

## BitStorm™ 1900 IP DSLAM Supported SNMP MIBs

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This document contains the SNMP Provisioning and MIBs information for the BitStorm™ 1900 MIU configuration.

For information on the BitStorm 1900 IP DSLAM system, please refer to the *BitStorm 1900 IP DSLAM Installation and Maintenance Guide*, Document Number 1900-A2-GN20-xx. This document is available online at [www.paradyne.com](http://www.paradyne.com). Select Library > Technical Manuals > [BitStorm DSL Systems](#).

## SNMP Provisioning

### BitStorm 1900 Shelf and Modem Card Configuration via SNMP

**Table 1: System Group of MIB-II – RFC 1213**

Feature	SNMP Input Variable	Description
Entering Contact Information	sysContact	Textual identification of the contact person for this managed device. In addition, contact information on how to reach this individual should be included.
Entering System Name	sysName	Administratively assigned name that describes the managed device.
Entering System Location	sysLocation	The physical location of the managed device.

**Table 2: System Interfaces of MIB-II – RFC 1213**

Feature	SNMP Input Variable	Description
Configuring the state of the interface (up, down, or testing).	IfAdminStatus	

**Table 3: BS1900 Shelf Interface Group**

<b>Feature</b>	<b>SNMP Input Variable</b>	<b>Description</b>
Enabling Video Protect Mode on entire Shelf	ShelfVideoProtectMode	Setting this value to one (1) will turn video protect mode "on" for all EtherLoops on the shelf.
Enabling Traps to be forwarded to the Shelf	EnableShelfTraps	Setting this value to one (1) will enable all traps to be forwarded to the shelf.
Enabling Traps to be forwarded to the CO modem	EnableShelfTraps	Setting this value to one (1) will enable all traps to be forwarded to the CO modem.
Enabling Traps to be forwarded to the CPE modem	EnableShelfTraps	Setting this value to one (1) will enable all traps to be forwarded to the CPE modem.

**Table 4: CO Modem Interface Group**

<b>Feature</b>	<b>SNMP Input Variable</b>	<b>Description</b>
Setting the maximum number of broadcast messages.	COMdmIfMaxBroadcast	Setting this object defines the maximum number of broadcast messages per second that can be sent out the associated Ethernet port and all interfaces associated with this Ethernet Port.
Disabling and Enabling broadcast traffic	COMdmIfBlockBroadcast	Setting this object to "enabled" will allow the modem to forward all broadcast traffic out the port.
Setting maximum upstream throughput	COMdmIfMaxUpThruput	
Setting maximum downstream throughput	COMdmIfMaxDownThruput	
Enabling and disabling Video Protect mode – Setting the upstream symbol rate	COMdmIfMaxUpSymbol Rate	
Enabling and disabling Video Protect mode – Setting the downstream symbol rate	COMdmIfMaxDown-SymbolRate	
Setting the time in seconds after HDLC frames should be removed from the internal buffers	COMdmIfHDLCiscThreshold	
Setting the modem to always run at the highest speed – setting Forced mode	COMdmIfForceHighSpeed	
Clearing the statistics of an interface.	COMdmIfClearStats	Setting the object to (2) will set all counters on the interface atn the assoicated Ethernet port to 0. A trap is sent. Reading the object returns a value of (1).

Feature	SNMP Input Variable	Description
Turning TRAPS ON/OFF	COMdmIfTrapStatus	<p>Setting the object value to (1) turns on all traps on the CO modem. All traps will be sent.</p> <p>Setting the object value to (2) turns off all traps on the CO modem. No traps will be sent</p> <p>Setting the object value to (3) turns on all traps on the CO modem except for linkDown traps.</p>

## Supported SNMP MIBS

### System Group and Interface Group of MIB-II

*Table 5: The System Group*

The System Group			
Variable	Description	Accessibility	Implementation
sysDescr	A textual description of the entity. This value should include the full name and version identification of the system's hardware type, software Operating System and networking software. It is mandatory that this should only contain printable ASCII characters.	Read-only	<p>The returns the concatenation of MIU hardware description string and firmware version string, such as "BitStorm MIU &lt;Firmware rev&gt;"</p> <p>The MIU software has the information.</p>
sysObjectId	The vendor's authoritative identification of the network management subsystem contained in the entity. This value is allocated within the SMI enterprises subtree (1.3.6.1.4.1) and provides an easy and unambiguous means for determining 'what kind of box' is being managed.	Read-only	<p>.1.3.6.1.4.1.3855.3.1</p> <p>Defined as enSysObjectIDs</p> <p>Elastic Networks is assigned the subtree.1.3.6.1.4.1.3855</p>
sysUpTime	The time (in hundredths of a second) since the network management portion of the system was last re-initialized.	Read-only	The uptime value for the MIU SNMP Agent.
sysContact	The textual identification of the contact person for this managed node, together with information on how to contact this person.	Read-write	<p>Default value is "MIU Contact Name" that will be changed to an appropriate value by the Manager Application.</p> <p>Space provided is 63 bytes.</p>

**The System Group (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
sysName	An administratively assigned name for this managed node. By convention, this is the node's fully qualified domain name.	Read-write	Default value is "MIU Contact Name" that will be changed to an appropriate value by the Manager Application. Space provided is 63 bytes.
sysLocation	The physical location of this node.	Read-write	Default value is "MIU Location" that will be changed to an appropriate value by the Manager Application. Space provided is 63 bytes.
sysServices	<p>A value that indicates the set of services that this entity primarily offers.</p> <p>The value is a sum. This sum initially takes the value zero. Then, for each layer, L, in the range 1 through 7, that this node performs transactions for, 2 raised to (L - 1) is added to the sum. For example, a node that performs primarily routing functions would have a value of 4 (<math>2^{(3-1)}</math>). In contrast, a node that is a host offering application services would have a value of 72 (<math>2^{(4-1)} + 2^{(7-1)}</math>).</p> <p><b>Note that in the context of the Internet suite of protocols, values should be calculated accordingly:</b></p> <p>Layer Functionality:</p> <p>Layer 1 - physical (e.g., repeaters)</p> <p>Layer 2 - datalink/subnetwork (e.g., bridges)</p> <p>Layer 3 - internet (e.g., IP gateways)</p> <p>Layer 4 - end-to-end (e.g., IP hosts)</p> <p>Layer 7 - applications (e.g., mail relays)</p> <p>* For systems including OSI protocols, Layers 5 and 6 may also be counted.</p>	Read-only	The 1900 MIU shelf will perform Layer 1 (physical) and Layer 2 functionality only. So the number would be $2^{(1-1)} + 2^{(2-1)} = 3$

**The System Group (continued)**

Variable	Description	Accessibility	Implementation
sysServices	<p>A value that indicates the set of services that this entity primarily offers.</p> <p>The value is a sum. This sum initially takes the value zero. Then, for each layer, L, in the range 1 through 7, that this node performs transactions for, <math>2^{L-1}</math> is added to the sum. For example, a node that performs primarily routing functions would have a value of 4 (<math>2^{3-1}</math>). In contrast, a node that is a host offering application services would have a value of 72 (<math>2^{4-1} + 2^{7-1}</math>).</p> <p><b>Note that in the context of the Internet suite of protocols, values should be calculated accordingly:</b></p> <p>Layer Functionality:</p> <p>Layer 1 - physical (e.g., repeaters)</p> <p>Layer 2 - datalink/subnetwork (e.g., bridges)</p> <p>Layer 3 - internet (e.g., IP gateways)</p> <p>Layer 4 - end-to-end (e.g., IP hosts)</p> <p>Layer 7 - applications (e.g., mail relays)</p> <p>* For systems including OSI protocols, Layers 5 and 6 may also be counted.</p>	Read-only	<p>The 1900 MIU shelf will perform Layer 1 (physical) and Layer 2 functionality only. So the number would be <math>2^{1-1} + 2^{2-1} = 3</math></p>

**Table 6: The Interface Group**

The Interface Group			
Variable	Description	Accessibility	Implementation
IfNumber	The number of network interfaces (regardless of their current state) present on this system.	Read-only	The total number of interface on the MIU shelf. The 1900 MIU shelf will have the Network Interfaces, such as: <ul style="list-style-type: none"> <li>• 2 x MIU ports</li> <li>• N x 100BaseT Ethernet ports (where N is the number of processors on the shelf)</li> <li>• n x EtherLoop lines on the CO modems</li> </ul>
IfTable	A list of interface entries. The number of entries is given by the value of ifNumber.		
IfIndex	A unique value for each interface. Its value ranges between 1 and the value of ifNumber. The value for each interface must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization.	Read-only	This will range from 1 to the total number of interfaces on the MIU.
IfDescr	A textual string containing information about the interface. This string should include the name of the manufacturer, the product name and the version of the hardware interface.	Read-only	The Interface description will be one of the following types: <ul style="list-style-type: none"> <li>• MIU ENET (X) Port</li> <li>• BitStorm xxx Server, slot n, unit m, ENET Port y</li> <li>• BitStorm xxx Server, slot n, unit m, HDLC Port x</li> </ul>
IfType	The type of interface, distinguished according to the physical/link protocol(s) immediately 'below' the network layer in the protocol stack. Please see RFC1213 for an enumeration of the possible values.	Read-only	The interface type does comply with any of the standard enumerated types. Type is 'Other' {1}.
IfMtu	The size of the largest datagram that can be sent/received on the interface, specified in octets. For interfaces that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the interface.	Read-only	The largest size of Ethernet frame, 1518 bytes. The largest size of HDLC frame, for EtherLoop interface is 1522 bytes.

**The Interface Group (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
IfSpeed	An estimate of the interface's current bandwidth in bits per second. For interfaces that do not vary in bandwidth or for those where no accurate estimation can be made, this object should contain the nominal bandwidth.	Read-only	The bandwidth for the Ethernet interface would be 10/100 Mbps For the EtherLoop interface, the current bandwidth can be determined from the modulation and symbolrate for the maximum trained speed. The extents <i>GetPortInfo (GeneralOp)</i> and <i>GetModemSpeedInfo (SpeedOp)</i> can be used to determine the bandwidth.
IfPhysAddress	The interface's address at the protocol layer immediately 'below' the network layer in the protocol stack. For interfaces that do not have such an address (e.g., a serial line), this object should contain an octet string of zero length.	Read-only	For EtherLoop and Ethernet Interfaces on the Line cards, it is the MAC address of the CO modem. The CO MAC addresses can be retrieved by a broadcast extent <i>RWMacAddr (MemoryOp)</i> . For the MIU port, it is the MAC address of the MIU.
IfAdminStatus	The desired state of the interface. The testing(3) state indicates that no operational packets can be passed. <ul style="list-style-type: none"> <li>• up(1) – ready to pass packets</li> <li>• down(2)</li> <li>• testing(3) – in some test mode</li> </ul>	Read-write	The desired status is up (1) by default. It is a settable attribute and so can be changed on Manager request. The EtherLoop interface status may be changed (enable/disable) by the extent <i>EnablePort (MultiportOp)</i> . There is no implementation for changing the Ethernet interface status (enable/disable). The status testing (3) is not applicable.
IfOperStatus	The current operational state of the interface. The testing(3) state indicates that no operational packets can be passed. <ul style="list-style-type: none"> <li>• up(1) – ready to pass packets</li> <li>• down(2)</li> <li>• testing(3) – in some test mode</li> </ul>	Read-only	The EtherLoop interface status is the <i>PortEnabled</i> value as returned by the extent <i>GetPortInfo (GeneralOp)</i> . The Ethernet interface status is the <i>EnetLinkStatus</i> value as returned by the extent <i>GetModemInfo (GeneralOp)</i> . The status testing (3) is not applicable.

**The Interface Group (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
IfLastChange	The value of sysUpTime at the time the interface entered its current operational state. If the current state was entered prior to the last re-initialization of the local network management subsystem, then this object contains a zero value.	Read-only	Initially 0 for all interfaces. If an interface changes its state, it will indicate the time for which the interface has been in that state.
IfInOctets	The total number of octets received on the interface, including framing characters.	Read-only	For the EtherLoop interface, it is the value of <i>receive_bytes (HDLCRxBytes)</i> as returned by the extent <i>GetPortInfo (GeneralOp)</i> .  For the Ethernet interface, it is the value of <i>receive_byte_count (EnetRxByteCount)</i> as returned by the extent <i>GetModemInfo (GeneralOp)</i> .
IfInUcastPkts	The number of subnetwork-unicast packets delivered to a higher-layer protocol.	Read-only	Not applicable.
IfInNUcastPkts	The number of non-unicast (i.e., subnetwork-broadcast or subnetwork-multicast) packets delivered to a higher-layer protocol.	Read-only	Not applicable.
IfInDiscards	The number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.	Read-only	For the EtherLoop interface, it is the value of <i>discard_frames (HDLCDiscard Frames)</i> as returned by the extent <i>GetPortInfo(GeneralOp)</i> .  Not implemented for the Ethernet interface.
IfInErrors	The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.	Read-only	For the EtherLoop interface, it is the value of <i>received_retries (HDLCRxRetries)</i> as returned by the extent <i>GetPortInfo (GeneralOp)</i> .  For the Ethernet interface, it is the value of <i>receive_errors (EnetRxErrors)</i> as returned by the extent <i>GetModemInfo (GeneralOp)</i> .
IfInUnknownProtos	The number of packets received via the interface that were discarded because of an unknown or unsupported protocol.	Read-only	Not applicable.

**The Interface Group (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
IfOutOctets	The total number of octets transmitted out of the interface, including framing characters.	Read-only	For the Ethernet interface it is the value of <i>Enet_Userbytes</i> returned by the extent <i>GetModemInfo(GeneralOp)</i> .  For the EtherLoop interface no extent is implemented that can be applied to the CO modem port. However, it is the same as <i>Enet_Userbytes</i> returned by the extent <i>GetModemInfo(GeneralOp)</i> when applied to the CPE modem connected at the EtherLoop port.
IfOutUcastPkts	The total number of packets that higher-level protocols requested be transmitted to a subnetwork-unicast address, including those that were discarded or not sent.	Read-only	Not applicable.
IfOutNUcastPkts	The total number of packets that higher-level protocols requested be transmitted to a non-unicast (i.e., a subnetwork-broadcast or subnetwork-multicast) address, including those that were discarded or not sent.	Read-only	Not applicable.
IfOutDiscards	The number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.	Read-only	Not implemented.
IfOutErrors	The number of outbound packets that could not be transmitted because of errors.	Read-only	For the EtherLoop interface, it is the value of <i>transmit_retries (HDLCtxRetries)</i> as returned by the extent <i>GetPortInfo(GeneralOp)</i> .  For the Ethernet interface, it is the value of <i>transmit_errors (EnetTxErrors)</i> as returned by the extent <i>GetModemInfo(GeneralOp)</i> .
IfOutQLen	The length of the output packet queue (in packets).	Read-only	Not implemented.

<b>The Interface Group (continued)</b>			
<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
IfSpecific	A reference to MIB definitions specific to the particular media being used to realize the interface. For example, if the interface is realized by an Ethernet, then the value of this object refers to a document defining objects specific to Ethernet. If this information is not present, its value should be set to the OBJECT IDENTIFIER { 0 0 }, which is a syntactically valid object identifier, and any conformant implementation of ASN.1 and BER must be able to generate and recognize this value.	Read-only	Not Implemented.

## EtherLoop Modem MIB

All the object names defined in this MIB start with 'enEloop'. In order to save space in the Variable column, and give more space to the Description column, the prefix 'enEloop' is stripped off.

**Table 7: The EnEloopShelf Group**

<b>The EnEloopShelf Group</b>			
<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
ShelfStatus	<p>The operational status of the shelf.</p> <ul style="list-style-type: none"> <li>• green(1) indicates normal operation.</li> <li>• yellow(2) indicates at least one minor alarm is present.</li> <li>• red(3) indicates at that at least one major alarm is resent.</li> </ul> <p>This value corresponds to the status LED on the front of this shelf.</p>	read-only	Not implemented in Release 1.

**The EnEloopShelf Group (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
ShelfCurrentAlarms	<p>A bitmask of all current alarm conditions. The value is a sum. For a shelf with no alarms, the value is zero. For each alarm condition, the value of that alarm is added to this value. The values are:</p> <ul style="list-style-type: none"> <li>• downAlarm (1) – MIU has detected that the shelf is not responding.</li> <li>• tempAlarm (2) – The shelf has detected a temperature higher than specifications allow.</li> <li>• ps1Alarm (4) – The shelf has detected that the voltage of power supply #1 is not within tolerance.</li> <li>• ps2Alarm (8) – The shelf has detected that the voltage of power supply #1 is not within tolerance.</li> <li>• psAlarm (16) – The shelf has detected that the voltage of power supply #1 is not within tolerance.</li> </ul>	read-only	Not implemented in Release 1.
ShelfTemp	The current temperature of the shelf in degrees C	read-only	Not implemented in Release 1.
ShelfVideoProtectMode	If this value is on (1), Video Protect Mode is on for all Etherloops on this shelf	read-write	<p>This would be obtained from or written to the MIU flash memory.</p> <p>On changing the value, <i>RWSymbolRateLimit</i> extent would be sent to all BS6306 modems.</p>
EnableShelfTraps	If a trap destination is configured and this value is on (1), traps are sent for this shelf	read-write	This would be obtained from or written to the MIU flash memory.
EnableCOModemIfTraps	If a trap destination is configured and this value is on (1), traps are sent for CO modem interfaces	read-write	This would be obtained from or written to the MIU flash memory.
EnableCPEModemTraps	If a trap destination is configured and this value is on (1), traps are sent for CPE modem	read-write	This would be obtained from or written to the MIU flash memory.

## The EnEloop CO Modem Interface Group

**Table 8: The CO Modem Interface Statistics Table**

The CO Modem Interface Statistics Table			
Variable	Description	Accessibility	Implementation
COMdmIfStatsIfIndex	The index for each CO modem Etherloop interface. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CO modem Etherloop interface	read-only	This maps to the <i>IfIndex</i> of the IfTable.
COMdmIfCurrentTxSpeed	The speed level at which the CO modem is transmitting on this interface	read-only	This would be obtained from the extent <i>GetPort Info (GeneralOp)</i> .
COMdmIfCurrentRxSpeed	The speed level at which the CO modem is receiving on this interface	read-only	This would be obtained from the extent <i>GetPort Info (GeneralOp)</i> .
COMdmIfUpTime	The time, in tenths of a second, that the CO modem for this interface has been up	read-only	This would be obtained from the extent <i>Get ModemInfo/SysUpTime (GeneralOp)</i> .
COMdmIfTheoreticalTxSpeed	The theoretical speed, in bits per second, at which the CO modem can transmit on this interface	read-only	This theoretical speed can be calculated based on the <i>TxSpeed</i> level (as mentioned above) and the modulations supported by the modem.
COMdmIfTheoreticalRxSpeed	The theoretical speed, in bits per second, at which the CO modem can receive on this interface	read-only	This theoretical speed can be calculated based on the <i>RxSpeed</i> level (as mentioned above) and the modulations supported by the modem.
COMdmIfMaxTxTrndSpeed	The maximum transmit speed level at which the CO modem has trained on this interface	read-only	This would be obtained from the extent <i>GetPort Info (GeneralOp)</i> .
COMdmIfMaxRxTrndSpeed	The maximum receive speed level at which the CO modem has trained on this interface	read-only	This would be obtained from the extent <i>GetPort Info (GeneralOp)</i> .

The CO Modem Interface Statistics Table (continued)			
Variable	Description	Accessibility	Implementation
COMdmIfLocalLQF	The locally measured Line Quality Factor of the Etherloop line	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfRemoteLQF	The Line Quality Factor of the HDLC link as measured by the remote CPE modem	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfFreeBufferCount	The current count of free buffers for this CO modem interface	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
COMdmIfApparentDistance	The apparent distance, in 1000 ft units, detected on the Etherloop	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .

**Table 9: The CO Modem Interface Configuration Table**

The CO Modem Interface Configuration Table			
Variable	Description	Accessibility	Implementation
COMdmIfConfigIfIndex	The index for each CO modem EtherLoop. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CO modem EtherLoop	read-only	This maps to the <i>IfIndex</i> of the <i>IfTable</i> .
COMdmIfFirmwareRev	The firmware revision for this CO modem interface	read-only	This is obtained from the extent <i>Capabilities (GeneralOp)</i> . However, this would be obtained only at the Initialization time and saved as static data in the memory.
COMdmIfCurModulation	The modulation currently in use on this interface	read-only	This is obtained from the extent <i>Capabilities (GeneralOp)</i> . However, this would be obtained only at the Initialization time and saved as static data in the memory.

**The CO Modem Interface Configuration Table (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
COMdmIfSpeedCount	The number of speeds supported by CO modem interface. This is also the number of entries in the enEloopCOMdmIfSpeed-Table	read-only	This is obtained from the extent <i>GetModemInfo (GeneralOp)</i> . It is obtained only at the Initialization time and saved as static data in the memory.
COMdmIfBlockBroadcast	If Broadcasts are enabled, the modem will pass them out the port	read-write	This would be obtained/changed by the extent <i>ProvisionModem (GeneralOp)</i> .
COMdmIfRecurTrngDelay	The interval, in seconds, between training bursts. The default is 4 for 6224/12:1 and 1 for all other modems	read-only	This would be obtained from the extent <i>ProvisionModem (GeneralOp)</i> .
COMdmIfForceHighSpeed	If this object is Enabled, then this modem interface will always run at maximum speed	read-write	This would be obtained/changed by the extent <i>ProvisionModem (GeneralOp)</i> .
COMdmIfModemRev	The modem hardware revision number	read-only	This would be obtained from the extent <i>Capabilities (GeneralOp)</i> .
COMdmIfModemBTEQRev	The modem hardware BTEQ revision number	read-only	This would be obtained from the extent <i>Capabilities (GeneralOp)</i> .
COMdmIfClearStats	If clear(2) is written to this object, the counters on this interface and the associated Ethernet port are set to 0 and a ??? trap is sent. Reading this object always returns a value of normal(1)	read-write	Setting this variable would send out the extent <i>ClearStatistics (GeneralOp)</i> .
COMdmIfTrapStatus	If the value of this object is trapsOn(1), then all traps for this CO modem interface will be sent.  If the value of this object is trapsOff(2), then no traps for this CO modem interface will be sent.	read-write	This would be read from or written to the MIU's flash memory.

The CO Modem Interface Configuration Table <i>(continued)</i>			
Variable	Description	Accessibility	Implementation
enEloopCOMdmIfReset	If resetPort (2) is written to the object, it forces the port to reset and begin power-on training. If resetModem (3) is written to the object, it forces the modem corresponding to the port to perform a cold restart. A read of the variable, if exists will always return normal (1).	read-write	The read operation returns 1 if the interface is active. The write operation of: <b>1</b> will do nothing <b>2</b> will cause a ResetPort extent to be sent to the corresponding port, and a COModemIfResetPortEvent trap be sent to the defined trap destinations. <b>3</b> will cause a ResetModem extent to be sent to the corresponding modem, and a COModemIfResetEvent trap be sent to the defined trap destinations.

**Table 10: The CO Modem Speed Table**

The CO ModemSpeed Table			
Variable	Description	Accessibility	Implementation
COMdmIfSpeedIfIndex	The primary index of this table. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CO modem Etherloop interface	read-only	This maps to the <i>IfIndex</i> of the <i>IfTable</i> corresponding to the EtherLoop/ Etherloop port.
COMdmIfSpeed	The speed level for this table entry. This is the secondary index of this table.	read-only	This is the speed level that will range from 0 to the max speed value. The max number of speeds is already discussed in the <i>CoModemConfigTable</i> , this is obtained at the initialization time.
COMdmIfRxGain	Receiver Gain	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfTxAtten	Transmitter Attenuation	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .

The CO ModemSpeed Table (continued)			
Variable	Description	Accessibility	Implementation
COMdmIfPreamp		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfRxTrainingCount	Receiver	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfTxTrainingCount	Transmitter	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfRxRetrains	Receiver Retrain #	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfTxRetrains	Transmitter Retrain #	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfRemoteTxAtten	CPE Transmitter Attenuation	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
COMdmIfSymbolRate	The symbol rate used at this speed level on this port	read-only	This would be obtained from the extent <i>GetModemSpeedInfo (SpeedOp)</i> . <b>Note: This may be changed to get the symbol rate from a static table.</b>
COMdmIfModulation	The modulation scheme used at this speed level on this port	read-only	This would be obtained from the extent <i>GetModemSpeedInfo (SpeedOp)</i> . <b>Note: This may be changed to get the modulation from a static table.</b>

**Table 11: The CO Modem Spectrum Manager Table**

The CO Modem Spectrum Manager Table			
Variable	Description	Accessibility	Implementation
COMdmIfSpecMgrIfIndex	The index for each CO modem EtherLoop. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CO modem EtherLoop	read-only	This would map to the ifIndex of the ifTable.
COMdmIfSpecMgrLogIntOps	If this object is set to on(1), then logging of the Spectrum Manager internal operations will be done	read-write	This would be obtained/changed by the extent <i>SpectrumManagerState (SpectrumMgrOp)</i>
COMdmIfSpecMgrMode		read-write	This would be obtained/changed by the extent <i>SpectrumManagerState (SpectrumMgrOp)</i>
COMdmIfSpecMgrAction	Action taken most recently	read-only	This would be obtained/changed by the extent <i>SpectrumManagerState (SpectrumMgrOp)</i>
COMdmIfSpecMgrInterval	Wake up interval, in seconds, for detection	read-write	This would be obtained/changed by the extent <i>SpectrumManagerState (SpectrumMgrOp)</i>
COMdmIfSpecMgrDetectSvc	Service detected most recently	read-only	This would be obtained from the extent <i>SpectrumManagerState (SpectrumMgrOp)</i>
COMdmIfSpecMgrComp-Mode	The equipment with which this modem can co-exist on the Etherloop	read-write	Not implemented as of now – defined for future use.
COMdmIfSpecMgrTrngMode	The initial training speed pair for this interface	read-write	Not implemented as of now – defined for future use.

## The Enloop CPE Modem Group

**Table 12: The CPE Modem Interface Statistics Table**

The CPE Modem Interface Statistics Table			
Variable	Description	Accessibility	Implementation
CPEMdmStatsIfIndex	The index for each CPE modem. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CPE modem Etherloop interface to which this CPE modem is attached. It has the same value as the corresponding indices of other tables in this MIB	read-only	This would map to the <i>IfIndex</i> of the IfTable.
CPEMdmUpTime	The time, in tenths of a second, that the CPE modem has been up	read-only	This would be obtained from the extent <i>GetModemInfo/SysUpTime (GeneralOp)</i> .
CPEMdmCurrentTxSpeed	The speed level at which the CPE modem is transmitting on this interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmCurrentRxSpeed	The speed level at which the CPE modem is receiving on this interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmTheoreticalTx-Speed	The theoretical speed, in bits per second, at which the CPE modem can transmit on this interface	read-only	This theoretical speed can be calculated based on the Tx Speed level and the modulations supported by the modem.
CPEMdmTheoreticalRx-Speed	The theoretical speed, in bits per second, at which the CPE modem can receive on this interface	read-only	This theoretical speed can be calculated based on the Rx Speed level and the modulations supported by the modem.
CPEMdmEnetTxBytes	The count of bytes transmitted by this modem on the Ethernet interface	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
CPEMdmEnetRxBytes	The count of bytes received by this modem on the Ethernet interface	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .

**The CPE Modem Interface Statistics Table (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
CPEMdmEnetTxFrames	The count of frames transmitted by this modem on the Ethernet interface	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
CPEMdmEnetRxFrames	The count of frames received by this modem on the Ethernet interface	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
CPEMdmEnetTxErrors	The count of frames that could not be transmitted by this modem on the Ethernet interface due to errors	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
CPEMdmEnetRxErrors	The count of frames received by this modem on the Ethernet interface that were discarded due to errors	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
CPEMdmHDLCTxBytes	The count of bytes transmitted by this modem on the Etherloop interface	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
CPEMdmHDLCRxBytes	The count of bytes received by this modem on the Etherloop interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmHDLCTxBlocks	The count of blocks transmitted by this modem on the Etherloop interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmHDLCRxFrames	The count of frames received by this modem on the Etherloop interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmHDLCRxBlocks	The count of HDLC blocks received by this modem on the Etherloop interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmHDLCTxErrors	The count of frames that could not be transmitted by this modem on the Ethernet interface due to errors	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmHDLCRxErrors	The count of frames received by this modem on the Etherloop interface that were discarded due to errors	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmHDLCRetries	The count of Etherloop receive bursts that had to be resent by the remote end	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .

The CPE Modem Interface Statistics Table (continued)			
Variable	Description	Accessibility	Implementation
CPEMdmMaxTxTrndSpeed	The maximum transmit speed level at which the CPE modem has trained on this interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmMaxRxTrndSpeed	The maximum receive speed level at which the CPE modem has trained on this interface	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmLocalLQF	The locally measured Line Quality Factor of the HDLC link	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmRemoteLQF	The Line Quality Factor of the HDLC link as measured by the remote CPE modem	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmFreeBufferCount	The current count of free buffers for this CPE modem interface	read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> .
CPEMdmApparentDistance	The apparent distance, in 1000 ft units, detected on the Etherloop	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .

**Table 13: The CPE Modem Interface Configuration Table**

The CPE Modem Interface Configuration Table			
Variable	Description	Accessibility	Implementation
CPEMdmConfigIfIndex	The index for each CPE modem Etherloop interface. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CPE modem Etherloop interface	Read-only	This maps to the IfIndex of the IfTable.
CPEMdmDescr	A printable text string describing this modem, in the format <hardware>	Read-only	This would be obtained from the extent <i>Capabilities (GeneralOp)</i> . This would be obtained only at initialization time and saved in the memory.

**The CPE Modem Interface Configuration Table (continued)**

<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
CPEMdmEnetIfStatus	The current status of the Ethernet interface on this modem. Setting this object to down(2) causes the Ethernet interface to stop communicating	Read-write	This would be obtained/changed by the extent <i>GetPortInfo/GetStatus (GeneralOp)</i> . (CPEEnetEnabled)
CPEMdmMACAddress	The six byte MAC address of the Ethernet interface of this CPE modem	Read-only	This would be obtained at initialization time and saved in memory.
CPEMdmFirmwareRev	The firmware revision for this CPE modem interface	Read-only	This would be obtained from the extent <i>Capabilities (GeneralOp)</i> . This would be obtained only at initialization time and saved in the memory.
CPEMdmCurModulation	The modulation scheme currently in use on this interface	Read-only	This would be obtained from the extent <i>Capabilities (GeneralOp)</i> . This would be however obtained only at initialization time and saved in the memory.
CPEMdmSpeedCount	The number of speeds supported by CPE modem interface. This is also the number of entries in the enEloopCPEMdmSpeedTable	Read-only	This would be obtained from the extent <i>GetModemInfo (GeneralOp)</i> . This would be however obtained only at initialization time and saved in the memory.
CPEMdmModemRev	The modem hardware revision number	read-only	This would be obtained from the extent <i>Capabilities (GeneralOp)</i> . This would be obtained only at initialization time and saved in the memory.
CPEMdmModemBTEQ-Rev	The modem hardware BTEQ revision number	read-only	This would be obtained from the extent <i>Capabilities (GeneralOp)</i> . This would be obtained only at initialization time and saved in the memory.
CPEMdmReset	If reset(2) is written to this object, this modem is re-booted. A read of this variable, if it exists, always return normal(1).	Read-write	Setting this value to reset (2) will cause the extent <i>ResetModem (GeneralOp)</i> to be sent.

The CPE Modem Interface Configuration Table (continued)			
Variable	Description	Accessibility	Implementation
CPEMdmClearStats	If clear(2) is written to this object, the counters on this interface and the associated Ethernet port are set to 0 and a ??? trap is sent. Reading this object always returns a value of normal(1)	Read-write	Setting this value to clear (2) will cause the extent <i>ClearStatistics (GeneralOp)</i> to be sent.
CPEMdmTrapStatus	If the value of this object is trapsOn(1), then all traps for this CPE modem interface will be sent.  If the value of this object is trapsOff(2), then no traps for this CPE modem interface will be sent.	Read-write	This would be written to or obtained from the MIU's flash memory.

**Table 14: The CPE Modem Speed Table**

The CPE Modem Speed Table			
Variable	Description	Accessibility	Implementation
CPEMdmSpeedIfIndex	The index for each CPE modem. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CPE modem	read-only	This maps to the ifIndex of the IfTable.
CPEMdmSpeed	The speed level for this table entry.  This object is the secondary index of the table.	read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmRxGain		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmTxAtten		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmPreamp		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmRxCount		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .

<b>The CPE Modem Speed Table (continued)</b>			
<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
CPEMdmTxCount		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmRxRetrains		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmTxRetrains		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmRemoteTxAtten		read-only	This would be obtained from the extent <i>GetPortInfo (GeneralOp)</i> .
CPEMdmSymbolRate	The symbol rate used at this speed level on this port	read-only	This would be obtained from the extent <i>GetModemSpeedInfo (SpeedOp)</i> .
CPEMdmModulation	The modulation scheme used at this speed level on this port	read-only	This would be obtained from the extent <i>GetModemSpeedInfo (SpeedOp)</i> .

**Table 15: The CPE Modem Spectrum Manager Table**

<b>The CPE Modem Spectrum Manager Table</b>			
<b>Variable</b>	<b>Description</b>	<b>Accessibility</b>	<b>Implementation</b>
CPEMdmSpecMgrIfIndex	The index for each CPE modem Etherloop interface. This object corresponds to MIB-II ifIndex. It has the same value as the corresponding indices of other tables and uniquely identifies each CPE modem Etherloop interface	read-only	This would map to the ifindex of the IfTable.
CPEMdmSpecMgrLogInt-Ops	If this object is set to on(1), then logging of the Spectrum Manager internal operations will be done	read-write	This would be obtained/changed by the extent <i>SpectrumManager State (SpectrumMgrOp)</i> .
CPEMdmSpecMgrMode		read-write	This would be obtained/changed by the extent <i>SpectrumManager State (SpectrumMgrOp)</i> .
CPEMdmSpecMgrAction	Action taken most recently	read-only	This would be obtained/changed by the extent <i>SpectrumManager State (SpectrumMgrOp)</i> .

The CPE Modem Spectrum Manager Table (continued)			
Variable	Description	Accessibility	Implementation
CPEMdmSpecMgrInterval	Wake up interval, in seconds, for detection	read-write	This would be obtained/changed by the extent <i>SpectrumManager State (SpectrumMgrOp)</i> .
CPEMdmSpecMgrDetect-Svc	Service detected most recently	read-only	This would be obtained/changed by the extent <i>SpectrumManager State (SpectrumMgrOp)</i> .
CPEMdmSpecMgrComp-Mode	The equipment with which this modem can co-exist on the Etherloop	read-write	Not implemented now – for future use.
CPEMdmSpecMgrTrng-Mode	The initial training speed pair for this interface	read-write	Not implemented now – for future use.

## The EnEloopTraps Group

**Table 16: The EnEloop Traps Group**

The EnEloop Traps Group			
Variable	Description	Accessibility	Implementation
COModemIfDownEvent	The CO modem for this interface is down and/or not communicating with the MIU	IfIndex	Detected in poll logic.
COModemIfUpEvent	The CO modem for this interface is up and now communicating with the MIU	IfIndex	Detected in poll logic.
CPEModemEnetDownEvent	The CPE modem Ethernet interface is down, either because there is no attached device, or because enEloopCPEMdmEnetIfStatus was set to down(2).	IfIndex	Not implemented in Release 1.
CPEModemEnetUpEvent	The CPE modem Ethernet interface is up, and there is an attached device	IfIndex	Not implemented in Release 1.
COModemIfClearStats-Event	A request to set enEloopCOModemIfClearStats to clear(2) has been received	IfIndex	Send from the method routine that clears CO statistics.
CPEModemClearStatsEvent	A request to set enEloopCPEModemClearStats to clear(2) has been received	IfIndex	Send from the method routine that clears CPE statistics.

The EnEloop Traps Group (continued)			
Variable	Description	Accessibility	Implementation
CPEModemResetEvent	A request to set enEloopCPEModemReset to reset(2) has been received	IfIndex	Send from the method routine that clears CPE statistics.
ShelfStatusChange	A change in the shelf status has been detected. This corresponds with a change in the enEloopShelfStatus variable and a change of the color of the status LED on the front of the shelf.	ShelfStatus	Not implemented in Release 1.

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