning-temp> C degrees, shutdown level <shutdown-temp> C degrees`
snTrapAccessListDeny brcdIp.0.37 **NOTE:** This object is not available on the NetIron IMR 640.	snAgGblTrapMessage	Warning	A packet was denied by an access list. **Sample Trap Message (for RIP):** `rip filter list <id> in rip denied <IP>, <n> event(s)`
snTrapMacFilterDeny brcdIp.0.38 **NOTE:** This object is not available on the NetIron IMR 640.	snAgGblTrapMessage	Warning	A packet was denied by a MAC address filter. **Sample Trap Message** `mac filter group denied packets on port <n> src macaddr <mac>, <n> packets`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapDuplicateIp brcdIp.0.56		Major	A duplicate IP address was detected. **Sample Trap Message:** `Duplicate IP address detect.`
snTrapNoBmFreeQueue(61) hidden in file...only for development use. Available when "debug hw" is configured.		Warning	There are no free queues available in the buffer manager. **Sample Trap Message:** `Slot <slot-num> {M1|M2|M3|M4|M5|MiniG} Free Queue decreases less than the desirable values 3 consecutive times.`
snTrapSmcDmaDrop (62) hidden in file...only for development use. Available when "debug hw" is configured.		Informational	An SMC DMA packet has been dropped. **Sample Trap Message:** `Slot <slot-num> SMC <dma-id> DMA Drop Counter is <drop-count>.`
snTrapSmcBpDrop(63) hidden in file...only for development use. Available when "debug hw" is configured.		Informational	An SMC BackPlane packet has been dropped. **Sample Trap Message:** `Slot <slot-num> BP <dma-id> DMA Drop Counter is <drop-count>.`
snTrapBmWriteSeqDrop(64) hidden in file...only for development use. Available when "debug hw" is configured.		Informational	A BM write-sequence packet has been dropped. **Sample Trap Message:** `Slot <slot-num> Write Sequence Drop <drop-count> within 30 seconds.`
snTrapRunningConfigChanged brcdIp.0.73	snAgGblTrapMessage	Informational	The running configuration has been changed. **NOTE:** For Terathon devices, this trap is generated if the running configuration was changed through TFTP or Secure Copy. Sample Trap Message: `Running-config was changed by user1 from telnet client 192.168.2.129.`
snTrapStartupConfigChanged brcdIp.0.74	snAgGblTrapMessage	Informational	The start-up configuration has been changed. Sample Trap Message: `Startup-config was changed from console.`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapUserLogin brcdIp.0.75 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later.	snAgGblTrapMessage	Informational	A user logged in to a device. Sample Trap Message: `user1 login to USER EXEC mode.`
snTrapUserLogout brcdIp.0.76 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later.	snAgGblTrapMessage	Informational	A user logged out of a device. Sample Trap Message: `user1 logout from USER EXEC mode.`
snTrapChasPwrSupplyOK brcdIp.0.81	snChasPwrSupplyIndex, snChasPwrSupplyDescription	Notification	The SNMP trap that is generated when a power supply operational status changed from failure to normal Sample Trap Message: `Power supply <device> OK`
snTrapClientLoginReject brcdIp.0.110 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later	snAgGblTrapMessage	Informational	A login by a Telnet or SSH client failed. **Format:** `telnet|SSH access [by <username>] from src IP <ip>, src MAC <mac> rejected, <n> attempt(s)`
snTrapLocalUserConfigChange brcdIp.0.111 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later	snAgGblTrapMessage	Informational	The configuration of a local user account has been changed. **Format:** `user <name> added|deleted|modified from console|telnet|ssh|web|snmp`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapVlanConfigChange brcdIp.0.112 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later	snAgGblTrapMessage	Informational	A VLAN configuration has been changed. **Format:** `vlan <vlan-id> added|deleted|modified from console|telnet|ssh|web|snmp session`
snTrapAclConfigChange brcdIp.0.113 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later • FastIron GS Release 03.2.00 and later	snAgGblTrapMessage	Informational	An ACL configuration has been changed. **Format:** `ACL <acl-id> added|deleted|modified from console|telnet|ssh|web|snmp session`
snTrapMacFilterConfigChange brcdIp.0.114 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later • FastIron GS Release 03.2.00 and later This object is not available on the NetIron IMR 640.	snAgGblTrapMessage	Informational	A MAC filter configuration has been changed. **Format:** `MAC Filter <added|deleted> from console|telnet|ssh|web|snmp session (filter id=<id>, src mac=<mac>|any, dst mac=<mac>|any)`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapSNMPConfigChange brcdIp.0.115 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later	snAgGblTrapMessage	Informational	SNMP configuration has been changed. **Format:** `[read-only community|read-write community|contact|location|user|group|view|engineId|trap host] "<value>" deleted|added|modified from console|telnet|ssh|web|snmp session` **NOTE:** A contact, location, user, group, view, trap host name may be displayed for <value>.

snTrapSyslogConfigChange
brcdIp.0.116
NOTE: Available in the following releases:
• Enterprise Software Release 07.8.00 and later
• FastIron SuperX Release 02.0.01 and later.
• FastIron Edge Switch Release 03.3.01a and later
	snAgGblTrapMessage	Informational	Syslog configuration has been changed.
			Format:
			`Syslog server <ip-address> deleted|added|modified from console|telnet|ssh|web|snmp`
			or
			`Syslog operation enabled|disabled from console|telnet|ssh|web|snmp`

snTrapPasswordConfigChange brcdIp.0.117 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later	snAgGblTrapMessage	Informational	The enable or line password has been changed **Format:** Enable <super|port-config|read-only> password deleted|added|modified from console|telnet|ssh|web|snmp or Line password deleted|added|modified from console|telnet|ssh|web|snmp

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapServerStatusChange brcdIp.0.118 **NOTE:** Available in the following releases: • Enterprise Software Release 07.8.00 and later • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later	snAgGblTrapMessage	Informational	SNMP trap server has been enabled or disabled. **Format:** SSH|Telnet server enabled|disabled from console|telnet|ssh|web|snmp session [by <user> <username>]
snTrapPortPriorityChange brcdIp.0.122 **NOTE:** Available in the following releases: • FastIron SuperX Release 02.0.01 and later. • FastIron Edge Switch Release 03.3.01a and later • Service Provider Release 09.2.00 This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Informational	This trap is generated when a port's priority is changed. **Format:** `Port <port-number> priority changed to <new-priority>`

General traps for the Brocade MLXe, NetIron XMR, and NetIron MLX

The following table presents the general traps for the NetIron XMR and NetIron MLX Series devices.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapChasFanOK brcdIp.0.1000 **NOTE:** This trap is supported in NetIron software release 03.3.00 and later.	snChasFanIndex, snChasFanDescription	Minor	One of the following occurred on the device: • A fan's operational status changed from failure to normal • Fan speed changed due to a decrease in the operationg temperature **Sample Trap Message:** `Right fan tray (fan1) OK`

snTrapTemperatureOK
brcdIp.0.1001
NOTE: This trap is supported in NetIron software release 03.3.00 and later.
	snAgGblTrapMessage	Critical	The actual temperature reading on the device is below the warning temperature threshold.
			Samples of Trap Messages:
			`Switch Fabric 2 temperature 30.2 C degrees is normal`
			`Switch Fabric 2 temperature 30.2 C degrees is normal`
			`Linecard Module %d PCB temperature 30.2 C degrees is normal`
			`Linecard Module %d XPP temperature 30.2 C degrees is normal`
			`Active mgmt CPU temperature 30.2 C degrees is normal`
			`Standby mgmt CPU temperature 30.2 C degrees is normal`

snTrapCAMOverflow brcdIp.0.1002 **NOTE:** This trap is supported in NetIron software release 03.3.00 and later.	snAgGblTrapMessage	Alerts	One of the IP CAM level is full. **Sample Trap Message:** `NO MORE FREE CAM SPACE for IP level <level>.`
snTrapChassisFanSpeedLow brcdIp.0.1200 **NOTE:** This trap is supported in NetIron software release 03.3.00 and later.	snAgGblTrapMessage	Informational	The speed of all chassis fans changed to low. **Sample Trap Message:** `System: Set fan speed to LOW (50%%)`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapChassisFanSpeedMedium brcdIp.0.1201 **NOTE:** This trap is supported in NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Informational	The speed of all chassis fans changed to medium. **Sample Trap Message:** `System: Set fan speed to MED (75%%)`
snTrapChassisFanSpeedMedHigh brcdIp.0.1202 **NOTE:** This trap is supported in NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Informational	The speed of all chassis fans changed to medium high. **Sample Trap Message:** `System: Set fan speed to MED-HI (90%%)`
snTrapChassisFanSpeedHigh brcdIp.0.1203 **NOTE:** This trap is supported in NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Informational	The speed of all chassis fans changed to high. **Sample Trap Message:** `System: Set fan speed to HI (100%%)`
snTrapIfIndexAssignmentChanged brcdIp.0.172 **NOTE:** This trap is supported in NetIron software release 04.0.00 and later. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snAgGblTrapMessage	Informational	Generated when the Interface Index (ifIndex) assignment for a physical interface is changed. **Sample Trap Message:** `System: IfIndex assignment was changed`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapModuleStatusChange brcdIp.0.176 **NOTE:** This trap is supported in NetIron software release 04.0.01 and later. It is not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snAgentBrdIndex, snAgentBrdModuleStatus, and snAgGblTrapMessage	Notification	The operational state of a module changed. The management entity receiving the notification can identify the module and the event by referencing snChasUnitIndex, snAgentBrdIndex, snAgentBrdModuleStatus. If the module is down, the varbind snAgGblTrapMessage contains a text string that describes the cause. If the module is up, nothing is displayed for snAgGblTrapMessage. **Sample Trap Message:** For module UP: `System: Module up in slot <slot-number>` For module DOWN: `System: Module down in slot <slot-number>, reason <reason. Error Code <error-code>` For standby MP up: `System: Standby Management Module was ready` For standby MP down: System: `Standby Management Module was down, reason <reason>. Error Code <error-code>`

snTrapI2CAccessLog
brcdIp.0.184
NOTE: This trap is supported in NetIron software release 04.0.01 and later. It is not supported on FastIron SuperX devices running software release 07.1.00 and later.
	snAgGblTrapMessage	Notification	This trap is generated to provide information about state of the I2C access of the management module.
			Sample Trap Message:
			`last good i2c access, Mux index 0, Mux tap 0, ID 0x9, Addr 0x1, (SNM2TEMP)`
			`bad i2c access (GIEI = set), Severity Minor, Mux index 0, Mux tap2, ID 0x9, Addr 0x1, (SNM3TEMP)`

Traps for optics

The following table presents the general traps in the NetIron software release 03.4.00 and later.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapOpticalMonitoringWarning brcdIp.0.1003 **NOTE:** This trap is supported in the NetIron software release 03.3.00 and later.	snAgGblTrapMessage	Warning	A warning occurred during optical monitoring. **Sample Trap Message:** `Latched high Temperature alarm, port <slot>/<port>`
snTrapOpticalMonitoringAlarm brcdIp.0.1004 **NOTE:** This trap is supported in the NetIron software release 03.3.00 and later.	snAgGblTrapMessage	Alerts	An alarm occurred during optical monitoring due to a low temperature in the device. **Sample Trap Message:** `Latched low Temperature alarm, port <slot>/<port>`

Trap Name and Number	Varbinds	Severity	Description and Trap Message

snTrapOpticalMonitoringError
brcdIp.0.1005
NOTE: This trap is supported in the NetIron software release 03.3.00 and later.
	snAgGblTrapMessage	Informational	An error occurred during optical monitoring.
			Samples of Trap Message:
			`OPTICAL MONITORING: sys_create_timer failed, slot <n>, port mask <portmask>`
			`OPTICAL MONITORING: sys_set_timer failed, slot <n>, port mask <portmask>`
			`OPTICAL MONITORING: THRESHOLDS READ FAILED, port <slot>/<port>`
			`OPTICAL MONITORING: AUX AD TYPE READ FAILED, port <slot>/<port>"`
			`OPTICAL MONITORING: INT UNMASK ALL WRITE FAILED, port <slot>/<port>`
			`OPTICAL MONITORING: INT MASK WRITE FAILED, port <slot>/<port>`
			`OPTICAL MONITORING:: XFP INT MASK WRITE FAILED, port <slot>/<port>`
			`OPTICAL MONITORING: port <slot>/<port>: sys_create_timer failed`
			`OPTICAL MONITORING: port <slot>/<port>: sys_create_timer2 failed`
			`OPTICAL MONITORING: port <slot>/<port>: sys_set_timer failed`
			`OPTICAL MONITORING: port <slot>/<port>, failed to get latched flags(<n>)`
			`OPTICAL MONITORING: port <slot>/<port>: sys_set_timer1 failed`

snTrapXfpSfpIncompatibleOptics brcdIp.0.1009 **NOTE:** This trap is supported in the NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Alerts	The optics are incompatible with the port configuration. **Sample Trap Message:**

Traps for traffic manager

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapTMEgressDataError brcdIp.0.1020 **NOTE:** This trap is supported in the NetIron software release 04.1.00 and later. It is not supported on FastIron SuperX devices running software release 07.1.00 and later.	snAgGblTrapMessage	Major	This trap is generated when the system detects egress data errors on the Traffic Manager. **Sample Trap Message:** Health Monitoring : TM Egress data errors detected on LP <num>/TM <num>
snTrapTMLoggingStart brcdIp.0.1015 **NOTE:** This trap is supported in the NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Informational	TM logging started, triggerred by an event. **Sample Trap Message:**
snTrapTMLoggingStop brcdIp.0.1016 **NOTE:** This trap is supported in the NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Informational	TM logging stopped because the storage full. **Sample Trap Message:**
snTrapTMLoggingRestart brcdIp.0.1017 **NOTE:** This trap is supported in the NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Informational	TM logging restarted after the log was cleared **Sample Trap Message:**
snTrapSFMLinkDown brcdIp.0.1100 **NOTE:** This trap is supported in the NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Warning	A link from LP Traffic Manager to SFM Fabric Element is down. **Sample Trap Message:** Fabric Monitoring Link Down : SFM <num>/FE <num>/Link <num>, LP <num>/TM <num>
snTrapSFMLinkUp brcdIp.0.1101 **NOTE:** This trap is supported in the NetIron software release 03.4.00 and later.	snAgGblTrapMessage	Informational	A link from LP Traffic Manager to SFM Fabric Element is up. **Sample Trap Message:** Fabric Monitoring Link Up : SFM <num>/FE <num>/Link <num>, LP <num>/TM <num>

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapSFMAccessError brcdIp.0.1102 **NOTE:** This trap is supported in the NetIron software release 04.1.00 and later and on the Brocade MLXe. It is not supported on FastIron devices or other devices.	snAgGblTrapMessage	Major	This trap is generated when the system fails to access an SFM Fabric Element. Sample Trap Message: Health Monitoring: FE access failure on SFM <num>/FE <num>
snTrapSFMStatusChange brcdIp.0.1103 **NOTE:** This trap is supported in the NetIron software release 05.1.00 and later and on the Brocade MLXe. It is not supported on FastIron devices or other devices.	snAgentBrdIndex, snAgentBrdModuleStatus, snAgGblTrapMessage	Notification	The SNMP notification that is generated when there is a change in the operational state of the Switch Fabric Module (SFM). **Sample Trap Message:** System: Health Monitoring: SFM <num> powered off due to failure detection"

Packet over SONET traps

NOTE: The following traps are supported in the NetIron software release 03.3.00 and later.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapPosMonitoringWarning brcdIp.0.1006	snAgGblTrapMessage	Informational	A warning occurred during POS alarm monitoring. **Sample Trap Message:**
snTrapPosMonitoringAlarm brcdIp.0.1007	snAgGblTrapMessage	Alert	An alarm up or alarm down incident occurred during POS alarm monitoring. **Sample Trap Message:**
snTrapPosMonitoringError brcdIp.0.1008	snAgGblTrapMessage	Informational	An error occurred during POS alarm monitoring. **Sample Trap Message:**

MAC-based VLAN traps

These traps are supported on the FastIron GS and FastIron LS devices running software release FGS 03.0.00.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapMacBasedVlanEnabled brcdIp.0.147 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Minor	MAC-Based VLAN is enabled. **Sample Trap Message:** `SNTrapMacBasedVlanEnabled: Mac Based Vlan Enabled on port <port id>.`
snTrapMacBasedVlanDisabled brcdIp.0.148 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Minor	MAC-Based VLAN is disabled. **Sample Trap Message:** `SNTrapMacBasedVlanDisabled: Mac Based Vlan Disabled on port <port id>.`

VRRP trap

Only devices that support VRRP can use the following trap:

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapVrrpIfStateChange brcdIp.0.34	snAgGblTrapMessage	Warning	A VRRP routing device changed state from master to backup or vice-versa. **Sample Trap Message:** `VRRP intf state changed, intf <port>, vrid <id>, state <new-state>.`

FSRP trap

Only devices that support FSRP can use the FSRP trap object.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapFsrpIfStateChange brcdIp.0.33	snAgGblTrapMessage	Informational	An FSRP routing device changed state from active to standby or vice-versa. **Sample Trap Message:** `SRP_FSRP intf state changed, intf <port>, addr <ip>, state <new-state>.`

VSRP traps

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapVsrpStateChange brcdIp.0.	snAgGblTrapMessage	Informational	An VSRP routing device changed its state
snTrapVsrpCamError brcdIp.0.	snAgGblTrapMessage	Informational	A VSRP CAM error has occurred.

OSPF traps

NOTE
BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices support RFC 1850 instead of the objects in this section.

NOTE
You must configure the **log adjacency** command under the "router ospf" mode to see traps for the following objects:
ospfIfStateChange trap
ospfNbrStateChange trap
ospfVirtIfStateChange trap
ospfVirtNbrStateChange trap

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapOspfIfStateChange 1.3.6.1.2.1.14.16.2.3 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfIfStatusIpAddress snOspfIfStatusState (The new state)	Informational	There has been a change in the state of a non-virtual OSPF interface. This trap should be generated when the interface state regresses (e.g., goes from Dr to Down) or progresses to a terminal state (i.e., Point-to-Point, DR Other, Dr, or Backup). **NOTE:** You must configure the **log adjacency** command under the "router ospf" mode to see traps. **Sample Trap Message:** `OSPF router id <snOspfRouterId>, interface <snOspfIfStatusIpAddress> state changed to <snOspfIfStatusState>.`
snTrapOspfVirtIfStateChange 1.3.6.1.2.1.14.16.2.4 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfVirtIfStatusAreaID snOspfVirtIfStatusNeighbor snOspfVirtIfStatusState (The new state)	Informational	There has been a change in the state of an OSPF virtual interface. This trap should be generated when the interface state regresses (e.g., goes from Point-to-Point to Down) or progresses to a terminal state (i.e., Point-to-Point). **NOTE:** You must configure the **log adjacency** command under the "router ospf" mode to see traps. **Sample Trap Message:** `OSPF router id <snOspfRouterId>, virtual interface area id <snOspfVirtIfStatusAreaID> neighbor <snOspfVirtIfStatusNeighbor> state changed to <snOspfVirtIfStatusState>.`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snOspfNbrStateChange 1.3.6.1.2.1.14.16.2.5 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfNbrIpAddr snOspfNbrRtrId snOspfNbrState (The new state)	Informational	There has been a change in the state of a non-virtual OSPF neighbor. This trap should be generated when the neighbor state regresses (e.g., goes from Attempt or Full to 1-Way or Down) or progresses to a terminal state (e.g., 2-Way or Full). When an neighbor transitions from or to Full on non-broadcast multi-access and broadcast networks, the trap should be generated by the designated router. A designated router transitioning to Down will be noted by ospfIfStateChange. **NOTE:** You must configure the **log adjacency** command under the "router ospf" mode to see traps. **Sample Trap Message:** `OSPF router id <snOspfRouterId> neighbor area <snOspfNbrIpAddr>,neighbor router id <snOspfNbrRtrId> state changed to <snOspfNbrState>.`
snOspfVirtNbrStateChange 1.3.6.1.2.1.14.16.2.6 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfVirtNbrArea snOspfVirtNbrRtrId snOspfVirtNbrState (The new state)	Informational	There has been a change in the state of an OSPF virtual neighbor. This trap should be generated when the neighbor state regresses (e.g., goes from Attempt or Full to 1-Way or Down) or progresses to a terminal state (e.g., Full). **NOTE:** You must configure the **log adjacency** command under the "router ospf" mode to see traps. **Sample Trap Message:** `OSPF router id <snOspfRouterId> virtual neighbor area <snOspfVirtNbrArea>, virtual neighbor router id <snOspfVirtNbrRtrId> state changed to <snOspfVirtNbrState>.`
snOspfIfConfigError 1.3.6.1.2.1.14.16.2.7 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfIfStatusIpAddress snOspfPacketSrc (The source IP address) snOspfConfigErrorType (Type of error) snOspfPacketType	Major	A packet has been received on a non-virtual interface from a router whose configuration parameters conflict with this router's confi guration parameters. **NOTE:** The event optionMismatch should cause a trap only if it prevents an adjacency from forming. **Trap Message:** `Configuration error type <snOspfConfigErrorType> with packet type <snOspfPacketType> has been received on interface <snOspfIfStatusIpAddress>, router id <snOspfRouterId> from <snOspfPacketSrc>.`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snOspfVirtIfConfigError 1.3.6.1.2.1.14.16.2.8 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfVirtIfStatusAreaID snOspfVirtIfStatusNeighbor snOspfConfigErrorType (Type of error) snOspfPacketType	Major	A packet has been received on a virtual interface from a router whose configuration parameters conflict with this router's configuration parameters. **NOTE:** The event optionMismatch should cause a trap only if it prevents an adjacency from forming. **Trap Message:** `Configuration error type <snOspfConfigErrorType> with packet type <snOspfPacketType> has been received on virtual interface area id <snOspfVirtIfStatusAreaID>, router id <snOspfRouterId> from neighbor <snOspfVirtIfStatusNeighbor>.`
snOspfIfAuthFailure 1.3.6.1.2.1.14.16.2.9 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfIfStatusIpAddress snOspfPacketSrc (The source IP address) snOspfConfigErrorType (authTypeMismatch or authFailure snOspfPacketType	Minor	A packet has been received on a non-virtual interface from a router whose authentication key or authentication type conflicts with this router's authentication key or authentication type. **Trap Message:** `OSPF authentication failed. Router ID <snOspfRouterId>, Interface <snOspfIfStatusIpAddress>, packet src <snOspfPacketSrc>, error type <snOspfConfigErrorType> and packet type <snOspfPacketType>.`
snOspfVirtIfAuthFailure 1.3.6.1.2.1.14.16.2.10 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfVirtIfStatusAreaID snOspfVirtIfStatusNeighbor snOspfConfigErrorType (authTypeMismatch or authFailure) snOspfPacketType	Minor	A packet has been received on a virtual interface from a router whose authentication key or authentication type conflicts with this router's authentication key or authentication type. **Trap Message:** `OSPF authentication failed. Router ID <snOspfRouterId>, virtual interface <snOspfVirtIfStatusAreaID>, Neigbor <snOspfVirtIfStatusNeighbor>, Error type <snOspfConfigErrorType> and packet type <snOspfPacketType>.`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snOspfIfRxBadPacket 1.3.6.1.2.1.14.16.2.11 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfIfStatusIpAddress snOspfPacketSrc (The source IP address) snOspfPacketType	Warning	An OSPF packet has been received on a non-virtual interface that cannot be parsed. **Trap Message:** `OSPF Router Id <snOspfRouterId>, interface <snOspfIfStatusIpAddress> receive bad packet (type <snOspfPacketType>) from <snOspfPacketSrc>.`
snOspfVirtIfRxBadPacket 1.3.6.1.2.1.14.16.2.12 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfVirtIfStatusAreaID snOspfVirtIfStatusNeighbor snOspfPacketType	Warning	An OSPF packet has been received on a virtual interface that cannot be parsed. **Trap Message:** `OSPF router id <snOspfRouterId>, virtual interface <snOspfVirtIfStatusAreaID> received bad packet (type <snOspfPacketType>) from neighbor <snOspfVirtIfStatusNeighbor>.`
snOspfTxRetransmit 1.3.6.1.2.1.14.16.2.13	snOspfRouterId (The originator of the trap) snOspfIfStatusIpAddress snOspfNbrRtrId (Destination) snOspfPacketType snOspfLsdbType snOspfLsdbLsId snOspfLsdbRouterId	Warning	An OSPF packet has been retransmitted on a non- virtual interface. All packets that may be re- transmitted are associated with an LSDB entry. The LS type, LS ID, and Router ID are used to identify the LSDB entry. **Trap Message:** `OSPF router id <snOspfRouterId> interface <snOspfIfStatusIpAddress> retransmitted packet type <snOspfPacketType>,LSDB type <snOspfLsdbType>, LSDB LS ID <snOspfLsdbLsId> and LSDB router id <snOspfLsdbRouterId> to Neighbor router id <snOspfNbrRtrId>.`
ospfVirtIfTxRetransmit 1.3.6.1.2.1.14.16.2.14 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfVirtIfStatusAreaID snOspfVirtIfStatusNeighbor snOspfPacketType snOspfLsdbType snOspfLsdbLsId snOspfLsdbRouterId	Warning	An OSPF packet has been retransmitted on a virtual interface. All packets that may be retransmitted are associated with an LSDB entry. The LS type, LS ID, and Router ID are used to identify the LSDB entry. **Trap Message:** `OSPF router id <snOspfRouterId>, virtual interface area id snOspfVirtIfStatusAreaID> retransmitted packet type <snOspfPacketType>,LSDB type <snOspfLsdbType>, LSDB LS ID <snOspfLsdbLsId> and LSDB router id <snOspfLsdbRouterId> to Neighbor <snOspfVirtIfStatusNeighbor>.`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snOspfOriginateLsa 1.3.6.1.2.1.14.16.2.15 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfLsdbAreaId (0.0.0.0 for AS Externals) snOspfLsdbType snOspfLsdbLsId snOspfLsdbRouterId	Informational	This router originated a new LSA. This trap should not be invoked for simple refreshes of LSAs (which happens every 30 minutes), but instead will only be invoked when an LSA is (re-originated due to a topology change. Additionally, this trap does not include LSAs that are being flushed because they have reached MaxAge **Trap Message:** `New LSA (area id <snOspfLsdbAreaId>, type <snOspfLsdbType>, LS Id <snOspfLsdbLsId> and router id <snOspfLsdbRouterId>) has been originated by router id <snOspfRouterId>.`
snOspfMaxAgeLsa 1.3.6.1.2.1.14.16.2.16 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfLsdbAreaId (0.0.0.0 for AS Externals) snOspfLsdbType snOspfLsdbLsId snOspfLsdbRouterId	Warning	One of the LSA in the router's link-state database has aged to MaxAge. **Trap Message:** `The LSA (area id <snOspfLsdbAreaId>, type <snOspfLsdbType>, LS Id <snOspfLsdbLsId> and router id <snOspfLsdbRouterId>) in router id <snOspfRouterId> link-state database has aged to maximum age.`
snOspfLsdbOverflow 1.3.6.1.2.1.14.16.2.17 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfExtLsdbLimit	Warning	The number of LSAs in the router's link-state database has exceeded the ospfExtLsdbLimit. **Trap Message:** `The number of LSAs in the OSPF router id <snOspfRouterId> link-state database has exceeded <snOspfExtLsdbLimit>.`
snOspfLsdbApproachingOverflow 1.3.6.1.2.1.14.16.2.18 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snOspfRouterId (The originator of the trap) snOspfExtLsdbLimit	Informational	The number of LSAs in the router's link-state database has exceeded ninety percent of the ospfExtLsdbLimit. **Trap Message:** `The number of LSAs in the OSPF router id <snOspfRouterId> link-state database has exceeded ninety percent of <snOspfExtLsdbLimit>.`

Layer 4 traps

The following table presents the traps that can be generated for Layer 4 functionalities.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapL4MaxSessionLimitReached brcdIp.0.19 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snL4MaxSessionLimit	Warning	The maximum number of connections has been reached. **Trap Message:** `SLB maximum number of connections <snL4MaxSessionLimit> has been reached.`
snTrapL4TcpSynLimitReached brcdIp.0.20 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snL4TcpSynLimit	Warning	The TCP SYN limits have been reached. **Trap Message:** `SLB TCP Syn limits <snL4TcpSynLimit> have been reached.`
snTrapL4RealServerUp brcdIp.0.21 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snL4TrapRealServerIP snL4TrapRealServerName	Informational	The load balancing real server is up. **Trap Message:** `SLB real server <snL4TrapRealServerIP> <snL4TrapRealServerName> is up.`
snTrapL4RealServerDown brcdIp.0.22 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snL4TrapRealServerIP snL4TrapRealServerName	Informational	The load balancing real server is down. **Trap Message:** `SLB real server <snL4TrapRealServerIP> <snL4TrapRealServerName> is down.`
snTrapL4RealServerPortUp brcdIp.0.23 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snL4TrapRealServerIP snL4TrapRealServerName snL4TrapRealServerPort	Informational	The load balancing real server TCP port is up. **Trap Message:** `SLB real server port <snL4TrapRealServerIP> <snL4TrapRealServerName> <snL4TrapRealServerPort> is up`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapL4RealServerPortDown brcdIp.0.24 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snL4TrapRealServerIP snL4TrapRealServerName snL4TrapRealServerPort	Informational	The load balancing real server TCP port is down. **Trap Message:** `SLB real server port <snL4TrapRealServerIP> <snL4TrapRealServerName> <snL4TrapRealServerPort> is.`
snTrapL4RealServerMaxConnectionLimitReached brcdIp.0.25 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snL4TrapRealServerIP snL4TrapRealServerName snL4TrapRealServerCurConnections	Warning	The real server reached its maximum number of connections. **Trap Message:** `SLB real server <snL4TrapRealServerIP> <snL4TrapRealServerName> maximum connection <snL4TrapRealServerCurConnections> has been reached.`
snTrapL4RealServerResponseTimeLowerLimit brcdIp.0.67 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The real server average response time exceeded the lower threshold. **Trap Message:** `Port <port-num> on server <server-name>: <IP>: Avg response time <num> has exceeded lower threshold`
snTrapL4RealServerResponseTimeUpperLimit brcdIp.0.68 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The real server average response time exceeded the upper threshold. **Trap Message:** `Port <port-num> on server <server-name>: <IP>: Avg response time <num> has exceeded upper threshold; Bringing down the port...`
snTrapL4BecomeStandby brcdIp.0.26 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.		Warning	The Server Load Balancing switch changed its state from active to standby. **Trap Message:** `SLB changes state from active to standby.`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapL4BecomeActive brcdIp.0.27 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.		Warning	The Server Load Balancing switch changed its state from standby to active. **Trap Message:** `SLB changes state from standby to active.`
snTrapL4GslbRemoteUp brcdIp.0.39 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The connection to the remote ServerIron is up. **Trap Message:** `L4 gslb connection to site <name> SI <agent IP> <SI name> is up`
snTrapL4GslbRemoteDown brcdIp.0.40 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The connection to the remote ServerIron is down. **Trap Message:** `L4 gslb connection to site <name> SI <agent IP> <SI name> is down`
snTrapL4GslbRemoteControllerUp brcdIp.0.41 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The connection to the GSLB ServerIron is up. **Trap Message:** `L4 gslb connection to gslb SI <IP> is up`
snTrapL4GslbRemoteControllerDown brcdIp.0.42 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The connection to the GSLB ServerIron is down. **Trap Message:** `L4 gslb connection to gslb SI <IP> is down`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapL4GslbHealthCheckIpUp brcdIp.0.43 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The GSLB health check for an address changed from the down to the active state. **Trap Message:** `L4 gslb health-check <IP> of <subname>.<zonename> status changed to up`
snTrapL4GslbHealthCheckIpDown brcdIp.0.44 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The GSLB health check for an address changed from the active to the down state. **Trap Message:** `L4 gslb health-check <IP> of <subname>.<zonename> status changed to down`
snTrajjjpL4GslbHealthCheckIpPortUp brcdIp.0.45 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	A port for a health check address is up. **Trap Message:** `L4 gslb health-check <IP> of <subname>.<zonename> port <server-port> is up`
snTrapL4GslbHealthCheckIpPortDown brcdIp.0.46 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	A port for a health check address is down. **Trap Message:** `L4 gslb health-check <IP> of <subname>.<zonename> port <server-port> is down`
snTrapL4FirewallBecomeStandby brcdIp.0.47 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.		Major	The Server Load Balancing switch firewall changed its state from active to standby. **Trap Message:** `firewall group #<group> become standby`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapL4FirewallBecomeActive brcdIp.0.48 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.		Major	The Server Load Balancing switch firewall changed its state from standby to active. **Trap Message:** `firewall group #<group> become active`
snTrapL4FirewallPathUp brcdIp.0.49 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.		Minor	The Server Load Balancing switch firewall path is up. **Trap Message:** `firewall path up target <IP> nexthop <IP> path <num> port <num>`
snTrapL4FirewallPathDown brcdIp.0.50 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.		Minor	The Server Load Balancing switch firewall path is down. **Trap Message:** `Firewall path down target <IP> nexthop <IP> path <num> port <num>`
snTrapL4ContentVerification brcdIp.0.55 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.		Informational	The HTTP match list pattern has been found. **Trap Message:** `HTTP match-list pattern is found.`
snTrapL4TcpAttackRateExceedMax brcdIp.0.69 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Critical	The TCP attack rate exceeds the configured maximum TCP attack rate. **Trap Message:** `L4 TCP Attack Rate Exceed Max`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapL4TcpAttackRateExceedThreshold brcdIp.0.70 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The TCP attack rate exceeds 80% of the configured maximum. **Trap Message:** L4 TCP Attack Rate Exceed Threshold
snTrapL4ConnectionRateExceedMax brcdIp.0.71 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Critical	Layer 4 connection rate exceeds the configured maximum. **Trap Message:** `L4 Connection Rate Exceed Max`
snTrapL4ConnectionRateExceedThreshold brcdIp.0.72 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Warning	The Layer 4 connection rate exceeds 80% of the configured maximum. **Trap Message:** `L4 Connection Rate Exceed Threshold`

ICMP traps

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapIcmpLocalExceedBurst brcdIp.0.51	snAgGblTrapMessage	Warning	Incoming ICMP exceeded the maximum local burst packets. **Trap Message:** `Local ICMP exceeds <num> burst packets, stopping for <num> seconds!!`
snTrapIcmpTransitExceedBurst brcdIp.0.52	snAgGblTrapMessage	Warning	Transit ICMP exceeded the maximum transit burst. **Trap Message:** `Transit ICMP in interface <port-num> exceeds <num> burst packets, stopping for <num> seconds!!`

TCP trap

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapTcpLocalExceedBurst brcdIp.0.53	snAgGblTrapMessage	Warning	Incoming TCP SYN exceeded the maximum local burst packets. **Trap Message:** `Local TCP exceeds <num> burst packets, stopping for <num> seconds!!`

snTrapTcpTransitExceedBurst
brcdIp.0.54
	snAgGblTrapMessage	Warning	Transit TCP exceeded the maximum transit burst packets.
			Trap Message:
			`Transit TCP in interface <port-num> exceeds <num> burst packets, stopping for <num> seconds!!`
			On ServerIron software release 09.0.00S, this trap is generated when the number of source MAC addresses received from a port is greater than the maximum number of MAC addresses configured for that port. The trap message displays the port name and port number.
			Trap Message:
			`Locked address violation at <port-name> <port-num>, address <mac>`

BGP traps

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapBgpPeerUp brcdIp.0.65 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Informational	The BGP peer is up. **Trap Message:** `BGP Peer <IP> UP(ESTABLISHED)`
snTrapBgpPeerDown brcdIp.0.66 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Informational	The BGP peer is down. **Trap Message:** `BGP Peer <IP> DOWN (<reason-string>)\n`

Port security traps

The Port Security feature enables a device to learn a limited number of “secure” MAC addresses on an interface. The interface will forward only those packets with source MAC addresses that match these secure addresses. If the interface receives MAC addresses that are included in its secure MAC list, the device generates the following traps:

NOTE
This trap applies to ports that have the Port Security feature enabled. Port security is available beginning with IronWare software release 07.5.04A.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapPortSecurityViolation brcdIp.0.77	snAgGblTrapMessage	Minor	Packets from unknown MAC address are dropped. Sample Trap Message: `Brocade Trap: Port Security Violation`
snTrapPortSecurityShutdown brcdIp.0.78	snAgGblTrapMessage	Minor	The port is disabled for the amount of time configured using the **violation shutdown <minutes>** port security CLI command. Sample Trap Message: `Brocade Trap: Port Security Violation Cause Shutdown`

MRP traps

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapMrpStateChange brcdIp.0.79	snAgGblTrapMessage	Informational	An MRP state occurred.
snTrapMrpCamError brcdIp.0.80	snAgGblTrapMessage	Warning	An MRP CAM error occurred.

MPLS notifications

NOTES: The following objects are in the MIB but they are not supported:

- snTrapMplsProblem (brcdIp.0.57)
- snTrapMplsException (brcdIp.0.58)
- snTrapMplsAudit (brcdIp.0.59)
- snTrapMplsDeveloper (brcdIp.0.60)

The following notifications are supported in the NetIron software release 03.9.00 and later.

Name and Number	Varbinds	Severity	Description and Trap Message
fdryVplsCreated brcdIp.1.2.15.2.0.1	vplsConfigName fdryVplsVcId	Informational	Generated when an entry is created in the fdryVplsTable. It is not generated during system boot up time.
fdryVplsDeleted brcdIp.1.2.15.2.0.2	vplsConfigName fdryVplsVcId	Informational	An entry in the fdryVplsTable has been marked for deletion. It indicates the deletion of an existing VPLS instance.
fdryPwCreated brcdIp.1.2.15.2.0.3	fdryPwServiceType (vll(1), vlllocal(2), vpls(3)) pwName (the instance name) pwID (VD ID)	Informational	Generated when an instance of VLL or VLL-Local pseudo-wire entry is created in the pwTable. The varbind fdryPwServiceType shows the service type that originated this notification. This notification is not used for VPLS service This notification is not generated during device boot up.

MPLS LSP notification

The following traps are generated for the MPLS LSP feature supported in the NetIron software release 03.5.00 and later. They are not supported in FastIron devices.

NOTE
Do not use these traps if you are using the snTrapTMLogging traps.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snMplsLspUp brcdIp.0.1010	mplsLspName, mplsLspPathName	Informational	The specified LSP is up. The current active path for the LSP is the value of mplsLspPathName.
snMplsLspDown brcdIp.0.1011	mplsLspName, mplsLspPathName	Informational	The specified LSP is down, because the current active path specified by the mplsLSPPathName went down.
snMplsLspChange brcdIp.0.1012	mplsLspName, mplsLspPathName	Informational	The specified the specified LSP has switched traffic to the new active path "toLspPath". The LSP maintains an UP state before and after the switchover.

Traps for CAM overflow

Foundry supports the following traps for CAM Overflow. These traps are supported on the following devices:

- Multi-Service IronWare software release 03.5.00 and later for NetIron XMR Series
- Multi-Service IronWare software release 03.5.00 and later for NetIron MLX Series
- Brocade MLXe

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapCAMOverflow brcdIp.0.1002	snAgGblTrapMessage	Alerts	Displays the SNMP trap that is generated when any CAM partition becomes full. **Trap Message:** CAM partition full

Traps for bidirectional forwarding (BFD)

Foundry supports the following traps for Bidirectional Forwarding. These traps are supported on the following devices:

- Multi-Service IronWare software release 03.5.00 and later for NetIron XMR Series
- Multi-Service IronWare software release 03.5.00 and later for NetIron MLX Series
- Multi-Service IronWare software release 02.6.00 and later for BigIron RX Series
- Brocade MLXe

Trap Name and Number	Varbinds	Severity	Description and Trap Message
bfdSessUp brcdIp.3.3.1.0.1	bfdSessDiag, -- low range value bfdSessDiag -- high range value	Notification	This notification is generated when the bfdSessState object for one or more contiguous entries in bfdSessTable are about to enter the up(2) state from some other state. The included values of bfdSessDiag MUST both be set equal to this new state (i.e: up(1)). The two instances of bfdSessDiag in this notification indicate the range of indexes that are affected. **NOTE:** All the indexes of the two ends of the range can be derived from the instance identifiers of these two objects. For the cases where a contiguous range of sessions have transitioned into the up(1) state at roughly the same time, the device SHOULD issue a single notification for each range of contiguous indexes in an effort to minimize the emission of a large number of notifications. If a notification has to be issued for just a single bfdSessEntry, then the instance identifier (and values) of the two bfdSessDiag objects MUST be the identical.
bfdSessDown brcdIp.3.3.1.0.2	bfdSessDiag, -- low range value 678: bfdSessDiag -- high range value	Notification	This notification is generated when the 683: bfdSessState object for one or more contiguous 684: entries in bfdSessTable are about to enter the down(4) 685: or adminDown(5) states from some other state. The included 686: values of bfdSessDiag MUST both be set equal to this 687: new state (i.e: down(4) or adminDown(5)). The two instances 688: of bfdSessDiag in this notification indicate the range 689: of indexes that are affected. **NOTE:** All the indexes 690: of the two ends of the range can be derived from the 691: instance identifiers of these two objects. For 692: cases where a contiguous range of sessions 693: have transitioned into the down(4) or adminDown(5) states 694: at roughly the same time, the device SHOULD issue a single 695: notification for each range of contiguous indexes in 696: an effort to minimize the emission of a large number 697: of notifications. If a notification has to be 698: issued for just a single bfdSessEntry, then 699: the instance identifier (and values) of the two 700: bfdSessDiag objects MUST be the identical.

Traps for wireless features

NOTE
The traps in the sections below are available on devices that support the wireless features, such as automatic discovery and configuration (ADC), wireless mobility, and others.

Wireless feature traps

The IronPoint–FES generates the following general traps for wireless feature support. See the sections below on specific wireless features to determine what traps are generated for that feature.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapWirelessStationStateChange brcdIp.0.127 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Notification	The state of the wireless station (client) that is associated with this IronPoint–FES through the access point has changed. **Trap Message** `<date-time>:N: New Station <mac-address> discovered | removed`
snTrapWirelessSappStateChange brcdIp.0.129 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Notification	The state of the communication between an access point and this IronPoint–FES has changed. **Trap Message** `<date-time>:N:AP <AP-IP-address> has changed state from <old-state> to<new-state>`

Wireless mobility traps

The following traps are generated by the IronPoint–FES for Wireless Mobility.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapWirelessIsrpPeerStateChange brcdIp.0.126 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Notification	The state of an IronPoint–FES peer has changed. **Trap Message** `<date-time>:N:Mobility Peer <IronPoint–FES-IP-address> has changed state from <old-state> to <new-state>`
snTrapWirelessStationRoamingEventTriggered brcdIp.0.128 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Notification	A wireless station (client) roamed from or to the access point that is attached to this IronPoint–FES. **Trap Message** `<date-time>:N:Station 0009.5b66.eac6 has roamed to switch <IronPoint–FES-IP-address>`

ADC trap

The following SNMP trap is generated for the ADC feature.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapPnPStatusChange brcdIp.0.125 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Notification	The access point's ADC status changed. **Trap Message** `<date-time>:N:PnP status of AP MAC address <mac-address> at port <port-number> has changed from <old state> to <new-state>`

Automatic port disablement traps

The following traps are generated for the Automatic Port Deactivation feature.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapAutoPortDisableTrigger brcdIp.0.123 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Notification	The specified interface has been deactivated and disabled. **Trap Message** `Automatic port disable was triggered at port <port-number>`
snTrapAutoPortDisableRelease brcdIp.0.124 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	snAgGblTrapMessage	Notification	The disabled interface has been released and re-enabled. **Trap Message** `Automatic port disable was released at port <port-number>`

SNMP traps for RSVP-signaled LSP state

SNMP traps that identify when an RSVP-Signaled LSP goes up and down and also when an LSP switches traffic to a new active path are available on the following devices:

- NetIron devices running software release 03.1.00 and later
- NetIron IMR 640 routers running software release 03.0.00 and later

- Brocade MLXe

Trap Name and Number	Varbinds	Severity	System Message Format
snMplsLspUp brcdIp.0.139	mplsLspName mplsLspPathName	Informational	Informs that the specified RSVP-signaled LSP using the specified active path is up.
snMplsLspUp brcdIp.0.140	mplsLspName mplsLspPathName	Informational	Informs that the specified RSVP-signaled LSP is down because the current active path went down.
snMplsLspChange brcdIp.0.141	mplsLspName mplsLspPathName	Informational	Informs that the specified RSVP-signaled LSP has switched traffic to the specified new active path. The LSP maintains an up state before and after the switch over.

UDLD traps

Multi-Service IronWare software release 02.4.00 for the BigIron RX provides UDLD traps that when UDLD is configured, it will log UDLD state changes.

Trap Name and Number	Varbinds	Severity	System Message Format
snTrapUDLDLinkDown brcdIp.0.145	ifIndex snAgGblTrapMessage	Notification	The SNMP trap that is generated when UDLD port link status has changed to down.
snTrapUDLDLinkUp brcdIp.0.146	ifIndex snAgGblTrapMessage	Notification	The SNMP trap that is generated when UDLD port link status has changed to up.

BPDU guard and root guard traps

The following are traps for BPDU Guard and Root Guard. They are available in the following releases:

- FSX software release 03.2.00 and later
- FGS software release 03.0.00 and later
- BigIron software release 07.8.03
- BigIron RX software release 02.6.00 and later.

- NetIron software release 03.8.00 and later.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapStpRootGuardDetect brcdIp.0.150	ifIndex, snVLanByPortCfg VLanId, snAgGblTrapMes sage	Notification	The SNMP trap that is generated when a Root-Guarded port receives superior BPDU. Trap Message `Brocade Trap: Stp root guard detect`
snTrapStpRootGuardExpire brcdIp.0.151	ifIndex, snVLanByPortCfg VLanId, snAgGblTrapMes sage	Notification	The SNMP trap that is generated when a port's Root-Guard expires. Trap Message `Brocade Trap: Stp root guard expire`
snTrapStpBPDUGuardDetect brcdIp.0.152	ifIndex, snVLanByPortCfg VLanId, snAgGblTrapMes sage	Notification	The SNMP trap that is generated when a BPDU-guarded is disabled because it received a BPDU. Trap Message `Brocade Trap: STP BPDU guard`
snTrapMstpBPDUGuardDetect brcdIp.0.153 **NOTE:** This object is not supported on the Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices. Use "snTrapStpRootGuardExp ire" on page 677 instead.	ifIndex, snAgGblTrapMes sage	Notification	The SNMP trap that is generated when a BPDU-guarded port receiveds a BPDU. Trap Message `Brocade Trap: MSTP BPDU guard.`
snTrapErrorDisableAction brcdIp.0.154 **NOTE:** This object is not supported on the BigIron RX, Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER devices.	ifIndex, snAgGblTrapMes sage	Notification	The SNMP trap that is generated when Interface error-disable is hit or recovery times out. Trap Message `Brocade Trap: Error-disable hit or recovery times out.`
snTrapStpRootGuardExpire brcdIp.0.160 **NOTE:** This object is supported in NetIron software release 03.8.00 and later.	ifIndex, snVLanByPortCfg VLanId, snAgGblTrapMes sage	Notification	The SNMP trap that is generated when a port is re-enabled after it has been disabled because it received a BPDU packet and BPDU Guard is enabled. Trap Message `Brocade Trap: STP BPDU Guard Expire.`
snTrapSTPRootGuard Violation brcdIp.0.1204	snAgGblTrapMes sage	Notification	The SNMP trap that is generated when STP Root Guard Violation occurs on a port. Trap Message Brocade Trap: STP Root Guard Violation
snTrapRSTPRootGuard Violation brcdIp.0.1205	snAgGblTrapMes sage	Notification	The SNMP trap that is generated when RSTP Root Guard Violation occurs on a port. Trap Message Brocade Trap: RSTP Root Guard Violation

Traps for optics

The following table presents general traps for the NetIron XMR and the NetIron MLX Series devices running software release 03.4.00 and later. It also applies to Brocade MLXe devices. Some of these traps also apply to the FESX/FSX/FWSX devices running software release 04.0.01 and later (where noted).

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapOpticalMonitoringWarning brcdIp.0.1003 **NOTE:** This trap is supported on FastIron devices running software release FSX 04.0.01 and later; on NetIron XMR and NetIron MLX Series devices running software release 03.3.00 and later; and Brocade MLXe devices.	snAgGblTrapMessage	Warning	A warning occurred during optical monitoring. **Sample Trap Message:** `Latched high Temperature alarm, port <slot>/<port>`
snTrapOpticalMonitoringAlarm brcdIp.0.1004 **NOTE:** This trap is supported on FastIron devices running software release FSX 04.0.01 and later; on NetIron XMR and NetIron MLX Series devices running software release 03.3.00 and later; and Brocade MLXe devices.	snAgGblTrapMessage	Alerts	An alarm occurred during optical monitoring due to a low temperature in the device. **Sample Trap Message:** `Latched low Temperature alarm, port <slot>/<port>`

Trap Name and Number	Varbinds	Severity	Description and Trap Message

snTrapOpticalMonitoringError
brcdIp.0.1005
NOTE: This trap is supported on FastIron devices running software release FSX 04.0.01 and later; on NetIron XMR and NetIron MLX Series devices running software release 03.3.00 and later; and Brocade MLXe devices.
	snAgGblTrapMessage	Informational	An error occurred during optical monitoring.
			Samples of Trap Message:
			`OPTICAL MONITORING: sys_create_timer failed, slot <n>, port mask <portmask>`
			`OPTICAL MONITORING: sys_set_timer failed, slot <n>, port mask <portmask>`
			`OPTICAL MONITORING: THRESHOLDS READ FAILED, port <slot>/<port>`
			`OPTICAL MONITORING: AUX AD TYPE READ FAILED, port <slot>/<port>"`
			`OPTICAL MONITORING: INT UNMASK ALL WRITE FAILED, port <slot>/<port>`
			`OPTICAL MONITORING: INT MASK WRITE FAILED, port <slot>/<port>`
			`OPTICAL MONITORING:: OPTICAL INT MASK WRITE FAILED, port <slot>/<port>`
			`OPTICAL MONITORING: port <slot>/<port>: sys_create_timer failed`
			`OPTICAL MONITORING: port <slot>/<port>: sys_create_timer2 failed`
			`OPTICAL MONITORING: port <slot>/<port>: sys_set_timer failed`
			`OPTICAL MONITORING: port <slot>/<port>, failed to get latched flags(<n>)`
			`OPTICAL MONITORING: port <slot>/<port>: sys_set_timer1 failed`

snTrapXfpSfpIncompatibleOptics brcdIp.0.1009 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.4.00 and later, as well as on Brocade MLXe devices.	snAgGblTrapMessage	Alerts	The optics are incompatible with the port configuration. **Sample Trap Message:**

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapTMLoggingStart brcdIp.0.1015 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.4.00 and later.	snAgGblTrapMessage	Informational	TM logging started, triggerred by an event. **Sample Trap Message:**
snTrapTMLoggingStop brcdIp.0.1016 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.4.00 and later.	snAgGblTrapMessage	Informational	TM logging stopped because the storage full. **Sample Trap Message:**
snTrapTMLoggingRestart brcdIp.0.1017 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.4.00 and later.	snAgGblTrapMessage	Informational	TM logging restarted after the log was cleared **Sample Trap Message:**
snTrapSFMLinkDown brcdIp.0.1100 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.4.00 and later.	snAgGblTrapMessage	Warning	A link from LP Traffic Manager to SFM Fabric Element is down. **Sample Trap Message:** Fabric Monitoring Link Down : SFM <num>/FE <num>/Link <num>, LP <num>/TM <num>"
snTrapSFMLinkUp brcdIp.0.1101 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.4.00 and later.	snAgGblTrapMessage	Informational	A link from LP Traffic Manager to SFM Fabric Element is up. **Sample Trap Message:** Fabric Monitoring Link Up : SFM <num>/FE <num>/Link <num>, LP <num>/TM <num>"

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapXfpSfpNotFoundryOptics brcdIp.0.1018 **NOTE:** This s ot supported on FastIron SuperX devices running software release 07.1.00 and later.	snAgGblTrapMessage	Alerts	The SNMP trap that is generated if optics vendor is not from Foundry.
snTrapOpticalMonitoringFoundryOpticsNotCapable brcdIp.0.157 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices.	snAgGblTrapMessage	Alerts	The SNMP trap that is generated if optical monitoring is enabled but the device optic is not capable. **Sample Trap Message:** `Brocade Trap: Optical Monitoring Optics Not Capable`

Traps for stacking

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapStackingMasterElected brcdIp.0.163 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snAgGblTrapMessage	Minor	The SNMP trap that is generated when a unit is elected as Master unit for the stacking system. **Sample Trap Message** `Stack unit <unitNumber> has been elected as ACTIVE unit of the stack system`
snTrapStackingUnitAdded brcdIp.0.164 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snAgGblTrapMessage	Minor	The SNMP trap that is generated when a unit has been added to the stacking system. **Sample Trap Message:** `Stack: Stack unit <unitNumber> has been added to the stack system`
snTrapStackingUnitDeleted brcdIp.0.165 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snAgGblTrapMessage	Minor	The SNMP trap that is generated when a unit has been deleted from the stacking system. **Sample Trap Message:** `Stack: Stack unit <unitNumber> has been deleted to the stack system`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapStackingChasPwrSupplyOK brcdIp.0.166 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snChasPwrSupplyIndex, snAgGblTrapMessage	Minor	The SNMP trap that is generated when a power supply operational status changed from failure to normal for a stacking system. **Sample Trap Message:** `System: Stack unit <unitNumber> Power supply <snChasPwrSupplyIndex> is up`
snTrapStackingChasPwrSupplyFailed brcdIp.0.167 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snChasPwrSupplyIndex, snAgGblTrapMessage	Minor	The SNMP trap that is generated when a power supply operational status changed from normal to failure for a stacking system. **Sample Trap Message:** `System: Stack unit <unitNumber> Power supply <snChasPwrSupplyIndex> is down`
snTrapStackingChasFanNormal brcdIp.0.168 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snChasFanIndex, snChasFanDescription	Minor	The SNMP trap that is generated when a fan operational status changed from failure to normal for a stacking system. **Sample Trap Message:** `System: Stack unit <unitNumber> Fan <snChasFanIndex> (<snChasFanDescription>), ok`

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapStackingChasFanFailed brcdIp.0.169 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snChasFanIndex, snChasFanDescription	Minor	The SNMP trap that is generated when a fan fails to operate normally for a stacking system. **Sample Trap Message:** `System: Stack unit <unitNumber> Fan <snChasFanIndex> (<snChasFanDescription>), failed`
snTrapStackingManagementMACChanged brcdIp.0.170 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snAgGblTrapMessage	Minor	The SNMP trap that is generated when the managemnet MAC address of a stacking system has been changed. **Sample Trap Message:** `System: Management MAC address changed to <mac_address>`
snTrapStackingTemperatureWarning brcdIp.0.171 **NOTE:** This trap is supported on the NetIron XMR and NetIron MLX Series devices running software release 03.5.00 and later, as well as on Brocade MLXe devices. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snChasUnitIndex, snAgGblTrapMessage	Minor	The SNMP trap that is generated when the actual temperature reading is above the warning temperature threshold for a stack sytem. **Sample Trap Message:** `System: Stack unit <unitNumber> Temperature <actual-temp> C degrees, warning level <warning-temp> C degrees, shutdown level <shutdown-temp> C degrees`

Trap specific to FWS

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapNoFreeTcamEntry brcdIp.0.162 **NOTE:** This object is not supported on Brocade MLXe, NetIron XMR, NetIron MLX, NetIron CES, and NetIron CER. It is also not supported on FastIron SuperX devices running software release 07.1.00 and later.	snAgGblTrapMessage	Alerts	The SNMP trap that is generated when system is running out of TCAM spaces allocated for routing entries. **Sample Trap Message:** `System: No free TCAM entry. System will be unstable`

Software licensing traps

These traps apply to devices that support software licensing:

Note: This table is supported on the following devices:

- NetIron CES and CER devices running software release 05.0.00 and later.
- FastIron devices running software release 07.1.00 and later.
- Brocade MLXe, NetIron XMR, and NetIron MLX running software release 05.1.00 and later.
- ServeIron ADX devices running software release 12.2.1 and later.

Trap Name and Number	Varbinds	Severity	Description and Trap Message
snTrapLicenseAdded brcdIp.0.187	fdryLicenseType, snAgGblTrapMessage	Notification	This SNMP trap is generated when a new license is added to the system.
snTrapLicenseRemoved brcdIp.0.188	fdryLicenseType, snAgGblTrapMessage	Notification	This SNMP trap is generated when a license is removed from the system.
snTrapLicenseExpires brcdIp.0.189	fdryLicenseType, snAgGblTrapMessage	Notification	This SNMP trap that is generated when a trial license is about to expire. This trap is generated daily for the last 3 days of the license, and every 2 hours on the day when the license expires.
snTrapLicenseExpired brcdIp.0.190	fdryLicenseType, snAgGblTrapMessage	Notification	This SNMP trap that is generated when a trial license has expired.

Examples

RMON event traps

The following is an example of how to generate an SNMP trap for an RMON event.

If you want to configure a device to send an SNMP trap when CPU utilization is exceeds 50 percent, do the following:

1. Configure an RMON alarm with an ID of 1 that checks for snAgGblCpuUtil1MinAvg every 300 sec. In every sample, check if the CPU utilization falls exceeds 50 percent. If it does, send an event(id 1) with owner name as "Tom". The event trigger is re-armed, when the falling-threshold value falls below 45%

   ```
   BigIron(config)# rmon alarm 1 snAgGblCpuUtil1MinAvg.0 300 absolute
   rising-threshold 50 1 falling-threshold 45 65535 owner Tom
   ```

2. Configure an RMON event with an ID of 1, which sends an send a SNMP trap that contains the community string "public", some description, and owner Tom whenever CPU utilization exceeds 50 percent.

   ```
   BigIron(config)# rmon event 1 description "CPU Utilization exceeds 50%" trap
   public owner Tom
   ```

Appendix

Using SNMP to Upgrade Software

A

Upgrading a stackable device or a chassis module's management processor

This chapter presents some of the common procedures for using SNMP MIB objects to manage Foundry devices.

You can use a third-party SNMP management application such as HP OpenView to upgrade software on a device.

NOTE
In software releases earlier than 07.5.00, the SNMP agent does not check for type validity with the SNMP version. In software release 07.5.00 and above, the SNMP agent does not send a reply for a varbind, if the type of the varbind is not a known type for that version of SNMP. For example, MIB objects of type Counter64 cannot be retrieved using a v1 packet, as Counter64 is a v2c and v3 type.

NOTE
Make sure you use the correct procedure for your device and processor type. For example, do not use the Management Processor procedure to upgrade the Switching Processors on a module.

NOTE
The syntax shown in this section assumes that you have installed HP OpenView in the "/usr" directory.

NOTE
Foundry recommends that you make a backup copy of the startup-config file before you upgrade the software. If you need to run an older release, you will need to use the backup copy of the startup-config file.

Use this procedure to upgrade the following:

- A Stackable device
- A management II, III, or IV module
- The management processor on the Velocity Management Module (VM1)

To upgrade flash code on the Management Processor.

1. Configure a read-write community string on the device, if one is not already configured. To configure a read-write community string, enter the following command from the global CONFIG level of the CLI:

   snmp-server community <string> **ro | rw**

   where <string> is the community string and can be up to 32 characters long.

2. On the device, enter the following command from the global CONFIG level of the CLI:

no snmp-server pw-check

This command disables password checking for SNMP set requests. If password checking is enabled (the default) and a third-party SNMP management application does not add a password to the password field when it sends SNMP set requests to a device, the device rejects the request.

3. From the command prompt in the UNIX shell, enter the following command:

   /usr/OV/bin/snmpset -c <rw-community-string> <brcdIp-ip-addr> **brcdIp.1.1.2.1.5.0 ipaddress** <tftp-ip-addr> **brcdIp.1.1.2.1.6.0 octetstringascii** <file-name> **brcdIp.1.1.2.1.7.0 integer** <command-integer>

   where:

   <rw-community-string> is a read-write community string configured on the device.

   <brcdIp-ip-addr> is the device's IP address.

   <tftp-ip-addr> is the TFTP server's IP address.

   <file-name> is the image file name.

   <command-integer> is one of the following:

   - **20** – Download the flash code into the device's primary flash area.
   - **22** – Download the flash code into the device's secondary flash area.

Upgrading switching processors on a chassis device

Use this procedure to upgrade the Switching Processors on the following types of modules:

- Velocity Management Module (VM1)
- OC-3, OC-12, and OC-48 non-Network Processor Architecture (NPA) POS modules
- OC-48 NPA POS modules
- ATM modules

To upgrade flash code on the Switching Processors.

1. Configure a read-write community string on the device, if one is not already configured. To configure a read-write community string, enter the following command from the global CONFIG level of the CLI:

   snmp-server community <string> **ro | rw**

   where <string> is the community string and can be up to 32 characters long.

2. On the device, enter the following command from the global CONFIG level of the CLI:

   no snmp-server pw-check

   This command disables password checking for SNMP set requests. This command disables password checking for SNMP set requests. If password checking is enabled (the default) and a third-party SNMP management application does not add a password to the password field when it sends SNMP set requests to a device, the device rejects the request.

3. From the command prompt in the UNIX shell, enter the following command:

/usr/OV/bin/snmpset -c <rw-community-string> <brcdIp-ip-addr> **brcdIp.1.1.2.1.5.0 ipaddress** <tftp-ip-addr> **brcdIp.1.1.2.1.6.0 octetstringascii** <file-name>
brcdIp.1.1.2.1.56.0 integer <module-type>
brcdIp.1.1.2.1.57.0 integer <slotnum>
brcdIp.1.1.2.1.7.0 integer <command-integer>

where:

<rw-community-string> is a read-write community string configured on the device.

<brcdIp-ip-addr> is the device IP address.

<tftp-ip-addr> is the TFTP server's IP address.

<file-name> is the image file name.

<module-type> is one of the following:

- **2** – VM1 module.
- **3** – OC-3, OC-12, and OC-48 non-Network Processor Architecture (NPA) POS modules.
- **4** – OC-48 NPA POS modules.
- **5** – ATM module.

<slotnum> is the slot that contains the module you are upgrading. To upgrade all modules of the type you specified, enter 0 (zero):

<command-integer> is one of the following:

- **24** – Download the flash code into the device's primary flash area.
- **25** – Download the flash code into the device's secondary flash area.

Appendix

Notes on Unified IP MIB on NetIron devices

B

The Unified MIB consolidates prioprietary MIBs used by all IP devices into one proprietary MIB file. With this consolidation, all MIBs from IP devices are fully synchronized from one device to another. The supported standard MIBs however, are not affected.

The Unified MIB is not backward compatible; therefore, you may need to rewrite your SNMP scripts if the scripts contain objects that were changed in the Unified MIB.

This appendix identifies the objects that were changed in the Unified MIB for the NetIron devices running software release 05.0.00 and later. They are discussed in the following sections:

- "MIB objects with enumeration value changes" on page 692
- "Resolution of duplicate OIDs" on page 693
- "Resolution of duplicate OIDs" on page 693
- "Tables that have been removed" on page 694

MIB objects with enumeration value changes

Hyphens (-) and underscores (_) have been removed from the enumeration values. The following table lists the objects where hyphens and underscores were removed.

TABLE 24 Enumeration value changes in Unified MIB

MIB object	Old values	Values in Unified MIB

snCamProfile	SYNTAX INTEGER {
	default(1),
	ipv4(2),
	ipv4_ipv6(3),
	ipv4_ipv6_2(4),
	ipv4_vpls(5),
	ipv4_vpn(6),
	ipv6(7),
	l2_metro(8),
	l2_metro_2(9),
	mpls_l3vpn(10),
	mpls_l3vpn_2(11),
	mpls_vpls(12),
	mpls_vpls_2(13),
	mpls_vpn_vpls(14),
	multi_service(15),
	multi_service_2(16),
	multi_service_3(17),
	multi_service_4(18)
	}
		SYNTAX INTEGER {
		default(1),
		ipv4(2),
		ipv4Ipv6(3),
		ipv4Ipv62(4),
		ipv4Vpls(5),
		ipv4Vpn(6),
		ipv6(7),
		l2Metro(8),
		l2Metro2(9),
		mplsL3vpn(10),
		mplsL3vpn2(11),
		mplsVpls(12),
		mplsVpls2(13),
		mplsVpnVpls(14),
		multiService(15),
		multiService2(16),
		multiService3(17),
		multiService4(18)
		}

snTacacsServerUsage	SYNTAX INTEGER {
	default(1),
	authentication-only(2),
	authorization-only(3),
	accounting-only(4)
	}
		SYNTAX INTEGER {
		default(1),
		authenticationOnly(2),
		authorizationOnly(3),
		accountingOnly(4)
		}

snRadiusServerUsage	SYNTAX INTEGER {
	default(1),
	authentication-only(2),
	authorization-only(3),
	accounting-only(4)
	}
		SYNTAX INTEGER {
		default(1),
		authenticationOnly(2),
		authorizationOnly(3),
		accountingOnly(4)
		}

snVLanByPortCfgBaseType	SYNTAX INTEGER {
	unknown(1),
	transparent-only(2),
	sourceroute-only(3),
	srt(4)
	}
		SYNTAX INTEGER {
		unknown(1),
		transparentOnly(2),
		sourcerouteOnly(3),
		srt(4)
		}

TABLE 24 Enumeration value changes in Unified MIB (Continued)

MIB object	Old values	Values in Unified MIB

MplsServiceType TC	SYNTAX INTEGER{
	vll(1),
	vll-local(2),
	vpls(3)
	}
		SYNTAX INTEGER{
		vll(1),
		vllLocal(2),
		vpls(3)
		}

snPOSInfo2SSM	SYNTAX INTEGER {
	t1-sonet-primary-reference-source(1),
	t1-sonet-traceability-unknown(2),
	t1-sonet-stratum2-traceable(3),
	t1-sonet-transit-node-clock(4),
	t1-sonet-stratum3e-traceable(5),
	t1-sonet-stratum3-traceable(6),
	t1-sonet-min-clock-traceable(7),
	t1-sonet-dus(8),
	e1-sdh-traceability-unknown(9),
	e1-sdh-ssm-transit-node-clock-g812(10),
	e1-sdh-dus(11),
	e1-sdh-ssm-primary-reference-clock-g811(12),
	e1-sdh-ssm-local-g812(13),
	e1-sdh-ssm-sync-equipment-timing-source(14)
	}
		SYNTAX INTEGER {
		t1SonetPrimaryReferenceSource(1),
		t1SonetTraceabilityUnknown(2),
		t1SonetStratum2Traceable(3),
		t1SonetTransitNodeClock(4),
		t1SonetStratum3eTraceable(5),
		t1SonetStratum3Traceable(6),
		t1SonetMinClockTraceable(7),
		t1SonetDus(8),
		e1SdhTraceabilityUnknown(9),
		e1SdhSsmTransitNodeClockG812(10),
		e1SdhDus(11),
		e1SdhSsmPrimaryReferenceClockG811(12),
		e1SdhSsmLocalG812(13),
		e1SdhSsmSyncEquipmentTimingSource(14)
		}

Resolution of duplicate OIDs

In the old MIB files, some objects have the same OIDs, but different object names. These are resolved in the Unified MIB.

TABLE 25 Changes to object names

Old object name	New object name
snTacacsServerKey	snTacacsServerRowKey
snRadiusServerKey	snRadiusServerRowKey

Changes to object names due to compilation errors

The following table lists the object names that were changed in the Unified MIB to resolve compilation errors.

TABLE 26 Changes to object names

Old MIB object name	Unified MIB object name
snPOSPPP-LCP	snPosPppLcp
snPOSPPP-IPCP	snPosPppIpCp
snPOSPPP-IPv6CP	snPosPppIpv6Cp

TABLE 26 Changes to object names (Continued)

Old MIB object name	Unified MIB object name
snPOSPPP-OSINLCP	snPosPppOsInLcp
snPOSPPP-MPLSCP	snPosPppMpLscp

Tables that have been removed

The snLinkAggregateGroupTable has been removed from the Unified MIB. It has been obsoleted by the fdryLinkAggregateGroupTable.

Index

agAclAccntCumulative 227
access Iron 85
adjourning 84
agAclAccntAclName 259
agAclAccntAclNumber 259
agAclAccntCumulative 259
agAclAccntDirection 259
agAclAccntEntry 259
agAclAccntFilterId 259
agAclAccntFiveMinute 259
agAclAccntIfIndex 259
agAclAccntKind 259
agAclAccntOneMinute 259
agAclAccntOneSecond 259
agAclAccntRaclDropCnt 260
agAclAccntRaclFwdCnt 260
agAclAccntRaclRemarkCnt 260
agAclAccntRaclTotalCnt 260
agAclAccntRaclTotalSWHitCountCnt 260
agAclAccntTable 259
agRateLimitCounterDroppedOctets 268
agRateLimitCounterEntry 268
agRateLimitCounterFwdedOctets 268
agRateLimitCounterReMarkedOctets 268
agRateLimitCounterTable 268
agRateLimitCounterTotalOctets 268
alarmFallingThreshold 637
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authenticationFailure 636
bfdAdminStatus 489
bfdSessAddr 491
bfdSessAddrType 491
bfdSessApplicationId 489
bfdSessAuthenticationType 491
bfdSessAuthPressFlag 491
bfdSessControPlanIndepFlag 491
bfdSessDemandModeDesiredFlag 490
bfdSessDesiredMinTxInterval 491
bfdSessDetectMult 491
bfdSessDiag 490
bfdSessDiscriminator 490
bfdSessDown 673
bfdSessEchoFuncModeDesiredFlag 490
bfdSessEntry 489
bfdSessIndex 489
bfdSessMapBfdIndex 493
BfdSessMapEntry 493
BfdSessMapTable 493
bfdSessNotificationsEnable 489
bfdSessNotificationsEnable 489
bfdSessOperMode 490
bfdSessPerfDiscTime 492
bfdSessPerfEntry 492
bfdSessPerfLastCommLostDiag 492
bfdSessPerfLastSessDownTime 492
bfdSessPerfPktIn 492
bfdSessPerfPktInHC 492
bfdSessPerfPktOut 492
bfdSessPerfPktOutHC 492
bfdSessPerfSessUpCount 492
bfdSessPerfTable 492
bfdSessPerfUpTime 492
bfdSessRemoteDiscr 490
bfdSessRemoteHeardFlag 490
bfdSessReqMinEchoRxInterval 491
bfdSessReqMinRxInterval 491
bfdSessRowStatus 491
bfdSessState 490
bfdSessStorType 491
bfdSessTable 489
bfdSessUdpPort 490
bfdSessUp 673
bgp4PathAttrAggregatorAS 50
bgp4PathAttrASPathSegment 50
bgp4PathAttrTable 49
bgpLocalAS 48
bgpPeerAdminStatus 49
bgpPeerConnectRetryInterval 49
bgpPeerEntry 49
bgpPeerFsmEstablishedTime 49
bgpPeerFsmEstablishedTransitions 49
bgpPeerHoldTime 49
bgpPeerHoldTimeConfigured 49
bgpPeerIdentifier 49
bgpPeerInTotalMessages 49
bgpPeerInUpdateElapsedTime 49
bgpPeerInUpdates 49
bgpPeerKeepAlive 49
bgpPeerKeepAliveConfigured 49
bgpPeerLastError 49

bgpPeerLocalAddr 49
bgpPeerLocalPort 49
bgpPeerMinASOriginationInterval 49
bgpPeerMinRouteAdvertisementInterval 49
bgpPeerNegotiatedVersion 49
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