



Extreme 9920 Software MIB Reference

21.1.2.0

9037266-00 Rev AA
January 2022



Copyright © 2022 Extreme Networks, Inc. All rights reserved.

Legal Notice

Extreme Networks, Inc. reserves the right to make changes in specifications and other information contained in this document and its website without prior notice. The reader should in all cases consult representatives of Extreme Networks to determine whether any such changes have been made.

The hardware, firmware, software or any specifications described or referred to in this document are subject to change without notice.

Trademarks

Extreme Networks and the Extreme Networks logo are trademarks or registered trademarks of Extreme Networks, Inc. in the United States and/or other countries.

All other names (including any product names) mentioned in this document are the property of their respective owners and may be trademarks or registered trademarks of their respective companies/owners.

For additional information on Extreme Networks trademarks, see: www.extremenetworks.com/company/legal/trademarks

Open Source Declarations

Some software files have been licensed under certain open source or third-party licenses. End-user license agreements and open source declarations can be found at: <https://www.extremenetworks.com/support/policies/open-source-declaration/>



Table of Contents

| | |
|---|-----------|
| Preface..... | 4 |
| Text Conventions..... | 4 |
| Documentation and Training..... | 5 |
| Help and Support..... | 6 |
| Subscribe to Product Announcements..... | 6 |
| Send Feedback..... | 6 |
| What's New in this Document..... | 8 |
| MIB Overview..... | 9 |
| Understanding MIBs..... | 9 |
| MIB Structure..... | 9 |
| Access to MIB Variables..... | 10 |
| Supported MIBs..... | 10 |
| Supported MIBs..... | 11 |
| Interface Group MIB..... | 12 |
| System Group MIB..... | 14 |
| Entity MIB..... | 15 |
| ifXTable Extended MIB..... | 17 |



Preface

Read the following topics to learn about:

- The meanings of text formats used in this document.
- Where you can find additional information and help.
- How to reach us with questions and comments.

Text Conventions

Unless otherwise noted, information in this document applies to all supported environments for the products in question. Exceptions, like command keywords associated with a specific software version, are identified in the text.

When a feature, function, or operation pertains to a specific hardware product, the product name is used. When features, functions, and operations are the same across an entire product family, such as ExtremeSwitching switches or SLX routers, the product is referred to as *the switch* or *the router*.

Table 1: Notes and warnings






| Icon | Notice type | Alerts you to... |
|---|-------------|---|
|  | Tip | Helpful tips and notices for using the product |
|  | Note | Useful information or instructions |
|  | Important | Important features or instructions |
|  | Caution | Risk of personal injury, system damage, or loss of data |
|  | Warning | Risk of severe personal injury |

Table 2: Text

| Convention | Description |
|--|---|
| screen displays | This typeface indicates command syntax, or represents information as it is displayed on the screen. |
| The words <i>enter</i> and <i>type</i> | When you see the word <i>enter</i> in this guide, you must type something, and then press the Return or Enter key. Do not press the Return or Enter key when an instruction simply says <i>type</i> . |
| Key names | Key names are written in boldface, for example Ctrl or Esc . If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del |
| Words in italicized type | Italics emphasize a point or denote new terms at the place where they are defined in the text. Italics are also used when referring to publication titles. |
| NEW! | New information. In a PDF, this is searchable text. |

Table 3: Command syntax

| Convention | Description |
|------------------------------------|--|
| bold text | Bold text indicates command names, keywords, and command options. |
| <i>italic</i> text | Italic text indicates variable content. |
| [] | Syntax components displayed within square brackets are optional. Default responses to system prompts are enclosed in square brackets. |
| { x y z } | A choice of required parameters is enclosed in curly brackets separated by vertical bars. You must select one of the options. |
| x y | A vertical bar separates mutually exclusive elements. |
| < > | Nonprinting characters, such as passwords, are enclosed in angle brackets. |
| ... | Repeat the previous element, for example, <i>member</i> [<i>member</i> ...]. |
| \ | In command examples, the backslash indicates a “soft” line break. When a backslash separates two lines of a command input, enter the entire command at the prompt without the backslash. |

Documentation and Training

Find Extreme Networks product information at the following locations:

[Current Product Documentation](#)

[Release Notes](#)

[Hardware and software compatibility](#) for Extreme Networks products

[Extreme Optics Compatibility](#)

[Other resources](#) such as white papers, data sheets, and case studies

Extreme Networks offers product training courses, both online and in person, as well as specialized certifications. For details, visit www.extremenetworks.com/education/.

Help and Support

If you require assistance, contact Extreme Networks using one of the following methods:

Extreme Portal

Search the GTAC (Global Technical Assistance Center) knowledge base; manage support cases and service contracts; download software; and obtain product licensing, training, and certifications.

The Hub

A forum for Extreme Networks customers to connect with one another, answer questions, and share ideas and feedback. This community is monitored by Extreme Networks employees, but is not intended to replace specific guidance from GTAC.

Call GTAC

For immediate support: (800) 998 2408 (toll-free in U.S. and Canada) or 1 (408) 579 2826. For the support phone number in your country, visit: www.extremenetworks.com/support/contact

Before contacting Extreme Networks for technical support, have the following information ready:

- Your Extreme Networks service contract number, or serial numbers for all involved Extreme Networks products
- A description of the failure
- A description of any actions already taken to resolve the problem
- A description of your network environment (such as layout, cable type, other relevant environmental information)
- Network load at the time of trouble (if known)
- The device history (for example, if you have returned the device before, or if this is a recurring problem)
- Any related RMA (Return Material Authorization) numbers

Subscribe to Product Announcements

You can subscribe to email notifications for product and software release announcements, Field Notices, and Vulnerability Notices.

1. Go to [The Hub](#).
2. In the list of categories, expand the **Product Announcements** list.
3. Select a product for which you would like to receive notifications.
4. Select **Subscribe**.
5. To select additional products, return to the **Product Announcements** list and repeat steps 3 and 4.

You can modify your product selections or unsubscribe at any time.

Send Feedback

The Information Development team at Extreme Networks has made every effort to ensure that this document is accurate, complete, and easy to use. We strive to improve our documentation to help you in your work, so we want to hear from you. We welcome all feedback, but we especially want to know about:

- Content errors, or confusing or conflicting information.

- Improvements that would help you find relevant information.
- Broken links or usability issues.

To send feedback, do either of the following:

- Access the feedback form at <https://www.extremenetworks.com/documentation-feedback/>.
- Email us at documentation@extremenetworks.com.

Provide the publication title, part number, and as much detail as possible, including the topic heading and page number if applicable, as well as your suggestions for improvement.



What's New in this Document

This document had no changes for this release of the Extreme 9920 software with the NPB application.

For more information about this release, see the [Extreme 9920 Software Release Notes, 21.1.2.0](#).



MIB Overview

Understanding MIBs on page 9

The following topics provide conceptual information about MIBs operation and structure on Extreme 9920.

Understanding MIBs

The management information base (MIB) is a database of monitored and managed information on an Extreme device.

The MIB structure can be represented by a tree hierarchy. The root splits into three main branches:

- International Organization for Standardization (ISO)
- Consultative Committee for International Telegraph and Telephone (CCITT)
- Joint ISO and CCITT

These branches have short text strings and integers (object identifiers) to identify them. Text strings describe object names. Integers allow software to create compact, encoded representations of the names.

MIB Structure

Each MIB variable is assigned an object identifier (OID). The OID is the sequence of numeric labels on the nodes along a path from the root to the object. For example, as shown in the following figure, the `sysDescr` is:

```
1.3.6.1.2.1.1.1
```

The corresponding name is:

```
iso.org.dod.internet.mgmt.mib-2.system.sysDescr
```

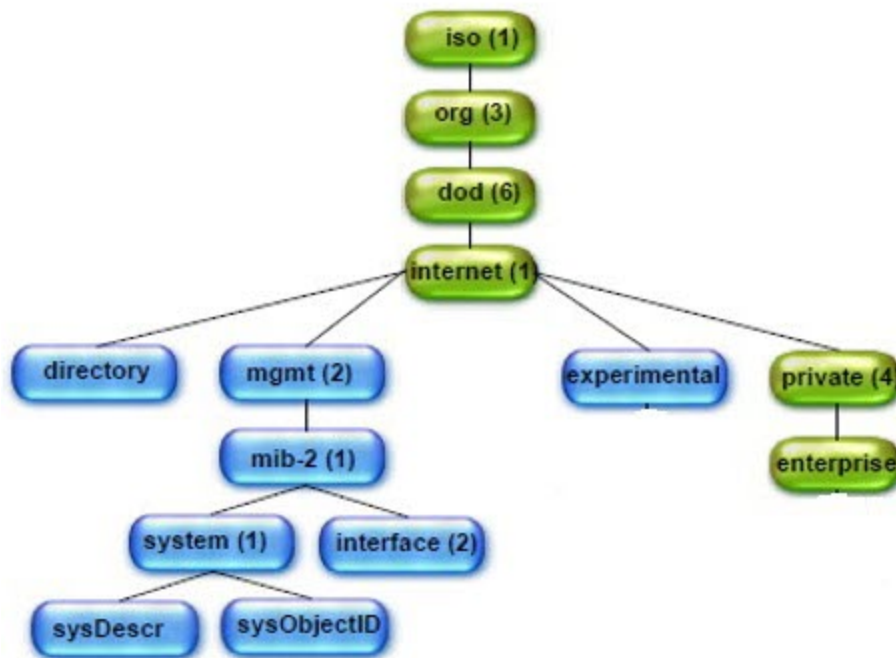
```
1.3.6.1.2.1.47
```

The corresponding name is:

```
iso.org.dod.internet.mgmt.mib-2.entityMIB
```

The other branches are part of the standard MIBs.

Figure 1: MIB tree



Access to MIB Variables

You can use a MIB browser to access the MIB variables. All MIB browsers load MIBs and perform queries.

Once the MIBs are loaded, read-only access provides access levels between the agent and management station. The access levels are described in the following table.

Table 4: MIB access levels

| Access level | Description |
|----------------------|--|
| Not accessible/None | You cannot read or write to this variable. |
| Read-create | Specifies a tabular object that can be read, modified, or created as a new row in a table. |
| Read-only | You can only monitor information. |
| Read-write | You can read or modify this variable. |
| Accessible-to-notify | You can read this information only through traps. |

Supported MIBs

The following MIBs are distributed with Extreme 9920 software in a concatenated file.

- Entity MIB. For more information, see [Entity MIB](#) on page 15.
- Interface Group MIB. For more information, see [Interface Group MIB](#) on page 12.
- System Group MIB. For more information, see [System Group MIB](#) on page 14.
- ifXTable Extended MIB. For more information, see [ifXTable Extended MIB](#) on page 17.



Supported MIBs

[Interface Group MIB](#) on page 12

[System Group MIB](#) on page 14

[Entity MIB](#) on page 15

[ifXTable Extended MIB](#) on page 17

The following topics list the MIBs and MIB objects supported by Extreme 9920.

Interface Group MIB

The Interface Group MIB defines the managed objects for an interface.

The Interfaces Group MIB (ifMIB) is specified in [RFC 2863](#). Extreme 9920 software supports the following.

Table 5: Supported MIB objects

| Name | OID | Syntax | Description |
|-------------------|-----------------------|------------------------------|---|
| ifNumber | .1.3.6.1.2.1.2.1 | Integer32 | Number of network interfaces on the system |
| ifIndex | .1.3.6.1.2.1.2.2.1.1 | InterfaceIndex | Value between 1 and the value of the ifNumber |
| ifDescr | .1.3.6.1.2.1.2.2.1.2 | DisplayString (Octet string) | Description of the interface |
| ifType | .1.3.6.1.2.1.2.2.1.3 | IANAifType | |
| ifMtu | .1.3.6.1.2.1.2.2.1.4 | Integer32 | Size of the largest packet that can be sent or received on the interface |
| ifSpeed | .1.3.6.1.2.1.2.2.1.5 | Gauge32 | Estimation of the interface bandwidth in bits per second |
| ifPhysAddress | .1.3.6.1.2.1.2.2.1.6 | PhysAddress(Octet string) | Interface address at the protocol sub-layer |
| ifAdminStatus | .1.3.6.1.2.1.2.2.1.7 | Integer | Administrative state of the interface: up (1), down (2), testing (3) |
| ifOperStatus | .1.3.6.1.2.1.2.2.1.8 | Integer | Operational state of the interface: up (1), down (2), testing (3), unknown (4), dormant (5), not present (6) lower layer down (7) |
| ifLastChange | .1.3.6.1.2.1.2.2.1.9 | TimeTicks | Value of sysUpTime when the interface entered the current operational state |
| ifInOctets | .1.3.6.1.2.1.2.2.1.10 | Counter32 | Number of octets received on the interface |
| ifInUcastPkts | .1.3.6.1.2.1.2.2.1.11 | Counter32 | Number of unicast packets delivered by the sublayer to a higher sublayer |
| ifInNUcastPkts | .1.3.6.1.2.1.2.2.1.12 | Counter32 | Number of multicast or broadcast packets delivered by the sublayer to a higher sublayer |
| ifInDiscards | .1.3.6.1.2.1.2.2.1.13 | Counter32 | Number of discarded inbound packets |
| ifInErrors | .1.3.6.1.2.1.2.2.1.14 | Counter32 | Number of inbound packets containing errors that prevented delivery to a higher-layer protocol |
| ifInUnknownProtos | .1.3.6.1.2.1.2.2.1.15 | Counter32 | Number of packets received from the interface that were discarded for an unknown or unsupported protocol |
| ifOutOctets | .1.3.6.1.2.1.2.2.1.16 | Counter32 | Number of octets sent from the interface |

Table 5: Supported MIB objects (continued)

| | | | |
|-----------------|-----------------------|-------------------|--|
| ifOutUcastPkts | .1.3.6.1.2.1.2.2.1.17 | Counter32 | Number of packets requested by a higher-level protocol that were addressed to a unicast address |
| ifOutNUcastPkts | .1.3.6.1.2.1.2.2.1.18 | Counter32 | Number of packets requested by a higher-level protocol that were addressed to a multicast or broadcast address |
| ifOutDiscards | .1.3.6.1.2.1.2.2.1.19 | Counter32 | Number of discarded outbound packets |
| ifOutErrors | .1.3.6.1.2.1.2.2.1.20 | Counter32 | Number of outbound packets containing errors that prevented transmission |
| ifOutQLen | .1.3.6.1.2.1.2.2.1.21 | Gauge32 | Length of the outbound packet queue |
| ifSpecific | .1.3.6.1.2.1.2.2.1.22 | Object Identifier | OID of the MIB |

System Group MIB

The System Group MIB defines the essential managed objects, or entities, for a system.

The System Group MIB is specified in [RFC 1213](#). Extreme 9920 software supports the following.

Table 6: Supported MIB objects

| Name | OID | Syntax | Description |
|-------------|------------------|------------------------------|--|
| sysDescr | .1.3.6.1.2.1.1.1 | DisplayString (Octet string) | Description of the entity |
| sysObjectID | .1.3.6.1.2.1.1.2 | Object Identifier | OID of the device model |
| sysUpTime | .1.3.6.1.2.1.1.3 | TimeTicks | Amount of time since the network management subsystem was last initialized |
| sysContact | .1.3.6.1.2.1.1.4 | DisplayString (octet string) | Description of the contact person for the entity |
| sysName | .1.3.6.1.2.1.1.5 | DisplayString (octet string) | Name of the entity. Usually the FQDN. |
| sysLocation | .1.3.6.1.2.1.1.6 | DisplayString (octet string) | Physical location of the entity |
| sysServices | .1.3.6.1.2.1.1.7 | Integer | Description of the services that the entity offers |

Entity MIB

The Entity MIB identifies the physical entities that are supported by an SNMP agent.

The Entity MIB is specified in [RFC 4133](#). Extreme 9920 software supports the following.

Table 7: Supported MIB objects

| Name | OID | Syntax | Description |
|-------------------------|--------------------------|---------------------|--|
| entPhysicalIndex | .1.3.6.1.2.1.47.1.1.1.1 | PhysicalIndex | Value that uniquely identifies the physical entity |
| entPhysicalDescr | .1.3.6.1.2.1.47.1.1.1.2 | SnmpAdminString | Description of the physical entity |
| entPhysicalVendorType | .1.3.6.1.2.1.47.1.1.1.3 | AutonomousType | Vendor-specific indicator of the hardware type for the physical entity |
| entPhysicalContainedIn | .1.3.6.1.2.1.47.1.1.1.4 | PhysicalIndexOrZero | Value of entPhysicalIndex of the physical entity that contains this physical entity |
| entPhysicalClass | .1.3.6.1.2.1.47.1.1.1.5 | PhysicalClass | Indicator of the hardware type of the physical entity |
| entPhysicalParentRelPos | .1.3.6.1.2.1.47.1.1.1.6 | Integer32 | Indicator of this child component relative to its sibling components |
| entPhysicalName | .1.3.6.1.2.1.47.1.1.1.7 | SnmpAdminString | Name of the physical entity |
| entPhysicalHardwareRev | .1.3.6.1.2.1.47.1.1.1.8 | SnmpAdminString | Vendor-specific identifier of the hardware revision for the physical entity |
| entPhysicalFirmwareRev | .1.3.6.1.2.1.47.1.1.1.9 | SnmpAdminString | Vendor-specific identifier of the firmware revision for the physical entity |
| entPhysicalSoftwareRev | .1.3.6.1.2.1.47.1.1.1.10 | SnmpAdminString | Vendor-specific identifier of the software revision for the physical entity |
| entPhysicalSerialNum | .1.3.6.1.2.1.47.1.1.1.11 | SnmpAdminString | Vendor-specific serial number for the physical entity |
| entPhysicalMfgName | .1.3.6.1.2.1.47.1.1.1.12 | SnmpAdminString | Name of the manufacturer of the physical entity |
| entPhysicalModelName | .1.3.6.1.2.1.47.1.1.1.13 | SnmpAdminString | Vendor-specific model name for the physical entity |
| entPhysicalAlias | .1.3.6.1.2.1.47.1.1.1.14 | SnmpAdminString | Alias for the physical entity, as specified by the network manager |
| entPhysicalAssetID | .1.3.6.1.2.1.47.1.1.1.15 | SnmpAdminString | Tracking identifier for the physical entity, as specified by the network manager |
| entPhysicalIsFRU | .1.3.6.1.2.1.47.1.1.1.16 | TruthValue | Indicates whether the vendor considers this physical entity to be a field replaceable unit |

Table 7: Supported MIB objects (continued)

| | | | |
|--------------------|--------------------------|--------------|--|
| entPhysicalMfgDate | .1.3.6.1.2.1.47.1.1.1.17 | DateAndTime | Date that the physical entity was manufactured |
| entPhysicalUris | .1.3.6.1.2.1.47.1.1.1.18 | Octet String | Extra information about the physical entity |

ifXTable Extended MIB

The ifXTable is a list of interface entries, the number of which is determined by the value of ifNumber.

The ifXTable Extended MIB is specified in [RFC 2863](#), which also specifies the Interface Group MIB. Extreme 9920 software supports the following.

Table 8: Supported MIB objects

| Name | OID | Syntax | comments |
|---------------------|--------------------------|---------------------------------|--|
| ifName | .1.3.6.1.2.1.31.1.1.1.1 | DisplayString (Octet string) | Name of the interface |
| ifInMulticastPkts | .1.3.6.1.2.1.31.1.1.1.2 | Counter32 | Number of packets addressed to a multicast address at this sublayer |
| ifInBroadcastPkts | .1.3.6.1.2.1.31.1.1.1.3 | Counter32 | Number of packets addressed to a broadcast address at this sublayer |
| ifOutMulticastPkts | .1.3.6.1.2.1.31.1.1.1.4 | Counter32 | Number of packets requested by a higher-level protocol that were addressed to a multicast address at this sublayer |
| ifOutBroadcastPkts | .1.3.6.1.2.1.31.1.1.1.5 | Counter32 | Number of packets requested by a higher-level protocol that were addressed to a broadcast address at this sublayer |
| ifHCInOctets | .1.3.6.1.2.1.31.1.1.1.6 | Counter64 | Number of octets received on the interface |
| ifHCInUcastPkts | .1.3.6.1.2.1.31.1.1.1.7 | Counter64 | Number of unicast packets delivered by the sublayer to a higher sublayer |
| ifHCInMulticastPkts | .1.3.6.1.2.1.31.1.1.1.8 | Counter64 | Number of multicast packets delivered by the sublayer to a higher sublayer |
| ifHCInBroadcastPkts | .1.3.6.1.2.1.31.1.1.1.9 | Counter64 | Number of broadcast packets delivered by the sublayer to a higher sublayer |
| ifHCOctets | .1.3.6.1.2.1.31.1.1.1.10 | Counter64 | Number of octets sent from the interface |
| ifHCOUcastPkts | .1.3.6.1.2.1.31.1.1.1.11 | Counter64 | Number of packets requested by a higher-level protocol that were addressed to a unicast address at this sublayer |
| ifHCOMulticastPkts | .1.3.6.1.2.1.31.1.1.1.11 | Counter64 | Number of packets requested by a higher-level protocol that were addressed to a multicast address at this sublayer |
| ifHCOBroadcastPkts | .1.3.6.1.2.1.31.1.1.1.12 | Counter64 | Number of packets requested by a higher-level protocol that were addressed to a broadcast address at this sublayer |

Table 8: Supported MIB objects (continued)

| | | | |
|----------------------------|--------------------------|---------------|--|
| ifLinkUpDownTrapEnable | .1.3.6.1.2.1.31.1.1.1.13 | Integer | Indicates whether linkUp and linkDown traps are generated for the interface |
| ifHighSpeed | .1.3.6.1.2.1.31.1.1.1.14 | Gauge32 | Estimation of the interface's current bandwidth |
| ifPromiscuousMode | .1.3.6.1.2.1.31.1.1.1.16 | TruthValue | Value of false (2) if the interface accepts only those packets or frames that are addressed to the interface. Value of true (1) if the interface accepts all packets and frames. |
| ifConnectorPresent | .1.3.6.1.2.1.31.1.1.1.17 | TruthValue | Value of true (1) if the sublayer has a physical connector. Value of false (2) if the sublayer does not have a physical connector. |
| ifAlias | .1.3.6.1.2.1.31.1.1.1.18 | DisplayString | Alias for the interface, as specified by the network manager |
| ifCounterDiscontinuityTime | .1.3.6.1.2.1.31.1.1.1.19 | TimeStamp | Value of sysUpTime at the most recent occurrence of discontinuity for any of the interface's counters |